NORTHDALE IN REVIEW:
ASSESSING FIVE YEARS OF CHANGE

FINAL REPORT

Prepared for:
WSP Canada Group Limited

Neighbourhood Anatomy Group

NAG ref.: 2019-PJ-012

April 5, 2019

WSP Canada Group Limited
582 Lancaster Street W
Kitchener, ON N2K 1M3

Attention: Matthew Rodrigues, Planner

Dear Mr. Rodrigues:

Subject: Northdale in Review: Assessing 5-Years of Change
Final Project Report

Neighbourhood Anatomy Group (NAG) is pleased to submit the enclosed Final Project Report. Per our February 6, 2019 proposal, this report satisfies Tasks 3.6 and 3.7 of the agreed upon scope of work. This report is the final deliverable for the above-noted project, and acceptance by WSP Canada Group Ltd. (WSP) represents the closing of this contract.

This report is structured to provide a comprehensive overview of the study analysis process, which includes 27 unique tasks to better understand Northdale's change from 2012 to 2019. These tasks are both qualitative and quantitative in nature, and are supported by site visits, data review, and three-dimensional neighbourhood modelling. From this analysis process, recommendations and conclusions are presented to guide future research and decision-making by WSP and the City of Waterloo.

Thank you for the opportunity to complete this most interesting assignment. If you have any questions, please do not hesitate to contact the undersigned.

Sincerely,

Ben Crooks
Project Manager
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E: NeighbourhoodAnatomy@gmail.com

cc: Yasmin Afshar, Planner / Urban Designer

Disclaimers & Acknowledgements:

The data collection, analysis, conclusions, and recommendations of this report are supported by the most recent and accurate data where available. Neighbourhood Anatomy Group has taken every measure to ensure the accuracy of this report. Limitations and constraints have been acknowledged in the report where applicable. The information contained herein is accurate as of April 5, 2019.

This report was completed by Neighbourhood Anatomy Group, including the following staff:

- Ben Crooks, Project Manager
- Ben Allen, Data & GIS Lead
- Ren Lo, Urban Design Lead
- Ian Search, Policy Lead
- Ritee Haider, Senior Land Use Planner
- Catherine Klebanov, Research Analyst

In addition to the core team, Dr. Markus Moos, PhD, RPP is thanked for his services. Dr. Moos provided his independent academic expertise to guide the project. Neighbourhood Anatomy Group thanks Yasmin Afshar and Matthew Rodrigues of WSP Canada Group Ltd. for their assistance to the project team.

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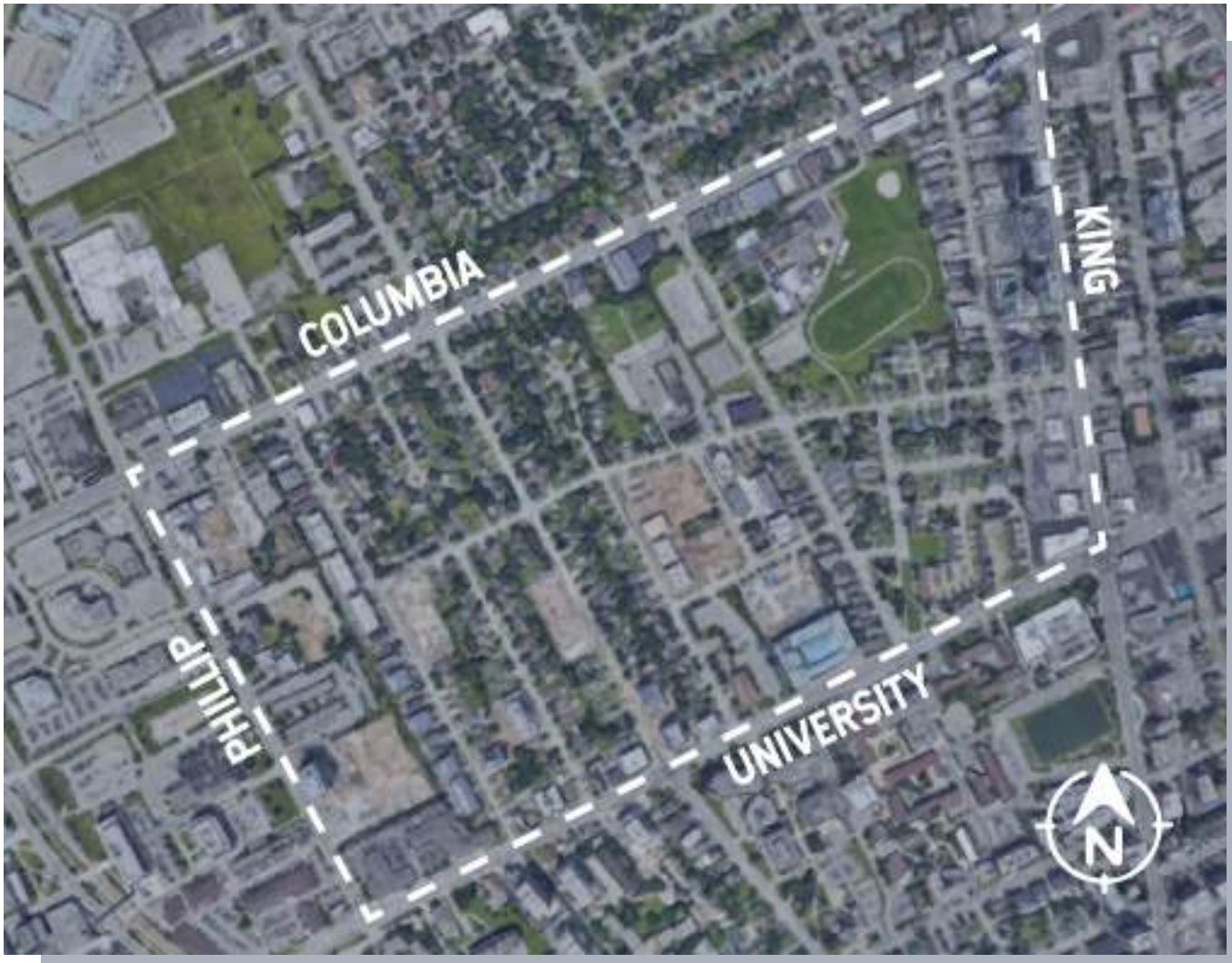


Figure 1: Study Area Map

1.0 INTRODUCTION

WSP Canada Group Ltd. (WSP) retained Neighbourhood Anatomy Group (NAG) on January 29, 2019 to complete the Northdale in Review: Assessing Five Years of Change project. The intent of this project was to analyze, visualize, and report on the change in the Northdale neighbourhood of the City of Waterloo since the adoption of the 2012 Northdale Land Use and Community Improvement Plan Study (the "2012 Northdale Study"). The 2012 Northdale Study was completed by WSP (formerly MMM Group) in 2012. Per WSP's January 7 Request for Proposals and NAG's accepted February 6 proposal, the three project deliverables are the:

- Methodology and Modelling Report: Delivered on February 27.
- Final Project Presentation: Completed on April 1.
- Final Project Report: Delivered on April 5.

The study area is identified in Figure 1, with the analysis of this report limited to the properties within this boundary. The project is scoped to assess activity from 2012 to 2019 (the study period). Included in this report is the background of the study, an overview of the analytical process, findings, and case studies of municipalities with neighbourhoods similar to Northdale. The report culminates in conclusions with respect to the strengths and weaknesses of the 2012 Northdale Study and future recommendations.

2.0 BACKGROUND

The neighbourhood of Northdale is located within the City of Waterloo and is bounded by Columbia Street, Philip Street, University Avenue, and King Street (Figure 1). Northdale's growth began following the cessation of World War II, with the area populated by returning veterans and their families who were housed in new construction projects. The stable family character of the neighbourhood was consistent with the prevailing built form of single-detached houses. Today, Northdale is distinguished within the municipal context by its proximity to two major post-secondary institutions: the University of Waterloo and Wilfrid Laurier University. The growth of both institutions from the 1980s to today has resulted in an increasing student population in the neighbourhood, with this growth accomodated in converted single-detached dwellings and higher-density development projects.

The City of Waterloo retained WSP (formerly MMM Group) in 2011 to complete the Northdale Land Use and Community Improvement Plan Study. This study was initiated in response to the issues of growth being experienced in Northdale, which had implications for the neighbourhood character and livability. Such issues include rental property upkeep, parking, the conversion of existing dwellings, and new higher-density developments. As the existing municipal planning system was inadequate to address these growth pressures, the 2012 Northdale Study included a vision and guiding principles for the neighbourhood, a Land Use Plan and amendments for its implementation, a Community Improvement Plan, and Urban Design / Built Form Guidelines.

Right: Post-war veterans housing juxtaposed with new high-rise development (Severin, 2017)

The volume of development being directed to Northdale is significant. A total of 417 building permit applications were received by the City of Waterloo from 2012, after the adoption of the 2012 Northdale Study, to 2019. The total estimated value of these projects was over $718 million. Of these 417 building permits, 58 were for the construction of new structures with a total estimated value of $676 million. This included high-profile projects such as the Lazaridis School of Business ($72 million), Icon ($58 million), and Sage 2 ($40 million). The rate of new development experienced during the study period represents a significant opportunity to evaluate the success of the implementation of the 2012 Northdale Study.

3.0 STUDY PROCESS

The expansiveness of the 2012 Northdale Study necessitated that NAG adopt a focused approach by addressing the indicators that most clearly address the implementation of the study. NAG structured the study process into the following five steps:

BACKGROUND RESEARCH

1

NAG reviewed all available documentation to gain a thorough understanding of the 2012 Northdale Study. Specifically, NAG studied the vision and ten guiding principles as these elements overarch the entirety of the study.

CRITERIA LIST

2

For each of the ten principles, NAG proposed one or more criteria that bridged the gap between the high-level principle and an actionable analysis task. These 24 criteria were supported by research of similar policy analysis exercises and academic literature. WSP provided feedback which was incorporated in the criteria list (Appendix A).

METHODOLOGY & MODELLING REPORT

3

This report, submitted as the mid-project deliverable, outlined the analysis tasks that are completed in this report. Each task flowed from one of the mid-level criteria with an increased level of specificity. This report is included in Appendix B.

ANALYSIS

4

Through a combination of site visits, primary and secondary data review, and qualitative and quantitative methods, a total of 27 analysis tasks were completed (Section 4.0).

FINAL PROJECT REPORT

5

This report documents the analysis process and findings, and to make recommendations to guide future change in Northdale.

Figure 2: Study Process Flow Diagram

Due to the volume of development activity in Northdale during the study period, it was not feasible to assess all developments in each analysis task. In consultation with WSP, a representative sample of developments was prepared to make generalizable statements about the broader neighbourhood (Figure 3). The representative sample includes 22 developments advanced from 2012 to 2019. The list was developed using the following criteria:

- All projects that required a Zoning By-law Amendment were included.
- At least one Site Plan Approved development was included from each land use zone.
- An effort was made to include developments on all streets, except for the following streets where no development occurred during the study period: Hazel Street, Fir Street, Maple Court, State Court, Beech Street, and State Street.
- Although there were new developments on Hickory Street, the front yards for these developments have been identified as other streets including Lester Street and Balsam Street.

3.0 STUDY PROCESS (con't)

REPRESENTATIVE PROPERTY SAMPLE

1	300-330 Phillip Street (Icon)
2	250-256 Phillip Street
3	110 University
4	64 University
5	333 King Street
6	1 Columbia Street
7	253 Albert Street
8	222 Albert Street
9	250 Albert Street
10	288-294 Albert Street
11	336-338 Albert Street
12	318 Spruce Street
13	321 Spruce Street
14	253-255 Lester
15	280 Lester
16	255 Sunview
17	250-254 Sunview
18	287-289 Hemlock Street
19	297-299 Hemlock Street
20	251 Hemlock Street
21	272 Larch Street
22	62 Balsam Street

Figure 3: Map of Representative Property Sample

4.0 ANALYSIS FINDINGS

The findings of the analysis section are structured as shown in Table 1. For each task, the analysis process, results, and key findings are described, as well as any limitations.

Table 1: Analysis Structure

SECTION	2012 STUDY PRINCIPLE	ANALYSIS TASKS
4.1	1 - Integrated	1-1: Public Transit Service 1-2: Active Transportation Infrastructure 1-3: Transportation Network Connectivity
4.2	2 - Diverse	2-1: Diversity of Land Uses 2-2: Diversity of Household Composition 2-3: Diversity of Built Form 2-4: Demographic Diversity 2-5: Diversity of Housing Tenure
4.3	3 - Identifiable	3-1: Urban Design Guideline Consistency 3-2: Frontage Improvements
4.4	4 - Supported	4-1: Public and Institutional Investment 4-2: Core Area Infrastructure
4.5	5 - Memorable	5-1: Retention of Mature Trees 5-2: Development Urban Design Assessment
4.6	6 - Interactive	6-1: Amenity Areas 6-2: Street Typology
4.7	7 - Durable	7-1: Leadership in Energy and Environmental Design (LEED) Certification 7-2: Sustainable Strategies in New Development
4.8	8 - Safe	8-1: Crime Prevention Through Environmental Design (CPTED) 8-2: Police Reported Occurrences
4.9	9 - Flexible	9-1: Unit Bedroom Composition 9-2: Convertible Street Frontage Guidelines
4.10	10 - Collaborative	10-1: Multi-Stakeholder Partnerships 10-2: Section 37 Agreements
4.11	Policy Analysis	11-1: Official Plan Amendments 11-2: Zoning By-law 2018-050 11-3: Zoning By-law Amendments

4.1 Integrated

It is envisioned that Northdale will be integrated within the urban fabric of Waterloo and the surrounding community, including the University of Waterloo and Wilfrid Laurier University. To assess this principle, Northdale's public transit service, active transportation infrastructure, and overall network connectivity are analyzed.

Analysis Task 1-1: Public Transit Service

The 2012 Northdale Study identified an improved public transportation network as a key process in supporting the preferred dense and diverse urban land use development typology along the perimeter of the study area.

GTFS STOP-TIME ANALYSIS

GTFS (General Transit Feed Specification) is a standardized data format used by public transportation agencies to publish transit information for use in a variety of software applications. Agencies regularly update this data, which includes items such as stop locations, route geometry, and stop times. Archived historical versions are often made available online. Querying GTFS data can allow users to derive a variety of other statistics not explicitly included by the transit agency. Counts were taken of the number of buses scheduled to arrive at stops within or on the boundary of the study area during a full Monday to Friday work week in November 2013 and 2018. A sum of the counts for every Northdale stop provides an indication of overall service levels, as seen in Table 2.

Table 2: Weekday Transit Service Frequency Comparison

Weekday Stops	
2013	5307
2018	5907
% Change	**-11.30%**

The results of this analysis, summarized in Table 2, indicate that bus service decreased by approximately 11.3 percent between 2013 and 2018. This result is not consistent with the annual service growth target of 5.8 percent set by Grand River Transit (GRT) in their 2017-2021 business plan. That figure represents total service hours across the entire GRT network, and not specifically Northdale, but nevertheless, this result should be taken cautiously. In terms of actual service changes, it is possible that the discontinuation of 'School Special' services to Waterloo Collegiate Institute could be responsible for part of this decline. Further, changes to the GTFS data format standards that occurred during the study period may have skewed the analysis. Prior to those changes, there may have been redundant stop-time records included in the GRT feed. With this in mind, it is difficult to conclude based on these results that bus service to Northdale improved or worsened during the study period.

EXISTING TRANSPORTATION ACCESS

Figure 4 shows transportation assets in the study area, including the location of GRT stops and the 800-metre catchment areas of future ION Light Rail Transit (LRT) stations. 47 percent of the neighbourhood is within a rapid transit station area (0.312 / 0.660 km2). 100 percent of the study area is within 500m of any transit stop. The locations of the majority of these stops have not changed since 2011.

FUTURE TRANSIT EXPANSIONS

The current GRT Business Plan estimates that service hours will increase by 5.8 percent annually through to 2021, although it is not specified where these hours will be deployed. Therefore, it is unclear to which degree Northdale will benefit. When the ION LRT launches in 2019, overall service is expected to to decrease as a result of buses in the central transit corridor being restructured to avoid service redundancy with the rapid transit service. When this happens, the Route 7 Mainline branches that service the University of Waterloo on University Avenue and Columbia Road will be discontinued. Buses from these branches will partly be redistributed to other routes which will help to minimize the overall loss of service in these corridors.

A “streamlined Route 7” operating on King street will provide the east side of the study area with 10-minute or better peak and mid-day bus service to Conestoga Mall and Downtown Kitchener. This route will serve as a transit alternative for the half of Northdale that is not within the 800-metre ION catchment area. Additionally, the 201 and 202 iExpress routes operating on Columbia Street and University Avenue, respectively, will continue to see service improvements and increased peak and mid-day frequency

Key Findings

- A GTFS analysis could not conclusively demonstrate that bus service to Northdale increased or decreased over the study period. However, the analysis did indicate a slight decline and further study is recommended.
- The entirety of the neighbourhood is within 500 metres of one or more GRT stops, and approximately half of the study area is within 800 metres of an ION LRT station.
- Substantial future transit improvements are planned after the opening of the ION LRT system

4.1 Integrated (con't)

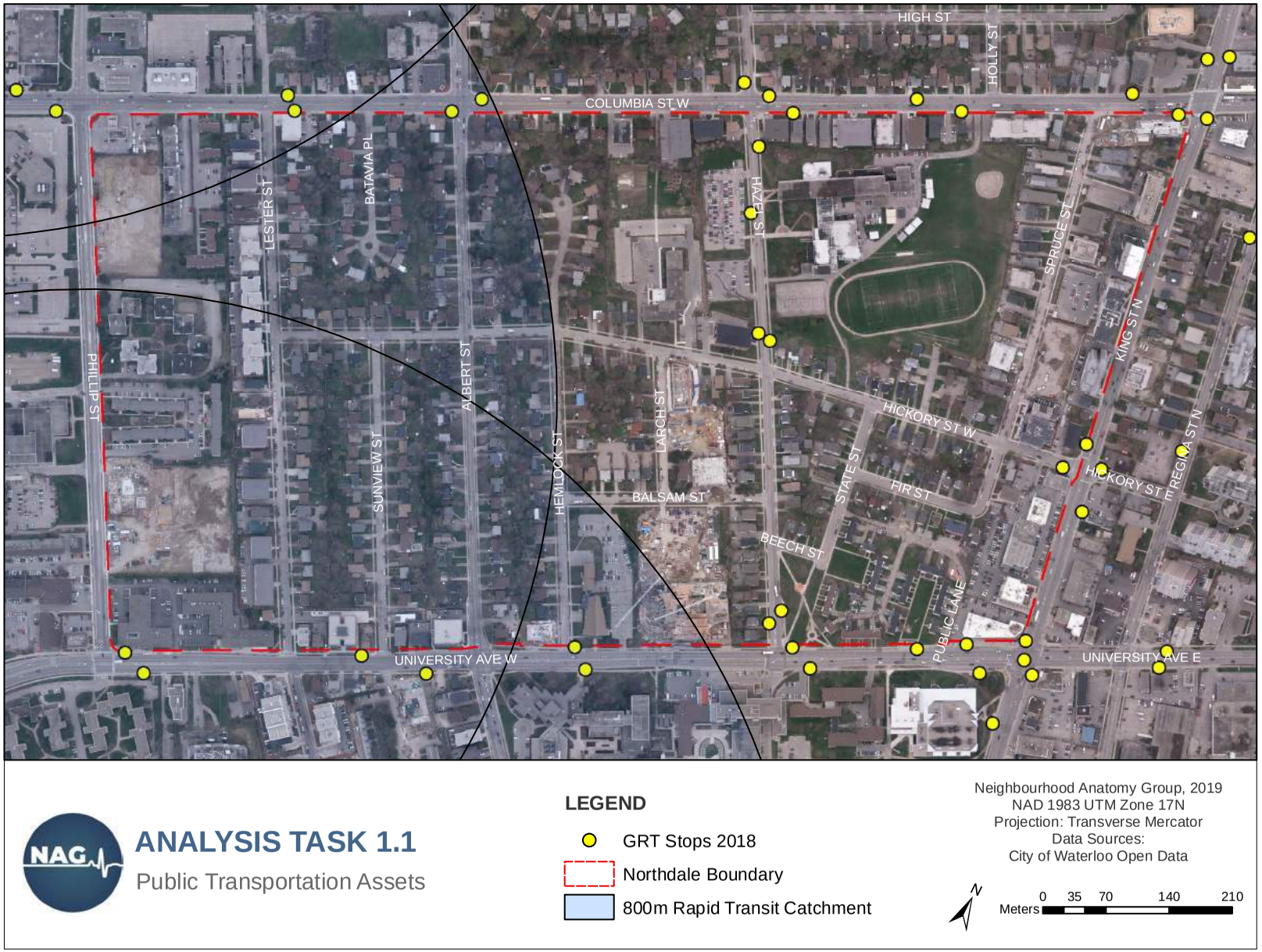


Figure 4: Map of Public Transportation Assets

4.1 Integrated (con't)

Analysis Task 1-2: Active Transportation Infrastructure

Existing active transportation assets in the study area, including cycling infrastructure, bicycle parking, trails, and sidewalks, were identified and are described in Table 3 and shown in Figure 6.

Table 3: Existing Active Transportations Assets

EXISTING ASSETS	DESCRIPTION
Cycling Infrastructure	University Avenue and Columbia Street both have painted bike lanes in both directions, for a total of 2,200 metres. There are no other public designated bike infrastructure in Northdale, although the low traffic speeds on most of the side streets should contribute to a higher cyclist comfort level. The City of Waterloo identifies Columbia Street as a major active transportation route.
Bicycle Parking	The City owns five bicycle racks on the Waterloo Collegiate Institute (WCI) property. These are the only public bicycle parking assets in the study area, but there are likely racks on private property not captured in this audit.
Trails	450 metres of designated trails are located in the study area, but only two trail segments are outside Veterans Green. Trails outside of the park serve the purpose of providing rear yard access to WCI and the Wilfrid Laurier University property at 66 Hickory Street.
Sidewalks	Counting sidewalk on both sides of all roads - and including the perimeter roads of University, Columbia, Philip and King - there are 16,000 metres of sidewalk in the study area out of a possible 17,400 metres. Only Batavia Place, the northernmost portion of Hemlock Street, and the public land between University Avenue and State Street do not have sidewalks. Larch Street has sidewalks only on its west side.

FUTURE ASSETS

The City of Waterloo has recently announced plans for a 5-kilometer network of physically separated cycle tracks, to be implemented in the summer of 2019. Columbia Street, University Avenue, and King Street bordering Northdale will all receive upgrades to their cycling infrastructure, although the final designs have not yet been released (Figure 5). There are no other funded plans for public improvements to active transportation infrastructure in the study area.

4.1 Integrated (con't)

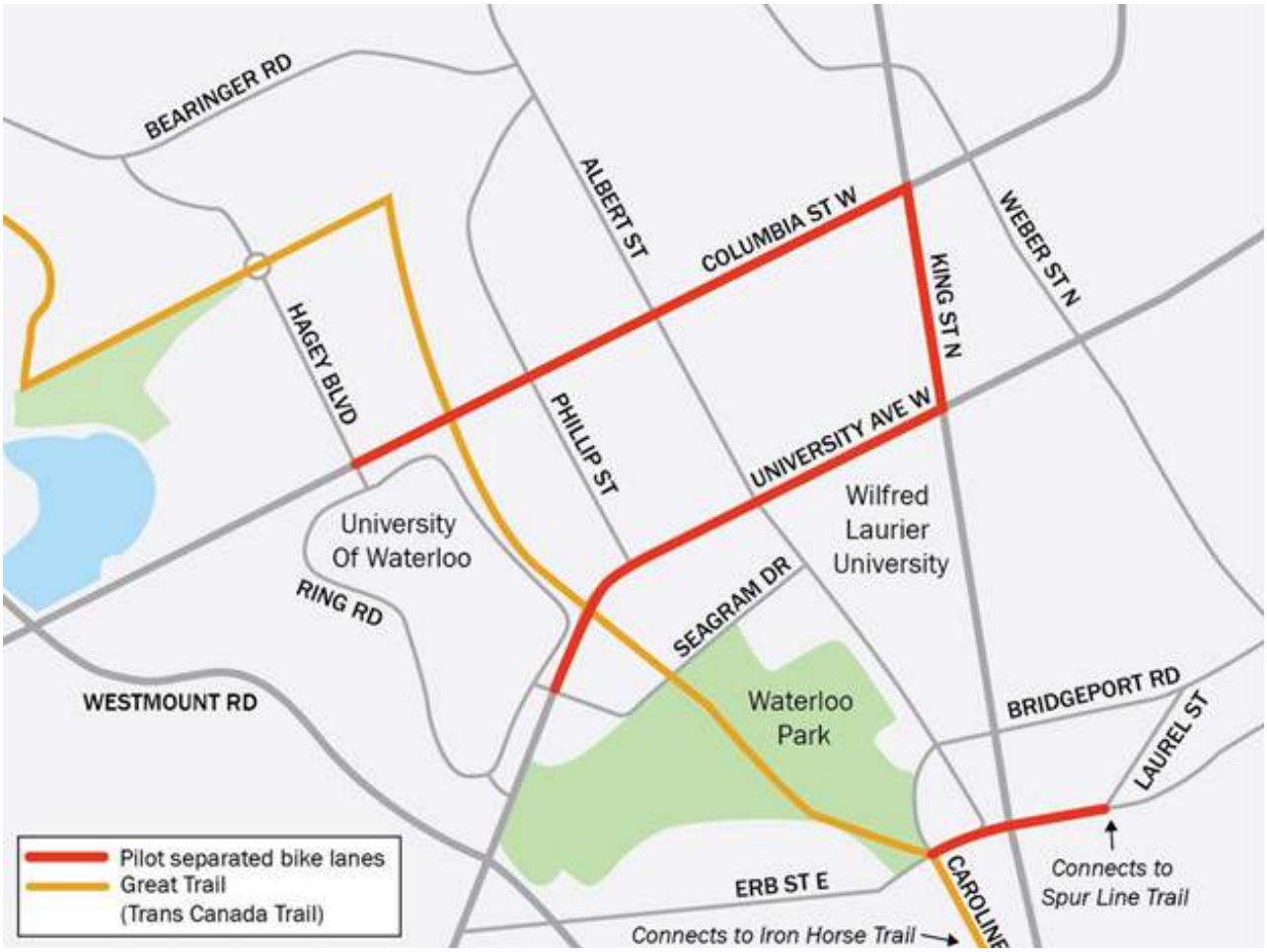


Figure 5: Planned cycling infrastructure upgrades for the summer of 2019

Key Findings

- Northdale has a mostly-complete sidewalk inventory and new developments have done a good job of either preserving existing sidewalks or adding to them where they did not previously exist.
- Publicly provisioned bicycle parking is lacking in the neighbourhood, with only five racks provided by the City of Waterloo at one location (WCI).
- The connectivity of the multi-use trail network in Northdale could be substantially improved to better integrate the neighbourhood with the surrounding active transportation network.
- Active transportation routes through Northdale have not materialized, however the protected cycle-tracks planned for King, University, and Columbia will help to improve the network around the perimeter of the study area.

4.1 Integrated (con't)

Figure 6: Map of Active Transportation Assets

4.1 Integrated (con't)

Analysis Task 1-3: Transportation Network Connectivity

Connectivity refers to the directness of links and the density of connections in a road network. A well-connected neighbourhood will have many short links, numerous intersections, and minimal dead-ends. Better connectivity creates shorter travel distances, more route options, and is an essential feature of an integrated, accessible transportation network, especially for active transportation users who benefit significantly from having direct route options.

To measure the connectivity of the Northdale street network, an analysis method called "Intersection Density" was employed. This method is typically used to measure the connectivity of a street network, but for this project was adapted to include off-street multi-use trails as well. The method involves assigning 'links' and 'nodes' to the transportation network and measuring the density of true nodes per unit area. The Northdale transportation network was divided into:

- ***Links:*** Road or path segments that connect nodes.
- ***'True' Nodes:*** The point of intersection of two or more links where each link connects to another node.
- ***'False' Nodes:*** The point of intersection of two or more links where at least one link does not connect to another node.

The assignment of nodes to the Northdale network can be seen in Figure 7. The results of the analysis are summarized in Table 4. It was found that no improvement has been made to intersection density, and thus connectivity, over the study period. No additional mid-block crossings or through-road connections have been added.

Table 4: Intersection Density Analysis Results

TRUE NODES	FALSE NODES	AREA (m2)	INTERSECTION DENSITY (TRUE NODES / km2)
30	8	659,523	45.5

Key Findings

- Northdale's intersection density is 45.5 'true nodes' per kilometer square.
- No improvement has been made to intersection density, and thus connectivity, over the study period. No additional mid-block crossings or through-road connections have been added.

4.1 Integrated (con't)

Figure 7: Map of Assigned Nodes in Northdale

4.2 Diverse

The second principle of the 2012 Northdale Study calls for the neighbourhood to become diverse, vibrant, and provide a mixed range of uses. Diversity is assessed through analyses of: land use mix, household composition, built form, demographics, and housing tenure.

Analysis Task 2-1: Diversity of Land Uses

The study area has historically been defined a predominantly residential area, with limited commercial plazas at its southeast and southwest boundaries. Section 5.1 of the 2012 Northdale Study calls for an increased mix of land uses that include commercial, retail, office, and institutional uses in addition to the existing residential uses.

A comprehensive neighbourhood land use assessment was completed to capture the start and end of the study period, using historical (2009-2012) and current (2017-2018) Google StreetView imagery, respectively. Each property was categorized into one of four land uses:

- Residential
- Non-Residential: Includes commercial, retail, and office uses.
- Mixed-Use: A Non-Residential use in the same building as a Residential use.
- Institutional: A religious institution, public property, or education-related facility.

The findings of this analysis are reported in Table 5 and are shown in Figures 8 and 9. Through the comparison of the 2012 and 2019 land use mixes, the most significant change is the increasing proportion of mixed-use development. Institutional and non-residential land uses were stable throughout the study period, although redevelopment did occur (e.g. the redevelopment of the former school site for the Wilfrid Laurier University Lazaridis School).

Table 5 - Land Use Survey Analysis

	2012		2019	
	Parcel Count	*Proportion*	*Parcel Count*	*Proportion*
Residential	454	97%	424	91%
Non-Residential	7	1%	7	1%
Mixed-Use	0	0%	30	6%
Institutional	6	1%	6	1%
Total	467	100%	467	100%

In addition to the neighbourhood land use survey exercises, building permit applications for the study area from 2012 to 2019 were categorized according to the land uses noted above. From Table 6, the predominant land use for new development was residential. New commercial development was advanced solely through mixed-use projects in the podiums of new residential

towers, however the analyzed building permits do not include additions or renovations to buildings in existing commercial plazas. Therefore, approximately one quarter of residential projects include a mixed-use component.

Table 6 - Building Permit Land Use Data, 2012-2019

	Count	Proportion
Residential	36	71%
Non-Residential	0	0%
Mixed-Use	14	27%
Institutional	1	2%
Total	51	100%

LIMITATIONS

The neighbourhood land use assessment relies on Google StreetView imagery which has not been updated since 2017 or 2018 in certain areas. This may result in the under-representation of projects and land uses advanced since then. The assessment does not account for the total floor area of each use, which would be a more accurate indicator of proportional land use mix.

Key Findings

- Commercial development is occurring predominantly as mixed-use in approximately one quarter of residential projects.
- Residential projects are the predominant form of new development, and are occurring through the consolidation and redevelopment of low-density residential properties.
- Mixed-use projects are becoming increasingly common in the study area.
- Institutional and commercial land uses were stable throughout the study period.
- The increasing diversity of land uses in Northdale is consistent with the 2012 Northdale Study.

4.2 Diverse (con't)

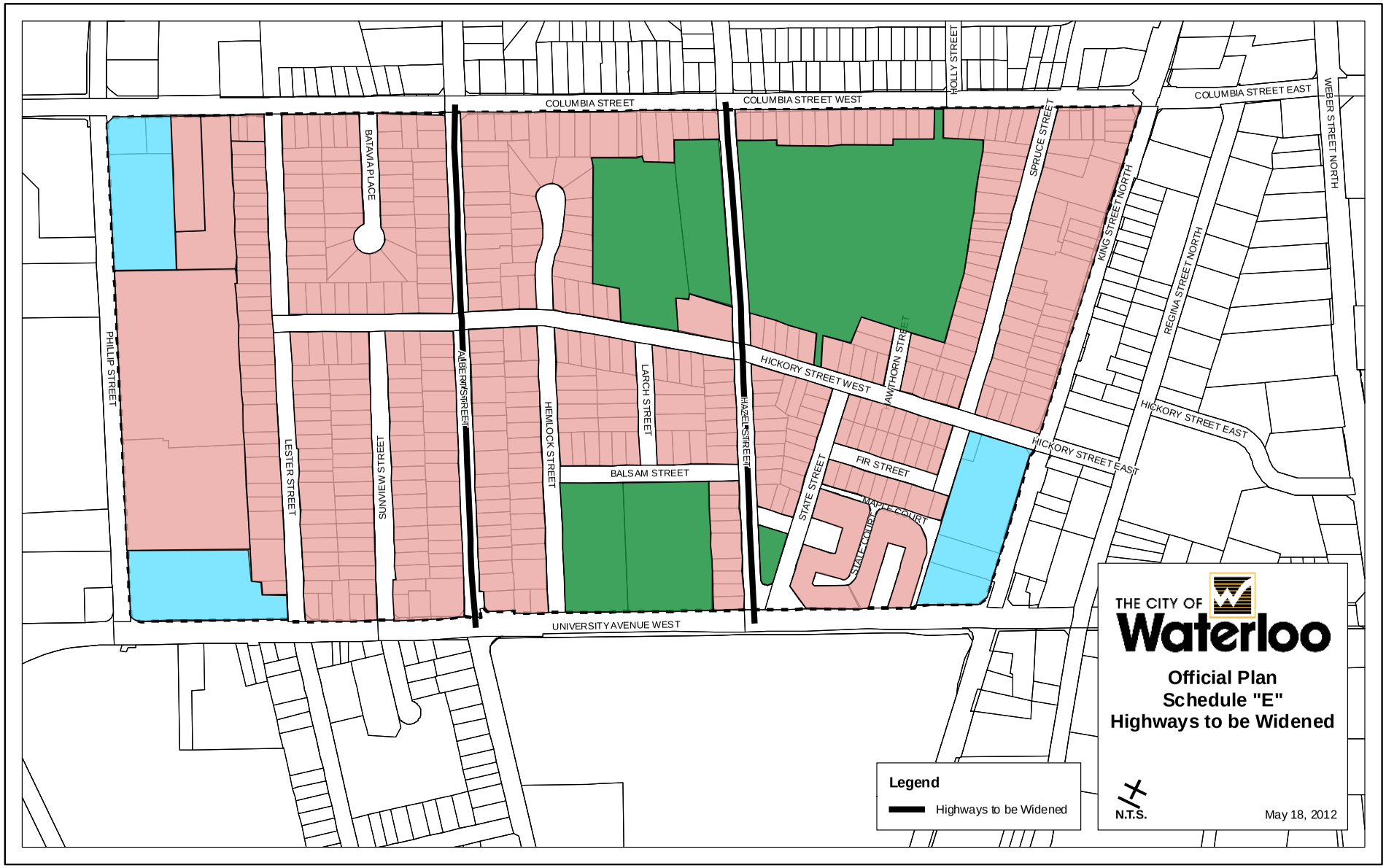


Figure 8: 2012 Land Use Map

4.2 Diverse (con't)

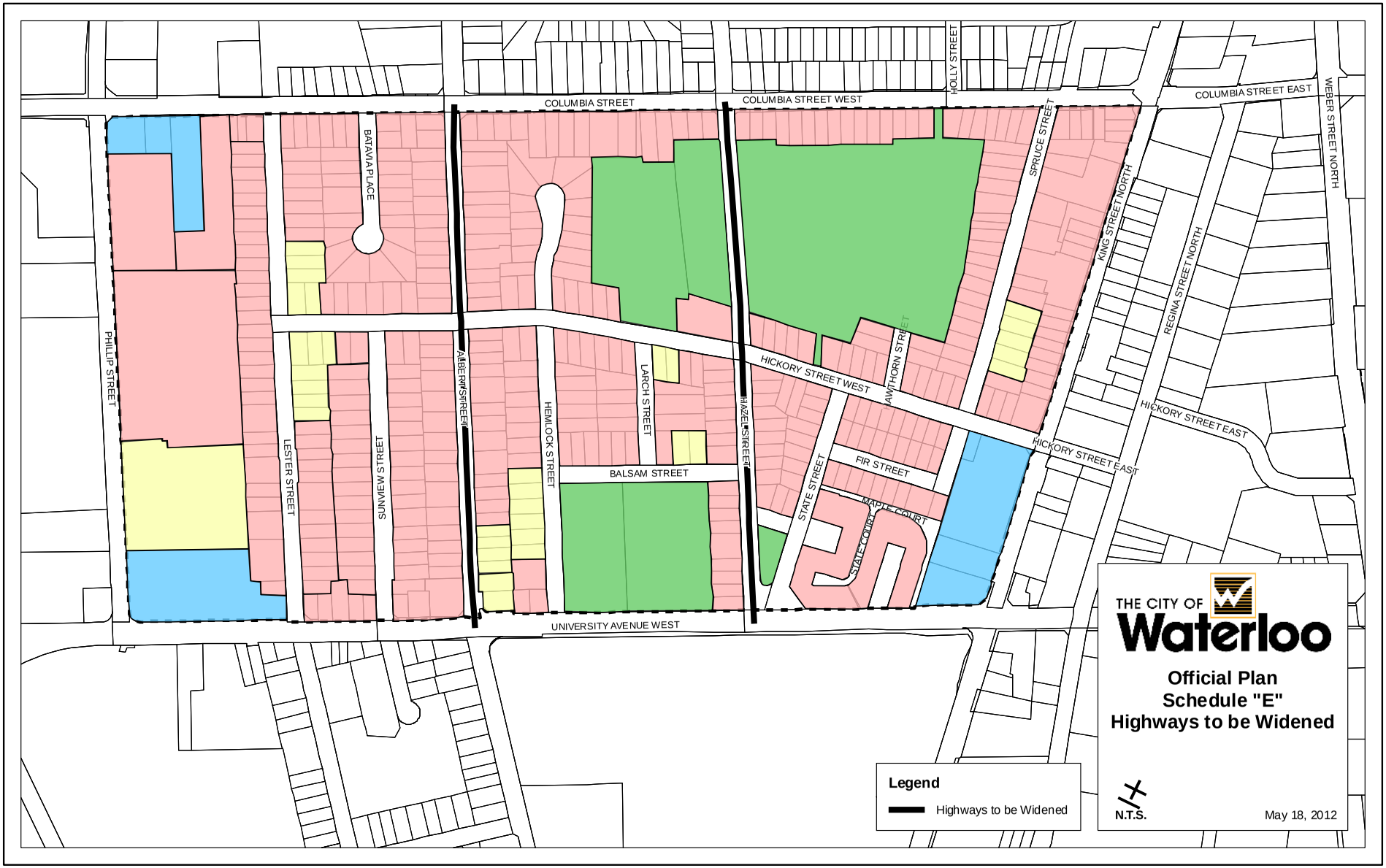


Figure 9: 2018 Land Use Map

4.2 Diverse (con't)

Analysis Task 2-2: Diversity of Household Composition

Figures 10 to 13 display changes in household composition in Northdale over the study period. Based on location quotients relative to the City of Waterloo, the bar graphs display changes in the following household composition indicators:

1. Families with or without children;
2. Census families versus non-census families;
3. Age cohorts; and,
4. Marital status.

The graphs do not show any significant changes, meaning that the population ratios in these four categories have remained fairly stable during the study period, indicating that the neighbourhood is still heavily student-based. Location quotients for young adults, non-census and non-married families, and families without children remain disproportionately large, with the extreme case being a 5.64 quotient for adults aged 20-24 (Figure 12). Other notable trends include the location quotient decrease from 0.69 to 0.14 for 65+ age cohort.

Although the 2012 Northdale Study acknowledges that the neighbourhood should remain largely student-oriented, the observed trends show little to no change in household composition, which means that policies have not been successful in bringing young professionals, and especially families and children, to Northdale.

Right: An example of mixed-use development that became increasingly common during the study period - 280 Lester Street (Severin, 2017)

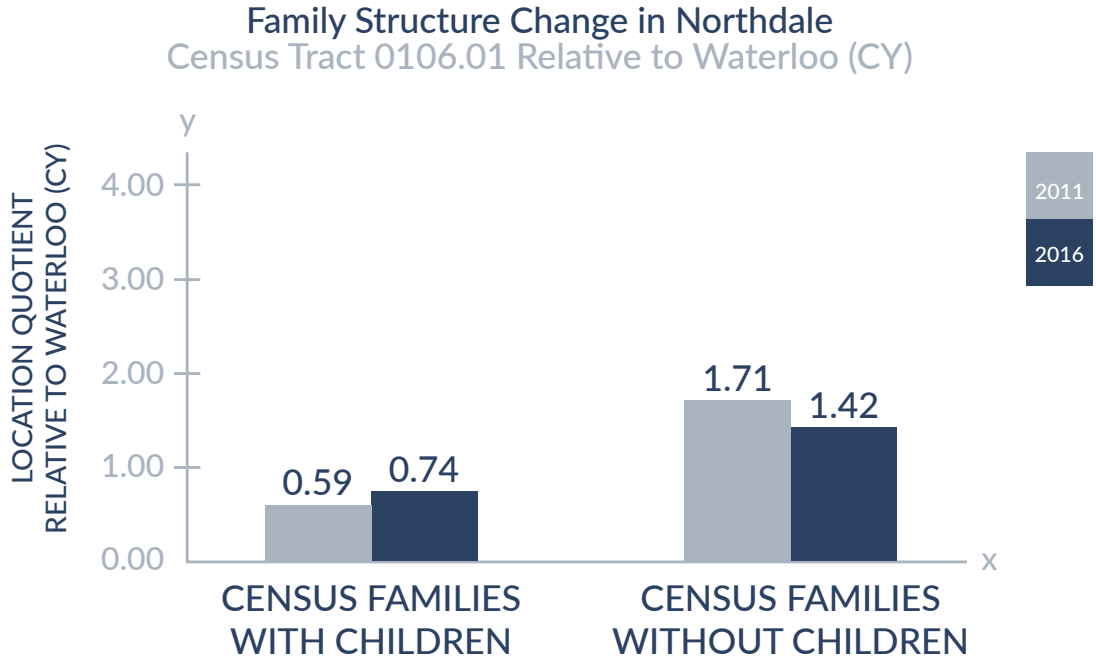
LIMITATIONS

Given the high mobility of the student population and high proportion of sub-leases, census data is subject to reliability issues. For a more complete assessment, door-to-door surveys could be completed, both in the summer, when tenancy is lower, and in the fall, when most students are present. Further, the smallest census geographic area available for both 2011 and 2016 was a census tract. The extent of the census tract used for these calculations reaches beyond the boundaries of Northdale, and therefore the data is not exclusive to Northdale. However, the two regions also counted in the tract include Waterloo Park and a residential neighbourhood that is also home to many students, therefore the findings should not be overly skewed.

Key Findings

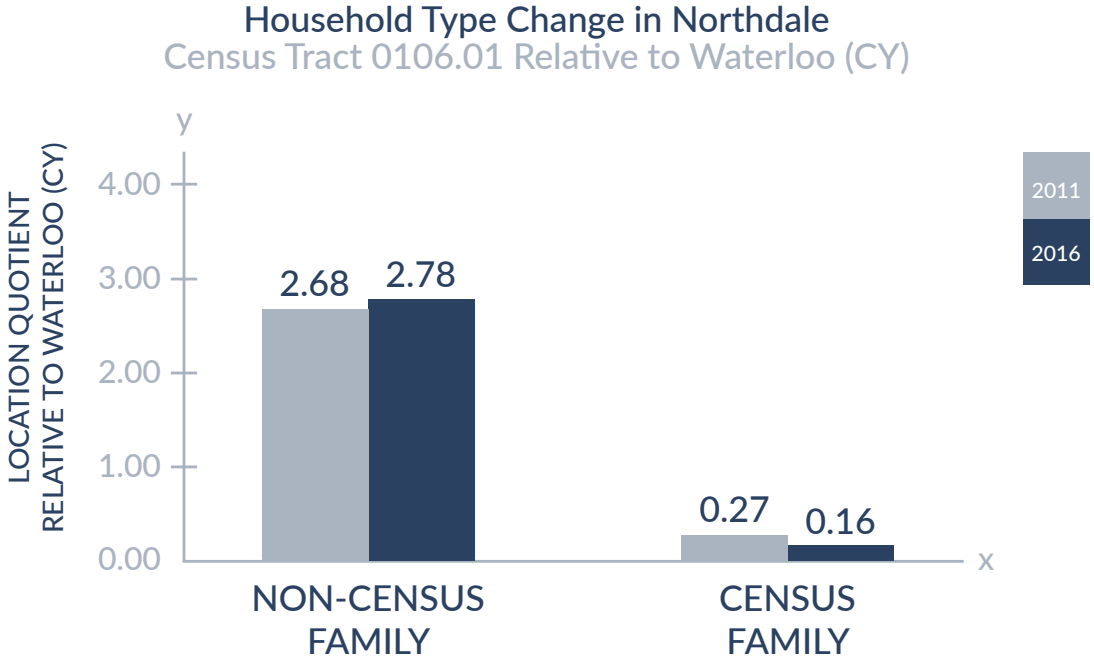
- There has not been a significant change in household composition as measured by families with or without children; census families versus non-census families, age cohorts, and marital status.
- Analysis shows gradual increases in the student population, and gradual reductions in families, children, and seniors

4.2 **Diverse** (con't)



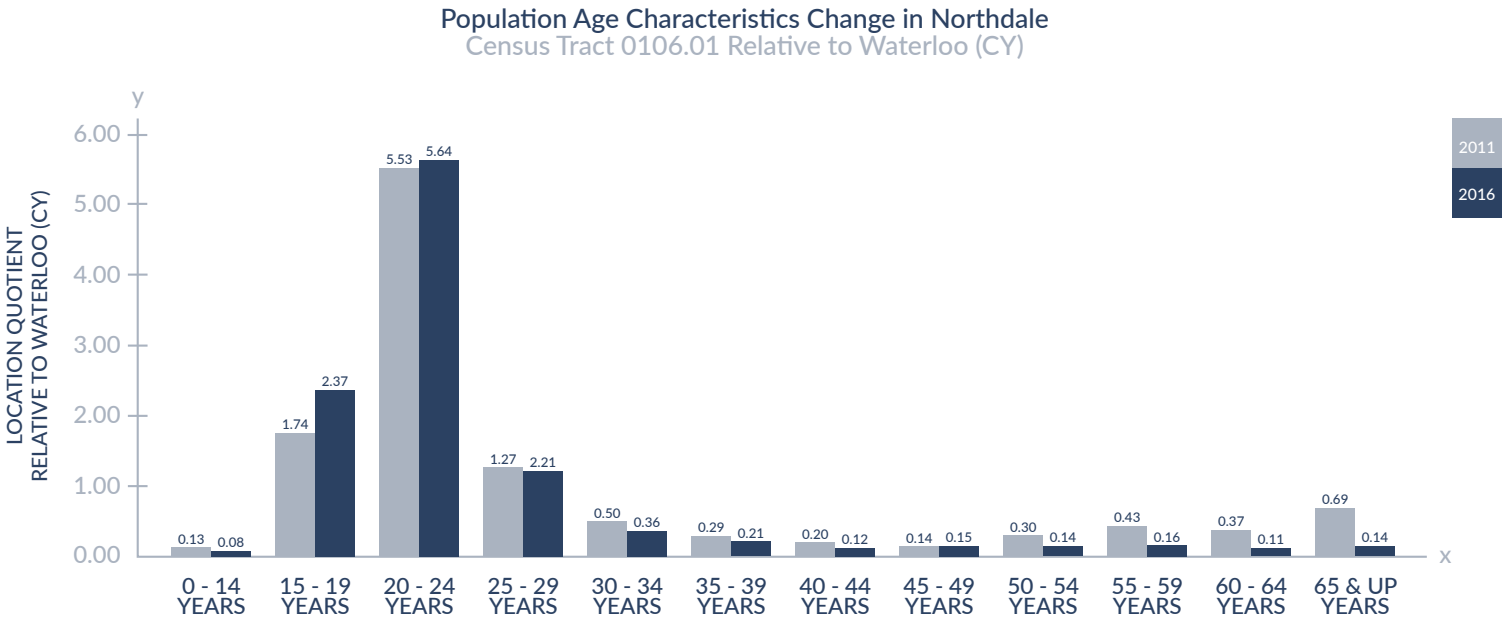
Based on data from Statistics Canada 2011 and 2016 Census profiles.

Figure 10: Graph of Family Structure Change



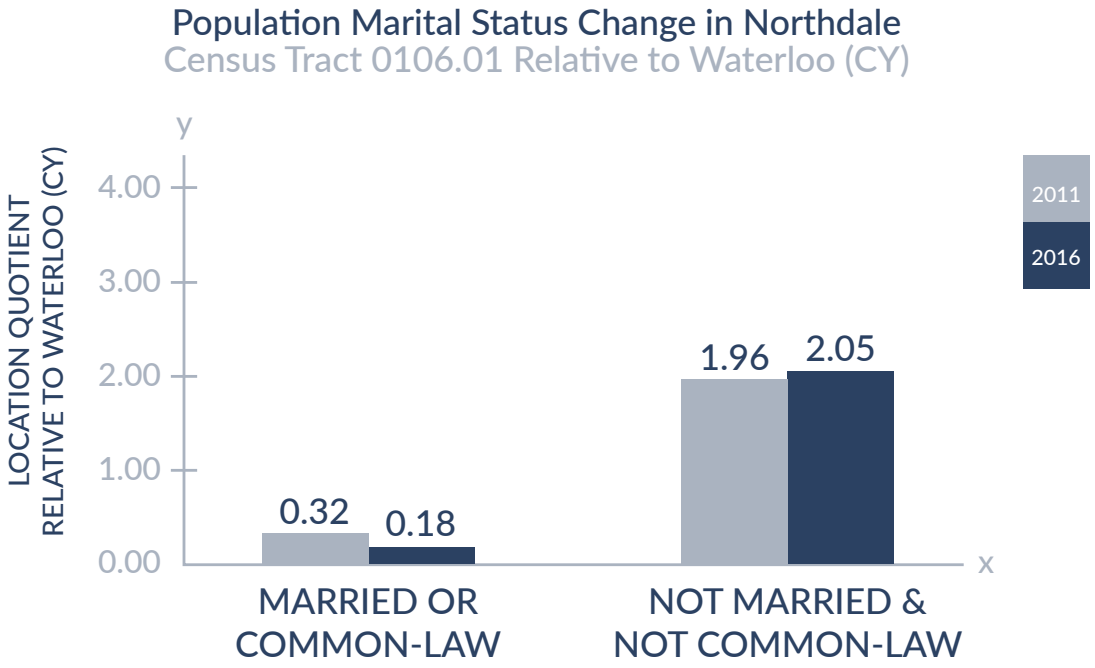
Based on data from Statistics Canada 2011 and 2016 Census profiles.

Figure 11: Graph of Household Type Change



Based on data from Statistics Canada 2011 and 2016 Census profiles.

Figure 12: Graph of Population Age Cohort Change



Based on data from Statistics Canada 2011 and 2016 Census profiles.

Figure 13: Graph of Marital Status Change

4.2 Diverse (con't)

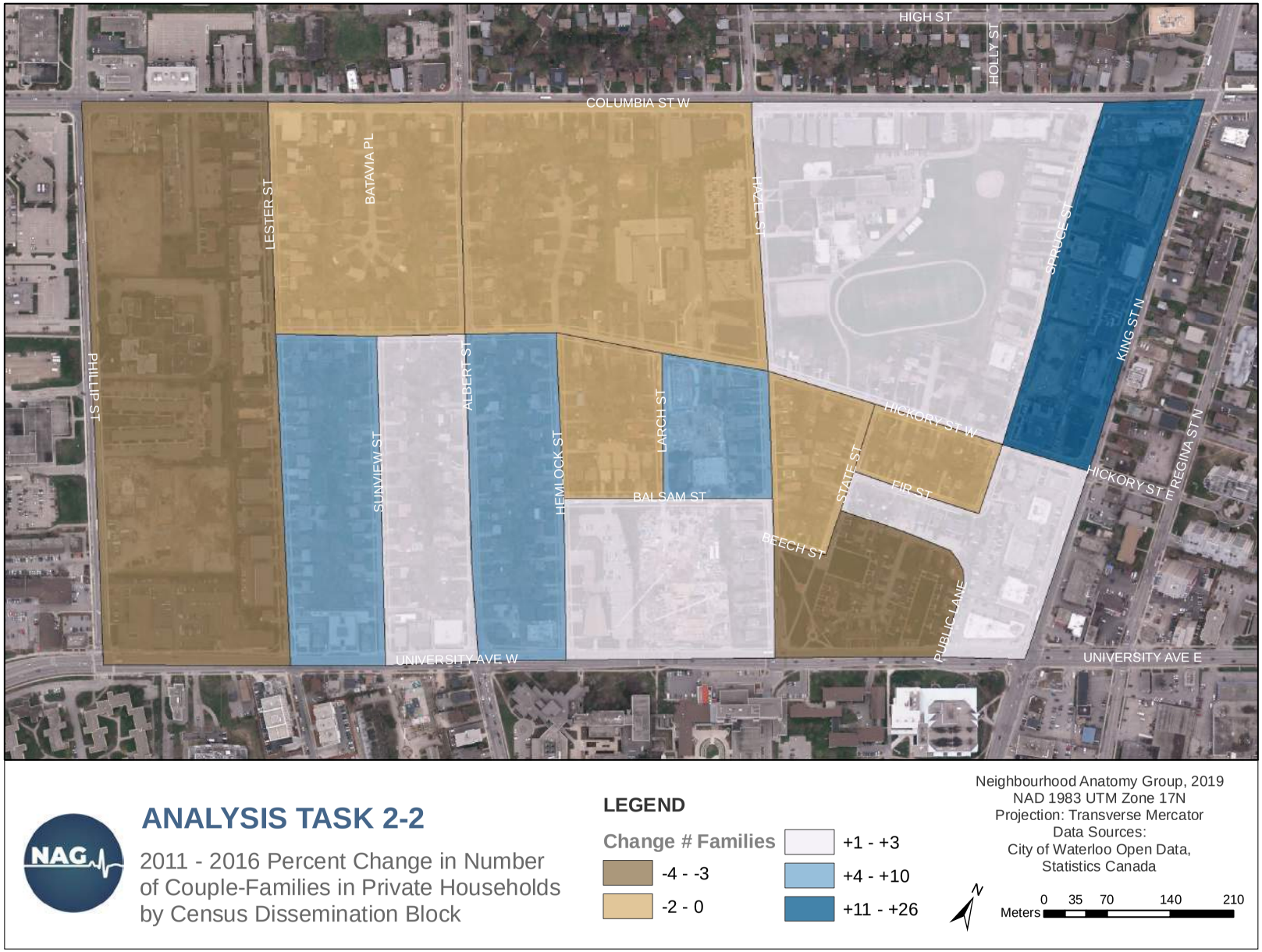


Figure 14: Map of Household Change in Northdale

4.2 Diverse (con't)

Analysis Task 2-3: Diversity of Built Form

Northdale has historically been characterized by its homogenous built form, featuring a predominance of single-detached dwellings formerly occupied by families and later converted into student rental properties. The vision of Northdale becoming a diverse neighbourhood encompasses variation in its built form. Specifically, Section 5.1 of the 2012 Northdale Study envisions building types ranging from townhouses to mid-rise apartment buildings and higher density housing.

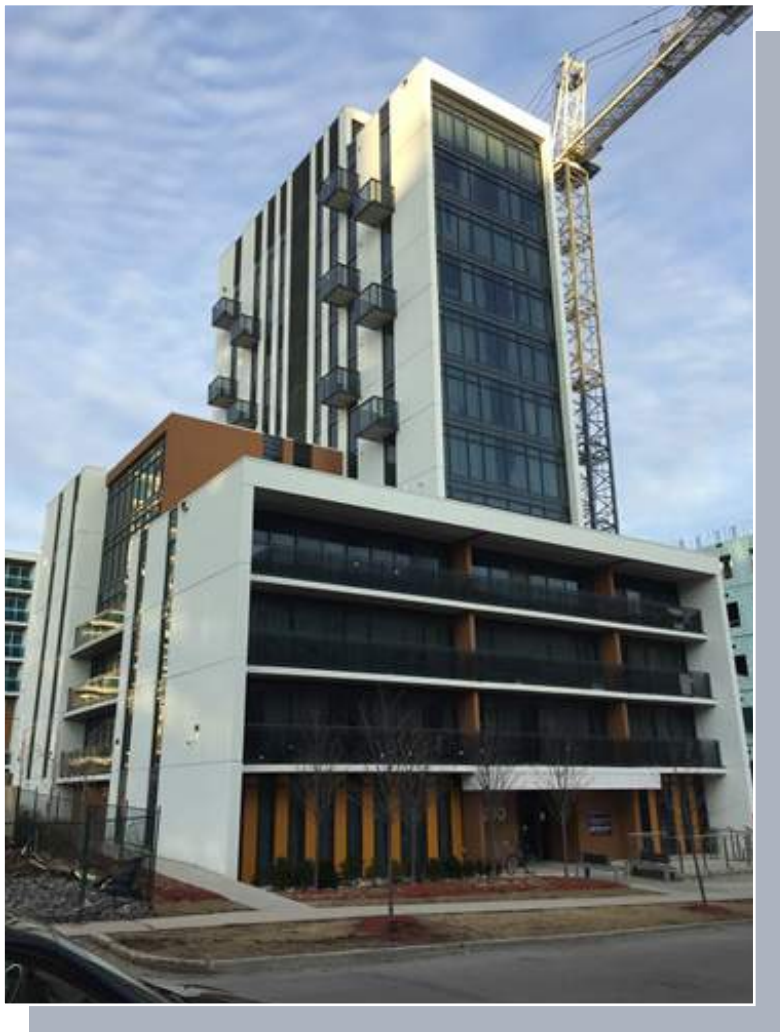
City of Waterloo Building Permit data was analyzed for the study area from 2008 to 2019. Building permit data was used instead of development application records due to gaps in the availability of Site Plan Control files and the possibility for developments to proceed as-of-right without a Zoning By-law Amendment. Only applications for new development were retrieved, excluding other common categories such as minor additions, demolitions, and canopy work. Additionally, building permit applications for accessory structures and garages were excluded. Low-rise, mid-rise, and high-rise apartments are categorized as 1 to 6, 7 to 12, and 13 or more storeys, respectively.

Table 7 - Building Permit Built Form Data

	2008-2011		2012-2019	
	Count	*Proportion*	*Count*	*Proportion*
Institutional	0	0%	1	2%
Stacked Townhouse	0	0%	5	10%
Apartment, Low-Rise	23	88%	26	50%
Apartment, Mid-Rise	1	4%	10	20%
Apartment, High-Rise	2	8%	9	18%
Total	26	100%	51	100%

As seen in Table 7, it is clear that development during the period preceding the 2012 Northdale Study consisted mainly of low-rise apartment buildings under six storeys. While this diverged from the single-detached character of the neighbourhood, it introduced a new form of homogeneity in the local built form. Development following the adoption of the 2012 Northdale Study is increasingly diverse, with stacked townhouses introduced, while mid-rise apartment projects experienced the largest gain (increasing by 16 points), followed by high-rise apartments.

4.2 **Diverse** (con't)



Mid-rise apartment example: 250 Lester Street, 12-storeys

Key Findings

- New development in Northdale is diversifying in built form away from the historical dominance of single-detached houses.
- Development following the adoption of the 2012 Northdale Plan is more diverse in terms of built form from the four preceding years.
- Notable increases are evident in the development of stacked town-house, mid-rise apartment, and high-rise apartment projects.

Analysis Task 2-4: Demographic Diversity

Based on the definition of demographic diversity in Section 3.2 of the 2012 Northdale Study, age and income are identified as key metrics for measuring demographic diversity. This means that a widening range of ages and incomes would illustrate the area's transition away from being a homogenous student neighbourhood towards one with a more balanced mix of residents. An analysis of the changes in age and income over the study period, based on census data for 2011 and 2016, has been completed. Table 8 includes population, age, and income statistics for Northdale for 2011 and 2016. The population over this time increased by 184.4 percent from 873 in 2011 to 2483 in 2016. Average household income also increased by 63.5 percent. The median age of Northdale residents remained at 22 years.

Table 8 - Demographic Summary Statistics

YEAR	POPULATION	AVG. HOUSEHOLD INCOME	MEDIAN AGE
2011	873	$19,506.43	22.3
2016	2483	$31,891.47	22.47
% Change	**1.844**	**0.635**	**-11.30%**

Population and average household income changes are depicted spatially in Figures 16 and 17, respectively. Figure 17 shows the neighbourhood divided into three distinct geographic areas in terms of household income rise:

- West of Sunview Street, where average household incomes rose by as much as 290 percent during the study period, from $7,500 in 2011 to over $30,000 in 2016;
- The central portion of the neighbourhood, where incomes generally stayed the same; and,
- The northeastern area, where average household incomes rose modestly by 30 to 40 percent.

Figure 16 shows a much less clustered pattern of population change, although generally the southeast corner of Northdale either stayed constant or declined in terms of population over the study period.

Figure 15 contains a chart of the data found in Table 9, which helps to illustrate the relative size of the age 20 to 25 cohort, which in 2016 was nearly quadruple the size of the next largest contingent, the 15 to 19 age cohort. Table 9 shows that the total population of these two cohorts increased significantly from 2011 to 2016, by 345 percent for the 15 to 19 year cohort and 245 percent for the 20 to 24 year cohort. Moreover, the proportion that these groups comprised of

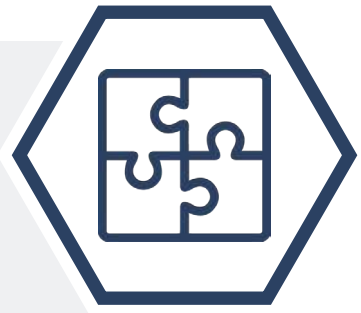
4.2 Diverse (con't)

the neighbourhood's total population also increased more than any other group. Each age cohort increased in size during the study period, consistent with the overall population growth that occurred. However, whereas all other cohorts experienced minimal change or a decline in their share of the total neighbourhood population, the 15-19 and 20-24 cohorts both increased their share by 6 and 11 percent respectively. This indicates that the age diversity actually declined over the study period, as the "student"-aged demographic constituted a larger portion of the neighbourhood's population.

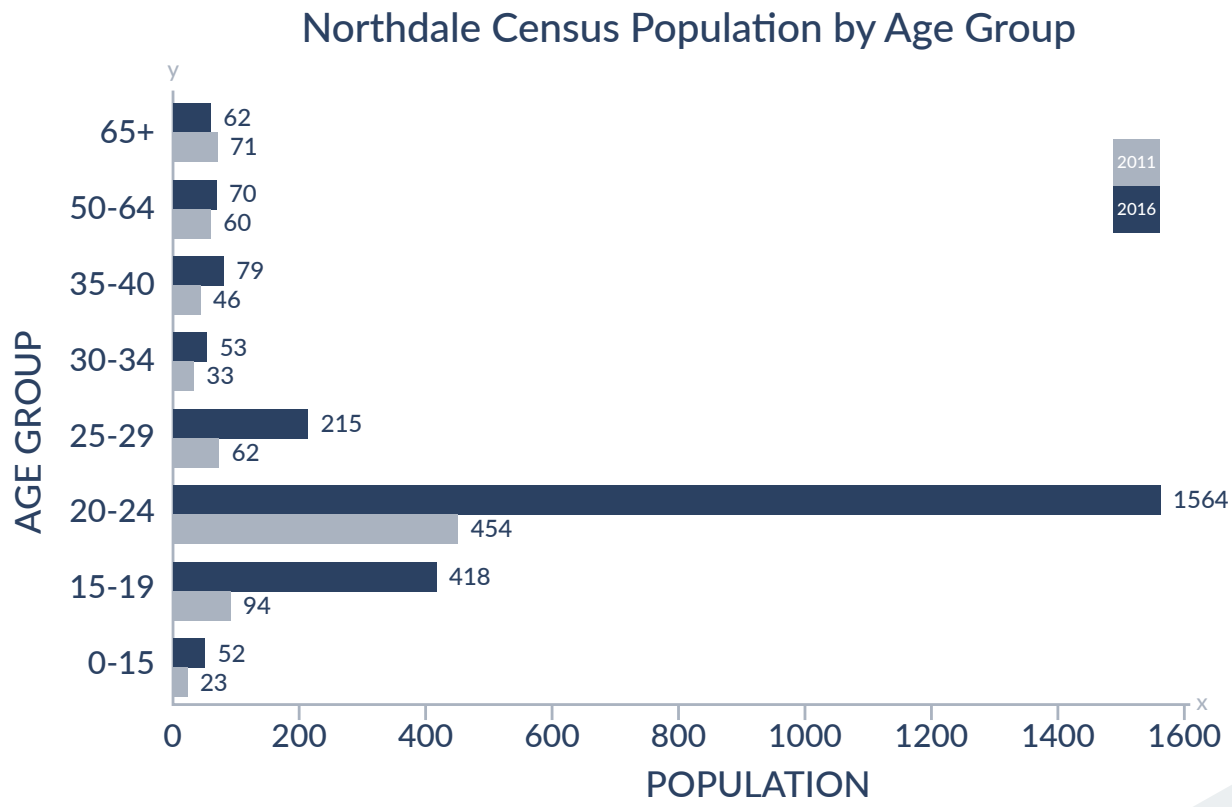
Table 9: Population Change by Age

	2011		2016		% Change	
Age Cohort	**Pop.**	**% of Total**	**Pop.**	**% of Total**	**Pop.**	**% of Total**
0 - 15	23	3%	5200%	2%	1.261	-1%
15 - 19	94	11%	41800%	17%	3.447	6%
20 - 24	454	52%	156400%	63%	2.445	11%
25 - 29	75	9%	21500%	9%	1.867	0%
30 - 34	33	4%	5300%	2%	0.606	-2%
35 - 49	46	5%	7900%	3%	0.717	-2%
50 - 64	60	7%	7000%	3%	0.167	-4%
65 +	71	8%	6200%	3%	-0.127	-6%

Key Findings



- Age diversity decreased during the study period, with the 15 to 19 and 20 to 24 age cohorts growing both in terms of population and their proportional share of the total neighbourhood population.
- Average household income grew significantly in certain census dissemination blocks, while generally experiencing modest growth across the neighbourhood. It is difficult to say whether this represents an increase in income diversity, as average incomes by dissemination block are now mostly homogenous, but there is no way to know how incomes are distributed within those census areas.



Based on data from 2011 and 2016 Census probes.

Figure 15: Graph of Census Population by Age Group

4.2 Diverse (con't)

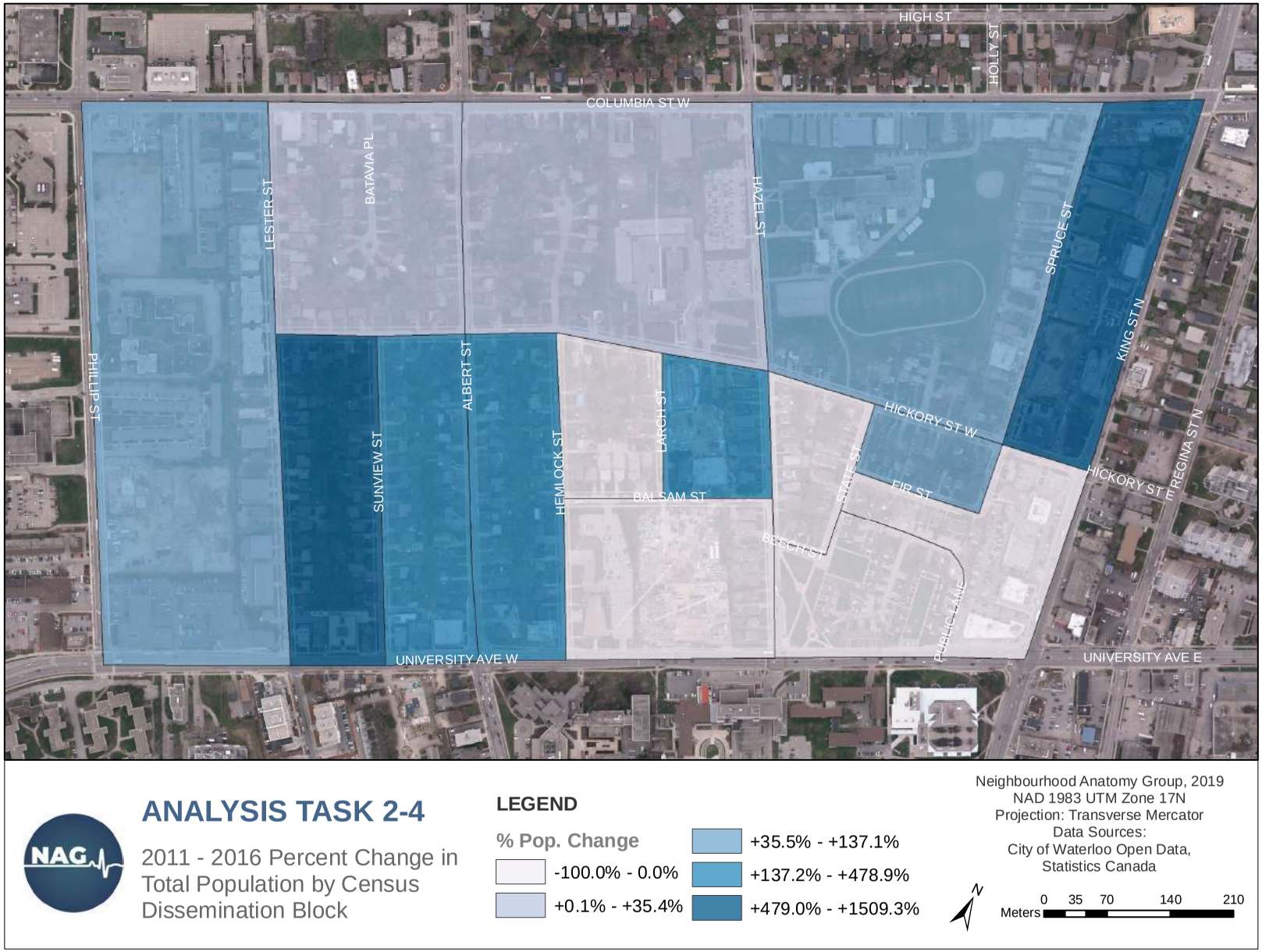


Figure 16: Map of Population Change in Northdale

4.1 Integrated (con't)

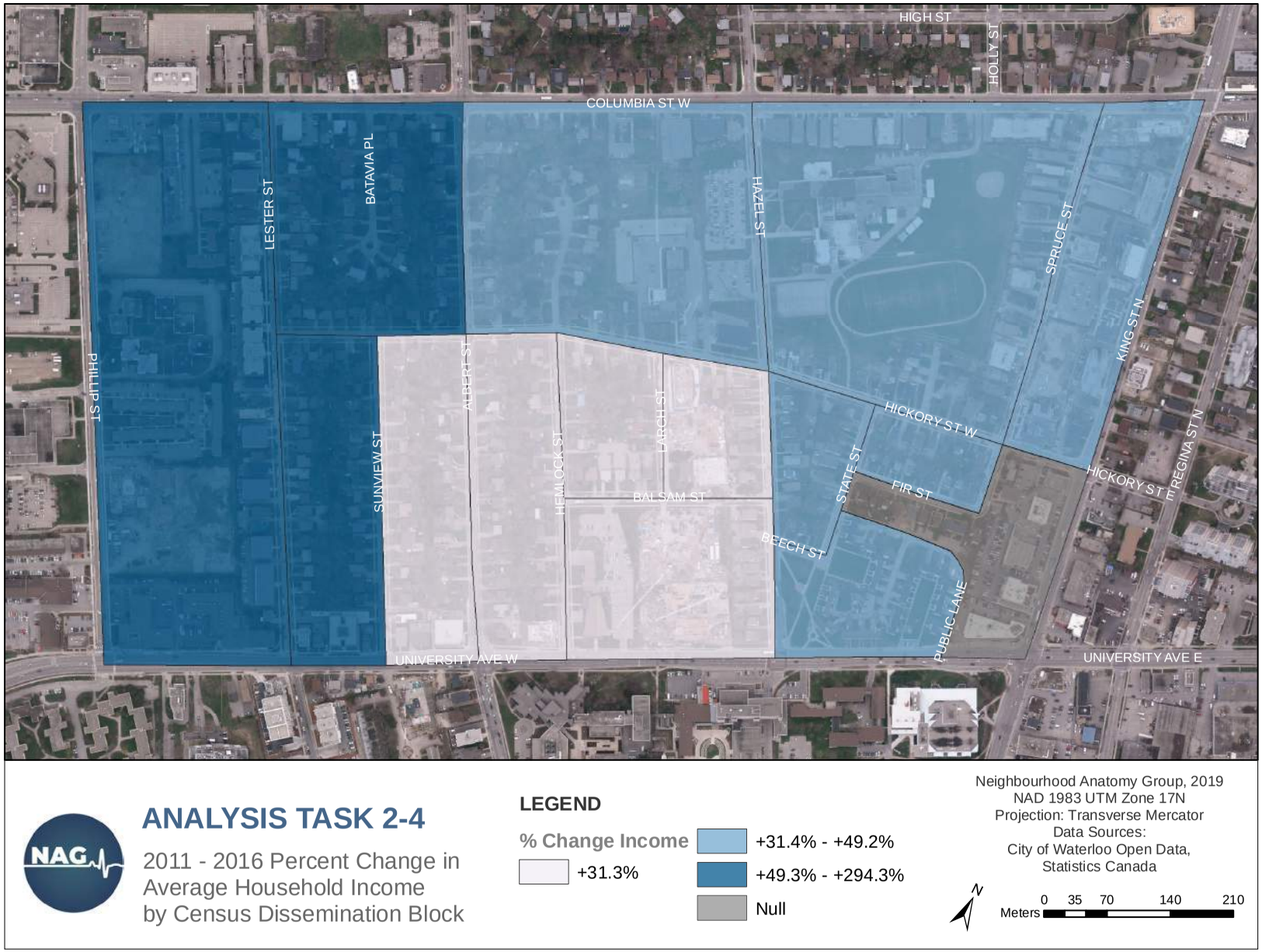


Figure 17: Map of Average Household Income Change

Analysis Task 2-5: Diversity of Housing Tenure

Diversity of housing tenure refers to the proportional mixture of rented versus owned private households. Census data for household characteristics was compared for 2006, 2011, and 2016 to examine the change in the relative dominance of rental and ownership tenures in Northdale's housing stock. A summary of that data is provided in Table 10. Figure 18 contains a map illustrating the change in the proportion of rental housing from 2011 to 2016 by census dissemination block.

In Table 10, "Difference from 50/50" refers to the distance in percentage points that the mixture of housing tenure for any given year is from being exactly half-and-half, which would represent a perfectly balanced mix and the most "diverse" a sample of binary attributes could be. A positive change in this number from one census to the next would indicate that the neighbourhood is becoming less diverse in terms of housing tenure, and a negative change would show it is becoming more diverse.

Table 10: Household Characteristics in Housing Tenure Summary

YEAR	OWN	RENT	TOTAL	% OWN	% RENT	DIFF. FROM 50/50	% CHANGE IN % OWN	CHANGE IN % RENT	CHANGE IN DIFF. FROM 50/50
2006	142	521	663	21.40%	78.60%	28.60%	-	-	-
2011	53	362	415	12.80%	87.20%	37.20%	-40.40%	0.11	0.086
2016	58	919	977	5.90%	94.10%	44.10%	-53.80%	0.079	0.072

Northdale's total housing stock, after declining from 2006 to 2011, more than doubled from 2011 to 2016. However, only 5 new privately owned households were built during that time. The remaining 557 units were rentals, representing an 8 percent increase in the proportion of rented units and a 54 percent decrease in the proportion of owned households in 2016. In 2011, shortly before the adoption of the 2012 Northdale Study, 13 percent of Northdale's housing was owned and 87 percent was rented. In 2016, after a 135 percent increase in the total housing stock, only 5.9 percent of the housing stock was owned.

The "Difference from 50/50" of the housing tenure mix in Northdale went up every census year from 2006 to 2016, increasing 8.6 percentage points from 2006 to 2011 and another 7.2 percentage points from 2011 to 2016, indicating that the diversity of housing tenures in the neighbourhood went down each year. Figure 18 shows that the highest proportional increase in rental housing occured in the area bordered by University, Sunview, Hickory and Hazel. Each of the dissemination blocks in this area experienced a 25 percent or higher increase in the proportion of private households that were rented and not owned. Most of the area to the west of Albert Street saw a slight decrease in the proportion of rental housing, although this was likely because the housing stock was already primarily rental before the 2011 census.

Key Findings

- Northdale's total housing stock more than doubled from 2011 to 2016, but very few new owned private households were added.
- The vast majority of private households in Northdale in 2016 were rented, with the proportion of rented households going up every census since 2006.
- The composition of housing tenure became substantially less diverse from 2006 to 2011, and again from 2011 to 2016, with rental households mostly taking the place of owned units.

4.2 Diverse (con't)

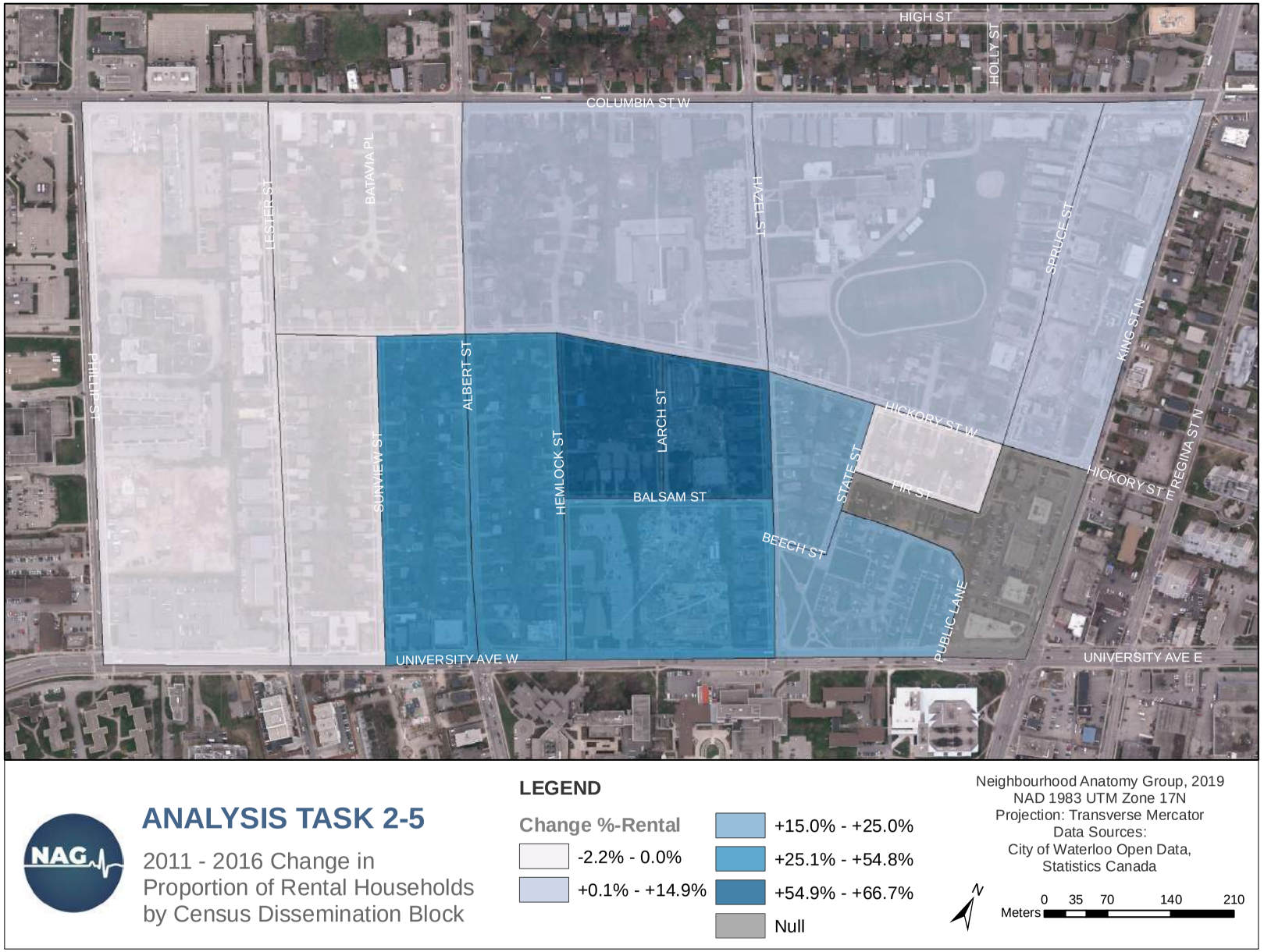


Figure 18: Map of Rental Proportion Change

4.3 Identifiable

As a neighbourhood, Northdale is to develop its own unique and renowned identity. Identifiability is strongly linked with the urban design quality of the neighbourhood, therefore the consistency of new development with the Urban Design Guidelines is assessed, as well as the quality of street frontage improvements.

Analysis Task 3-1: Urban Design Guideline Consistency

The Urban Design Guidelines provide direction on built form elements in Northdale. The representative sample of 22 developments within the neighbourhood was assessed against the Urban Design Guidelines with a specific focus on the built form compatible with each type of street frontage (Active, Convertible, and Neighbourhood). This sample is illustrated in Figure 3, including the location and address of each development.

The podium height, stepback above podium, tower separation distance, setback from property line, and horizontal tower dimension were assessed for this task (Table 19). The measurements within Section B of each frontage type provide guidelines for towers and podiums to achieve the desired vision of Northdale. Several developments within the sample did not have a tower, in which case some of the above-noted criteria were not applicable.

Most developments with a tower generally followed the five built form criteria. Criteria that were not met for select cases included podium heights, where certain developments exceeded the recommended podium height (300-330 Phillip Street, 333 King Street, 1 Columbia Street, and 321 Spruce Street). The recommended podium height is intended to achieve a consistent streetwall. If the recommended podium height is exceeded, this would decrease the sense of human scale along the pedestrian realm.

Minimum stepbacks above the podium were exceeded for the following properties: 1 Columbia Street, 250-264 Sunview Street, 333 King Street, and 250-256 Phillip Street. By exceeding the stepback above the podium, there is an increased opportunity for rooftop amenity spaces.

Approximately half of the sampled properties did not satisfy the maximum horizontal tower dimension criteria, while the other sampled towers were generally at the maximum dimension of 35.0 metres. The maximum horizontal tower dimension criteria is intended to reduce cases where a larger tower dimension creates a ‘slab’ tower. The majority of developments met the setback to property line and tower separation criteria. This is consistent with the vision for the skyline of Northdale.

The findings of this analysis indicate that the built form recommendations of the Urban Design Guidelines are generally followed. However, some instances were identified where these guidelines were not consistently followed for all developments in Northdale.

4.3 Identifiable (con't)

Table 19: Built Form in Urban Design Guidelines Assessment Summary

FRONTAGE TYPE	DEVELOPMENT NAME	PODIUM HEIGHT	SETBACK FROM PROPERTY LINE	TOWER SEPARATION	STEPBACK ABOVE PODIUM	HORIZONTAL TOWER DIMENSION
Active	300-330 Phillip Street (Icon)	N/Exceeds	Y	Y	Y	Y
	250-256 Phillip Street	Y	Y	Y	N	Exceeds/at max
	110 University	Y	N/A	N/A	N/A	N/A
	64 University Ave W	Y	N/A	N/A	N/A	N/A
	333 King Street	N/Exceeds	Y	N	N	N/Exceeds
	1 Columbia Street	N/Exceeds	Y	Y	N	N/Exceeds
Convertible	253 Albert Street	Y	N/A	N/A	N/A	N/A
	222 Albert Street	Y	N	N	Y	Y
	250 Albert Street	Y	N/A	N/A	N/A	N/A
	288-294 Albert Street	Y	N/A	N/A	N/A	N/A
	336-338 Albert Street	Y	N/A	N/A	N/A	N/A
Neighbourhood	318 Spruce Street	Y	N	N	Y	Y
	321 Spruce Street	N/ Exceeds	N/A	N/A	N/A	N/A
	253-255 Lester	Y	N/A	N/A	N/A	N/A
	280 Lester	Y	N	Y	Y	N
	255 Sunview	Y	Y	Y	Y	Y/at max
	250-254 Sunview	Y	Y	Y	N	Y/at max
	287-289 Hemlock Street	Y	N/A	N/A	N/A	N/A
	297-299 Hemlock Street	Y	N/A	N/A	N/A	N/A
	251 Hemlock Street	Y	Y	Y	Y	Y
	272 Larch Street	Y	N/A	N/A	N/A	N/A
	62 Balsam Street	Y	N/A	N/A	N/A	N/A
(N) = Exceeds the minimum						

LIMITATIONS

The scope of this analysis was partially limited due to the lack of high-quality development data. Measurements were made using information from the Waterloo GeoCortex portal and a 3-dimensional SketchUp model of the study area prepared by NAG. Further research could be conducted using more accurate data for each development.

Key Findings

- Most developments followed the majority of built form guidelines, but were inconsistent with one or two of the recommendations.
- Recommended podium heights were exceeded, which may decrease the sense of human scale along the street.
- Recommended podium setbacks were exceeded and maximum horizontal tower dimensions were met.
- The findings suggest that the built form guidelines should be subject to additional consideration during the development review process.

Analysis Task 3-2: Frontage Improvements

The quality of frontage improvements relates to the different street typologies (Active, Convertible, Neighbourhood) identified within the 2012 Northdale Study. The Urban Design Guidelines identify preferred frontage provisions in Section A of each frontage type. To determine improvements to frontages in new developments, the recommended frontage provisions were assessed within the representative sample of new developments displayed in Figure 3. Assessments of frontage improvements were completed through site visits, Google StreetView imagery, and the 3-dimensional SketchUp built form model. Detailed findings are provided in Table 11.

The minimum lot frontages for each frontage typology are the same (20 metres), with this provision included in the Zoning By-Law. Active frontages require pedestrian-friendly setback sizes and treatments, as well as sufficient frontage and secondary street access to reduce interference with vehicular traffic and to create a consistent streetwall. All six developments exceeded the recommended front built zone of 3 metres and three of the six properties exceeded the preferred cafe area setback. By exceeding the preferred cafe area setback, spaces for activities such as outdoor dining and patios are provided with the potential for further animating the streetscape.

Three of the six developments had primary street access instead of secondary street access. The inclusion of primary street access along active frontages increases interference with vehicular traffic along high pedestrian traffic corridors.

Similarly, convertible frontages require adequate setbacks and treatments as well as sufficient frontage to ensure that these areas can be easily converted and to allow for a residential front yard condition that has the potential to animate sidewalks. All developments within the representative

4.3 Identifiable (con't)

sample met the preferred frontage and front build zone requirements. As there was considerable flexibility in the preferred setback zone treatment, all developments conform to the requirements. The majority of the developments along convertible street frontages had a mostly paved treatment, therefore the intent is to have active ground floor uses such as restaurants and retail.

Neighbourhood frontage requirements are similar to those for convertible frontages, but with the additional requirement for a landscaped setback zone. Per Table 11, the majority of the sampled developments had half landscaped and half paved setback zones to allow for the provisions of walkways. 318 Spruce Street had a paved setback zone instead of a landscaped one. While the treatment is not consistent with Neighbourhood Frontage Guidelines, 318 Spruce Street includes at-grade commercial, retail and restaurant uses, for which a treatment similar to active frontage requirements is more appropriate.

LIMITATIONS

Measurements were made using information from the Waterloo GeoCortex portal and a 3-dimensional SketchUp model of the study area prepared by NAG. Further research could be conducted using more precise data for each development.

Key Findings

- **Active Frontages:** By exceeding the preferred cafe area setback, the sampled developments are given flexibility to accommodate outdoor dining. Secondary street access driveways should be further promoted during the development review process to achieve a consistent street wall and avoid vehicle and pedestrian interactions.
- **Convertible Frontage:** Most developments have a paved zone treatment which will permit future active at-grade uses.
- **Neighbourhood Frontage:** The majority of developments treat the setback zone with landscaping as well as paving to account for walkways.

Table 11: Frontage Improvement Assessment Summary

FRONTAGE TYPE	ADDRESS	ZONING PROVISIONS	REQUIRED	PROVIDED
Active	300-330 Phillip Street	Minimum Lot Frontage	20.0 metres	138 metres
		Front Build within Zone	1.0-3.0 metres	6 metres
		Maximum Café Area Setback	6.0 metres	6 metres
		Setback Zone Treatment	Paved	Paved
		Driveway Access	Secondary Street	Primary Street
	250-256 Phillip Street	Minimum Lot Frontage	20.0 metres	72 metres
		Front Build within Zone	1.0-3.0 metres	4 metres
		Maximum Café Area Setback	6.0 metres	4 metres
		Setback Zone Treatment	Paved	Paved & Landscaped
		Driveway Access	Secondary Street	Primary Street
	110 University Avenue	Minimum Lot Frontage	20.0 metres	36 metres
		Front Build within Zone	1.0-3.0 metres	8 metres
		Maximum Café Area Setback	6.0 metres	8 metres (No Café)
		Setback Zone Treatment	Paved	Paved and Landscape
		Driveway Access	Secondary Street	Secondary Street
	64 University Avenue West	Minimum Lot Frontage	20.0 metres	101 metres
		Front Build within Zone	1.0-3.0 metres	7 metres
		Maximum Café Area Setback	6.0 metres	7 metres
		Setback Zone Treatment	Paved	Paved and Landscaped
		Driveway Access	Secondary Street	Secondary Street
	333 King Street	Minimum Lot Frontage	20.0 metres	73 metres
		Front Build within Zone	1.0-3.0 metres	8 metres
		Maximum Café Area Setback	6.0 metres	8 metres (No Café)
		Setback Zone Treatment	Paved	Mostly Landscaped
		Driveway Access	Secondary Street	Primary Street
	1 Columbia Street	Minimum Lot Frontage	20.0 metres	86 metres
		Front Build within Zone	1.0-3.0 metres	5 metres
		Maximum Café Area Setback	6.0 metres	5 metres (No Café)
		Setback Zone Treatment	Paved	Mostly Landscaped
		Driveway Access	Secondary Street	Secondary Street

4.3 Identifiable (con't)

Table 11: Frontage Improvement Assessment Summary

FRONTAGE TYPE	ADDRESS	ZONING PROVISIONS	REQUIRED	PROVIDED
Neighbourhood	318 Spruce Street	Minimum Lot Frontage	20.0 metres	87 metres
		Front Build within Zone	3.0- 6.0 metres	2 metres
		Setback Zone Treatment	Landscaped	Paved
	321 Spruce Street	Minimum Lot Frontage	20.0 metres	34 metres
		Front Build within Zone	3.0- 6.0 metres	3 metres
		Setback Zone Treatment	Landscaped	Half Landscaped and Half Paved
	253-255 Lester Street	Minimum Lot Frontage	20.0 metres	83 metres
		Front Build within Zone	3.0- 6.0 metres	5 metres
		Setback Zone Treatment	Landscaped	Landscaped
	280 Lester Street	Minimum Lot Frontage	20.0 metres	106 metres
		Front Build within Zone	3.0- 6.0 metres	3 metres
		Setback Zone Treatment	Landscaped	Mostly Landscaped
	255 Sunview Street	Minimum Lot Frontage	20.0 metres	66 metres
		Front Build within Zone	3.0- 6.0 metres	3 metres
		Setback Zone Treatment	Landscaped	Half Paved and Half Landscaped
	250-254 Sunview Street	Minimum Lot Frontage	20.0 metres	115 metres
		Front Build within Zone	3.0- 6.0 metres	2 metres
		Setback Zone Treatment	Landscaped	Half Paved and Half Landscaped
	287-289 Hemlock Street	Minimum Lot Frontage	20.0 metres	35 metres
		Front Build within Zone	3.0- 6.0 metres	2 metres
		Setback Zone Treatment	Landscaped	Landscaped
	297-299 Hemlock Street	Minimum Lot Frontage	20.0 metres	46 metres
		Front Build within Zone	3.0- 6.0 metres	3 metres
		Setback Zone Treatment	Landscaped	Half Paved and Half Landscaped
	251 Hemlock Street	Minimum Lot Frontage	20.0 metres	123 metres
		Front Build within Zone	3.0- 6.0 metres	4 metres
		Setback Zone Treatment	Landscaped	Half Paved and Half Landscaped
	272 Larch Street	Minimum Lot Frontage	20.0 metres	102 metres
		Front Build within Zone	3.0- 6.0 metres	3 metres
		Setback Zone Treatment	Landscaped	Half Paved and Half Landscaped
	62 Balsam Street	Minimum Lot Frontage	20.0 metres	40 metres
		Front Build within Zone	3.0- 6.0 metres	4 metres
		Setback Zone Treatment	Landscaped	Landscape

Table 11: Frontage Improvement Assessment Summary

FRONTAGE TYPE	ADDRESS	ZONING PROVISIONS	REQUIRED	PROVIDED
Convertible	253 Albert Street	Minimum Lot Frontage	20.0 metres	107 metres
		Front Build within Zone	1.0-5.0 metres	2.5 metres
		Setback Zone Treatment	Paved or Landscape	Mostly Paved
	222 Albert Street	Minimum Lot Frontage	20.0 metres	38 metres
		Front Build within Zone	1.0-5.0 metres	2 metres
		Setback Zone Treatment	Paved or Landscape	Half Paved/ Half Landscaped
	250 Albert Street	Minimum Lot Frontage	20.0 metres	58 metres
		Front Build within Zone	1.0-5.0 metres	2 metres
		Setback Zone Treatment	Paved or Landscape	Mostly Paved
	288-294 Albert Street	Minimum Lot Frontage	20.0 metres	59 metres
		Front Build within Zone	1.0-5.0 metres	2 metres
		Setback Zone Treatment	Paved or Landscape	Mostly Paved
	336-338 Albert Street	Minimum Lot Frontage	20.0 metres	47 metres
		Front Build within Zone	1.0-5.0 metres	3 metres
		Setback Zone Treatment	Paved or Landscape	Mostly Paved

4.4 Supported

A supported neighbourhood includes both physical support, in the form of infrastructure servicing, and organizational support. Accordingly, this section assesses the completion of the recommended Core Area Infrastructure upgrades and the level of public and institutional investment in Northdale.

Analysis Task 4-1: Public and Institutional Investment

Beyond private-sector investment through development, governmental and institutional spending can be considered in order to make conclusions with respect to the commitment of these parties to the neighbourhood. Section 7.0 of the Northdale Community Improvement Plan (CIP) provides specific direction for the City of Waterloo to invest in Northdale, to encourage the area's growth and improvement.

CITY OF WATERLOO

The City of Waterloo has the opportunity to make capital investments in Northdale through its role in maintaining the supporting infrastructure of the neighbourhood, and through the implementation of special projects. Historical City of Waterloo capital budgets from the study period were not available for review, however the significant investments in sanitary sewer capacity described in Analysis Task 4-2 are a reasonable indicator, with $2.6 million spent on Core Area Infrastructure projects. The 2017-2018 and 2019 capital budgets were available and are considered. In both budgets, specific sections are dedicated to high-priority capital projects in Northdale, with these expenses summarized in Table 12.

Table 12: City of Waterloo Northdale Capital Budget

	2017	2018	2019	2020	2021	10-Year Total
2017-2018 Capital Budget	$7,183,000	$2,285,000	$2,584,000	$2,533,000	$961,000	$23,369,000
2019 Capital Budget	-	-	$2,683,000	$2,532,000	$1,910,000	$28,658,000

An overall, positive trend shows that the City of Waterloo has allocated more investment in the neighbourhood in its 2019 budget than in the 2017 budget. Average annual capital investments in Northdale range between $2.4 and $2.7 million, representing a significant ongoing commitment to the neighbourhood. Key projects identified in the capital plans include: street reconstructions, CIP implementation, and parkland and public space development.

WILFRID LAURIER UNIVERSITY

The main campus of Wilfrid Laurier University (WLU) is located immediately to the south of the study area, across University Avenue. WLU maintains a presence in Northdale in four locations:

- Lazaridis School of Business and Economics, an educational facility located on University Avenue (75 University Avenue W);
- King's Court Residence, a high-rise student residence located at 345 King Street N;
- Spruce Street Apartments, a low-rise student residence located at 325 Spruce Street;
- Movement Disorders Research and Rehabilitation Centre (Northdale Campus), an educational, research, and rehabilitation facility located at 66 Hickory Street.

The most significant capital investment by WLU in Northdale during the study period was the construction of the Lazaridis School of Business and Economics, completed in 2017, with a total project cost of $90 million. The opening of the Lazaridis facility by WLU is a significant capital outlay, and it represents a commitment by the University to Northdale through the establishment of a permanent academic presence.

Lazaridis School of Business and Economics, a $90 million investment in Northdale (Wilfrid Laurier University)

4.4 Supported (con't)

WATERLOO COLLEGIATE INSTITUTE

Waterloo Collegiate Institute (WCI) is a public high school operated by the Waterloo Region District School Board (WRDSB). As WCI occupies 16 acres of land to the east and west of Hazel Street, the school is the largest single landowner in the study area, at 17 percent of the total land supply. WRDSB, in partnership with WLU and the City of Waterloo, is planning a significant capital redevelopment program for WCI, which has been recognized as a potential community hub for Northdale. This project is to include a new 165,000 ft2 high school, 33,000 ft2 community facility, and 40,000 ft2 performance venue with an estimated order-of-magnitude cost of $61 million. This project, if implemented, will represent a significant investment from the institutional sector which will contribute to Northdale's vitality.

LIMITATIONS

Some discussions in this section are future-oriented, due to the limited availability of past City and institutional capital budgets, which means that the future vitality of the neighbourhood depends on the implementation of mentioned initiatives. Further, these discussions do not capture the broader routine investments in the neighbourhood that are represented by the operating expenses of public and institutional facilities.

Key Findings

- The City of Waterloo has directed significant capital investment to Northdale with annual capital investment over the next ten years ranging between $2.4 and $2.8 million.
- The presence of WLU in the neighbourhood, underscored by the development of the Lazaridis School, and the planned investments of the WRDSB indicate that institutional investment is increasingly becoming a transformative force in Northdale.
- Continued public and institutional investment is consistent with Section 7.0 of the Community Improvement Plan.

Analysis Task 4-2: Core Area Infrastructure

Neighbourhoods require infrastructure to support residential growth, including sanitary sewer capacity. Servicing is addressed in Section 7.6 of the Northdale Community Improvement Plan, which states that the City of Waterloo is to proceed expeditiously with the design and construction of recommended improvements to the Core Area infrastructure network. The Core Area Infrastructure program includes nine projects, two of which are located in the study area (Philip Street and Columbia Street W sanitary sewer upgrades). The status of these projects is identified in Table 13.

Table 13: Core Area Infrastructure Upgrade Project Status

PROJECT	STATUS	NOTES
Ezra Avenue Sanitary Sewer Upsizing	Completed	$108,000, 2012 budget for implementation between 2012 and 2013
Philip Street	Completed	$2.6 million in conjunction with Columbia Street W upgrades, 2012 budget for implementation between 2012 and 2013
Seagram Drive	Completed	-
Allen Street West	Not Completed	Not carried forward in the 2015 Capital Budget
Columbia St W	Completed	$2.6 million in conjunction with Philip Street upgrades, 2012 budget for implementation between 2012 and 2013
Union St E	Not Completed	Not carried forward in the 2015 Capital Budget
Willis Way / Regina St S Sanitary Sewer Upsizing	Budgeted	$173,000 Budgeted for 2019
University Ave East	Completed	-
Bridgeport Rd E / Laurel St / Easement	Not Completed	Not carried forward in the 2015 Capital Budget

Five of the recommended Core Area Infrastructure projects were completed, including the two projects in the study area. The two Northdale projects are consistent with the direction provided in the Community Improvement Plan. Together, these projects have a total value of $2.6 million and were budgeted for implementation from 2012 to 2013. Financing these projects involved deferring repaving projects elsewhere and drawing down savings. The Council decision is notable in that the upgrades was tied to pressure from the development community, whose growth was stifled in the neighbourhood.

4.4 Supported (con't)

LIMITATIONS

The findings of this analysis task are primarily supported by the August 2015 Waterloo Sanitary Master Plan prepared by Stantec. While this report addresses the status of the majority of the capital projects noted above, the use of secondary data to supplement the period of 2015 to 2019 could result in gaps.

Key Findings

- The prioritization of the Columbia Street West and Philip Street sanitary sewer upgrades is consistent with the Community Improvement Plan.

4.5 Memorable

Northdale will celebrate and recognize the community's natural heritage resources, such as Veteran's Green Park and War-Time Housing. The improvement efforts to Veteran's Green Park will be discussed in Principle 6, Interactive (Task 6-1, Outdoor and Indoor Amenity Areas). As Northdale develops, Veteran War-Time Housing located on State and Maple Court is left relatively untouched. As such, this cultural resource has been recognized and protected.

Memorability as described in Principle 5 is assessed in this report in two ways. First, the retention of mature trees is assessed. Second, a standardized checklist has been developed to assess the urban design quality of new developments to determine whether they contribute to the memorability of Northdale.

Analysis Task 5-1: Retention of Mature Trees

The retention of mature trees is noted in Principle 5 of the 2012 Northdale Study as being a key part of neighbourhood memorability. Section 7.3 of the Community Improvement Plan states that Northdale's urban forest should be strengthened through street tree preservation and tree planting. The City of Waterloo street tree inventory was analyzed to assess the retention of mature trees during the study period; trees on private property and gaps in the municipal dataset are not considered in this analysis.

A total of 122 street trees are located in the study area as of April 2019, with common species including Norway Maple, Red Maple, and White Ash. These trees are concentrated on Fir Street, Hemlock Street, Hickory Street, Larch Street, Lester Street, and Sunview Street. Additional street trees were identified on King Street. However, as noted in the limitations below, these were either not included in the municipal dataset or are located on private property.

Figure 19:
An example of a street tree threatened by new development (246 Lester Street)

4.5 Memorable (con't)

A total of 35 street trees were removed during the study period, with an additional 5 trees to be stumped or removed as of April 2019. The reasons for removal identified by the City of Waterloo are shown below in Table 14. From Table 14, the leading reason for tree removal is for replacement as a Capital Budget expense. From inference of the spatial data, removals tagged with this reason were generally colocated with private development projects (Figure 19). Therefore, it is assumed that this reason addresses trees removed to facilitate construction. The other three reasons are for the removal of trees due to natural causes, including death, infestation by Emerald Ash Borer, and storm-related damage.

Table 14: Street Tree Removal Reasons, 2012 to 2019

REASON FOR REMOVAL	NUMBER OF TREES	PROPORTION
Capital Budget (Replacement)	31	79%
Dead or Dying	5	13%
Emerald Ash Borer	1	3%
Storm Damage	2	5%
Total	39	100%

The 35 tree removals during the study period represent 29 percent of the current street tree inventory in Northdale, a significant proportion. The majority of removals occurred to facilitate construction and private development projects. The removal of these trees, even if replanted, is inconsistent with the goal of maintaining a mature urban forest. If street trees continue to be removed in support of development projects, the development of mature street trees will continue to be hindered.

LIMITATIONS

Due to the unavailability of Tree Conservation Reports for new development, a significant component of the urban canopy (trees on private property) is excluded. Total mature tree loss is assumed to be higher due to the rate of new development and the tendency for projects to occupy the majority of the parcel due to favourable setback provisions.

While ground-truthing the municipal street tree inventory, NAG identified instances where street trees may be missing from the dataset. For example, the street trees along King Street are not included in the City of Waterloo data. Therefore, the analysis of this task may be reliant on partially incomplete data.

Key Findings

- Tree removal in Northdale is primarily due to non-natural causes.
- The removal of street trees for new development hinders the maturation of the Northdale urban forest.
- A significant component of the urban forest (privately owned trees) could not be assessed.

4.5 Memorable (con't)

Analysis Task 5-2: Development Urban Design Assessment

Assessing the standard of urban design for buildings and spaces can be highly subjective, therefore a standardized urban design checklist (Appendix C) has been completed for a representative sample of new developments during the study period (Figure 3), in an effort to establish an objective framework for assessing design elements. This standardized urban design checklist has been inspired from the checklist developed by Reid Ewing and Otto Clemente in *Measuring Urban Design: Metrics for Livable Places*. The manual contained within the book provides quantitative measures for qualitative urban design qualities.

Checklists for each of the 22 sampled developments have been provided, along with pictures, in Appendix C. The three criteria assessed are imageability, memorability, and complexity.

IMAGEABILITY

The imageability of a development is linked to what physical elements and arrangements of a development generate attention, creating a distinct presence within the neighbourhood (Clemente, 2005). The specific design qualities to be measured include:

- The number of buildings with key identifiers along the street. This design quality does pose a degree of subjectivity, therefore the identifiable feature has been explained for its inclusion.
- Whether the building has a non-rectangular shape. A score of 0 has been recorded if it has a rectangular shape, while a score of 1 has been recorded if it has a non-rectangular shape
- The presence of outdoor dining in the development. A score of 0 has been recorded if there is no outdoor dining, while a score of 1 has been recorded if it has outdoor dining.

The average number of identifiable buildings along a street is two (Table 15). Though this design quality is measured along the street, it may be effective in determining which street blocks are more identifiable, because some sampled blocks only contain one development, such as Columbia Street from King Street to Spruce Street. Per Table 15, 18 percent of the 22 sampled buildings have a non-rectangular shape, therefore most of the developments (82 percent) are of a rectangular shape. 91 percent of the sampled developments do not have outdoor dining areas, and only 9 percent have an outdoor dining space. Outdoor dining areas further animate a development, attracting attention to it and making it more memorable.

Table 15: Imageability Assessment Findings

DESIGN QUALITY	TYPE OF MEASURE	VALUE
Number of Buildings along a Street with an Identifier	Average Recorded Value	1.83
Buildings with a Non-Rectangular Shape	Percentage	18%
Presence of Outdoor Dining	Percentage	9%

HUMAN SCALE

An evaluation of the human scale of developments and streets indicates how effective physical elements of developments are at inviting pedestrians in, which contributes to the memorability of a neighbourhood (Ewing, 2013). The specific design qualities to be measured include:

- Average building height: Building heights are derived from the 2019 Sketchup model submitted in the mid-project deliverable
- The number of planters: Landscaping was excluded from this measure
- The presence of street furniture

The average height of new developments in the representative sample was 30.8 metres or 10 storeys (Table 16). However, as shown in photos of the sampled developments, several developments stepback their towers over podiums, which reduces the sense of imposing height at the pedestrian level. The frequently occuring number of planters is 0, which indicates that the majority of new developments did not have small planters along their street lot line. However, all surveyed developments had landscaping features, as it is required by the Zoning By-Law. A significant number of sampled developments did not have pieces of street furniture along the front yard, as identified in Table 16. As seen in site photos in Appendix C, street furniture that was located in the front yard was typically comprised of benches near entrances. A variety of styles and forms of benches were noted, made with different materials and of different sizes.

Table 16: Human Scale Assessment Findings

DESIGN QUALITY	TYPE OF MEASURE	VALUE
Height of Development	Average	30.8m
Small Planters	Mode	0
Pieces of Street Furniture	Mode	0

4.5 Memorable (con't)

COMPLEXITY

The complexity of a space and a building, through the integration of a variety of buildings and architectural features, improves the visual richness and attractiveness of a place or space (Clemente, 2005). The specific design qualities to be measured include:

- Counting the basic colours (white, beige, black, brown, grey, white) in a building
- Count the accent colours in a building
- The presence of public art features

Table 17 shows that majority of the sampled developments were designed with basic building material colours, such as black, grey, beige, brown and white, with no accent colours used to break-up the front facade. Only 9 percent of the representative sample of buildings had public art features (Table 17). The two developments that did have public art features were 300-330 Phillip Street and 254 Albert Street.

Table 17: Complexity Assessment Findings

DESIGN QUALITY	TYPE OF MEASURE	VALUE
Count of Basic Building Colours (Black, Grey, Beige Brown, White)	Mode	2
Count of Building Accent Colours	Mode	0
Public Art Features	Percentage	9%

Summary statistics for the three urban design assessment criteria are provided in Table 18 using the scores for the 22 sampled developments. Table 18 shows that the highest average score of the development sample was imageability, followed by human scale and complexity. Therefore, more imageable urban design features were apparent in new developments in Northdale.

Table 18: Urban Design Assessment Summary Statistics

CRITERIA	AVERAGE SCORE	Number of Developments that had Highest Score
Imageability	2.7466	11
Human Scale	2.74	6
Complexity	2.62	5

LIMITATIONS

As discussed above, the urban design assessment process is highly subjective despite the development of a standardized scoring method. Measurements are derived from a Google SketchUp model and the City of Waterloo Geocortex Viewer, therefore these measurements may not be perfectly accurate.

Key Findings

- Though the intent of mixed-use residential projects with ground floor commercial space is to animate the streetscape, that objective may not fully achieved without the presence of outdoor dining to generate attention.
- Podiums and stepbacks are regularly and successfully used in new developments with tall tower heights in an effort to improve the perception of human scale.
- Small vegetated planters, street furniture, and public art are not commonly used in the front yard of new developments.

4.6 Interactive

The 2012 Northdale Study envisions that Northdale will be enhanced through a network of new parks and open spaces within the public realm, which will serve as recreational, passive and community gatherings spaces. Prior to the implementation of the 2012 Northale Study, the sole public park was Veterans Green. Accordingly, the supply of public and private amenity spaces was assessed. The assessment of grade level streetscapes to improve interactivity will not be completed at this time, after discussions with WSP and the City of Waterloo.

Analysis Task 6-1: Amenity Areas

A preferred neighbourhood element, as prescribed by Building and Development Principle #5, is a network of indoor and outdoor amenity areas integrated with the neighbourhood fabric. These amenity areas are to serve as passive and active community gathering spaces and promote a healthy social environment. This task assesses both public and private amenity spaces and is supported by City of Waterloo staff reports, development applications, and publicly available information on developer websites.

PUBLIC AMENITY SPACES

According to a December 2016 staff report, the City of Waterloo has purchased or is in the process of purchasing four properties on Hickory Street: 78 Hickory Street W, 80 Hickory Street W, 109 Hickory Street W, and 111 Hickory Street W (Figure 20). Through discussion with City Staff at the post-presentation meeting, the number of properties had increased to six properties. These purchases were supported by Capital Budget funds intended for park lands. In May 2017, City staff recommended that Council approve funding for the "acquisition, demolition and other matters incidental to the purchase of 288 Hemlock Street (Figure 21) for the purpose of creating a future park at the corner of Hickory Street West and Hemlock Street". Funding for this park would amount to $1,913,000 funded from the Northdale Parkland Dedication Reserve Fund.

The first phase of the Waterloo Collegiate Institute Northdale Community Hub Feasibility Study was completed in 2016 and recommended the implementation of a Community Hub model for the WCI and WLU lands on Hazel Street (see Analysis Tasks 4-1 and 10-1). A future hub could include community assets such as an integrated performance venue, playing fields, and a health and wellness component. Staff reports have recognized the significant potential that such a hub has for the promotion of a healthy Northdale social environment. Consultation with stakeholders is ongoing, with Council having approved phase two of the study in March 2017.

Figure 20: Site of a future park at 109 Hickory Street W as of October 2018

Figure 21: Site of future park space at 78 Hickory Street W as of October 2018

4.6 Interactive (con't)

PRIVATE AMENITY SPACES

Supported by development applications, floor plans, and development websites, the representative sample of 22 properties was assessed to identify their common private amenity spaces. Counts of frequently occurring amenity types are found below in Table 20. Please note that a property can have one or more types of amenity space.

Table 20: Private Amenity Space Counts for Sampled Properties

AMENITY	COUNT
Rooftop Open Space	10
Fitness Center	8
Common Lounge	8
Study Area	3
Entertainment/Recreation Center	5
Landscaped Outdoor Space	5
No-Data/NA	5

Rooftop open spaces and terraces were very common in high and mid-rise apartment buildings, as were fitness centers and gyms. The majority of sampled buildings featured a common space for residents of some kind, such as a shared lounge or entertainment room. Substantial landscaped outdoor space was less common but was present in a limited number of developments. One unique finding was that shared tenant amenities were often clustered, in that certain buildings had nearly all of the amenity types identified in Table 20 while other developments had minimal or no private amenity space types.

Key Findings

- The City of Waterloo acquired five properties during the study period for the purpose of creating future parks or parkettes in Northdale, with a total investment of over $2.5 million. These new parks are now in the design stage, indicating progress is being made.
- The WCI and Wilfrid Laurier University lands on Hazel Street have been recognized for their significant potential as community building assets.
- Indoor private amenity areas such as common lounges, fitness centers, rooftop open spaces and terraces are very common in new Northdale developments, improving the neighbourhood amenity space network.
- Landscaped outdoor spaces were not identified frequently in the sampled developments and were relatively limited in size and utility when evident.

Analysis Task 6-2: Street Typology

Following discussions with WSP and City of Waterloo staff during the post-presentation debrief meeting (April 1, 2019), it was decided not to complete Analysis Task 6-2: Street Typology. Per the Methodology and Modelling Report (Appendix A), the intent of this task was to review the status of capital projects pertaining to accomplishing the preferred street typologies, streetscape and urban design elements to determine progress over time.

During the study period, it is understood that the City of Waterloo has been accomplishing the preferred streetscape elements identified within the Northdale Plan, through retaining IBI Group to undertake the Northdale Streetscape Master Plan and providing funding along key streets (Hickory Street West & Spruce Street West). The Northdale Streetscape Master Plan, completed by IBI Group is outside of the project scope, and through discussions with City of Waterloo Staff, it was understood that updates to the Master Plan was on a year to year basis and, at the time of this report's preparation, the City of Waterloo was midway through the completion of the University Avenue Gateway Study in collaboration with IBI Group. When complete, this study will have significant implications for the redesign of University Avenue, which is a key part of the study area. Accordingly, the completion of this task was deemed premature.

4.7 Durable

In the context of Principle 7 of the Northdale Study, the durability of the neighbourhood is understood to be reflected in efforts to ensure that development is environmentally progressive. Projects that have pursued Leadership in Energy and Environmental Design (LEED) certification and the integration of sustainable design strategies have been addressed.

Analysis Task 7-1: Leadership in Energy and Environmental Design (LEED) Certification

LEED certification is a globally recognized standard for environmentally progressive development. A search of the Canada Green Building Council (CGBC) LEED Database and secondary sources was conducted to identify LEED certified buildings in Northdale. All levels of LEED certification were included in the search.

According to the CGBC database, there are a total of 35 LEED certified buildings in the City of Waterloo as of April 2019, two of which are located within the study area. Wilfrid Laurier University's Lazaridis Hall (75 University Avenue W) attained LEED Gold Certification. Some of its sustainable features include on-site stormwater quantity reduction controls, water efficient landscaping, and increased ventilation. One residential development, 116 University Avenue W, attained LEED Platinum Certification. Sustainable features of 116 University include boiler powered indoor radiative heating, extensive glazing for natural light, and well-insulated walls.

While LEED certification is used as an indicator of sustainable built form features, developers may implement these features while not seeking certification, due to the costs involved and the length of the process. Therefore, there may be other projects in the study area with sustainable built form features, but identifying them would require more detailed research which is beyond the scope of this report.

The Tax Increment Grant (TIG) Program was proposed through the Northdale Community Improvement Plan and subsequently adopted by the City of Waterloo. The TIG Program gives proponents annual grants for up to ten years, equal to a percentage of the property tax increase of a new project. The intent of the TIG Program was to incentivize the use of sustainable building strategies, with LEED certification used as a qualifying performance indicator. Based on consultations with City of Waterloo staff, it is understood that no projects have used the TIG Program. Since Section 6.3 of the CIP only allows developers to enter one incentive program, to date, all developers have chosen to utilize Section 37 density bonusing agreements instead, discussed in further detail in Task 10-2. As a result, this limits LEED certification support.

116 University Avenue W, a LEED Platinum Certified low-rise apartment building

LIMITATIONS

Information on the LEED Platinum Certification of 116 University Avenue W was not available on the Canada Green Building Council webpage, and was identified from secondary data sources instead.

Key Findings

- LEED certification in Northdale is limited to two projects: Lazaridis Hall (Gold) and 116 University Avenue W (Platinum).
- There are limited examples of projects pursuing LEED certification for residential, mixed-use, and commercial projects.
- The Tax Increment Grant Program of the Community Improvement Plan has not been successful in incentivizing developers to pursue LEED certification.

4.7 Durable (con't)

Analysis Task 7-2: Sustainable Strategies in New Development

The use of sustainable strategies in Northdale was assessed by analyzing seven properties in the neighbourhood through site visits. The chosen properties, shown in Table 21, are intended to be representative of development across the neighbourhood. During the site visits, a NAG staff member identified evidence of the following sustainable strategies and indicators of durability:

1. Building materials that did not exhibit visible signs of weathering and appear to be durable;
2. Pervious surfaces and paving materials such as open pavers; and,
3. Permeable surfaces bordering hardscaped areas to facilitate storm water infiltration.

Table 21: Sustainable Strategies Assessment Results

Property	1 - Building Materials Not Weathered, Durable	2 - Pervious Surfaces and Paving Materials	3 - Permeable Surfaces near Hardscaping
300 Phillip Street	Building materials appear durable and unweathered	No open pavers or rubber mats Storm drains and soft landscaping	Minimal soft landscaping in general
280 Lester Street	Building materials appear durable and unweathered	No open pavers or rubber mats Storm drains and soft landscaping	Some soft landscaping in general Half of the frontage is soft landscaping
336 Albert Street	Building materials appear durable and unweathered	No open pavers or rubber mats Storm drains and soft landscaping	Some soft landscaping in general Area between building and side lot line is fully soft landscaping
64 University Avenue	Building materials appear durable and unweathered	No open pavers or rubber mats Storm drains and soft landscaping Stones and soil at base of building provide drainage	Some soft landscaping in general Half of the frontage is soft landscaping
318 Spruce Street	Building materials appear durable and unweathered	No open pavers or rubber mats Storm drains and soft landscaping	Some soft landscaping in general A third of the frontage is soft landscaping
62 Balsam Street	Building materials appear durable and unweathered	No open pavers or rubber mats Storm drains and soft landscaping Stones and soil at base of building provide drainage	Minimal soft landscaping in general
1 Columbia Street	Building materials appear durable and unweathered	No open pavers or rubber mats Storm drains and soft landscaping	Extensive soft landscaping in general

None of the buildings on these properties show signs of deterioration, and all buildings appear to have been constructed with durable materials. For example, brick was noted as a common building material for the majority of these developments.

None of the properties feature open pavers or rubber mats, but there are storm drains on every property to facilitate drainage. In addition, soft landscaping for natural infiltration was incorporated on all properties in varying degrees. For example, some parking lots had soft landscaped islands, while others did not.

Soft landscaping was frequently observed along the frontage of properties. At 300 Phillip Street, there is minimal soft landscaping relative to the impervious surfaces in this area (Figure 22), while the opposite is the case at 1 Columbia Street (Figure 23). Overall, most properties featured a balance of hard to soft landscaping along the frontage of their properties.

Figure 22: Impervious surfaces at 300 Phillip Street

Figure 23: Soft landscaping at 1 Columbia Street

The majority of developments had soft landscaping located between the building and the side lot line. At 75 University Avenue, there is a significant grade change adjacent to the building that causes rainfall to migrate to its base (Figure 24). There are loose stones and soil near the base of the building to mitigate the accumulation of rainfall at this location. The same strategy appears to have been used to address similar circumstances at 62 Balsam Street.

4.7 Durable (con't)

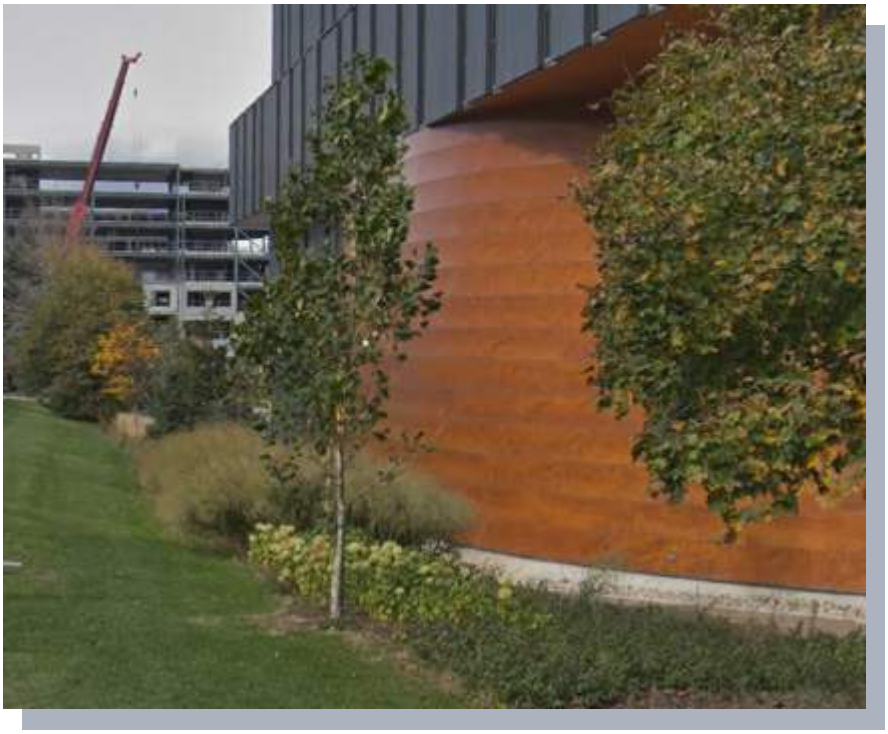


Figure 24: Stones, soil, and vegetation at the base of Lazaridis Hall (75 University Avenue) that provide stormwater infiltration

Key Findings

- All properties generally exhibited minimal deterioration and weathering, and durable materials appeared to be used.
- Soft landscaping has been incorporated on all properties to increase natural infiltration to varying degrees.
- Soft landscaping is typically located between buildings and their front and side lot lines.
- There was no evidence of alternative design solutions such as the use of hard permeable pavers.

4.8 Safe

Safety in the Northdale neighbourhood is assessed through the implementation of Crime Prevention Through Environmental Design in new development and the tracking of police occurrences reported in the study area. Neighbourhood safety is a complex and multidimensional concept, and while the following tasks seek to establish conclusions with respect to safety, NAG acknowledges that there are numerous other contributory factors not assessed in this report, such as income levels, Waterloo Regional Police Service resources, and broader municipal trends in safety.

Analysis Task 8-1: Crime Prevention Through Environmental Design (CPTED)

NAG staff completed site visits at seven developments advanced during the study period to audit the use of Crime Prevention through Environmental Design strategies. NAG derived a CPTED checklist from the 2012 Northdale Urban Design and Built Form Guidelines consisting of the following items:

- Areas on the property are subject to “eyes on the street” (natural surveillance) and/or have surveillance cameras installed;
- Adequate lighting in pedestrian areas;
- Clear sightlines into building entrances, parking areas, and amenity spaces;
- Limited narrow spaces which are not supported with natural surveillance and lighting;
- Pedestrian access is directed to open spaces.

Each audit item was marked as “achieved” or “not achieved” for every property. Figure 25 summarizes the audit findings, with the major audit findings for each property included below.

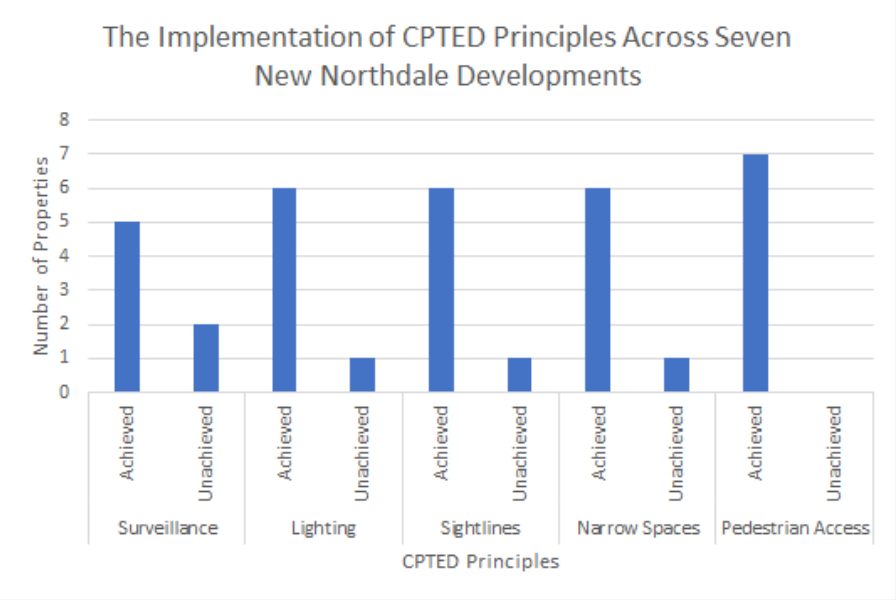


Figure 25: CPTED Audit Statistics

4.8 Safe (con't)

300-330 PHILLIP STREET

Surveillance (Achieved): The building provides sufficient opportunities for natural surveillance of the parking area by enclosing it. Surveillance cameras were observed at various locations throughout the property.

Lighting (Achieved): Lighting fixtures were identified around the building and along pedestrian pathways. The parking lot is well lit with multiple fixtures which provide adequate lighting for all areas of the property behind the building.

Sightlines (Not Achieved): There are no sightlines into several entrances at the rear of the building and near the rear lot line. Further, the majority of the parking lot is obscured from pedestrian sightlines on public streets.

Narrow Spaces (Achieved): Narrow spaces exist on this property as the building extends to the rear lot line and is only setback a small distance from side lot lines. These areas are supported by lighting fixtures and opportunities for natural surveillance via windows.

Pedestrian Access (Achieved): By providing a walkway through the front of the building, the architecture effectively directs pedestrian access to the parking lot located behind the building. Coloured pavement is used to guide pedestrian activity between entrances and amenity areas.

280 LESTER STREET

Surveillance (Achieved): Balconies and windows from residential storeys provide natural surveillance of the amenity space. They also achieve this for the ground level parking. Surveillance cameras were identified at multiple locations on the property.

Lighting (Achieved): There are two fixtures in the parking lot that provide adequate lighting for the area. Lighting fixtures surround the building and the amenity area.

Sightlines (Achieved): There are sightlines from pedestrians on Lester Street and residents into the property's amenity space. There are clear sightlines into every entrance of the building. From Hickory Street, there are sightlines into the underground parking entrance and the ground level parking lot to the south.

Narrow Spaces (Achieved): There is one narrow space on this property between the underground parking entrance and the building, however its vulnerability is addressed by lighting fixtures, a camera, and natural surveillance from Hickory Street.

Pedestrian Access (Achieved): A walkway beginning on Lester Street continues around the edge of the entire building. It directs pedestrians to multiple entrances and the ground level parking lot. The amenity area is easily accessible and visible from Lester Street.

336 AND 338 ALBERT STREET

Surveillance (Achieved): The parking area is enclosed by two storeys of residential units that provide natural surveillance. These units also provide surveillance for the rear of the lot which connects to Hemlock Street. No cameras were identified on the property.

Lighting (Achieved): Fixtures attached to the building provide lighting for the parking area. There are also fixtures at the rear of the lot that provide lighting on the property beyond the parking area.

Sightlines (Achieved): By providing a walkway and driveway through the front of the building, the architecture effectively creates a sightline to the entire parking area from Albert Street.

Narrow Spaces (Achieved): The only narrow spaces on this property are between the building and the side lot lines. The balconies and windows of residential units provide natural surveillance of these areas.

Pedestrian Access (Achieved): Walkways and driveways from Hemlock Street and Albert Street effectively lead pedestrians to the parking area and the residential units surrounding it.

64 UNIVERSITY AVENUE

Surveillance (Not Achieved): There are minimal opportunities for natural surveillance between the building and its west lot line. The building does not include windows facing this area and no cameras were identified. The adjacent grade change obscures this unmonitored space.

Lighting (Not Achieved): While light fixtures exist at the front of the property and the parking area behind the building, there is no lighting between the building and its west lot line.

Sightlines (Achieved): There are clear sightlines to building entrances from Balsam Street and University Avenue. The entire parking lot is visible from Balsam Street.

Narrow Spaces (Achieved): None of the areas on this property are narrow.

Pedestrian Access (Achieved): Walkways and driveways from Balsam Street lead pedestrians to the parking area and building entrances.

4.8 **Safe** (con't)

318 SPRUCE STREET

Surveillance (Achieved): The windows of the building are positioned to provide natural surveillance of the ground level parking area and the open area of the property located behind the building. Multiple surveillance cameras were identified around the perimeter of the building.

Lighting (Achieved): There are multiple light fixtures in the parking area. Other fixtures were identified around the perimeter of the building, as well as in the open area located behind the building.

Sightlines (Achieved): From Spruce Street, there are clear sightlines into the underground parking entrance and into the ground level parking area north of the building.

Narrow Spaces (Achieved): One narrow space was identified between the underground parking entrance and the south lot line. There are opportunities for natural surveillance of this area from Spruce Street and it is near a streetlight.

Pedestrian Access (Achieved): The only access onto the open space of this property immediately directs pedestrians to the parking lot.

62 BALSAM STREET

Surveillance (Not Achieved): Although some surveillance cameras were identified on the property, there is a pocket of open space in the northeast of the property that is unmonitored. There are no cameras or opportunities for natural surveillance for this area.

Lighting (Achieved): There are multiple light fixtures in the parking area and on other areas of the property. Fixtures are also located near the driveway access and building entrances.

Sightlines (Achieved): There is a clear sightline into the parking area from Larch Street. Residential units enclose this space and provide additional sightlines.

Narrow Spaces (Not Achieved): One narrow space was identified between the building on Balsam Street and the property to the west. This is an area of vulnerability, as there are no light fixtures or natural surveillance opportunities.

Pedestrian Access (Achieved): The only access onto the open space of this property is from Larch Street and it immediately directs pedestrians to the parking lot.

1 COLUMBIA STREET

Surveillance (Achieved): All open spaces are adjacent to public streets that provide opportunities for natural surveillance. Surveillance cameras were identified around the building.

Lighting (Achieved): There are multiple light fixtures on this property to support open areas.

Sightlines (Achieved): There is a clear sightline into the open areas on this property from public streets.

Narrow Spaces (Achieved): There are no narrow spaces on this property.

Pedestrian Access (Achieved): All accesses on this property direct pedestrians to building entrances. The only other access is a driveway access to the above-ground parking structure.

LIMITATIONS

The CPTED audit inherently involves a degree of subjective professional judgement to determine whether a particular item was achieved based on a balance of observations. Further, while CPTED is a site-specific concept, the seven audits are used to make generalized conclusions about the broader neighbourhood.

Key Findings

- CPTED strategies are generally successfully implemented in new developments.
- There is room for improvement with respect to surveillance, lighting, sightlines and narrow spaces.
- CPTED should remain a high priority during the Site Plan Control process to ensure that new development in Northdale contributes to a broader sense of safety.

Analysis Task 8-2: Police Reported Occurrences

The Waterloo Regional Police Service releases an annual dataset containing all police-reported occurrences. Occurrences include calls received by the Communications Centre from a non-emergency line, 911 calls, and events initiated by a police officer (e.g. a vehicle stop). While statistics derived from this dataset indicate demand on police services and not actual crime, it is a consistent source of data over time and a reasonable proxy to assess safety.

Each reported occurrence is categorized based on predetermined call types (e.g. bylaw complaint, disturbance, etc.) and the intersection closest to where the occurrence was reported is provided. Utilizing this spatial information, occurrences in Northdale were extracted from the 2012 and 2017 datasets. A subset of reported occurrences was deemed to be the most indicative of criminal activity, and has been categorized into three groups:

- Theft-related occurrences
- Violent occurrences
- Other occurrences

There was a 13.5% increase in the frequency of these occurrences during the study period. At a larger geographic scale, the City of Waterloo experienced a 14.8% increase in these occurrences during the same period.

With respect to theft-related occurrences, Extortion, Theft- Over $5000, and Prowler activity represented very few of the reported occurrences in both years. There was an increase during the study period in: Robbery, Break and Enter, Theft- Motor Vehicle, and Theft- Under $5000. Relative to other occurrences included in this group, Theft - Under $5000 was the most reported occurrence in both 2012 and 2017, followed by Break and Enter with approximately half as many occurrences. This data is depicted in Figure 26.

Data on violent occurrences is depicted in Figure 27. Assault was the most common occurrence in both years. More than 70 occurrences were reported in both 2012 and 2017, with a slight increase between the two periods. Though representing a relatively small number of occurrences in this group, there were more than twice as many occurrences of Sexual Offence and Offensive Weapon in 2017 compared to 2012. During both years, there were no homicides reported in Northdale.

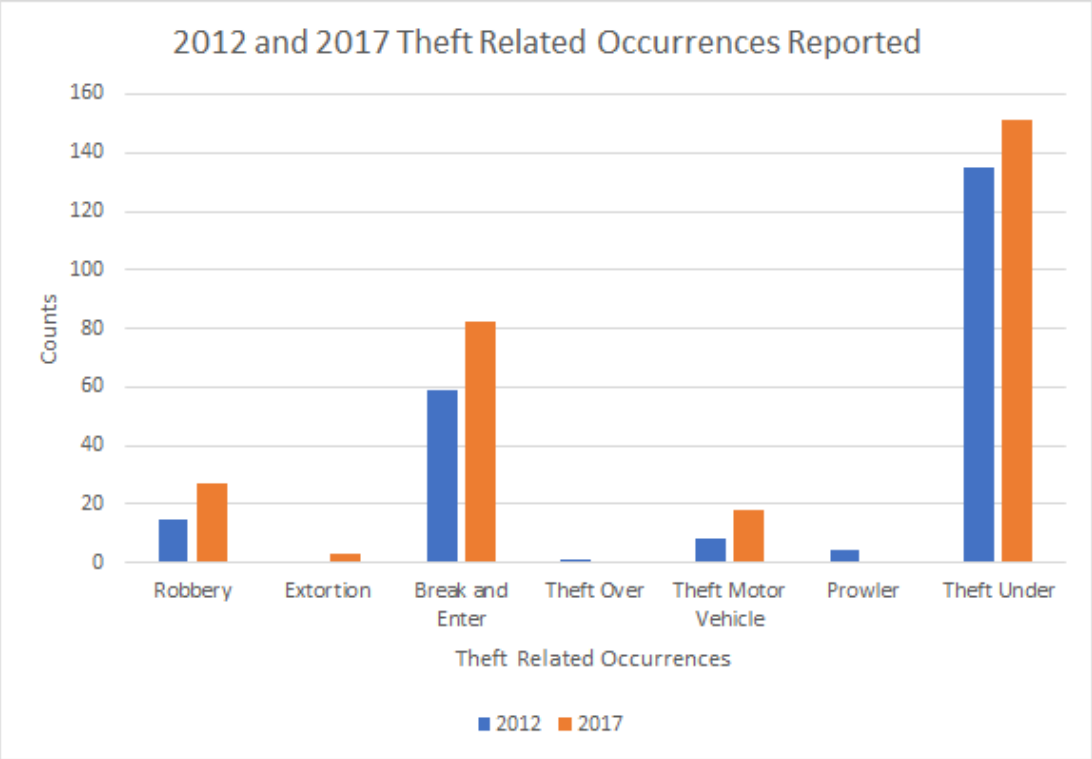


Figure 26: Theft-related police-reported occurrences

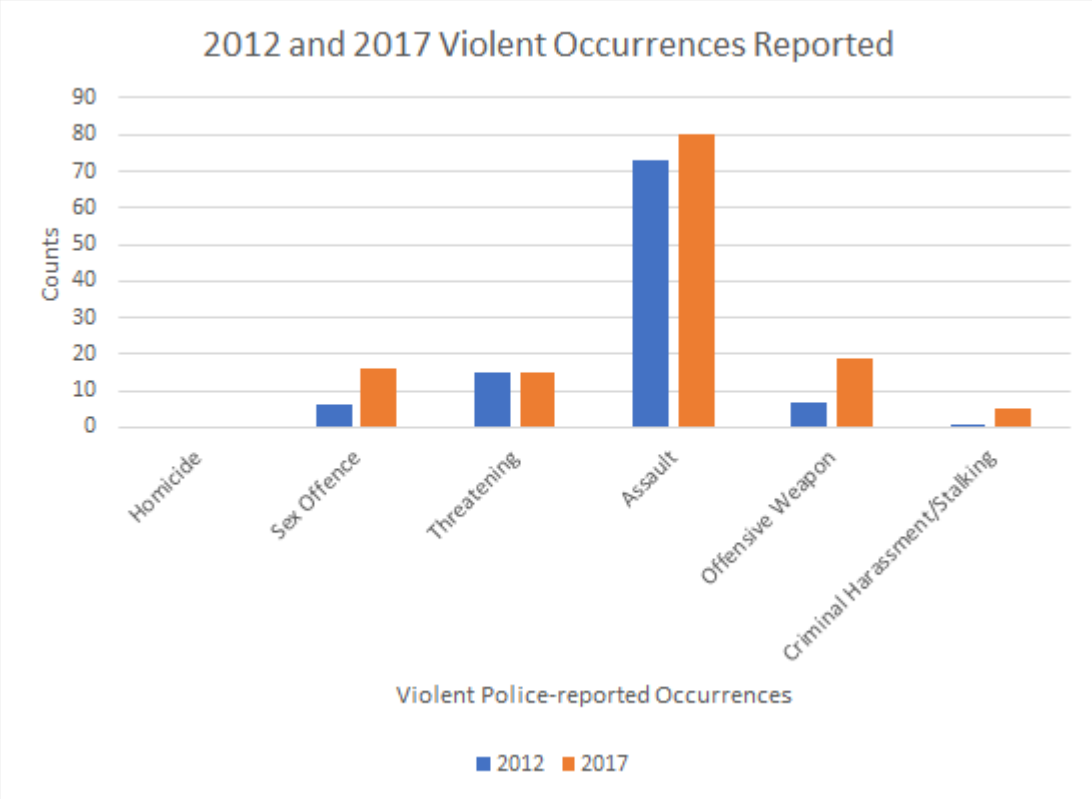


Figure 27: Violent police-reported occurrences

4.8 Safe (con't)

Among the remaining crime-related occurrences, Disturbance was the most frequently reported in both 2012 and 2017, although a decrease over time is observed. Conversely, there were more occurrences of Suspicious Person and Arrest reported that year. The number of Property Damage occurrences was stable between the two years, although this occurrence is common within its group. The following police-reported occurrences were rare or non-existent in both 2012 and 2017: Indecent Act, Abduction, Unknown Call Requiring Police Assistance, Public Mischief, Suspicious Vehicle, Human Trafficking, and Graffiti. This data is depicted visually in Figure 28.

Figure 29 depicts where crime-related occurrences were reported in 2012 and 2017 to the nearest intersection. In 2012, a significant number of occurrences were reported near the University Avenue / King Street and University Avenue / Phillip Street intersections, in close proximity to the two commercial plazas. A high number of occurrences were reported near the University Avenue / King Street intersection in 2017 as well. From 2012 to 2017, certain intersections experienced a notable increase in occurrence reporting, including: Hickory Street / King Street, Hickory Street / Spruce Street, and Hazel Street / Balsam Street. Conversely, certain intersections saw a decrease over time including Lester Street / University Avenue and Hazel Street / Hickory Street.

LIMITATIONS

As noted above, the intent of this task is to generate a reasonable proxy for overall safety in Northdale. One of the primary limitations is that only 2012 and 2017 are assessed, and not the interim years. Either year could be an outlier when considered against the broader datasets. The datasets also include cancelled occurrences and instances where a single occurrence was reported multiple times, potentially over-representing activity in the study area. Finally, an unknown proportion of the occurrences included in this analysis were reported outside the study area, but were included because the nearest intersection from where those occurrences took place is located in the neighbourhood.

Key Findings

- There were 13.5% more police-reported occurrences indicative of crime in 2017 than in 2012, but a similar result was found for the City of Waterloo.
- In general, more theft-related and violent occurrences were reported in 2017 than in 2012
- Disturbance remained a common police-reported occurrence in 2017 but was less common than in 2012.
- In 2017 more crime related occurrences were reported near the Hickory Street / King Street, Hickory Street / Spruce Street, and Hazel Street / Balsam Street intersections

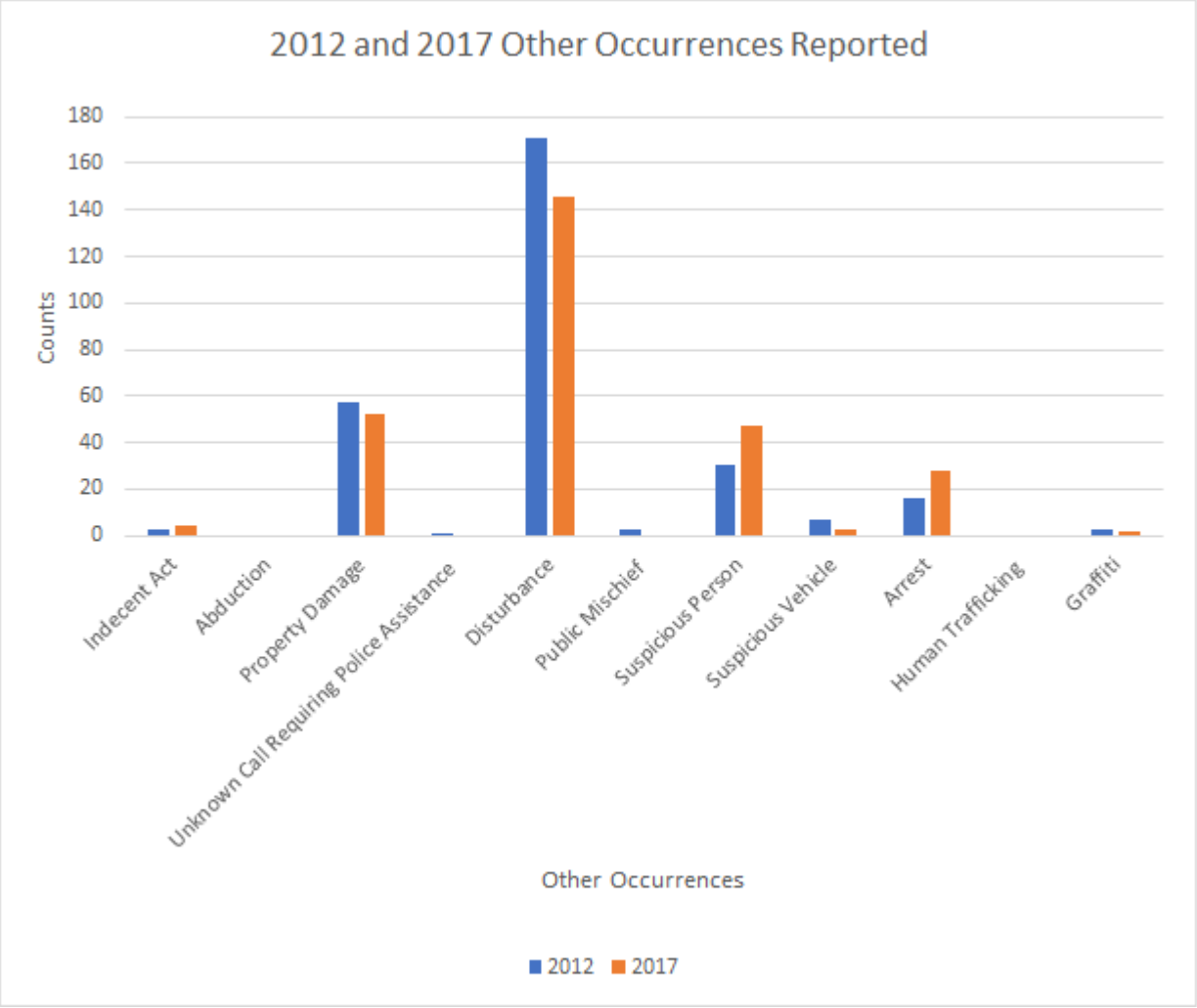


Figure 28: Other police-reported occurrences

4.8 Safe (con't)

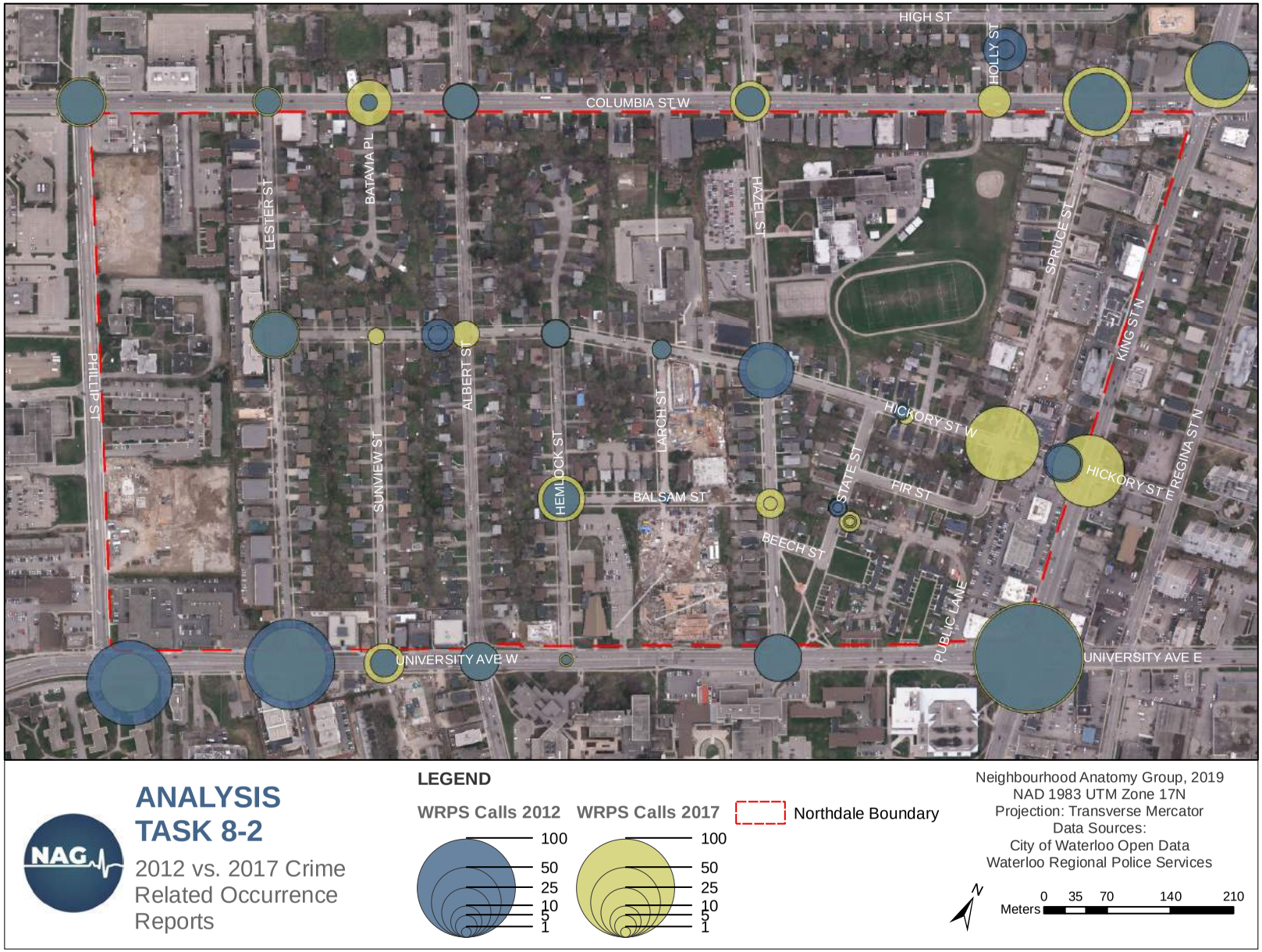


Figure 29: Map of Crime Related Occurrences

4.9 Flexible

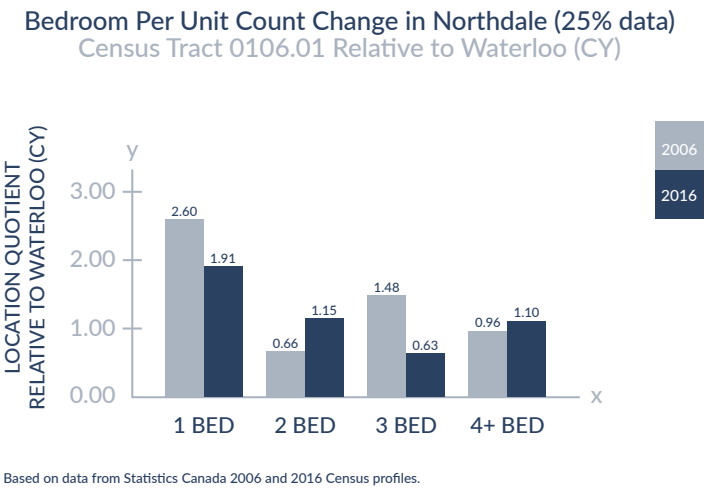
Northdale's role has evolved significantly over its 70 year history, and will continue to change with future market conditions. The flexibility of the neighbourhood to adapt to these changes is assessed in terms of the number of bedrooms per residential dwelling unit, and the consistency of new development with the Convertible Street Frontage Guidelines.

Analysis Task 9-1: Unit Bedroom Composition

A commonly encountered concern in Northdale was the provision of residential dwelling units with four and five bedrooms. While such units are suited to providing low-cost rental accommodation to university students, these units are inflexible to other market segments. Specifically, young professionals and small families which may require one and two-bedroom dwellings would be unlikely to move into Northdale if such units are not available. For the neighbourhood to flexibly adapt to decreased student demand and increased demand from other market segments, it was recommended that additional one and two-bedroom units be built.

Census data of bedrooms per unit was compared for 2006 and 2016 (2011 census data was unavailable for this metric). Figure 30 presents results inconsistent with the general trends observed in this report. There are several changes including a significant loss of one and three-bedroom units, and an increase in six-bedroom apartments. Due to reasons explained in the limitations section below, there may be reliability issues with the data.

To supplement the use of census figures, City of Waterloo building permit data was retrieved for 2008 to 2019. For building permits for new residential development, unit counts and total bedrooms were used to determine the average number of bedrooms per unit for the entire project. Permits that did not report this information were excluded from the averages. The findings of this analysis are included in Table 22.



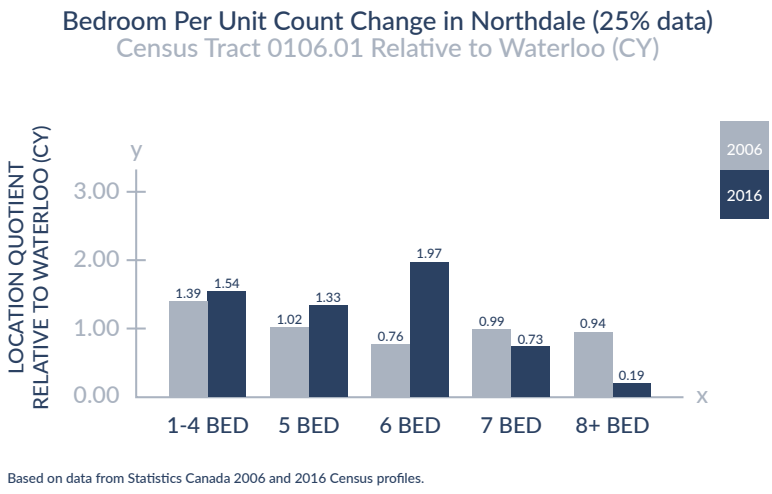


Figure 30: 2006 and 2016 census bedroom per unit count data

4.9 Flexible (con't)

Table 22: Unit Bedroom Composition for New Development

	2008 to 2012	2013 to 2019
Average Number of Bedrooms Per Unit, All Projects	4.7	2.1
Count of Projects Based on Bedroom Per Unit Average		
1 Bedroom Per Unit	0	27
2 Bedroom Per Unit	0	5
3 Bedroom Per Unit	2	5
4 Bedroom Per Unit	3	3
5 Bedroom Per Unit	21	6
Total Projects	**26**	**46**

As seen in Table 22, the findings show that new developments have been conformed to the recommendations of the 2012 Northdale Study. The average number of bedrooms per unit for new development decreased from 4.7 in the four years preceding the adoption of the 2012 Northdale Study to an average of 2.1 during the study period. Further, the number of projects with an average of five bedrooms per unit decreased from 21 to 6, while the number of projects with one and two bedrooms increased significantly from 0 to 32. Developers are increasingly offering units with reduced numbers of bedrooms in their new projects. Such buildings have more flexibility to adapt to changing market conditions, with specific appeal to non-students groups such as young professionals or families for whom five bedroom units are unsuitable.

LIMITATIONS

The census analysis compares 2006 and 2016 due to data availability issues for 2011. This may mean that changes occuring during the time when the 2012 Northdale Study was being prepared are overlooked. Another problem is the use of two different categories, seen in Figure 30, which creates a gap at the four bedroom mark. The census shows units with four or more bedrooms, and units with one to four bedrooms, meaning that a clear breakdown by bedroom cannot be made. Further, the census data is based on 25 percent samples, which means that the data may not be representative of the neighbourhood.

Key Findings

- Census data with respect to bedrooms per unit has significant limitations.
- The average number of bedrooms per unit in new developments decreased from 4.7 to 2.1 before and after the adoption of the 2012 Northdale Study, respectively.
- A significant increase is evident in projects offering one and two-bedroom units.

Analysis Task 9-2: Convertible Street Frontage Guidelines

The Convertible Street Frontage Guidelines outlined in the 2012 Northdale Study focus on three considerations for new developments:

1. Tall ground floors (4.5 metres);
2. Large windows and entrances; and,
3. Street setbacks between 1 and 5 metres.

Together, these built form and siting elements will enable ground floor uses to be converted to commercial space when given market conditions arise. As such, buildings that were entirely residential when built can flexibly adapt over time to become mixed-use.

Table 23 assesses the presence of these factors in a representative sample of 22 developments throughout the study area. These evaluations were supported by development application packages and the review of Google StreetView imagery. This evaluation shows that the majority (two thirds) of new developments are implementing the guidelines. This means that many of the newly erected buildings in the area will be suitable for potential repurposing, making for a flexible range of developments.

Given Northdale's vision for becoming a neighbourhood that is flexible and that allows people to live, work, and play in the same area, the proportion of projects with convertible frontages is positive for achieving balance and flexibility. Even if buildings are not converted for commercial use, the extra space from large setbacks can be redesigned to reduce the gap between the public and private realms.

4.9 Flexible (con't)

Table 23: Implementation of Convertible Street Frontage Guidelines

No.	Street	Tall ground floors (4.5 meters)	2. Large windows, display areas and entrances	3. Street setbacks: maximum 5.0 metres and minimum 1.0 metre.
222	Albert	YES	YES	YES
250	Albert	YES	YES	YES
253	Albert	YES	NO	YES
288-294	Albert	YES	YES	YES
336-338	Albert	YES	YES	YES
62	Balsam	YES	YES	YES
1	Columbia	YES	YES	YES
251	Hemlock	PARTIALLY	PARTIALLY	YES
287-289	Hemlock	NO	NO	YES
297-299	Hemlock	NO	NO	NO
333	King	NO	NO	NO
272	Larch	YES	YES	NO
280	Lester	YES	YES	YES
253-255	Lester	NO	NO	YES
250-256	Phillip	YES	YES	YES
300-330	Phillip	YES	YES	NO
318	Spruce	YES	YES	NO
321	Spruce	NO	NO	YES
255	Sunview	NO	YES	NO
250-254	Sunview	NO	YES	NO
64	University	YES	YES	NO
110	University	NO	NO	NO

LIMITATIONS

There are no limitations for this analysis task.

Key Findings

- Two thirds of sampled developments were consistent with the Convertible Street Frontage Guidelines.
- New developments are generally able to be flexibly adapted for ground-floor commercial uses in a manner consistent with the 2012 Northdale Study.

4.10 Collaborative

City-building is a collaborative process involving a wide range of public, private, and institutional stakeholders. To determine whether the development of Northdale was collaborative during the study period, cases of multi-stakeholder partnerships were assessed, including the use of Community Improvement Plan incentives. The use of Section 37 bonussing agreements is also analyzed.

Analysis Task 10-1: Multi-Stakeholder Partnerships

Since the adoption of the 2012 Northdale Study, there have been several collaborative efforts to improve the quality of the neighbourhood. According to the 2018 update of the IBM Smarter Cities Initiative, positive change of a collaborative nature is indeed occurring, supported by a variety of stakeholders, which include the City of Waterloo, the Universities, Conestoga College, and several other local corporate firms and non-corporate organizations.

IBM SMARTER CITIES INITIATIVE

The following is a summary of activity in Northdale as described in the IBM Smarter Cities Initiative update (Nevin, 2018).

The City of Waterloo has proposed making Waterloo Collegiate Institute a community hub for Northdale, and has initiated the WCI Northdale Community Hub Feasibility Study to determine the potential for enhancing existing facilities or for building new facilities for the use of the community. This includes a performance venue, health and wellness facilities, playing fields, and limited retail functions, such as a café. The study area includes the WCI property and adjacent lands owned by Wilfrid Laurier University (see also Analysis Task 4-1).

The Smarter Cities update noted a slowdown in development activity in Northdale. Between 2012 and 2017, applications averaged 1500 beds per year. Only three building permits were issued between January and June of 2018, totalling 289 beds for a decrease of approximately 60 percent. According to the Smarter Cities update, this aligns with research conducted by the Student Housing Working Group in 2017, an organization under the City's Town and Gown Committee. The research showed a growing oversupply of student housing, supported by media interviews of small-home landlords in the area who claim that finding renters is becoming increasingly difficult (CTV News Kitchener, 2015).

Active transportation amenities (including bicycle parking and public pathways) and parkland have been secured by the City of Waterloo in the process of several developments. With five walkways and three parks planned or built, several key obstacles to pedestrian and cyclist flows have been eliminated, and Northdale's Streetscape Masterplan Project is now in the works, with "substantial funding" (p. 103) allocated. The University Avenue Gateway Project is currently underway, a joint-venture between the University of Waterloo, WLU, Conestoga College, the City of Waterloo,

and the Region of Waterloo. The intent of this study is to determine how to increase the street's centrality and connect the three post-secondary campuses.

CityStudio was recently launched, a collaboration between Wilfrid Laurier University and the City of Waterloo, in which students will develop ideas for Northdale's revitalization through academic coursework. Similar undertakings have occurred in partnership with the University of Waterloo, where students in the School of Planning have worked on simulation projects to improve the streetscape in Northdale, later assessed by professionals from the City of Waterloo, other local authorities, and consulting firms. While these projects have no direct impact on developments in Northdale, student creativity and passion is informally transferred to governmental representatives.

A community wellness initiative has been undertaken by the City of Waterloo, post-secondary institutions, and Waterloo Regional Police Service, with plans to gather data from the local population to assess their needs. This initiative will be complemented by similar quality of life initiatives proposed by IBM, which include a focus on arts and culture.

MEDIA REVIEW

A review of media sources has not revealed any other formal or informal partnerships. These collaborations are regularly covered by local news organizations, and the articles appear to reflect a mix of positions. In general, the change has been described as positive with endorsements made for the partnerships and overall neighbourhood enhancement (Beattie, 2016a; Beattie, 2016b; Beattie, 2017; Desmond, 2016a; and Desmond, 2016b). The issue of housing oversupply has been criticized by local media (CTV News Kitchener, 2015).

NORTHDALE COMMUNITY IMPROVEMENT PLAN INCENTIVES

In addition to a qualitative review of multi-stakeholder partnerships, the Methodology and Modelling Report (Appendix B) requires the completion of a quantitative analysis of the Northdale Community Improvement Plan. Specifically, this analysis is to address its development incentive programs as found in Appendix C of the Methodology and Modelling Report. The Community Improvement Plan programs are listed as follows:

1. Development Charge Grant Program
2. Tax Increment Grant
3. Residential Intensification and Affordability Loan / Grant Program
4. Residential Rehabilitation Grant Program
5. Urban Design Study Grant
6. Planning and Building Fees Grant Program

This portion of Analysis Task 10-1 was not carried out due to the limited implementation of the incentive programs. Based on information found in the most recently available Council meeting packets (City of Waterloo, 2015a), programs 1, 4, 5, and 6 are inactive and unfunded to date. Meanwhile, program 2 has been launched, with no applications to date. The underutilization of the Tax Increment Grant Program is due to the fact that developers may only take advantage of either a Community Improvement Plan incentive or a Section 37 density bonusing agreement (see Analysis Task 7-1). To-date, developers have opted for the latter. Program 3 has been placed on hold until 2019 due to the current oversupply of student housing (City of Waterloo, 2015b).

LIMITATIONS

Another limitation is the lack of data on partnership success. While data is available on the number of initiatives and the funds that have been contributed, both qualitative and quantitative primary source-based analyses should be conducted to assess the outcomes of these initiatives and multi-stakeholder partnerships.

Key Findings

- Multi-stakeholder partnerships are increasingly being used in Northdale, including with: post-secondary institutions (University of Waterloo, WLU, Conestoga College), WCI, the Region of Waterloo, Waterloo Regional Police Service, and the Town and Gown Committee.
- Positive change is occurring with the help of strategic partnerships, including more public spaces, street enhancements, and active transportation infrastructure. As for developments, slowdown of development and diversification of housing types available.
- The majority of Community Improvement Plan incentives have not been implemented due to municipal funding and resource constraints, as well as market conditions.
- New initiatives are in the early stages of development such as the creation of a community hub at WCI and actions targeting health, wellness, arts and culture.

4.10 Collaborative (con't)

Analysis Task 10-2: Section 37 Agreements

Of the 39 developments requiring a Zoning By-law Amendment in Northdale between 2012 and 2019, 9 were subject to density bonusing provisions under Section 37 of the Planning Act. A summary of each agreement is provided in Table 24, taken from the City of Waterloo's Density Bonusing Review (City of Waterloo, 2018, pp. 18-19).

As a result of these agreements, several public walkways were secured, streetscape improvements were made, and a variety of public amenities were installed throughout the City of Waterloo. Several agreements established monetary contributions to the Waterloo Memorial Recreation Complex and the Waterloo Festival Park Heart Project. The standard contribution was $10,000 per additional bedroom secured, although some agreements were structured differently. The variety in developer-provided amenities is a positive trend, and this should be further encouraged.

LIMITATIONS

No limitations were experienced by NAG in the completion of this analysis task.

Key Findings

- 9 / 39 developments that required a Zoning By-law Amendment entered into Section 37 agreements for additional density.
- Public benefits secured from these agreements include the construction of new walkways, streetscape improvements, and monetary contributions to the Waterloo Memorial Recreation Complex and the Waterloo Festival Park Heart Project.

Table 24: Density Bonusing Agreements Summary

For	**253, 255 King St N**	**144 Park St**	**300-330 Phillip St**	**124-130 Columbia St W & 365 Albert St**	**243-255 Hemlock (Sage 6)**
Additional Density (Bedrooms)	**43 units**	**38 bedrooms**	**288 bedrooms**	**4m height**	**4 bedrooms**
Public Space Improvement	$165,000 cash contribution to Uptown Public Square	$205,465.02 cash contribution to Iron Horse Trail			
Walkway (conveyance)					Dedication of land/installation of public walkway
Public Art	0.5% of value of gross construction costs or maximum of $150,000.	1% of value of construction as stated on building permit ($250,000). Any funds not utilized for public art shall be provided in a certified cheque to City	1% of gross construction costs (max. $250,000). If, prior to occupancy fund not utilized, shall be provided to the City in the form of certified cheque, to be used for for Public Art in Northdale neighbourhood.	1% of gross construction costs (max. $200,000). If, prior to occupancy fund not utilized shall be provided to the City in the form of certified cheque, to be used for Public Art in other locations, at the City's discretion.	
Landscaped Open Space/Public Space	Streetscape improvements for public boulevard on University Ave and King Street N. Provide letter of credit=100% of value of streetscape improvements	Provide letter of Credit=100% value of landscape works	Provide letter of Credit=100% value of landscape works	Internal promenade (no value assigned) Letter of Credit for 100% estimated cost of works	
Enhanced Architectural Design	Enhanced architectural design	Architectural features exceeding prevailing standard			
Underground Parking	2 levels	40% required parking	60% required parking	70% required parking	
LEED Certification			$50,000 LEED deposit (forfeited)		

4.10 **Collaborative** (con't)

	275 Larch Street (The Block)	**318 Spruce Street (Sage 2)**	**336-338 Albert St and 297-299 Hemlock St (Ivy Towns 3)**	**250-266 Sunview St**	**250-256 Albert St (Sage 8)**	**257-263 Hemlock St (Sage 10)**
Additional Density	**140 bedrooms**	**23 bedrooms**	**3 bedrooms**	**7 bedrooms**	**14 bedrooms**	**75 bedrooms**
Public Space Improvement	$100,000 cash to City for Larch Street Streetscape *(must be used within 10 years of date of registration of agreement or transferred back to the Owner for private art for the site)*	$230,000 (Festival Area, or Northdale if not used within 5 years)			Waterloo Park Festival Area ($120,000) *(must be used within 5 years of date of registration of agreement or transferred to Northdale Cash-in-lieu of Parkland account)*	
Walkway (conveyance)			Land dedication/ installation of public walkway	Land dedication/ installation of public walkway	Land dedication/ installation of public walkway	
Public Art	Install and pay for private art or provide the City with financial services, within 2 years of the BP ($50,000).					
Electric Car Charging Station	$25,000 cash to City; One space, to be located at WRMC or Town Square (north or south lot)					
Affordable Housing	$600,000 over 6 years to a housing provider					$500,000 for an Affordable Housing Grant program
On-Site Security System	Owner to install, pay for and operate					
Hydro Burial						$250,000 for hydro burial in Northdale

4.11 Policy Analysis

To adopt the 2012 Northdale Land Use and Community Improvement Plan Study, amendments to the City of Waterloo Official Plan 2012 and Zoning By-Law 1108 were passed by Council on June 25, 2012. During the study period, a number of privately-initiated Official Plan Amendments were passed. Analysis Task 11-1 examines the objective of the Official Plan Amendments to determine:

- Whether they differed significantly from the 2012 Comprehensive Official Plan Amendment;
- The reasons underlying these deviations; and,
- To identify Official Plan policies that may need to be revised to better reflect the changing requirements of developments within Northdale.

Numerous privately-initiated Zoning By-Law Amendments were also passed during the study period, as well as a new City-initiated Comprehensive Zoning By-Law in September 2018 (By-Law 2018-050). The new 2018 Zoning By-Law is under appeal to the Local Planning Appeal Tribunal. Analysis Task 11-2 will assess if the intent of the 2012 Northdale Study, contained within the adopted Zoning By-Law, has been fully captured by Zoning By-Law 2018-050. Analysis Task 11-3 will analyze the Zoning By-Law Amendments within a representative sample to determine:

- Which zoning provisions were most commonly amended and to what extent;
- The underlying reasons for the changes; and,
- Whether changes need to be made to the Zoning By-Law.

Analysis Task 11-1: Official Plan Amendments

Per Table 25, there were four Official Plan Amendments (OPAs) approved during the study period. The majority of the amended provisions support the 2012 Northdale Land Use Plan by further regulating the mixture of dwelling units and restricting the maximum number of bedrooms or assigning a percentage to each dwelling unit type. This is consistent with the Flexibility Principle (Analysis Task 9-1) as a way to adapt to changing market conditions. The amendments also support the Diversity Principle, which advocates for a diversity of uses (Analysis Task 2-1). This was accomplished by allowing commercial uses that were not identified within the overall permitted uses of the land designations as a way to support the residents of Northdale.

The majority of the properties with privately-initiated OPAs are located within the Block Plan Area of Lester- Columbia- Phillip- University: 300-330 Phillip Street, 250-256 Phillip Street, and 267 Lester Street. The fourth OPA was for 62 Balsam Street. Half of the properties are located within the Mixed Use High Density Residential designation, for which higher maximum densities have been approved in return for community benefits. Through discussions with City of Waterloo staff and reviewing Council reports, it was determined that the approved OPAs were due to times that these

4.11 Policy Analysis (con't)

applications were initiated, prior to the completion of the 2012 Northdale Land Use Plan. As such, they do not fully encompass the preferred elements of the plan, partially through the decisions of Ontario Municipal Board (OMB) appeals for 250-256 Phillip Street and 267 Lester Street.

LIMITATIONS

There were no limitations encountered during the completion of this task.

Key Findings

- The majority of the OPAs approved during the study period were for applications initiated prior to the completion of the 2012 Northdale Study. Per the Clergy Principle, these amendments cannot be judged against the 2012 Northdale Study.
- 62 Balsam Street was the only OPA that was initiated and passed following the adoption of the Northdale Land Use Plan. This OPA was made to increase the diversity of permitted uses on the site, consistent with Principle 2.

Table 25: Official Plan Amendment Analysis Findings

Address	Designations	Official Plan Regulation	Official Plan Amendment	Comments
300-330 Phillip Street/ SPA #50	Mixed Use High Density Residential	17 (a) (i): The maximum net residential density shall not exceed 750 bedrooms per hectare	2 (b). The maximum density shall not exceed 940 bedrooms per hectare	Maximum Density Permitted through S.37
		17 (c) A mixture in the number of dwelling units shall be strongly encouraged	2 (c) A mixture in the number of bedrooms within each dwelling unit shall be strongly encouraged and no dwelling unit may have more than 3 bedrooms.	OPA further supports regulation by restricting maximum number of bedrooms
		17 (d) lands designated Mixed-Use High Density Residential may be zoned to permit offices, medical clinics, convenience retail, restaurants, food stores, child care centres, and personal services, spiritual uses, and institutional/community uses as ancillary uses.	2 (d) In addition to the permitted residential uses, may be zoned to permit ancillary commercial uses including offices, medical clinics, convenience retail, restaurants, food restaurants, child care centres, and personal services, provided said uses are located within a building containing residential uses but may not exceed 15% of total building floor area and must be oriented towards the street	OPA further supports regulation by restricting total building floor area
	Block Plan Area on Schedule A45B	Specific Provision 45: 40. Block Plans shall be prepared for the Block Plan Areas	2 (a). A Block Plan is not required	Through discussion with City Staff, it was recognized that this represents pre-Northdale Land Use Plan development as it was initiated in Mid-2012
	Active Frontage	20 (a) (iii) Indoor common amenity space areas and entrance/foyer areas related to the permitted residential use may be permitted on the ground floor, provided a minimum amount of non-residential related or accessory uses are provided at the ground floor, as established in the implementing Zoning By-law.	2 (e) residential uses, including common amenity areas shall be permitted on the main floor, provided at least one building facing Phillip St contains a minimum of 1,000 square metres of non-residential uses oriented to the street:	OPA establishes the minimum amount of non-residential uses at the ground floor to support the permission of residential uses

4.11 Policy Analysis (con't)

256 Phillip Street / SPA 51	Mixed Use High Density Residential	17 (a) (i): The maximum net residential density shall not exceed 750 bedrooms per hectare	1. Maximum Net Residential Density on the Site shall be 1,001 bedrooms per hectare	Maximum Density Permitted through accommodating pedestrian corridor and site landscaping creating visual interest
		17 (c) A mixture in the number of dwelling units shall be strongly encouraged	2. approximately 69% of units containing 4 bedrooms, approximately 15% of units containing 3 bedrooms, approximately 16% of units containing 5 bedrooms.	OPA further supports regulation by restricting maximum number of bedrooms
	Active Frontage	20(a) (iv)Buildings associated with an Active Frontage Area shall be appropriately setback from the street to provide for active ground floor uses which enhance the street. The implementing zoning by-law shall establish minimum and maximum building setbacks	4. It shall be a policy of the City that, for all buildings set back more than twenty (20) metres from the street line of Phillip Street, uses within the first storey shall be restricted to residential and ancillary residential uses.	OPA recognizes the site plan, which are two towers, therefore the rear tower will not be subject to Active Frontage Uses along the ground floor
267 Lester Street / SPA 55	Mixed Use Medium High Density Residential	16 (a) (i) The minimum net residential density permitted on any one site shall be 250 bedrooms per hectare	1. The maximum number of bedrooms on the Site shall be 40 bedrooms.	Subject to an OMB Appeal
	Block Plan Area on Schedule A45B	Specific Provision 45: 40. Block Plans shall be prepared for the Block Plan Areas	4. A Block Plan is not required	Subject to an OMB Appeal
62 Balsam Street/ SPA #56	Low Density Residential	14 (f) Lands designated Low Density Residential in Northdale may be zoned to permit offices, personal service uses, and convenience retail uses	1. "restaurant" and "restaurant (take-out)" may be permitted by the Zoning By-law to a collective maximum of eight hundred and fifty-five square metres (855 square metres) of building floor area, provided further that the maximum building floor area of each restaurant (including take-out) unit shall not exceed four hundred and sixty-five square metres (465 square metres)	OPA permits an unidentified use, providing a maximum building floor area and recognizes that it will serve the residential of Northdale

Analysis Task 11-2: Zoning By-Law 2018-050

ZONING MAP COMPARISON

To evaluate the changes between Zoning By-Law 1108 and Zoning By-Law 2018-050, a comparison of the respective Zoning By-Law Schedule Maps (Figures 31 and 32) has been completed. Figure 31 is the Northdale Zoning Category Amendment to Zoning By-Law 1108, contained within Appendix D of the 2012 Northdale Study. Figure 32 is the current Zoning By-Law map, retrieved from the City of Waterloo website. The differences are identified through coloured circles.

The primary difference is the renaming conventions of all of the zoning category names and symbols, as shown in Table 26. The renaming convention does not change the intent of the zones and their provisions, however the change from the Mixed Use to Residential naming convention may give the perception that the intent is not to encourage a mix of uses.

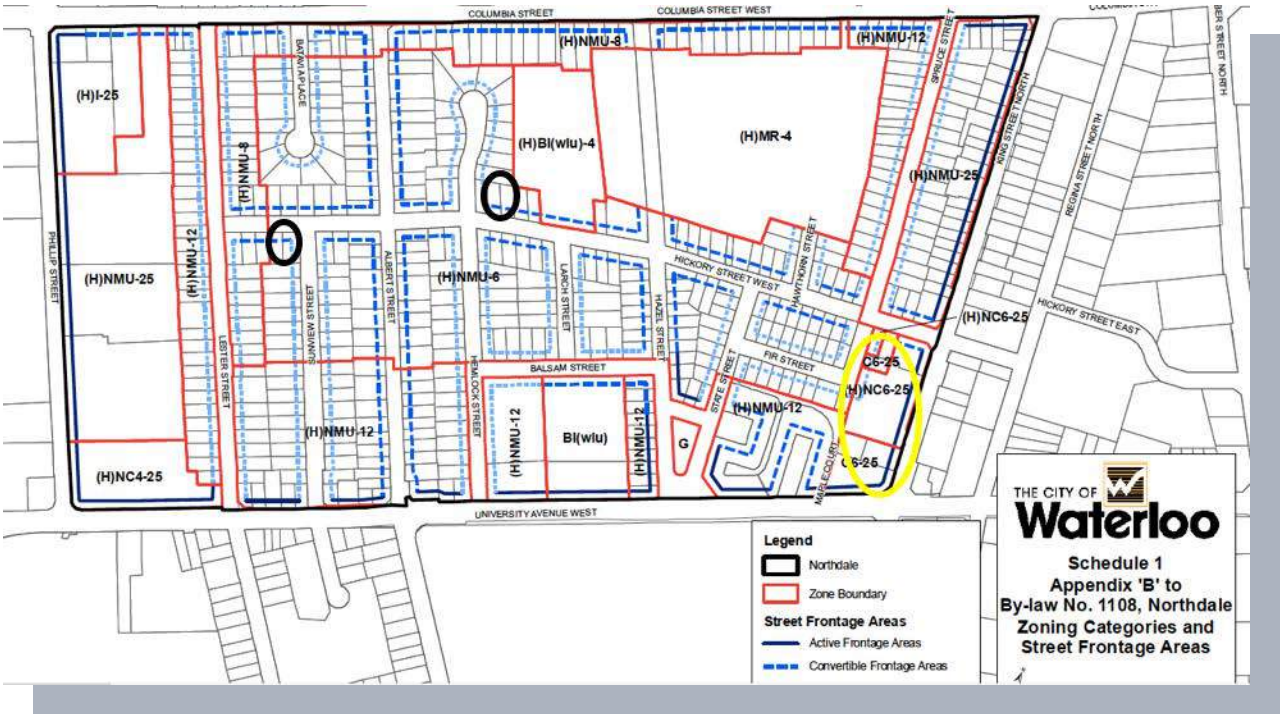


Figure 31: 2012 Northdale Zoning By-Law Schedule

4.11 Policy Analysis (con't)

Figure 32: 2018 Northdale Zoning By-Law Schedule

As identified by the yellow circles in Figures 31, 247-298 King Street N and 9 Hickory Street W were previously zoned NC6-25 (Northdale Commercial Six) and C6 (Commercial Six) in Zoning By-Law 1108, respectively. This commercial area was not zoned the same as the other commercial plaza located in Northdale (140-150 University Avenue W). As shown in Figure 32, Zoning By-Law 2018-050 has rectified this discrepancy and the two commercial areas have now been zoned the same. This provides consistency in terms of zoning intentions and provisions for similar commercial plazas located at high traffic intersections.

Another difference is indicated by the black circles in Figure 31: open space zoned areas. As seen in Figure 31, the 2012 Zoning By-Law identified only one park – Veteran's Green. Zoning By-Law 2018-050 includes two new areas zoned for open space zoned, located at the intersections of

Hemlock Street / Hickory Street West and Sunview Street / Hickory Street West. The zoning of additional open space areas is consistent with Analysis Task 6-1 as an opportunity to create public parks, parkettes and active open spaces to enhance public interaction.

Table 26: Zoning Category Naming Changes

2012 Zoning By-Law	Zoning By-Law 2018-050
NMU-6 – Northdale Mixed Use Six	RN-6 – Residential Northdale Six
NMU-8 – Northdale Mixed Use Eight	RN-8 – Residential Northdale Eight
NMU-12 – Northdale Mixed Use Twelve	RN-12 – Residential Northdale Twelve
NMU-25 – Northdale Mixed Use Twenty-Five	RN-25 – Residential Northdale Twenty-Five
NC4-25 – Northdale Commercial Four	C1 – Mixed Use Community Commercial
NC6-25 – Northdale Commercial Six	(Discussion Below)
C6 - Commercial Six	(Discussion Below)
G – Green Zone	OS1 – Parks and Recreation Zone
MR-4 – Multiple Residence	UC-10 – University College Zone S – School
BI (wlu) - Universities	UC-10 & 40 – University College Zone

ZONING PROVISIONS COMPARISON

The zoning provisions for each zone and frontage type (active, convertible, and neighbourhood) were compared for Zoning By-Law 1108 and Zoning By-Law 2018-050. As seen in the tables in Appendix D, the comparison chart was classified in four categories. The light green shade indicates that the zoning provisions stayed the same. The dark green shade indicates that there was a slight quantitative difference. Cells that were shaded orange indicate that the provision was further described or classified. Major differences in zoning provisions were represented by cells that were shaded yellow.

FRONTAGE PROVISIONS

The majority of the zoning provisions with respect to frontage type were relatively unchanged. One of the primary reasons for the differences in frontage provisions (shaded yellow in Appendix D) was that zoning provisions from the 2012 Zoning By-Law 1108 did not transfer to Zoning By-Law 2018-050. For example, the 2018 Zoning By-Law did not include a provision for front yard setbacks in relation to coffee shops along Active Frontages. This provision should be included within Zoning By-Law 2018-500 to maintain a consistent streetscape for cafes along Active Frontage Streets.

4.11 Policy Analysis (con't)

Another reason explaining the major differences in frontage provisions between the Zoning By-Laws was that new zoning provisions were added to the 2018 Zoning By-Law that were not within the 2012 Zoning By-Law 1108. For example, uses and minimum ground floor heights for Neighbourhood Frontages were not identified within the previous Zoning By-Law. This increased the flexibility of ground floor uses to be repurposed from residential to commercial uses, through applying Convertible Frontage provisions (Analysis Task 9-2).

Zoning By-Law 2018-050 introduced additional measures to existing zoning provisions, as seen in provisions that were shaded orange in Appendix D. For example, within the 2018 Zoning By-Law, the Minimum Number of Entrances were differentiated by built form, as townhouses had a different requirement than general uses. This measure utilized within the 2018 Zoning By-Law is supported as provisions for distinctive built forms should be differentiated.

ZONE PROVISIONS

Similar results are evident in the Zone Comparison Table (Appendix D). Zoning By-Law 2018-050 introduced additional zoning provisions as seen in the orange-shaded cells in Appendix D. In all of the zones, the uses were classified as being Primary, Complementary and Auxiliary, creating a hierarchy of permitted uses. This can be compared to the 2012 Zoning By-Law where the uses were only classified by use type.

Many of the 2012 Zoning By-Law 1108 Commercial Zoning provisions did not transfer to Zoning By-Law 2018-050. This is partly due to the consolidation of the Northdale Commercial Four and Commercial Six zones into one Commercial Zone that is not Northdale-specific. Therefore, the calculations for the provisions changed as well, resulting in a larger difference between the 2012 and 2018 Zoning By-Laws. For example, parking spaces were calculated by bedroom count in 2012, while the 2018 Zoning By-Law calculates it by unit count.

The 2018 Zoning By-Law introduced new provisions that further support the policies of the 2012 Northdale Study. One such example is the inclusion of amenity area provisions that support Building and Development Principle #5 in the Official Plan Amendment, which encourages indoor and outdoor amenity areas to promote a healthy social environment. The update to the Zoning By-Law ensured that regulations were consistent for different built forms within zones. For example, the 2012 amendment to Zoning By-Law 1108 did not include Non-Residential Parking Regulations and Bicycle Parking Regulations for Townhouses and Stacked Townhouses, whereas Zoning By-Law 2018-050 included these provisions for the specified built form amid emerging development trends (Analysis Task 2-3). Zoning By-Law 2018-050 recognized that stacked townhouses could have a commercial component, encouraging a diversity of uses through mixed-use development (Analysis Task 2-1).

The provision of active transportation infrastructure, supporting Principle 1: Integrated was also emphasized for uses in other zones. Non-Residential Parking Regulations were reduced and Bicycle Parking Regulations were increased in Zoning By-Law 2018-050.

Key Findings

11-2

- Generally, Zoning By-Law 2018-050 has maintained the intent of the 2012 Northdale Zoning By-Law Amendment.
- Certain provisions were not transferred to the new Zoning By-Law, including Maximum Front Yard Setback for Coffee Shops.
- Zoning By-Law 2018-050 introduced provisions that were not within the 2012 Northdale Zoning By-Law Amendment that further support the 2012 Northdale Study:
    - ◊ The rezoning of lands for two open spaces;
    - ◊ Consistent provisions for commercial areas and built form within zones;
    - ◊ Flexibility of ground floor uses through Convertible Frontage Provisions;
    - ◊ Measures to differentiate between the parking requirements of different built forms;
    - ◊ Amenity area provisions; and,
    - ◊ Reduced non-residential parking and increased bike parking requirements.

Analysis Task 11-3: Zoning By-Law Amendments

As seen in Appendix D, the representative development sample (22) includes 11 privately-initiated Zoning By-Law Amendments approved during the study period. The Zoning By-Law Amendments are compared against Zoning By-Law 2018-050.

4.11 Policy Analysis (con't)

RN-25 / ACTIVE FRONTAGE (300-330 PHILLIP STREET, 250-256 PHILLIP STREET)

Similar to the discussion in Analysis Task 11-1, the Zoning By-Law Amendments within this zone and frontage type were initiated before the completion of the 2012 Northdale Study. Accordingly, these developments amend a higher number of provisions within the Zoning By-Law than the broader representative sample.

Both developments reduced the Minimum Ground Floor Height of 4.5 metres to 3.0-4.0 metres. The prescribed measure for Ground Floor Height is consistent among all frontage types and is identified as a Convertible Street Frontage Guideline. Both of these developments increased the Maximum Street Line Setback from 3.0 metres to 5.0-10.0 metres. The increase in this provision does not bring the buildings closer to the street, which thereby does not activate the streetscape and is not consistent with the vision for Active Streets and Frontages. A common approach that both of the Zoning By-Law Amendments exercised was to exceed the Minimum Side Yard Setback. Ground Floor Side Yard Setbacks along Active Frontages should be closer together to achieve a consistent street wall.

Both development applications meet the Maximum Total Building Floor Area provision for ancillary uses (non-residential uses) to avoid the over-saturation of commercial uses that may not be supportable by parking and infrastructure requirements. To further support the introduction of mixed use developments, 250-256 Phillip Street regulates the minimum and maximum amount of space devoted to non-residential uses.

Neither development meets the Minimum Building Stepback Over the Podium, and amend the provision to reduce the step back from 3.0 metres to 1.0-1.5 metres. The amendments reduce the human scale along the front yard and pedestrian sidewalks, as the corresponding tower may not be setback sufficiently to avoid the sense of being overpowered. Both amendments chose not to apply the Minimum Tower Separation Distance of 11 metres from an interior lot line or rear lot line. This could potentially increase the shadowing and privacy concerns on properties that may not have been redeveloped. Another provision that was excluded through the Zoning By-Law Amendment was Amenity Space, as 250-256 Phillip Street chose to not apply the Minimum Required Amenity Area. This is not consistent with the 2012 Northdale Study.

RN-25 / NEIGHBOURHOOD CONVERTIBLE FRONTAGE (318 SPRUCE STREET, 8 HICKORY STREET)

The Zoning By-Law Amendment applications within this section are in conjunction with each other as part of the Sage Development Project, located at the corner of Spruce Street and Hickory Street West. The Sage Development Project consists of Sage 8, Sage II, and Sage Plaza located at 318 Spruce Street. This is reflected in the amendment to increase the number of parking spaces per 100 square metres of Building Floor Area dedicated to non-residential uses from 3.0 to 3.2 and 4.0 spaces, which is shared between the two developments.

The Zoning By-Law Amendment applications within this section are in conjunction with each other as part of the Sage Development Project, located at the corner of Spruce Street and Hickory Street West. The Sage Development Project consists of Sage 8, Sage II, and Sage Plaza located at 318 Spruce Street. This is reflected in the amendment to increase the number of parking spaces per 100 square metres of Building Floor Area dedicated to non-residential uses from 3.0 to 3.2 and 4.0 spaces, which is shared between the two developments.

Through the provision of Section 37 benefits, the Sage II and Sage Plaza development obtained a density increase from 750 bedrooms per hectare to 813 bedrooms per hectare. Sage II and Sage Plaza are located on a Neighbourhood Frontage Street (Spruce Street). The required minimum setback to the street is 3.0 metres, whereas the development proposed a setback of 2.0 metres. Though the amendment is inconsistent with the Neighbourhood Frontage Guidelines, Sage Plaza includes at-grade commercial, retail and restaurant uses for which reduced setbacks are appropriate.

318 Spruce Street reduced the Minimum Tower Separation Distance to the rear lot line from 11.0 metres to 8.9 metres. This is a provision within the zoning that could potentially negatively impact surrounding low-density properties.

RN-12 / Neighbourhood and Convertible Frontage (250-264 Sunview Street, 251 Hemlock Street, 250-256 Albert Street)

While all properties are split-zoned between RN-12 and RN-6, the Zoning By-Law Amendments meet the provisions of both zones. All three development applications entered into Section 37 agreements in exchange for additional bedrooms, exceeding the maximum density of 600 bedrooms per hectare. To accommodate a walkway, 251 Hemlock Street and 250-256 Albert Street reduced the Minimum Side Yard Setback from 3.0 metres to 0.0-1.0 metres.

The developers of 250-264 Sunview Street chose not to provide the minimum required amenity space for residential units. As identified previously, this is inconsistent with Principle 6 of the 2012 Northdale Study. 250-256 Albert Street decreased the maximum floor area dedicated to ancillary non-commercial uses from 15% of the Floor Area to 130 square metres. This is significantly lower than the requirement and does not support ground floor uses in activating the streetscape and public realm.

RN-6 / NEIGHBOURHOOD FRONTAGE (275 LARCH STREET, 272 LARCH STREET, 62 BALSAM STREET)

Through Section 37 of the Planning Act, 275 Larch Street increased the maximum density from 250 bedrooms to 355 bedrooms per hectare. 272 Larch Street reduced the Minimum Ground Floor Height from 4.5 metres to 3.5 metres. This is a provision that is frequently amended and as

4.11 Policy Analysis (con't)

identified by the Convertible Street Frontage Guidelines, the height of the first storey should allow for ground floor uses to be repurposed as commercial space.

All frontage typologies have the same Minimum Rear Yard Setback of 7.5 metres, which 272 Larch Street decreased to 3.0 metres. This could pose as a concern to rear properties who might experience privacy concerns. As identified in Analysis Task 11-1, 62 Balsam Street amended the Official Plan to permit a restaurant use. This is supported by the Zoning By-Law Amendment to add a restaurant as a permitted ancillary use and increasing the parking spaces for non-residential uses from 3.0 spaces to 3.7 spaces per 100 square metres of Building Floor Area.

RN-6 / CONVERTIBLE FRONTAGE (253 ALBERT STREET, 336-338 ALBERT STREET - 297-299 HEMLOCK STREET)

The RN-6 zone includes different provisions based on built form. Both of the Zoning By-Law Amendments are stacked townhouse projects. 253 Albert Street increased the maximum density from 250 bedrooms to 300 bedrooms per hectare. However, this was not obtained by a Section 37 density bonusing agreement; rather, the property is split-zoned RN-12, therefore the density was shared between both of the zones. The development supports active transportation initiatives by reducing the minimum parking requirements from 1.0 space per unit to 0.2 spaces per unit. The Zoning By-Law Amendment is consistent with the 2012 Northdale Study by restricting the number of bedrooms. The Zoning By-Law Amendment for 253 Albert Street introduced differing regulations for Amenity Areas and Minimum Landscaped Open Space that are more appropriate for stacked townhouses.

LIMITATIONS

Proposed Zoning By-Law Amendments were not assessed within the representative sample.

Key Findings

- The following zoning provisions were the most commonly amended in the sampled developments: Minimum Ground Floor Height, Maximum Density, and Ancillary Uses.
- The following zoning provisions were commonly amended, but should receive less relief by the City of Waterloo: Amenity Area provisions, Rear Yard Setbacks.

5.0 COMPARATOR NEIGHBOURHOODS

The challenge of accommodating student growth pressures in neighbourhoods close to post-secondary institutions is not unique to Waterloo, with over 20 municipalities across Ontario also confronted with this issue. The phenomenon of previously stable residential neighbourhoods being occupied by an increasing proportion of students is referred to in academic literature as "studentification."

A review of comparable neighbourhoods in Ontario was completed to guide future policy research by WSP. Municipalities with neighbourhoods near major post-secondary institutions that are comparable to Northdale include:

- ***London, Ontario:*** The City of London has experienced studentification in the residential neighbourhoods in proximity to the University of Western Ontario and Fanshawe College. London has struggled with new development that is not consistent with the existing character of its neighbourhoods.

- ***Kingston, Ontario:*** The City of Kingston has identified issues similar to those of Northdale in the neighbourhoods near Queens University. These include property maintenance concerns and garbage being strewn throughout the area. Kingston residents have also expressed concern with the disruptive lifestyles of local post-secondary students.

- ***Hamilton, Ontario:*** McMaster University is located within the City of Hamilton, with the adjacent Ainslie Wood and Westdale neighbourhoods primarily defined by low-rise residential uses. As the university struggles with providing adequate housing for incoming students, tensions exist between neighbourhood residents and the administration with accommodating more density-intensive forms of student housing. Another issue common to both Northdale and Hamilton is the conversion of existing detached dwellings to student rental properties, with internal renovations to increase the total bedroom count.

By reviewing the challenges, opportunities, and policy regimes of London, Kingston, and Hamilton, WSP and the City of Waterloo may be able to identify best practices that are applicable to Northdale. Further, an opportunity for intermunicipal collaboration may exist to share knowledge for addressing common challenges of studentification.

6.0 CONCLUSIONS

This report has served as a comprehensive overview of Northdale's evolution from 2012 to 2019. Working from the 27 analysis tasks exploring the ten principles of the 2012 Northdale Study, conclusions can be made as to implementation strengths and weaknesses. These conclusions are summarized in Tables 27 and 28, respectively.

Table 27: Northdale Study Implementation Strengths

Principle	Strength
1 - Integrated	All points in the study area are located within walking distance of either a GRT bus stop or ION LRT station. Substantial transit improvements are planned for the near future, including the opening of the ION LRT system. Northdale's sidewalk inventory is mostly complete, and additional infrastructure is being included in new development. Active transportation routes at the neighbourhood periphery are expected to improve in Summer 2019.
2 - Diverse	Mixed-use development is becoming increasingly common. The diversity of land uses is increasing. The built form of new projects is increasingly diverse with increased use of mid-rise / high-rise apartments and stacked townhouses.
3 - Identifiable	The majority of the built form guidelines were followed by new developments. Recommended podium setbacks and maximum horizontal tower dimensions were exceeded. Most developments have a paved zone treatment which will permit future active at-grade uses for Convertible Frontage. The majority of Neighbourhood Frontage developments treat the setback zone with landscaping as well as paving to account for walkways.
4 - Supported	The public and institutional sectors are directing significant capital expenditures in Northdale. Through proactive street and subterranean infrastructure improvement projects, the City of Waterloo has demonstrated its commitment to Northdale. All Core Area Infrastructure projects in the study area have been completed.
5 - Memorable	Podiums and stepbacks are well-used to improve the human scale of mid and high-rise apartment buildings.
6 - Interactive	The City of Waterloo has proactively acquired land to support future park projects. The City of Waterloo, WCI, and WLU are working collaboratively to leverage the potential of the WCI campus as a community hub. Indoor amenity areas are commonly used in private development projects.
7 - Durable	Developments generally exhibit minimal weathering and employ durable building materials. Soft landscaping has been used to increase the total amount of pervious surfaces.
8 - Safe	CPTED strategies are generally implemented successfully in new developments. There were 13.5% more police-reported crime occurrences in 2017 than in 2012, but a similar trend was seen in the rest of the City of Waterloo. Disturbance remained a common police-reported occurrence in 2017 but was less common than in 2012.
9 - Flexible	Average bedrooms per unit for new development decreased to 2.1 during the study period from 4.7 before the study period. An increased number of developments are offering one and two bedroom units. The majority of new developments implemented the Convertible Street Frontage Guidelines.
10 - Collaborative	Multi-stakeholder partnerships are increasingly being used in Northdale. Positive change is occurring with the help of strategic multi-stakeholder partnerships. Nine Section 37 agreements have been made between developers and the City of Waterloo to fund improvements to public resources.
Policy Analysis	The majority of the Official Plan Amendments approved during the study period were for applications initiated prior to the completion of the 2012 Northdale Study. The Official Plan Amendment for 62 Balsam Street increased the diversity of permitted uses on the site. Zoning By-Law 2018-050 has generally maintained the intent of the 2012 Northdale Zoning By-Law Amendment. Zoning By-Law 2018-050 introduced six new provisions that further support the implementation of the 2012 Northdale Study.

Table 28: Northdale Study Implementation Weaknesses

Principle	Weakness
1 - Integrated	A small decrease in Grand River Transit service frequency was identified. Public bicycle parking is limited. Opportunity for improvement exists with the multi-use trail network. Internal active transportation routes have not materialized. No connectivity improvements (mid-block crossings, through-road connections) have been completed.
2 - Diverse	The local demography is increasingly dominated by the student age cohort (15 to 24), with household composition diversity not improving. Demographic diversity in terms of income and age composition decreased. Housing tenure became more homogeneous, with nearly all units rented rather than owned.
3 - Identifiable	Recommended podium heights were exceeded which may decrease the sense of human scale along the street. Secondary street access driveways should be further promoted during the development review process for Active Frontages.
4 - Supported	No weaknesses were identified
5 - Memorable	The majority of street tree removals occurred to facilitate private development, limiting the maturation of the urban forest. The ability of mixed-use ground-floor development to activate the street is not being realized with outdoor patios and seating. Planters, street furniture, and public art have shown minimal implementation in new development.
6 - Interactive	New developments have generally provided minimal outdoor landscaped amenity areas.
7 - Durable	There are few instances of development proponents pursuing LEED certification. The Tax Increment Grant Program has not been utilized to assist in pursuing LEED certification.
8 - Safe	There is room for improvement with respect to surveillance, lighting, sightlines and narrow spaces in new developments. The internal layout of sites has led to instances of vulnerable pockets of unobservable and unlit areas. More theft-related and violent occurrences were reported in 2017 than in 2012.
9 - Flexible	No weaknesses were identified.
10 - Collaborative	The majority of Community Improvement Plan incentive programs have not been implemented.
Policy Analysis	Certain provisions were not transferred to Zoning By-Law 2018-050, including Maximum Front Yard Setback for Coffee Shops. The following zoning provisions were the most commonly amended in the sampled developments: Minimum Ground Floor Height, Maximum Density, and Ancillary Uses. The following zoning provisions were commonly amended, but should receive less relief by the City of Waterloo: Amenity Area provisions, Rear Yard Setbacks.

7.0 RECOMMENDATIONS

From the findings of this report, recommendations have been prepared for WSP and the City of Waterloo.

7.1: Recommendations to WSP

The 2012 Northdale Study was completed by MMM Group, a WSP acquisition. As WSP continues to be actively involved in Waterloo and Northdale, six recommendations are made:

1. **Continued Data Collection**
   The analysis of this report would not be possible without the development activity data collected by WSP. It is recommended that WSP continue to collect this data, and expand data collection to include Site Plan Control files.

2. **Sharing of Findings With the City of Waterloo**
   The analysis, findings, and recommendations of this report have direct implications to the City of Waterloo as the municipal planning authority. It is recommended that WSP share this report with the City for the benefit of their future planning efforts.

3. **Consideration of Findings in New Development**
   WSP, through its Planning and Urban Design group, may be actively involved in future development applications in Northdale. It is recommended that WSP consider the findings of this report as they relate to new development and provide feedback to their clients for the improvement of future projects.

4. **Completion of 2024 Neighbourhood Study**
   This report offers a valuable opportunity to assess change in Northdale from 2013 to 2019. It is recommended that WSP complete a second five-year assessment in 2024 to track the implementation of the recommendations of this report and new development trends.

5. **Partnership with University of Waterloo**
   WSP has an ongoing relationship with the University of Waterloo through co-operative education work terms and special projects such as PLAN 405: Integrated Planning Project. It is recommended that WSP strengthen its partnership with the University of Waterloo School of Planning in order to supply the firm with new talent, provide real-world lessons to university students, and to further the research-oriented goals of WSP's Future Ready program.

6. **Comparator Neighbourhood Research**
   While in-depth research of policies of other municipalities was out of the scope of this project, It is recommended that WSP commence research on the cities of London, Kingston, and Hamilton to identify best practices with respect to near-campus neighbourhoods. This research could be advanced in partnership with the City of Waterloo and / or the University of Waterloo

7.2: Recommendations to the City of Waterloo

The City of Waterloo, as the planning authority for Northdale, has a significant ongoing role in the neighbourhood's evolution. The following 20 recommendations have been prepared to guide future municipal efforts in order to capitalize on strengths of the 2012 Northdale Study and to address weaknesses. These recommendations address general matters and areas of further research, infrastructure requirements, land use planning, financial programs, and policy amendments.

NAG is acutely aware of the funding and staff constraints that will dictate which recommendations can be implemented. Accordingly, each recommendation contains an estimated level of effort (low, medium, and high) to guide municipal budgeting and scheduling efforts. NAG has chosen not to provide prioritizations of the recommendations as this is a discretionary matter that should be determined by City Staff and Council, potentially with public input.

GENERAL RECOMMENDATIONS AND FURTHER RESEARCH

1. **Expand the Northdale Study Area**
   Level of Effort: Low

   NAG understands that the boundary of the Northdale neighbourhood is fixed. However, it is recommended that future Northdale planning efforts consider the properties immediately to the north of Columbia Street, east of King Street, and south of University Avenue. These properties could be designated as the neighbourhood periphery; their inclusion will enable more complete consideration of urban design matters and help to improve integration with the surrounding urban fabric.

2. **Pursue Multi-Stakeholder Partnerships**
   Level of Effort: Variable

   The review of multi-stakeholder partnerships completed in Analysis Task 10-1 indicated that significant benefits are being realized. It is recommended that the City of Waterloo continue to invest in these partnerships as opportunities become available, including with the University of Waterloo School of Planning.

3. **Development Application Database**
   Level of Effort: High

   Municipalities across Ontario commonly maintain online development application database systems for public and consultant use. The City of Waterloo currently publishes select information on its website and Council calendar system, however significant issues were experienced throughout the study in retrieving plans and studies. It is recommended that the City of Waterloo implement an online development application database.

7.0 RECOMMENDATIONS (con't)

4. **Comparator Neighbourhood Research**
   Level of Effort: Low

   While in-depth research of policies of other municipalities was out of the scope of this project, It is recommended that the City of Waterloo commence research on the cities of London, Kingston, and Hamilton to identify best practices with respect to near-campus neighbourhoods. This research could be advanced in partnership with WSP and / or the University of Waterloo.

5. **Transit Service Research**
   Level of Effort: Moderate

   A limitation of Task 1-1 was the availability of data on Grand River Transit service in the study area. Post-secondary students are highly reliant on GRT services; with the significant upcoming changes with the opening of the ION LRT system, it is recommended that the City of Waterloo collaborate with GRT to complete a transit needs and service assessment for Northdale.

6. **Housing Tenure Strategy Research**
   Level of Effort: Moderate

   While the 2012 Northdale Study recommended that efforts be made to balance housing tenure between rental and ownership, results have not been realized. It is recommended that the City of Waterloo initiate a study of municipal mechanisms that can be used to improve ownership in primarily rental neighbourhoods, while acknowledging the significant market forces that are at play.

7. **Continued Support of WCI / WLU Northdale Feasibility Study**
   Level of Effort: Moderate

   As addressed in Analysis Tasks 4-1, 6-1, and 10-1, the WCI / WLU Northdale Feasibility Study and the future development of the WCI property has the potential to be a transformative force for the neighbourhood. Given its importance, it is recommended that the City of Waterloo continue to be actively involved in this study and planning process.

8. **Neighbourhood Tree Protection Program**
   Level of Effort: Moderate

   As examined in Analysis Task 5-1, new development projects in Northdale are hindering the maturation of the street tree inventory. It is recommended that the City of Waterloo institute a tree protection and replacement program for Northdale. This program would require that developers replace removed trees on public on private properties on a 1:1 basis.

INFRASTRUCTURE RECOMMENDATIONS

1. **Public Bicycle Parking Facilities**
   Level of Effort: Moderate

   A significant gap was identified in the provision of public bicycle parking in the study area (Analysis Task 1-2). It is recommended that the City of Waterloo study locations for new bicycle parking facilities and implement this infrastructure as municipal funds permit.

2. **Sidewalk Infrastructure**
   Level of Effort: Moderate

   As identified in Analysis Task 1-2, Northdale has a mostly complete municipal sidewalk network except for the following segments: Batavia Place, the northernmost portion of Hemlock Street, the public land between University Avenue and State Street, and the east side of Larch Street. It is recommended that the City of Waterloo evaluate these segments to determine whether sidewalks are warranted, and if so budget for their implementation.

LAND USE PLANNING RECOMMENDATIONS

1. **Revised Planning Application Requirements**
   Level of Effort: Low

   While the average number of bedrooms per residential unit has decreased since the adoption of the 2012 Northdale Study (Analysis Task 9-1), additional data would support future policy amendments regarding bedroom composition. It is recommended that proponents be required to provide a justification of their proposed unit bedroom mix in their Planning Justification Reports for Site Plan Control and Zoning By-law Amendment applications.

2. **Evaluation of Convertible Street Frontage Heights**
   Level of Effort: Low

   The policy analysis of this report identified numerous instances where proponents sought relief from the 4.5 metre minimum ground floor height per the Convertible Street Frontage Guidelines. It is recommended that the City of Waterloo reevaluate the minimum ground floor height per its Convertible Street Frontage Guidelines to determine whether a reduction can be achieved without compromising the ability to convert to a commercial use.

3. **Evaluation of Active Frontage Front Yard Setbacks**
   Level of Effort: Low

   The policy analysis of this report identified several instances where proponents sought relief from the front yard setback requirements for developments on Active Frontages. It is recommended that the City of Waterloo reevaluate the front yard setback requirement for Active Frontages.

7.0 RECOMMENDATIONS (con't)

FINANCIAL RECOMMENDATIONS

1. **Evaluation of Tax Increment Grant Program**
   Level of Effort: Moderate

   As addressed in Analysis Tasks 7-1 and 10-1, use of the Tax Increment Grant Program has been low due to program restrictions from Section 37 bonusing agreements. It is recommended that the City of Waterloo reevaluate the eligibility criteria for the TIG Program to determine whether LEED support and implementation can be improved.

2. **Evaluation of Section 37 Benefit Priorities**
   Level of Effort: Low

   Section 37 density bonusing agreements are being used in Northdale to improve public amenities. It is recommended that the City of Waterloo prepare and maintain a list of neighbourhood-specific Section 37 priorities that is made available to the development community. Specifically, this priority list should include a pedestrian block from Lester Street to Phillip Street.

3. **Fiscal Incentive(s) for Streetscape Amenities**
   Level of Effort: Moderate

   A common theme in new developments was a lack of outdoor dining and seating areas, planters, and public art. It is recommended that the City of Waterloo consider implementing financial incentives for developers to introduce these features in order to animate the streetscape and improve the urban design quality of Northdale.

RECOMMENDED ZONING BY-LAW AMENDMENTS

1. **Ancillary Uses**
   Level of Effort: Moderate

   The Zoning By-Law contains a provision the regulates the maximum building floor area for ancillary / non-commercial uses. It is recommended that a minimum ground floor area for ancillary / non-commercial uses be stipulated to increase mixed-use developments. The provision should be linked to frontage typology (similar to maximum building floor area for common indoor amenity areas) because the intent of the active and convertible frontages is to increase activity along the street.

2. **Differentiate Types of Amenity Areas**
Level of Effort: Low

Informed by Analysis Task 6-1, outdoor amenity areas were not identified frequently, rather the focus for new development was indoor amenity areas. The Zoning By-Law provides one regulation for minimum amenity areas in all zones. It is recommended that provisions for indoor and outdoor amenity areas be separated in the Zoning By-law in order to ensure that new developments provide both forms for residents.

3. **Amenity Area Tied to Built Form (RN-6)**
Level of Effort: Low

The Residential Northdale 6 (RN-6) Zone has provisions based on built form, with different regulations for townhouses and stacked townhouses compared to multi-unit apartment and mixed-use buildings. It is recommended that minimum amenity area provisions within the zone be differentiated to provide different regulations for individual townhouse dwellings and apartment buildings. This variable provision could be similar to the site-specific amendment for 253 Albert Street (Zoning By-Law 132) which increased the minimum amenity area for townhouse dwellings.

4. **Differentiate Types of Minimum Landscaped Open Space**
Level of Effort: Moderate

The minimum landscaped open space provision is the same regulation across all zones within Northdale. To encourage the provision of different forms of open space, it is recommended that the provision be amended to stipulate a minimum proportion of at-grade landscaped open space in the front yard, and amenity areas elsewhere in the building. For example, 253 Albert Street amended the amenity area provision to prescribe that 22% of the 30% of the lot area dedicated to landscaped open space be provided at-grade, while the balance would be provided as rooftop gardens.

REFERENCES

Beattie, S. (2016a, December 28). Waterloo mayor touts a year of big strides in uptown. Waterloo Chronicle [Waterloo]. Retrieved from https://www.waterloochronicle.ca/news-story/7038415-waterloo-mayor-touts-a-year-of-big-strides-in-uptown/

Beattie, S. (2016b, November 9). Wraps taken off of new CityStudio project. Waterloo Chronicle [Waterloo]. Retrieved from https://www.waterloochronicle.ca/news-story/6955157-wraps-taken-off-of-new-citystudio-project/

Beattie, S. (2017, May 21). Council moves ahead with community hub envisioned for Northdale. Waterloo Chronicle [Waterloo]. Retrieved from https://www.waterloochronicle.ca/news-story/7200135-council-moves-ahead-with-community-hub-envisioned-for-northdale/

City of Waterloo. (2015a). April 13, 2015 Committee of the Whole Meeting Packet. Waterloo: City of Waterloo.

City of Waterloo. (2015b). June 8, 2015 Committee of the Whole Meeting Packet. Waterloo: City of Waterloo.

City of Waterloo. (2017, December 11). *2017-2018 approved capital budget: 2019-2026 approved capital forecast.* Retrieved from https://www.waterloo.ca/en/government/resources/Documents/Finance/2017-to-2018-Approved-Capital-Budget-and-Forecast.pdf

City of Waterloo. (2018, February 12). *Density bonusing review: Report number: PPW2018-011.* Waterloo: City of Waterloo.

City of Waterloo. (2019, February 11). *2019 proposed capital budget: 2020-2028 proposed capital forecast.* Retrieved from https://www.waterloo.ca/en/government/resources/Documents/Finance/Budget-2019/2019-Proposed-Capital-Budget-and-2020-2028-Proposed-Capital-Forecast-Online.pdf

City of Waterloo. (2019, March 27). *Street tree inventory.* Retrieved from http://data.waterloo.ca/datasets/2447415303e74bb9acdf0f43c2236b72_0

City of Waterloo. (2019, March 30). *City of Waterloo building permits.* Retrieved from http://data.waterloo.ca/datasets/9319ff78ff074327acb9e2e084e30b2c_0

CTV News Kitchener. (2015, August 21). 'Glut' of student housing in Waterloo has landlords seeing red. CTV News Kitchener [Kitchener]. Retrieved from https://kitchener.ctvnews.ca/glut-of-student-housing-in-waterloo-has-landlords-seeing-red-1.2528116

Desmond, P. (2016a, September 12). A new heart for Northdale? Waterloo Region Record [Waterloo]. Retrieved from https://www.therecord.com/news-story/6853755-a-new-heart-for-northdale-/

Desmond, P. (2016b, October 24). Waterloo OK's $24-million plan to revamp the Northdale streetscape. Waterloo Region Record [Waterloo]. Retrieved from https://www.therecord.com/news-story/6928130-waterloo-ok-s-24-million-plan-to-revamp-the-northdale-streetscape/

Ewing, R. H., & Clemente, O. (2013). Measuring urban design: Metrics for livable places.

Nevin, S. (2018, November 26). 2018 Northdale/ IBM Smarter Cities Update CAO 2018- 026 (Canada, City of Waterloo). Retrieved from https://events.waterloo.ca/meetings/Detail/2018-11-26-1830-Council-Meeting-Televised/c81c59dc-1b4a-476f-9adb-aa1600b4ee16

Outhit, J. (2011, November 21). Waterloo plans urgent sewer fix. *Waterloo Record.* Retrieved from https://www.therecord.com/news-story/2591826-waterloo-plans-urgent-sewer-fix/

Region of Waterloo Transportation and Environmental Services. (2016). *GRT business plan 2017-21 interim report* (Issue brief No. TES-TRS-16-17). Region of Waterloo.

Revington, N., Moos, M., Henry, J., & Haider, R. (2017, November 3). The Urban Dormitory: Planning, Studentification, and the construction of an off-campus housing market. *Waterloo, ON: University of Waterloo.*

Severin, K. (2017, July 6). If streets could talk: Northdale. *The Community Edition*. Retrieved from https://communityedition.ca/if-streets-could-talk-northdale/

Statistics Canada. (2014, July 7). 2006 Census of Canada: Topic-based tabulations. Retrieved from https://www12.statcan.gc.ca/census-recensement/2006/dp-pd/tbt/Rp-eng.cfm?LANG=E&APATH=3&DETAIL=1&DIM=0&FL=A&FREE=1&GC=0&GID=0&GK=0&GRP=1&PID=89047&PRID=0&PTYPE=88971&S=0&SHOWALL=No&SUB=0&Temporal=2006&THEME=69&VID=0&VNAMEE=&VNAMEF=

Statistics Canada. (2015a, May 6). Census Profile - Map : 5410106.01 (Census Tract), Ontario. Retrieved from https://www12.statcan.gc.ca/census-recensement/2011/dp-pd/prof/details/page_Map_Carte_Detail.cfm?Lang=E&G=1&Geo1=CT&Code1=3577&Geo2=CMA&Code2=541&Data=Count&SearchText=5410106.01&SearchType=Begins&SearchPR=01&B1=All&Custom=&TABID=3&geocode=3577

REFERENCES (con't)

Statistics Canada. (2015b, May 6). Census Profile, 2011 Census - 5410106.01 [Census tract], Ontario and Waterloo, City [Census subdivision], Ontario. Retrieved from https://www12.statcan.gc.ca/census-recensement/2011/dp-pd/prof/details/page.cfm?Lang=E&Geo1=CT&Code1=3577&Geo2=CSD&Code2=3530016&Data=Count&SearchText=waterloo&SearchType=Begins&SearchPR=01&B1=All&Custom=&TABID=1

Statistics Canada. (2018, May 30). Census Profile, 2016 Census - 5410106.01 [Census tract], Ontario and Waterloo, City [Census subdivision], Ontario. Retrieved from https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/page.cfm?Lang=E&Geo1=CT&Code1=5410106.01&Geo2=CSD&Code2=3530016&Data=Count&SearchText=waterloo&SearchType=Begins&SearchPR=01&B1=All&TABID=1

Urban Design Qualities—An Illustrated Field Manual(Rep.). Princeton, NJ: Robert
Washington. D.C.: Island Press.
Waterloo District Regional School Board. (2016, September 16). *WLU/WCI feasibility study.* Retrieved from http://www.wrdsb.ca/planning/wp-content/uploads/sites/5/WLU-WCI-Feasibility-Study-Final-Deliverable-Print-Readyreduced-2.pdf

Waterloo Regional Police. (2017). Occurrence Data. Retrieved February 25, 2019, from https://www.wrps.on.ca/en/about-us/occurrence-data.aspx?fbclid=IwAR1VuDWOcTLypaap-TbmvNdYjGB8YUfkizx29fFZ2q8l1uP8daAt1e tWm7I

Waterloo Region Record. (2012, January 10). *'Green' student residence one of a kind*. Retrieved from https://www.therecord.com/news-story/2594399--green-student-residence-one-of-a-kind/

Wilfrid Laurier University. (2017, December 15). *Laurier's Lazaridis Hall wins International Civil Trust Award.* Retrieved from https://www.wlu.ca/news/news-releases/2017/dec/lauriers-lazaridis-hall-wins-international-civic-trust-award.html
Wood Johnson Foundation.

Xiao, Y. (2013). *Planning for near-campus neighbourhoods in Ontario: Challenges and planning responses (Master's thesis).* Retrieved from https://uwspace.uwaterloo.ca/bitstream/handle/10012/7912/Xiao_Yinzhou.pdf?sequence=1

APPENDIX A

Appendix A: Final Criteria List

February 20, 2019

WSP Canada Group Limited
582 Lancaster Street West
Kitchener, ON N2K 1M3

Attention: Matthew Rodrigues, Planner

Dear Sir:

Subject: "Northdale in Review" Project – Final Criteria List

Per Tasks 1.6 and 1.7 of our February 6, 2019 proposal, Neighbourhood Anatomy Group (NAG) is pleased to submit the following final criteria list to WSP Canada Group Limited (WSP). This letter supersedes our February 14 submission and incorporates the feedback provided on February 19.

The 2012 Northdale Study established ten guiding principles for the neighbourhood. To refine the direction to be taken in our Methodology Report, the following criteria have been prepared to determine what elements of each principle our methodology will address. Each criterion is intended to serve as a bridge between the high-level principles to the actionable analysis tasks that will be proposed in our Methodology Report. This approach will ensure that our analysis addresses the most important elements of the 2012 principles.

NAG has commenced with the preparation of the Methodology and Modelling Report (Task 2.6), which we plan to deliver on February 27. This report will provide our specific direction on how we will conduct the analysis of this project, including the policy review identified in your February 19 email. If you have any questions, please do not hesitate the contact the undersigned.

Yours sincerely,

Ben Crooks
Project Manager
Neighbourhood Anatomy Group

Neighbourhood Anatomy Group
Unit 208 – 21 Columbia Street West
Waterloo, ON N2L 3K4
403-393-5700

Principle	Criteria	Rationale
1 – Integrated	1-1: Historical, current and planned transit services. 1-2: Historical, current and planned cycling and pedestrian infrastructure. 1-3: Road network connectivity.	Northdale's integration with its community is a function of the transit, active transportation, and roadway networks. The three criteria will lead to analyses that address all elements of this principle.
2 – Diverse	2-1: Mix of residential, commercial, and employment land uses. 2-2: Diversity of household composition. 2-3: Diversity of built form. 2-4: Demographic diversity. 2-5: Diversity of housing tenure.	The principle of diversity addressed land uses, housing types and tenures, and demographics. The five criteria will lead to a holistic analysis of changing diversity over the study period.
3 – Identifiable	3-1: Consistency of development activity on Columbia, King, University, and Philip with the Urban Design Guidelines. 3-2: Quality of streetscape improvements with new development. 3-3: Usage of the Urban Design Study Grant program.	The identifiability of a neighbourhood is a highly subjective exercise. We interpret this principle to address the quality of urban design in Northdale as a means to achieve a more positive image. Accordingly, our analysis will focus on the urban design of the four boundary streets most visible to the general public.
4 – Supported	4-1: Value of public and institutional projects in Northdale. 4-2: Progress on Core Area infrastructure upgrades by City of Waterloo.	Infrastructure and servicing upgrades are completed in Northdale with each new development. This task will focus on the status of the City-led infrastructure upgrades identified in Section 7.6 of the 2012 Community Improvement Plan.
5 – Memorable	5-1: Retention of mature trees. 5-2: Urban design scoring assessment for built form	The memorability of a neighbourhood is linked to physical design elements such as natural heritage and built form. Accordingly, our analysis will focus on the retention of mature trees, as well as a standardized checklist to assess new development.
6 – Interactive	6-1: Urban design scoring assessment for streetscape.	The interactivity of new development is primarily determined by the at-grade uses and features. A

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Principle	Criteria	Rationale
		standardized checklist will be developed for assessing ground-floor interactivity.
7 – Durable	7-1: Use of durable design elements and materials in new development. 7-2: LEED certification for new development.	Durability addresses both the quality of improvements made during development to the public realm and the environmental sustainability of buildings.
8 – Safe	8-1: Assessment of neighbourhood crime perception. 8-2: Assessment of new development using a Crime Prevention Through Environmental Design (CPTED) checklist.	Safety in new development is primarily determined through the use of CPTED design principles. 911 data, by-law infractions, and grey media will be assessed to identify trends over the study period as a proxy for neighbourhood crime perception.
9 – Flexible	9-1: Change in unit bedroom composition, with a focus on five-bedroom units. 9-2: Implementation of Convertible Street Frontage guidelines.	The flexibility of new development is linked to the ability for residential units to evolve according to market demand, with the five-bedroom norm recognized as generally being inflexible. The Convertible Street Frontage guidelines, if implemented, also improve neighbourhood flexibility.
10 – Collaborative	10-1: Review of cases for multi-stakeholder partnerships. 10-2: Review cases of Section 37 agreements.	NAG will review case studies of partnerships including the public, private, and institutional sectors. Section 37 agreements also represent a key example of collaborative between the public and private sectors.

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APPENDIX B

Appendix B: Methodology & Modelling Report

NORTHDALE IN REVIEW

ASSESSING 5-YEARS OF CHANGE

Methodology and Modelling Report

Prepared for:
WSP Canada Group Limited

Neighbourhood Anatomy Group

115

NAG ref.: 2019-PJ-012

February 27, 2019

WSP Canada Group Limited
2300 Yonge Street
Toronto, ON M4P 1E4

Attention: Yasmin Afshar, Planner / Urban Designer

Dear Ms. Afshar:

Subject: Northdale in Review: Assessing 5-Years of Change
Methodology and Modelling Report

Neighbourhood Anatomy Group (NAG) is pleased to provide the enclosed Methodology and Modelling Report as the mid-project deliverable. Per our February 6, 2019 proposal, this report satisfies Tasks 2.6 and 2.8 of the agreed upon scope of work. Further, this report satisfies all criteria of Deliverable 1 as specified in WSP's January 2019 Request for Proposals.

The enclosed report includes three items. First, an overview of the modelling process completed for the Northdale 3D visualizations is provided, with the accompanying SketchUp files attached separately. Second, the analysis tasks that will be completed in Phase III are described in detail as guided by the feedback received on our February 20 criteria list. Finally, our proposed structure for Deliverable 2 - Final Report is presented for consideration.

We look forward to discussing this deliverable on Wednesday, March 6 at the WSP Kitchener office. If you have any questions, please do not hesitate to contact the undersigned.

Sincerely,

Ben Crooks
Project Manager
P: 403-393-5700
E: NeighbourhoodAnatomy@gmail.com

cc: Matthew Rodrigues, Planner

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1.0 INTRODUCTION

Per WSP's January 7, 2019 Request for Proposals (RFP) and Tasks 2.6 and 2.8 of Neighbourhood Anatomy Group's (NAG's) February 6, 2019 accepted proposal, the first project deliverable is the Methodology and Modelling Report. The RFP states that this report must include:

- A detailed methodology which reflects and is supported by actual data availability and background research completed to date;
- A proposed table of contents / structure of the Final Report; and,
- 3D SketchUp models to depict the difference between current built-form conditions and as-of-right permissions, per the Northdale Zoning By-law provisions.

This report aligns with the RFP requirements and also includes an overview of the next steps in the project. Pending the review and concurrence of WSP, the analysis tasks contained herein will be completed in Phase III in support of the Final Report (Deliverable 2).

2.0 ANALYSIS METHODOLOGY

The analysis methodology proposed by NAG is the result of an iterative process since the submission of the February 6, 2019 revised proposal. The 2012 Northdale Land Use and Community Improvement Plan Study (the "2012 Northdale Study") established 10 high-level principles to guide growth and change in the neighbourhood. From these principles, NAG established 24 criteria to provide a refined level of direction on how we will proceed. This culminated in the February 14 and 20 draft and final criteria lists, following review and comment by WSP (Appendix A).

In Phase III, the 24 criteria will be actioned through the analysis tasks described below. Each analysis task identified in the following subsections includes the following items to ensure that WSP has a clear understanding of NAG's future work:

- Criteria Addressed- How the task addresses one or more of the February 20 criteria.
- Task Description- A clear overview of the steps to be taken in the analysis process and how the analysis task relates to the 2012 Northdale Study.
- Data Required- What data has been collected, or will be required, to complete the task.
- Outcome- What conclusions can be drawn from the analysis, and how the analysis will be presented (e.g. quantitative data, graph or chart, textual description).
- Transferability- The ability to apply each task to future analytical review projects by WSP will be described.

To ensure that all RFP task requirements are met, please refer to Table 1 below which cross-references the link between each RFP requirement and analysis task. Each task is categorized according the the RFP requirement that it most closely aligns with, however tasks commonly overlap with other RFP requirements.

Table 1: RFP Task Requirements vs. Analysis Tasks

RFP Task Requirements	Proposed Analysis Task
Establish a methodology to undertake this project	Satisfied by the Methodology and Modelling Report
A development activity analysis based on publicly available data and data provided by WSP (which includes data fields such as unit count and application status) to determine trends in metrics such as a breakdown of unit types and number of bedrooms	2-1, 9-1
A comparison and visualization of the key design elements in both the Northdale policy framework and Northdale zoning framework and how they have influenced developments within the neighbourhood, with a focus on developing models/visualizations of the neighbourhood which compare the planned/actual conditions	2-3, 3-1, 3-2, 5-2, 6-1, 6-2, 11-3
An analysis of demographic change in Northdale using publicly available Statistics Canada data from 2006, 2011 and 2016	2-2, 2-4
A comparison which identifies key changes in the Northdale neighbourhood since adoption of the plan, including a breakdown and rationale for which policies, zoning regulations, and Community Improvement Plan (CIP) programs have influenced changes	1-1, 1-2, 1-3, 2-5, 4-1, 4-2, 5-1, 7-1, 7-2, 8-1, 8-2, 10-1, 10-2, 11-1, 11-2
Key takeaways from the 2012 Northdale project including 'what worked', 'what has yet to be realized', and 'what may not be working'. Including elements such as pre-zoning, height and density provisions, and public realm/urban design elements	To be addressed in Deliverable 2 - Final Report from the findings of the analysis
Recommended directions for new/revised policies, zoning regulations, and CIP programs based on the outcomes of this monitoring exercise. Consultants are encouraged to determine a list of best practice municipalities that may have neighbourhoods similar to Northdale	To be addressed in Deliverable 2 - Final Report from the findings of the analysis

2.1 PRINCIPLE 1: INTEGRATED

Analysis Task 1-1

Criteria Addressed: Historical, current, and planned public transit service.

Description: The 2012 Northdale Study vision statement called for an improved transit network to support the preferred dense, urban land-use development type along major corridors. Through a Geographic Information System (GIS) analysis, we will compare public transit service in Northdale from 2012 to 2018 according to service frequency, service area coverage, and rapid transit station area coverage. We will also take into account planned changes to the GRT network that will come into effect within the next year.

Data Required:

- Grand River Transit (GRT) Static GTFS (General Transit Feed Specification) Feed
- GRT Stop Location Dataset
- GRT ION Station Location Dataset

Outcome: This will result in a detailed comparison of public transit service at Neighbourhood Plan implementation to its current state, as well as expected near-future conditions and a GIS visualization of neighbourhood transit services.

Transferability: Nearly all transit agencies openly publish current and historical GTFS feeds, from which several metrics for transit service quality can be derived without having access to detailed agency data.

Analysis Task 1-2

Criteria Addressed: State of active transportation infrastructure

Description: NAG will conduct a GIS-based audit of active transportation infrastructure in Northdale, including sidewalks, crosswalks, bike lanes, multi-use paths, and bicycle parking. This task will be conducted in accordance with Section 4 of the 2012 Northdale Study, which encouraged the improvement of the active transportation network wherever feasibly possible. These assets will be presented in an overview map showcasing the state of active transportation infrastructure in the neighbourhood.

Data Required:

- City of Waterloo Walkability Network Dataset
- City of Waterloo Trails Dataset
- City of Waterloo Cycling Infrastructure and Bicycle Parking Datasets

Outcome: A summary of neighbourhood active transportation assets will be provided as well as a neighbourhood overview map visualizing the network to help assess the current state of active transit in Northdale. The analysis is limited to a current state assessment due to the lack of historical data.

Transferability: Active transportation is occupying an ever growing share of transportation uses in Canadian cities, but generally lags behind other modes in terms of strong infrastructure networks. An active transportation audit would be useful for assessing progress in this field in other municipalities.

Analysis Task 1-3

Criteria Addressed: Transportation network connectivity.

Description: "Connectivity" refers to the directness of links and the density of connections in a road network. A well-connected neighbourhood will have many short links, numerous intersections, and minimal dead-ends. Better connectivity creates shorter travel distances, more route options, and is an essential feature of an integrated, accessible transportation network, especially for active transit users who benefit most from having direct route options.

The 2012 Northdale Study recommended the creation of new streets and new pedestrian and cycling links to improve the connectivity of the Northdale transportation network (Section 5.1.c). We propose a GIS analysis to calculate an "Intersection Density" value for Northdale. Using GIS, we will derive the number of intersections in the neighbourhood (road intersections and intersections in the pedestrian and cycling networks) and then divide this by the total study area.

Data Required:

- City of Waterloo Road Centreline Dataset

Outcome: An "Intersection Density" value for Northdale in 2012 and in 2018 would be determined, providing a quantitative measure of changes in the neighbourhood's connectivity over the study period that directly reflects the intentions of the 2012 Northdale Study.

Transferability: The GIS methodology outlined here could be applied to any study area. The simplicity of its data requirements (only a road-network shapefile is needed) lends well to transferability.

2.2 PRINCIPLE 2: DIVERSE

Analysis Task 2-1

Criteria Addressed: Mix of residential, commercial, and employment land uses.

Description: Section 5.1 of the 2012 Northdale Study identified the preferred land use plan, which included higher density residential commercial, retail and office uses throughout the study area as the prefered outcome. NAG will assess the development applications for the study period and categorize each according to:

- The land use(s): residential, non-residential (commercial, retail, office), and community/ institutional;
- Whether the project is mixed-use per the land uses identified above; and,
- Whether the project is consistent with Figure 5.1- Prefered Land Use Plan.

Data Required:

- 2013-2019 summary development data received from WSP
- Council Agenda, Minutes & Package obtained via City of Waterloo website
- Staff Reports retrieved from the City of Waterloo website (to be confirmed)

Outcome: The findings of this task will be presented in a summary table, with each development categorized according to the three factors above. Quantitative summary statistics will include, but not be limited to: the proportion of developments that were mixed-use, the proportion of developments that complied with the Prefered Land Use Plan, and the total number of new land uses introduced through the development applications.

Transferability: This analysis methodology can be applied across all jurisdictions with available development application data and a land use plan for comparison.

Analysis Task 2-2

Criteria Addressed: Diversity of household composition based on family size and characteristics.

Description: To address the requirements for diverse household composition as outlined in Section 6.1.d of the 2012 Northdale Study - specifically the need to supplement the neighbourhood's student population with families, seniors, young professionals and other demographics- NAG will assess changes in household size and composition over the study period, using 2011 and 2016 census data.

Data Required:

- Statistics Canada Census Data for household composition

Outcome: This information will display in a pair of thematic maps displaying the relative rise or fall of the prevalence of non-student households, and line graphs displaying the relative rise and fall of various family types, marital status, and household types.

Transferability: The universality of census data allows this analysis methodology to be applied across all jurisdictions at a variety of dissemination levels.

Analysis Task 2-3

Criteria Addressed: Diversity of built form.

Description: Within the 2012 Northdale Study, a variety of housing types and built form is encouraged to cater to a wider range of demographics, moving away from the predominant form of single detached housing (Section 3.2). The housing types and built form is identified within the Preferred Land Use Plan and Zoning By-law. NAG will assess the development applications for the study period and categorize each according to the type of built form that was introduced (single-detached, semi-detached, townhouse, low-rise apartment, mid-rise apartment, high-rise apartment, and other types as identified).

Data Required:

- 2012 & 2019 3D SketchUp files
- 2013-2019 summary development data received from WSP
- Council Agenda, Minutes & Package obtained via City of Waterloo Council calendar
- Staff Reports retrieved from the City of Waterloo website (to be confirmed)
- Statistics Canada Census Data (Total Occupied Private Dwelling by Type)

Outcome: This categorization process will result in quantitative data on the number of different types of built form, to display a proportional representation of new developments according to built form. This will aid in identifying trends over time and comparing from the period start and end time. It vvwill also assess how consistent development applications are with the Preferred Land Use Plan.

Transferability: This analysis methodology can be applied across all jurisdictions with available development application data and census data.

Analysis Task 2-4

Criteria Addressed: Demographic diversity

Description: Based on the Section 3.2 definition of demographic diversity from the 2012 Northdale Study, we have identified age and income as important demographic metrics to measure 'diversity' in Northdale. A mix of these factors especially may help Northdale avoid many of the problems typically associated with homogenous student neighbourhoods. NAG will use census data for age and income to identify what changes have occured since the plans implementation.

Data Required:

- Statistics Canada Census Data (Age and Income)

Outcome: An assessment of the demographic changes that have occured in the Northdale population in terms of age and income as well as accompanying thematic maps.

Transferability: Age and income diversity are generally considered to be good indicators of an economically healthy neighbourhood (Criekingen, 2003). This analysis would be relevant and applicable anywhere that data was available.

Analysis Task 2-5

Criteria Addressed: Diversity of housing tenure.

Description: The 2012 Neighbourhood Study recommended that short-term rental housing in Northdale be broken up by introducing more permanent 'bought' units (Section 3.2). NAG will examine Canadian census data for household type to assess the mixture of rented versus owned housing and whether progress in this area has been made.

Data Required:

- Statistics Canada Census Data on Household Characteristics

Outcome: This task will culminate into a numerical comparison of 2011 and 2016 housing tenure composition as well as accompanying thematic maps.

Transferability: This analysis methodology can be applied in any Canadian jurisdiction where Census data is available.

2.3 PRINCIPLE 3: IDENTIFIABLE

Analysis Task 3-1

Criteria Addressed: Consistency of Built Form with Urban Design Guidelines

Description: The Urban Design and Built Form Guidelines provide guidance on how to encourage well-designed built form to improve the identity of Northdale. The built form is classified through the different frontage typologies (Active, Convertible, Neighbourhood). Section B of the Frontage Typologies identifies the preferred built form compatible with the frontage. As the predominant built form of the neighbourhood will be in the form of towers above podiums, Section 5.11 provides guidelines on how to design towers, avoiding significant shadow impacts. Some of the Urban Design Guidelines are also implemented through the Zoning By-law. NAG will assess the

built form of the development applications (including Urban Design Briefs, where available) to determine their consistency with the preferred built form conditions identified within the Urban Design Guidelines.

Data Required:

- 2012 & 2019 3D SketchUp models
- 2013-2019 summary development data received from WSP
- Council Agenda, Minutes & Package obtained via City of Waterloo Council calendar
- Staff Reports retrieved from the City of Waterloo website (to be confirmed)

Outcome: This comparative analysis will provide an outlook of how consistently the Urban Design Guidelines are followed within Northdale, as it will highlight the differences between design elements of development applications and as-of right and preferred built form conditions

Transferability: The qualitative review methodology can be applied through all jurisdictions, which have Urban Design Guidelines.

Analysis Task 3-2

Criteria Addressed: Quality of Frontage Improvements with New Developments

Description: Built form is classified through three street frontage typologies (Active, Convertible, and Neighbourhood) that are used to frame the street and have different purposes. As such, the frontages prescribe different site statistics, identified within Section 5(a) of the Urban Design and Built Form Guidelines. NAG will assess the development applications within the study period and conduct a comparative analysis of the preferred frontage treatments, lot area, lot frontage and setbacks identified within the Urban Design Guidelines and Zoning By-law.

Data Required:

- 2012 & 2019 Modelling Conditions
- 2013-2019 summary development data received from WSP
- Council Agenda, Minutes & Package obtained via City of Waterloo Council calendar
- Staff Reports retrieved from the City of Waterloo website (to be confirmed)

Outcome: This analysis will result in a qualitative comparative analysis on how development applications adhere to the Urban Design Guidelines. Also included will be a quantitative analysis comparing the numerical provisions within the Zoning By-law to development applications. Overall, it will provide information on how the frontage of new developments has improved.

Transferability: The frontage treatments are specific to Northdale, however the methodology to conduct a comparative analysis of lot area and lot frontage to establish a consistent street wall may be applied through all jurisdictions which have established Zoning By-Laws.

2.4 PRINCIPLE 4: SUPPORTED

Analysis Task 4-1

Criteria Addressed: Value of all Public and Institutional Projects

Description: The Northdale Community Improvement Plan, in Section 7.0, outlines the role of the City of Waterloo in investing in Northdale. This investment is understood to be demonstrative

of the commitment of the City to the future of the neighbourhood. Given the role of Wilfrid Laurier University (WLU) and the Waterloo Collegiate Institute (WCI) as stakeholders in Northdale, institutional investment carries similar importance. A qualitative case study review will be completed to identify all City of Waterloo, WLU, and WCI capital projects in Northdale during the study period. Depending on the outcome of the qualitative review, City of Waterloo projects may be categorized into one of the seven Municipal Leadership Actions identified in Section 7.0.

Data Required:

- Annual City of Waterloo Capital Improvement Project sheets
- City of Waterloo Staff Report: 2018 Northdale / IBM Smarter Cities Update
- 2016/17 and 2017/18 Wilfrid Laurier University budgets (past budgets are not available for review)
- Waterloo District Regional School Board annual budgets, 2015 to 2019
- Local media articles and press releases covering capital projects

Outcome: This review will support conclusions as to the level of public and institutional investment in Northdale. Quantitative data on investment values, where available, will be presented in conjunction with brief project write-ups.

Transferability: The qualitative review of case studies can be replicated in other jurisdictions where public or institutional entities are involved in neighbourhood-level revitalization.

Analysis Task 4-2

Criteria Addressed: Progress on Core Area infrastructure upgrades by City of Waterloo

Description: Servicing in Northdale is addressed in Section 7.6 of the Northdale Community Improvement Plan with the direction that the City of Waterloo should proceed with the implementation of the Core Area sanitary infrastructure upgrades. The intent of these upgrades is to create excess capacity in the supporting infrastructure of Northdale to support future growth. NAG will complete a qualitative review of the status of the recommended Core Area sanitary upgrade projects identified in the Waterloo Sanitary Master Plan and provide explanations as to the status of each upgrade.

Data Required:

- Waterloo Sanitary Master Plan
- Annual City of Waterloo Capital Improvement Plan Project sheets (including Council and Committee Minutes & Packet & Staff Reports)
- Local media articles and press releases covering capital projects

Outcome: The qualitative review will provide up to date information on the status of servicing upgrades in Northdale with brief descriptions provided for each recommended project. A summary table will be provided which categorizes each upgrade as: Complete, In Progress, or Not Started with accompanying notes.

Transferability: The Core Area infrastructure recommended upgrades are unique to Northdale; however, the qualitative review methodology can be applied to other municipalities with similar capital upgrade projects underway.

2.5 PRINCIPLE 5: MEMORABLE

Analysis Task 5-1

Criteria Addressed: Retention of mature trees

Description: The retention of mature trees is noted in Principle 5 of the 2012 Northdale Study as being a key element of neighbourhood memorability. Section 7.3 of the Community Improvement Plan further states that Northdale's urban forest should be strengthened through street tree preservation, tree planting, and the promotion of private tree preservation. Using the City of Waterloo Street Tree Inventory, we will analyze existing street trees, proposed trees, and tree removals to identify changes in the urban forest over time. As Tree Conservation Reports for new private developments could not be secured, only publically-maintained trees will be analyzed.

Data Required:

- City of Waterloo Street Tree Inventory

Outcome: Using the spatial data of the Street Tree Inventory, maps will be prepared of existing, removed, and proposed street trees. Summary statistics on the number of of existing, removed, and proposed trees will be provided. For removed trees, additional summary data will be provided on the number of removals per year, the spatial distribution of removals, and the removal cause. This will result in a robust understanding of the state of the Northdale urban forest and trends with respect to retention and regeneration.

Transferability: The majority of the largest Canadian municipalities maintain a street-tree or tree-canopy database; this analysis could be adapted to any such municipality. The exercise can also be extended to private developments if Tree Conservation Reports are available.

Analysis Task 5-2

Criteria Addressed: Assessment of Standardized Urban Design Score along Streets, Buildings and Spaces

Description: A high standard of urban design contributes to the vision of a memorable and attractive Northdale. Researchers suggest that if the urban design of buildings and spaces are memorable, it encourages more pedestrian activity and increases walkability, which is also a primary component of the vision for Northdale (Ewing, 2013). Assessing the standard of urban design of buildings and spaces can be highly subjective, therefore NAG will complete a standardized urban design checklist (Appendix B) for the new developments during the study period. Streets within the neighbourhood will also be assessed, including Lester Street, Sunview Street, Albert Street, Hemlock Street, Hazel Street, Spruce Street, Hickory Street, Balsam and Larch Street. The standardized checklist includes nine categories - imageability, legibility, enclosure, human scale, transparency, linkage, complexity, coherence and tidiness. However, only some of these criteria are applicable to the addressed criteria such as imageability, human-scale and complexity. The higher the score, the more memorable the space and buildings are deemed to be.

The imageability of a development is linked to what physical elements and arrangements of a development generate attention, creating a distinct presence within the neighbourhood (Clemente, 2005). The specific design qualities to be measured include the number of buildings with key identifiers, buildings with non-rectangular shapes, and the presence of outdoor dining.

These qualities will only be measured within new developments to evaluate the memorability of new developments.

The memorability of a neighbourhood can be measured by evaluating the human scale of developments and streets, which indicates how effective physical elements of developments are inviting pedestrians in (Ewing, 2013). The specific design qualities to be measured along the identified streets include average building height, the number of planters and street furniture. These qualities will be measured along the identified streets, where there is new development.

The complexity of a space and a building, through integrating a variety of buildings, and architectural features, results in the visual richness and attractivity of a place or space (Clemente, 2005). The specific design qualities to be measured include counting the buildings with basic building colours, buildings with accent colours and public art features. The qualities will be measured for new developments as well as the identified streets.

Data Required:

- Google Street View
- Site visits

Outcome: The standardized score sheet to evaluate urban design will provide an outlook on how urban design has been emphasized with new development applications, and evaluating the progress towards achieving the vision of an attractive neighbourhood.

Transferability: This analysis is easily transferable to other jurisdictions and municipalities as the score sheet is standardized and not specific to Northdale.

2.6 PRINCIPLE 6: IDENTIFIABLE

Analysis Task 6-1

Criteria Addressed: Assessment of Indoor / Outdoor Amenity Areas

Description: A preferred neighbourhood element, as prescribed by Building and Development Element #5, is to encourage a network of indoor and outdoor amenity areas that will be integrated within the neighbourhood to provide for passive and active community gathering spaces, to promote a healthy social environment. For the assessment of outdoor amenity areas such as parks and parkettes, NAG will review the status of capital projects, such as the maintenance of Veteran's Green and the establishment of parkettes identified within the Preferred Land Use Plan. For the evaluation of private amenity areas, NAG will assess all development applications for the study period for the amount of landscaped open space and common indoor amenity space designs, as identified by the Urban Design Guidelines and the Northdale 2012 Zoning By-law.

Data Required:

- City of Waterloo Construction Projects
- Annual City of Waterloo Capital Improvement Plan Project sheets (including Council and Committee Minutes & Packet & Staff Reports)
- Council Agenda, Minutes & Package obtained via City of Waterloo Council calendar
- Staff Reports retrieved from the City of Waterloo website (to be confirmed)

Outcome: This review will provide information as to the level of emphasis put upon establishing and maintaining common amenity areas and gathering spaces within the public realm. For amenity areas within private developments, if sufficient data exists, a trend over time and a comparison between the period start and end time can be identified. It will also assess how consistent development applications are to the Urban Design Guidelines of Shared Private Open Spaces.

Transferability: The amount of indoor amenity space and location of outdoor amenity areas are Northdale context specific; however the methodology can be applied to all jurisdictions.

Analysis Task 6-2

Criteria Addressed: Assessment of Grade Level Streetscape (Street Typology)

Description: Interactivity within Northdale should be improved within the public realm through improved streetscaping, as prescribed by Element #5 of the Public Realm within the Preferred Neighbourhood Elements Section. The Preferred Land Use Plan identifies five street typologies that will guide the enhancement of the streetscape and the street itself. Both the Northdale Land Use Plan (Section 5(c)) and Urban Design Guidelines (Section 4) provide guidance on how to achieve the desired public components of the street. NAG will review the status of capital projects pertaining to accomplishing the preferred street typologies, streetscape and urban design elements to determine progress over time.

Data Required:

- City of Waterloo Construction Projects
- University Avenue Gateway Study
- Annual City of Waterloo Capital Improvement Plan Project sheets (including Council and Committee Minutes & Packet & Staff Reports)

Outcome: The qualitative review will provide up to date information on the status of street and streetscape upgrades in Northdale with brief descriptions provided for each recommended project.

Transferability: The Preferred Street Typologies are unique to Northdale; however, the qualitative review methodology can be applied to other municipalities.

2.7 PRINCIPLE 7: DURABLE

Analysis Task 7-1

Criteria Addressed: Leadership in Energy and Environmental Design (LEED) certification for development

Description: The Canada Green Building Council maintains a database of LEED buildings in

Canada. Consistent with Section 4.0 of the 2012 Northdale Study, this database will be reviewed to identify all LEED buildings that have been developed in Northdale during the study period. The search will identify buildings per their LEED Certification Level (Certified, Silver, Gold and Platinum).

Data Required:

- Canada Green Building Council LEED database

Outcome: This will result in a comprehensive assessment of the neighbourhood's progress since 2012 in terms of environmental development and design, specifically referencing LEED certifications as a means of identifying environmentally sustainable development. A bar graph will be generated that displays the number of developments constructed over the study period based on their LEED Certification Level, in addition to new developments that are not LEED certified.

Transferability: LEED certification is a globally recognized standard for environmental design and architecture. This methodology could be applied to many other jurisdictions, especially at larger scales where more development can be captured in the analysis.

Analysis Task 7-2

Criteria Addressed: The use of Sustainable strategies in new development

Description: According to the City of Waterloo, a project is considered sustainable if it achieved any level of LEED certification or if it conforms to a list of sustainable strategies developed by the city. In light of the description for "Durable" under Section 3.0 of the 2012 Northdale Study, NAG has co-opted and altered the City's list of sustainable strategies to assess the sustainability of new development over the study period. To perform this task using a checklist, NAG took the city's comprehensive list and identified the items that are most likely to be mentioned in council minutes and staff reports. NAG has ensured that the chosen items are diverse enough to afford a holistic assessment of sustainability. Council minutes and staff reports will be reviewed for evidence of the following:

- Pervious surfaces and paving materials such as open pavers and open rubber mats (stormwater infiltration).
- Soft/permeable surfaces bordering hardscaped areas to allow (stormwater infiltration)
- A green roofing system to reduce the amount of roof runoff
- Durable construction materials that exceed minimum standards in building code

Data Required:

- Council Agenda, Minutes & Package obtained via City of Waterloo Council calendar

Outcome: An assessment of the sustainability of new development based on a comprehensive review of council minutes and staff reports will be determined. Results will include graphical representations of findings where appropriate.

Transferability: The list of sustainable strategies developed by the City of Waterloo, or the concise version of the list utilized by NAG, can be used to assess the sustainability of development that is subject to the building code on any site.

2.8 PRINCIPLE 8: SAFE

Analysis Task 8-1

Criteria Addressed: The use of Crime Prevention Through Environmental Design (CPTED)

Description: With respect to Section 4.0 of the 2012 Northdale Study, Staff Reports and Council Minutes concerning new development over the study period will be reviewed for evidence of CPTED principles using the following checklist derived from the City of Waterloo's incentive program:

- Was a CPTED analysis of the site completed
- Lighting design for parking
- Lighting design for congregation areas
- Site features that reduce intrusions on the privacy of adjacent properties

Developments over the study period that have incorporated any of the items in this checklist will be identified along with those that have not.

Data Required:

- Council Agenda, Minutes & Package obtained via City of Waterloo Council calendar

Outcome: A review of new development over the study period will be completed in terms of the application or absence of CPTED principles. From this review, any instances or locations with the potential for improvement under these principles will be identified.

Transferability: This methodology can be applied in any municipality that has recorded the application of CPTED principles in Staff Reports and Council Minutes on new developments.

Analysis Task 8-2

Criteria Addressed: Assessment of Neighbourhood Crime Perception

Description: Waterloo Regional Police Services (WRPS) releases annual datasets containing every phone call made to emergency services in the Region from 2011 to 2017. The datasets provide spatial data to the nearest intersection and a description of each occurrence. To supplement the CPTED analysis of Task 8-1, 2012 and 2017 Northdale occurrences will be identified, summarized, and compared in terms of quantity. Occurrence data points will be mapped using GIS to aid in the comparison.

Data Required:

- WRPS occurrence datasets: 2012 and 2017

Outcome: In addition to an occurrence map, two pie charts displaying crime activity by occurrence type will be generated for 2012 and 2017. These charts will be used to assess if the severity and frequency of occurrences has changed over the study period. Changes in neighbourhood occurence activity can be partly explained by changes in crime levels across the city, therefore NAG will compare crime levels in Northdale to the city scale for both periods.

Transferability: This method can be implemented for any neighbourhood in the Region of Waterloo and can be implemented for neighbourhoods in municipalities outside the Region where police services provide similar datasets.

2.9 PRINCIPLE 9: FLEXIBLE

Analysis Task 9-1

Criteria Addressed: Change in unit bedroom composition, with a focus on five-bedroom units

Description: To address the flexibility of buildings and land uses per Section 3.9 of the 2012 Northdale Study, NAG will conduct research to assess changes in unit bedroom composition by comparing 2011 and 2016 Canadian Census statistics on household characteristics. It is understood that the City intends for a lower proportion of new residential development to be five-bedroom units.

Data Required:

- Statistics Canada Census Data for Household Characteristics.

Outcome: This analysis will be presented in the form of Bar graphs displaying the change in bedrooms per unit, which will provide insight on the potential for residential units to accommodate non-student tenants, such as families, in the future.

Transferability: Provided that census data is available for the given municipality, the methodology will be applicable in similar contexts, where a mostly residential area is facing potential changes in land uses.

Analysis Task 9-2

Criteria Addressed: Implementation of Convertible Street Frontage guidelines

Description: Per Section 5.1.b.ii of the 2012 Northdale Study, NAG will assess the implementation of the three factors recommended for convertible frontages in the development applications:

1. Tall ground floors (4.5 meters)
2. Large windows, display areas and entrances
3. Street setbacks: maximum 5.0 metres and minimum 1.0 metre.

These factors will be assessed on a visual scale, through Google Street View, Site Visits and 2019 Modelling Conditions as well as quantitative analysis of the setback treatments within the development applications within the study period.

Data Required:

- Google Street View, including archived versions
- Site visits
- 2019 Modelling Conditions
- Council Agenda, Minutes & Package obtained via City of Waterloo Council calendar

Outcome: A mixed qualitative and quantitative analysis of the presence of the Convertible Street Frontage requirements listed above that will examine the neighbourhoods flexibility in terms of building use conversion, as well as a thematic map illustrating the presence and opportunity for convertible frontage.

Transferability: This methodology is applicable to other Waterloo neighbourhoods where development typologies feature street frontages with the potential for future conversion. It could be adapted to other jurisdictions with similar Convertible Street Frontage guidelines.

2.10 PRINCIPLE 10: COLLABORATIVE

Analysis Task 10-1

Criteria Addressed: Prevalence of multi-stakeholder partnerships.

Description: This task will address the 'Collaborative' principle of the 2012 Northdale Study, which describes the enhancement of partnerships between "the City, Universities, developers, residents and landowners to facilitate synergies to further the redevelopment objectives and enhance the community." A case study review will be used in the assessment of partnerships within the community between the public, private, and institutional sectors. This will include the Northdale Incentive Programs identified within the Northdale Community Improvement Plan (CIP), which are offered to help accomplish the goals, objectives and vision for Northdale. A quantitative analysis of the monitoring variables identified within Table 9.1 of the Community Improvement Plan will also be used in the assessment (Appendix C).

Data Required:

- Local media articles
- Organizational, corporate, and municipal websites
- Council Agenda, Minutes & Package obtained via City of Waterloo Council calendar

Outcome: A qualitative and quantitative analysis will determine the degree to which collaborations between community partners contributed to development and neighbourhood change during the study period. In part, the research will focus on various CIP incentives that result in partnerships of this sort and if these programs are utilized by private developers. It will also compare the prescribed 2012 Northdale CIP programs to those that have been implemented by Council, and identify differences.

Transferability: This form of scan is widely relevant across a variety of community types as strengthening stakeholder collaboration and community engagement is a prominent topic of planning discussion.

Analysis Task 10-2

Criteria Addressed: Prevalence of agreements formed under Section 37 of the Planning Act.

Description: Section 5.1.f of the 2012 Northdale Study encourages the use of bonusing provisions under Section 37 of the Planning Act. As these provisions represent a key example of collaborative partnerships between the public and private sectors, this analysis task will address their implementation in Northdale by reviewing council documents on new development.

Data Required:

- Council Agenda, Minutes & Package obtained via City of Waterloo Council calendar

Outcome: This case study review will assess the use and effectiveness of Section 37 agreements in Northdale during the study period. Outputs will include a qualitative summary and graphical representations of the findings where appropriate.

Transferability: Section 37 is a valuable collaborative tool for developers and municipalities alike. This methodology is relevant in any neighbourhoods experiencing rapid growth, and can be adapted to any jurisdiction where data is available.

2.11 POLICY ANALYSIS

The 2012 Northdale Land Use and Community Improvement Plan Study, including the Built Form and Urban Design Guidelines, included a Preferred Land Use Plan, Structure and Policy regime to guide change in the neighbourhood. The implementation of these components is achieved through amendments to the Official Plan and Zoning By-Law. The following analysis tasks will evaluate how the 2012 Northdale Study has translated into current conditions through a comprehensive policy analysis comparison.

Analysis Task 11-1

Policies Addressed: Comparison between Northdale Land Use Plan and Official Plan Amendment & Schedules Adopted by Council

Description: The 2012 Northdale Study included a Preferred Land Use Plan and Neighbourhood Elements. The Land Use Plan Plan and Element policies will be compared to the Official Plan Amendment proposed in the 2012 Northdale Study, and to the land use schedule and policy regime contained within the 2012 City of Waterloo Official Plan.

Data Required:

- Council Agenda, Minutes & Package at the time of adoption obtained via City of Waterloo Council calendar
- City of Waterloo Official Plan

Outcome: The qualitative comparison will result in a comparison map, highlighting the differences between the Land Use Plans and Schedules. It will also provide an overview of how the Official Plan Amendment has been translated from the Preferred Land Use Plan and determine if any departures from the 2012 Northdale Study were introduced by Council.

Transferability: This analysis can be applicable to all jurisdictions where municipalities have retained private urban planning firms to undertake studies.

Analysis Task 9-2

Policies Addressed: Comparison between 2012 Northdale Study and Zoning By-Law Amendment and Schedules

Description: The 2012 Northdale Study identified development permissions that include, but are not limited to, setbacks, height, and density. The zoning provisions identified within the 2012 Plan and Element Policy will be compared to the Zoning By-Law Amendment proposed within the 2012 Northdale Study and the Amendment that Council approved for Zoning By-Law 1108.

Data Required:

- Council Agenda, Minutes & Package at the time of adoption obtained via City of Waterloo Council calendar
- Zoning By-law 1108

Outcome: The qualitative comparison will result in a comparison map, highlighting the differences between the Land Use Plans and Schedules within the Zoning By-laws. It will also provide an overview of how the Zoning By-law Amendment has been translated from the Preferred Land Use Plan and determine if any deviations from the 2012 Northdale Study were introduced by Council.

Transferability: This analysis can be applied in all jurisdictions where municipalities have retained private urban planning firms to undertake studies.

Analysis Task 11-3

Policies Addressed: Comparison between the 2012 Northdale Zoning By-law Amendment and the updated City of Waterloo Zoning By-Law 2018-050.

Description: The City of Waterloo passed a new Zoning By-law in 2018 that is currently under appeal to the Local Planning Appeal Tribunal. The new Zoning By-law and its schedules will be compared to the 2012 Zoning By-law Amendment and schedules.

Data Required:

- Council Agenda, Minutes & Package via City of Waterloo Council calendar
- 2019 Modelling Conditions and as of Right Conditions

Outcome: This comprehensive comparison, including a visual, quantitative and qualitative analysis will highlight any differences in the built form standards arising for the change and updates at the Zoning By-Law Level.

Transferability: This form of comparison is widely relevant across a variety of community types, as there have been many cases where provisions within the original Zoning By-Law has not been adequately captured through the process of updating to a new Zoning By-Law.

2.12 LIMITATIONS AND ADDITIONAL DATA REQUIRED

NAG identified several instances where the preferred analysis methodology could not be proposed due to data availability issues. Such instances include:

- Census Data: 2016 census data provided by WSP is provided at a level of accuracy not publically available from Statistics Canada. NAG would like to request 2011 and 2006 census at a similar level of spatial data, if available.
- Development Applications: The recent restructuring of the City of Waterloo website has resulted in all development application studies being unavailable for online access, and a significant amount of broken hyperlinks. The City of Waterloo does not maintain an online development application database with uploaded plans and studies.

Additionally, NAG notes that the transient nature of the neighbourhood's student population, creates a source of potential error in any analysis involving census data, as students are generally less likely to fill out census forms for their temporary student accommodation and may be reported in their home municipality. Finally, NAG notes that development application data was provided by WSP for 32 files during the study period. NAG wishes to confirm that the scope of all analysis involving development applications is limited to these 32 applications.

3.0 FINAL REPORT STRUCTURE

NAG proposes the following structure for the Final Report, as identified in Table 2.

Table 2: Final Report Structure

Section 1.0 - Introduction	To introduce the purpose and structure of the Final Report.
Section 2.0 - Background	A brief write-up on Northdale, the context of the 2012 Northdale Study, and subsequent policy developments (e.g. 2018 Zoning By-law update) will be provided.
Section 3.0 - Study Process	A description of the iterative analysis process used by NAG. This will include the flow from the ten 2012 study principles to the analytical tasks, descriptions of analytical methodologies, and an overview of the modelling process.
Section 4.0 - Analysis Findings Section	Section 4.0 will summarize each analysis task identified in this report or as amended by WSP. Each analysis task will include the presentation of data in a suitable format (textual description, quantitative data, maps, etc.) and conclusions identified by the project team. Given the quantity of analysis tasks to be completed, a summary table with each task and its conclusion(s) will be included at the end of this section.
Section 5.0 - Modelling Findings	The 2019 and as-of-right 3D SketchUp models will be refined where necessary and described as they relate to the analysis tasks of Section 4.0.
Section 6.0 - Comparator Municipalities	NAG will identify three best practice municipalities that have neighbourhoods similar to Northdale, and provide a brief overview of each to guide future research by WSP.
Section 7.0 - Conclusions	NAG's conclusions will be structured to address 'what worked', 'what has yet to be realized', and 'what may not be working' from the Northdale 2012 Study. Each conclusion will be supported by the analysis of Sections 5.0 and 6.0, and will be linked to a specific study policy or section.
Section 8.0 - Recommendations	NAG will prepare policy, zoning and CIP recommendations. Each recommendation will be connected to one or more conclusion from Section 7.0
Bibliography	All sources used in the preparation of the Final Report will be identified.

4.0 MODELLING DESCRIPTION

As specified in the RFP, two 3D models were prepared of the Northdale study area: one of the 2019 current conditions and one of the Zoning By-law as-of-right development permissions. Two Zoning By-laws were in effect during the study period: 2012 and 2018. The as-of-right permissions have been modelled using the provisions of the 2018 Zoning By-law, except where major regulatory changes significantly differ the development permissions versus the 2012 by-law.

Both models were prepared in Google SketchUp and AutoCAD. Parcel fabric, road alignments, building footprints, and other base details were sourced from the City of Waterloo online Geocortex system. This information was determined to be the most current and accurate data available for the study area. Building heights were estimated via Google Earth / Street View and on-site visual confirmation. Where exact values were not available, building heights were estimated at 3.0 metres per storey.

5.0 NEXT STEPS

The submission and acceptance of this report will constitute the completion of Phase II of the project. Phase III is dedicated to the completion of the analysis tasks described in this report and the preparation of Deliverable 2 - Final Report. As identified in our proposal, we intend to iterate our analysis according to client feedback. Given the condensed time frame of Phase III (four weeks), it is expected that one opportunity for review will be provided to WSP in mid-March. However, we expect that sufficient direction will be provided following the review of the Methodology & Modelling Report to ensure that NAG is able to successfully complete this project regardless. Consistent with WSP's January 2019 RFP, the project presentation is scheduled to occur the week of April 1 at a date and time acceptable to both WSP and NAG (Task 3.8). The Final Report will be submitted to the client the week of April 1 (Task 3.7).

6.0 CONCLUSION

NAG is pleased to provide continued assistance to WSP with the "Northdale in Review: Assessing 5-Years of Change" project. We look forward to attending the mid-project meeting to be held at the WSP Kitchener office on Wednesday, March 6, 2019 to review this report and identify any changes required.

7.0 BIBLIOGRAPHY

Canada Green Building Council. (2018). LEED Project Profiles. Retrieved February 25, 2019, from https://leed.cagbc.org/LEED/projectprofile_EN.aspx?fbclid=IwAR1MLsJTKUZ_asIKM_C6uMDNei9BeJsYFgdaCUaYIO6-vh_2WHQU4q7KWiI

City of Waterloo. (2014, October 29). Sustainability Strategies for Private Developments. Retrieved February 25, 2019, from https://www.waterloo.ca/en/government/resources/Documents/Economic-Development/Sustainability-strategies-for-private-developments.pdf?fbclid=IwAR2ajvaNf8yQp4LE6TodmKk9ReX-eveqMyuvYW_9BH0gnCEmCUz4pn_ZfIs

Clemente, O., Ewing, R., Handy, S., Brownson, R., & Winston, E. (2005). Measuring Urban Design Qualities—An Illustrated Field Manual(Rep.). Princeton, NJ: Robert Wood Johnson Foundation.

Criekingen, M. V., & Decroly, J. (2003). Revisiting the Diversity of Gentrification: Neighbourhood Renewal Processes in Brussels and Montreal. Urban Studies,40(12), 2451-2468. doi:10.1080/0042098032000136156

Ewing, R. H., & Clemente, O. (2013). Measuring urban design: Metrics for livable places. Washington. D.C.: Island Press.

Waterloo Regional Police. (2017). Occurrence Data. Retrieved February 25, 2019, from https://www.wrps.on.ca/en/about-us/occurrence-data.aspx?fbclid=IwAR1VuDWOcTLypaap-TbmvNdYjGB8YUfkizx29fFZ2q8l1uP8daAt1etWm7I

appendix A

FINAL CRITERIA LIST

February 20, 2019

WSP Canada Group Limited
582 Lancaster Street West
Kitchener, ON N2K 1M3

Attention: Matthew Rodrigues, Planner

Dear Sir:

Subject: "Northdale in Review" Project – Final Criteria List

Per Tasks 1.6 and 1.7 of our February 6, 2019 proposal, Neighbourhood Anatomy Group (NAG) is pleased to submit the following final criteria list to WSP Canada Group Limited (WSP). This letter supersedes our February 14 submission and incorporates the feedback provided on February 19.

The 2012 Northdale Study established ten guiding principles for the neighbourhood. To refine the direction to be taken in our Methodology Report, the following criteria have been prepared to determine what elements of each principle our methodology will address. Each criterion is intended to serve as a bridge between the high-level principles to the actionable analysis tasks that will be proposed in our Methodology Report. This approach will ensure that our analysis addresses the most important elements of the 2012 principles.

NAG has commenced with the preparation of the Methodology and Modelling Report (Task 2.6), which we plan to deliver on February 27. This report will provide our specific direction on how we will conduct the analysis of this project, including the policy review identified in your February 19 email. If you have any questions, please do not hesitate the contact the undersigned.

Yours sincerely,

Ben Crooks
Project Manager
Neighbourhood Anatomy Group

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Principle	Criteria	Rationale
1 – Integrated	1-1: Historical, current and planned transit services. 1-2: Historical, current and planned cycling and pedestrian infrastructure. 1-3: Road network connectivity.	Northdale's integration with its community is a function of the transit, active transportation, and roadway networks. The three criteria will lead to analyses that address all elements of this principle.
2 – Diverse	2-1: Mix of residential, commercial, and employment land uses. 2-2: Diversity of household composition. 2-3: Diversity of built form. 2-4: Demographic diversity. 2-5: Diversity of housing tenure.	The principle of diversity addressed land uses, housing types and tenures, and demographics. The five criteria will lead to a holistic analysis of changing diversity over the study period.
3 – Identifiable	3-1: Consistency of development activity on Columbia, King, University, and Philip with the Urban Design Guidelines. 3-2: Quality of streetscape improvements with new development. 3-3: Usage of the Urban Design Study Grant program.	The identifiability of a neighbourhood is a highly subjective exercise. We interpret this principle to address the quality of urban design in Northdale as a means to achieve a more positive image. Accordingly, our analysis will focus on the urban design of the four boundary streets most visible to the general public.
4 – Supported	4-1: Value of public and institutional projects in Northdale. 4-2: Progress on Core Area infrastructure upgrades by City of Waterloo.	Infrastructure and servicing upgrades are completed in Northdale with each new development. This task will focus on the status of the City-led infrastructure upgrades identified in Section 7.6 of the 2012 Community Improvement Plan.
5 – Memorable	5-1: Retention of mature trees. 5-2: Urban design scoring assessment for built form	The memorability of a neighbourhood is linked to physical design elements such as natural heritage and built form. Accordingly, our analysis will focus on the retention of mature trees, as well as a standardized checklist to assess new development.
6 – Interactive	6-1: Urban design scoring assessment for streetscape.	The interactivity of new development is primarily determined by the at-grade uses and features. A

Principle	Criteria	Rationale
		standardized checklist will be developed for assessing ground-floor interactivity.
7 – Durable	7-1: Use of durable design elements and materials in new development. 7-2: LEED certification for new development.	Durability addresses both the quality of improvements made during development to the public realm and the environmental sustainability of buildings.
8 – Safe	8-1: Assessment of neighbourhood crime perception. 8-2: Assessment of new development using a Crime Prevention Through Environmental Design (CPTED) checklist.	Safety in new development is primarily determined through the use of CPTED design principles. 911 data, by-law infractions, and grey media will be assessed to identify trends over the study period as a proxy for neighbourhood crime perception.
9 – Flexible	9-1: Change in unit bedroom composition, with a focus on five-bedroom units. 9-2: Implementation of Convertible Street Frontage guidelines.	The flexibility of new development is linked to the ability for residential units to evolve according to market demand, with the five-bedroom norm recognized as generally being inflexible. The Convertible Street Frontage guidelines, if implemented, also improve neighbourhood flexibility.
10 – Collaborative	10-1: Review of cases for multi-stakeholder partnerships. 10-2: Review cases of Section 37 agreements.	NAG will review case studies of partnerships including the public, private, and institutional sectors. Section 37 agreements also represent a key example of collaborative between the public and private sectors.

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appendix B

URBAN DESIGN SCORE SHEEET

MEASURING URBAN DESIGN QUALITIES SCORING SHEET WITHIN NORTHDALE

Street: **From:** **To:**

Step #	Step	Process	Direction	Study Area	Recorded Value	Multiplier	Multiplier x Recorded Value
Imageability							
1.1	Buildings with Identifiers	Count and explain Identifiable feature	Both Sides	Within		0.11	
1.2	Buildings with non-rectangular shapes	Count	Both Sides	Within		0.08	
1.3	Presence of outdoor dining	Count (Yes/ No for Buildings)	Both Sides	Within		0.64	
						Total Imageability Score (+2.44)	
Human Scale							
2.1	Building Height	Average	Both Sides	Within		-0.003	
2.2	Small Planters	Count	Both Sides	Within		0.05	
2.3	Pieces of Street Furniture	Count	Both sides	Within		0.04	
						Total Human Scale Score (+2.61)	
Complexity							
3.1	Buildings with Basic Building Colours	Count	Both Sides	Within		0.23	
3.2	Buildings with Accent Colours	Count	Both Sides	Within		0.12	
3.3	Number of Public Art	Count	Both Sides	Within		0.42	
					Total divided by 4	**0.03**	
						Complexity Score (+2.61)	

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appendix C

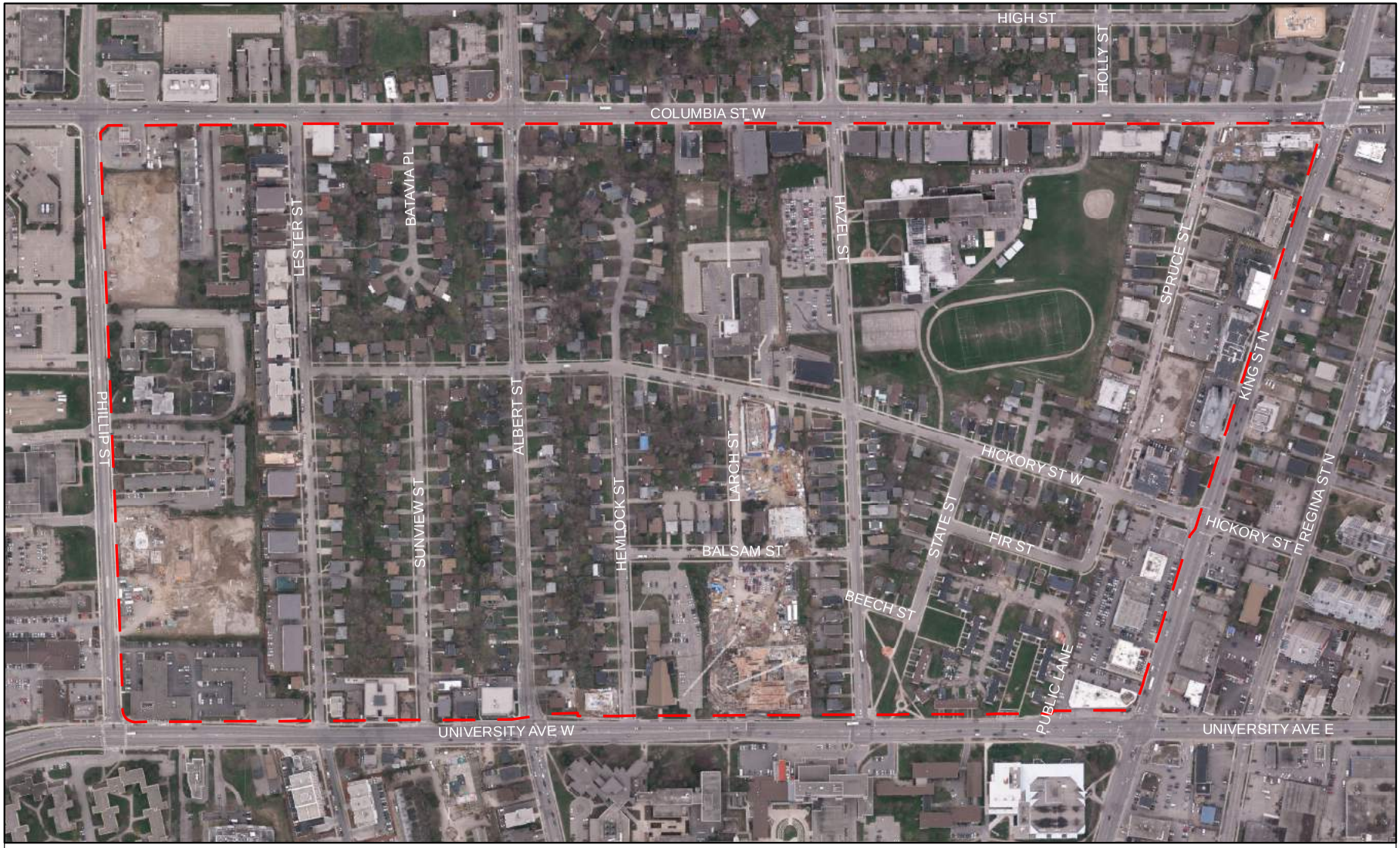
MONITORING VARIABLES CHART

Monitoring Variables Chart
Northdale Land Use and Community Improvement Plan Study, June 2012

Program	Monitoring Variable
1. Development Charge Grant Program	◦ Number of applications. ◦ $ amount of grant awarded by category (LEED or Sustainability Strategies). ◦ Number of residential units renovated and constructed by type (# of bedrooms), square footage, and affordability. ◦Square footage of retail commercial, office commercial, and community space renovated or constructed. ◦ Number of new businesses occupying space (1 year post completion). ◦ Total $ value of construction by type of space. ◦ Increase in assessment value of participating property. ◦ Increase in municipal (City and Region) and education property taxes of participating property.
2. Tax Increment Grant	◦ Number of applications. ◦ $ amount of grant awarded by category (LEED or Sustainability Strategies). ◦ Number of residential units renovated and constructed by type (# of bedrooms), square footage, and affordability. ◦ Square footage of retail commercial, office commercial, and community space renovated or constructed. ◦ Number of new businesses occupying space (1 year post completion). ◦ Total $ value of construction by type of space. ◦ Increase in assessment value of participating property. ◦ Increase in municipal (City and Region) and education property taxes of participating property.
3. Residential Intensification and Affordability Loan/Grant Program	Number of applications. ◦ $ amount of loan or grant. ◦ Number of residential units renovated/constructed by # bedrooms and # affordable units. ◦ Rental rates/sale price. ◦ Square footage of residential space renovated or constructed; ◦ Total $ value of construction. ◦ Increase in assessment value of participating property. ◦ Increase in municipal (City and Region) and education property taxes of participating property. ◦ Number and $ amount of loan forgiveness. ◦ Number and net $ amount of loan defaults.
4. Residential Rehabilitation Grant Program	◦ Number of applications. ◦ $ amount of grant. ◦ $ amount of grant by type of improvement. ◦ Total $ value of exterior building improvements. ◦ Increase in assessment value of participating property. ◦ Increase in municipal (City and Region) and education property taxes of participating property.
5. Urban Design Study Grant	◦ Number of applications. ◦ $ amount of grant. ◦ Total cost of urban design study/ architectural/design drawings. ◦ Number of Urban Design Study Grants leading to construction projects.
6. Planning and Building Fees Grant Program	◦ Number, type and $ amount of grant by type of application fee ◦ # of units and square footage of residential floor space renovated/constructed ◦ Square footage of retail commercial, office commercial, and community space renovated or constructed. ◦ Total $ value of construction; ◦ $ value of building permit fees paid; ◦ $ value of building permits issued.

appendix D

MAP PRODUCT TEMPLATE



MAP TEMPLATE

Northdale Neighbourhood Boundaries

LEGEND

Northdale Boundary

Neighbourhood Anatomy Group, 2019
NAD 1983 UTM Zone 17N
Projection: Transverse Mercator
Data Sources:
City of Waterloo Open Data

N

0 35 70 140 210
Meters

APPENDIX C

Appendix C: Urban Design Checklist

X *Representative Sample Number*

Base Template

Development:
Street
From
To:

Step #	Step	Process	Direction	Recorded Value	Multiplier	Multiplier x Recorded Value
		Imageability				
1.1	Buildings with Identifiers	Count for Street and Explain Identifiable Feature for Specific Development	Both Sides		0.11	0
1.2	Buildings with Non-Rectangular Shapes	Count (Yes/No) and Explain if Development is Non-Rectangular	Development		0.08	0
1.3	Presence of Outdoor Dining	Count (Yes/No) for Development and Explain	Development		0.64	0
				Total Imageability Score (+2.44)		**2.44**
		Human Scale				
2.1	Building Height	Height of Development	Development		-0.003	0
2.2	Small Planters	Count for Development	Development		0.05	0
2.3	Pieces of Street Furniture	Count for Development	Development		0.04	0
				Total Human Scale Score (+2.61)		**2.61**
		Complexity				
3.1	Buildings with Basic Building Colours (Black, Grey, Beige, Brown, White)	Count Colours and Explain for Development	Development		0.23	0
3.2	Buildings with Accent Colours	Count Colours and Explain for Development	Development		0.12	0
3.2	Number of Public art	Count for Development	Development		0.42	0
				Total Divided by 4	0.03	0
				Complexity Score (+2.61)		**2.61**

Appendix C: Urban Design Checklist (con't)

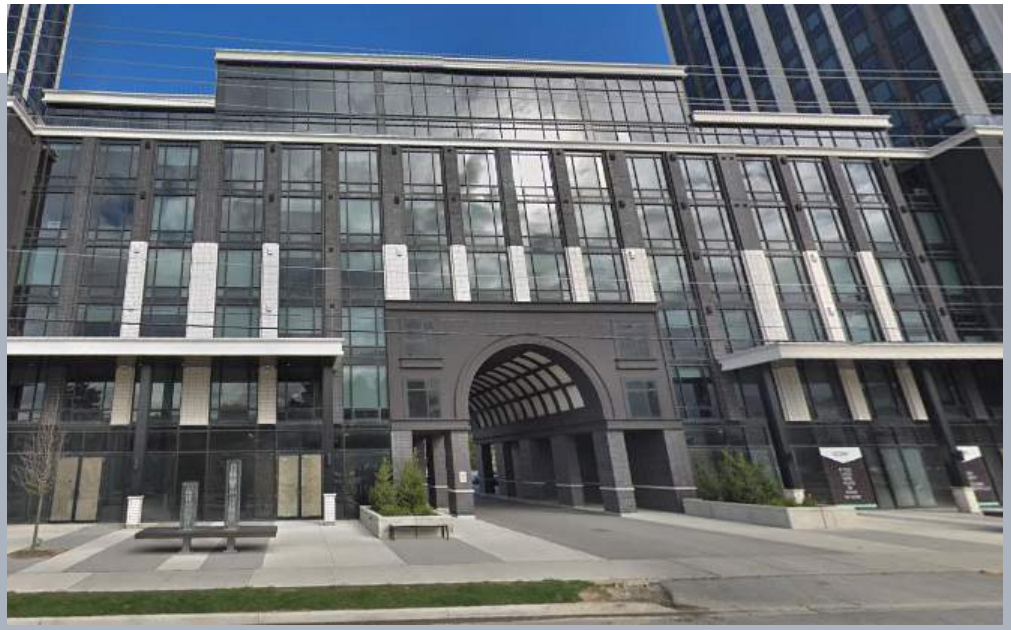
1

Development: 300 - 330 Phillip Street	
Street	Phillip Street
From	Columbia Street West
To:	University Avenue West

Step #	Step	Process	Direction	Recorded Value	Multiplier	Multiplier x Recorded Value
		Imageability				
1.1	Buildings with Identifiers	300-330 Phillip is part of the ICON Development Project- the block connecting the two towers and the arch over the entrance to the parking lot are the most identifiable features	One Side	2	0.11	0.22
1.2	Buildings with Non-Rectangular Shapes	Development is Rectangular	Development	0	0.08	0
1.3	Prescence of Outdoor Dining	No presence of outdoor dining	Development	0	0.64	0
					Total Imageability Score (+2.44)	**2.66**
		Human Scale				
2.1	Building Height	Height of Development	Development	75	-0.003	-0.225
2.2	Small Planters	Planters with Trees are situated along the front lot line	Development	10	0.05	0.5
2.3	Pieces of Street Furniture	Simple Benches are located infront of some planters	Development	6	0.04	0.24
					Total Human Scale Score (+2.61)	**3.125**
		Complexity				
3.1	Buildings with Basic Building Colours (Black, Grey, Beige, Brown, White)	The development's façade is constructed with white, black and grey building materials	Development	2	0.23	0.46
3.2	Buildings with Accent Colours	The development is not built with accent colours	Development	0	0.12	0
3.2	Number of Public art	Public Art Features are in the form of benches	Development	2	0.42	0.84
				Total Divided by 4	0.03	0.00975
					Complexity Score (+2.61)	**2.61975**

View of Phillip Street from Columbia Street

Identifiable Features



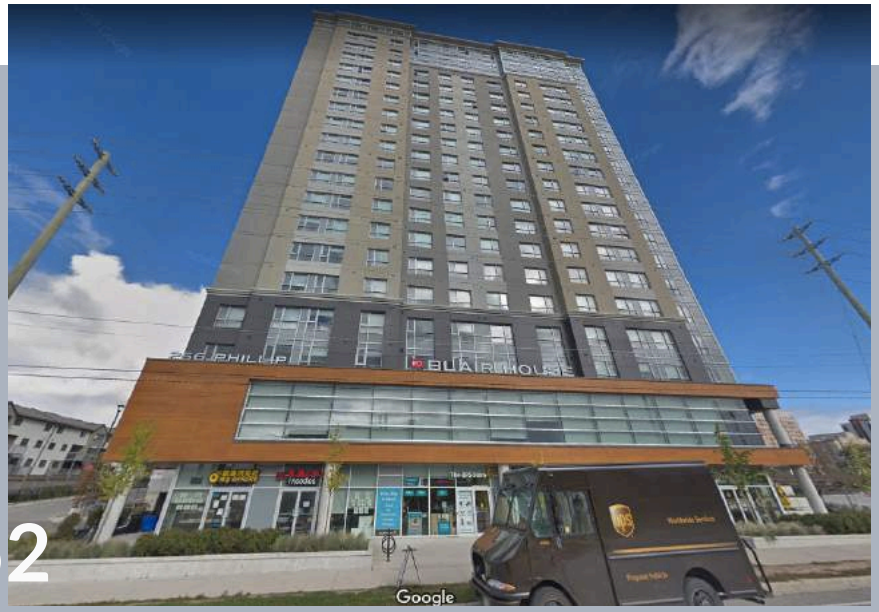
Appendix C: Urban Design Checklist (con't)

2

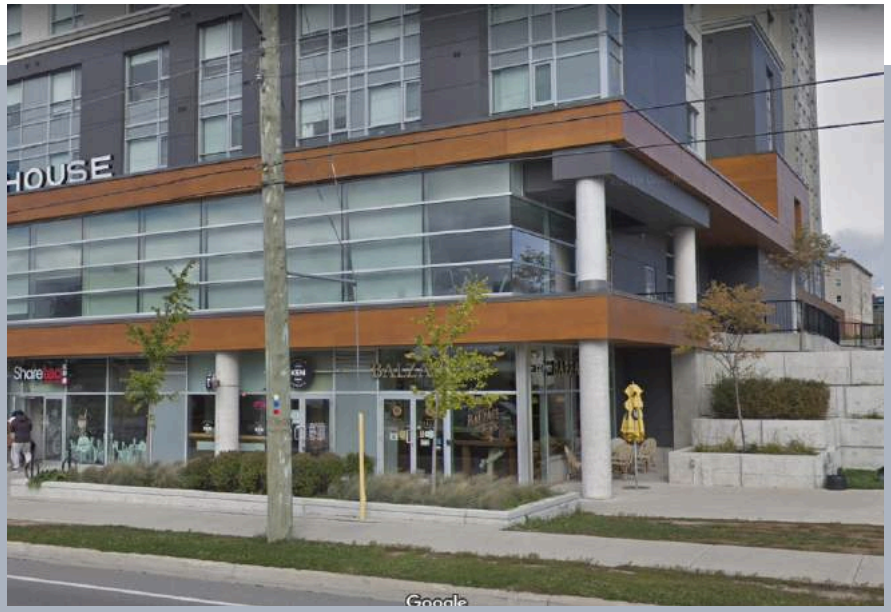
Development: 250-256 Phillip Street	
Street	Phillip Street
From	Columbia Street West
To:	University Avenue West

Step #	Step	Process	Direction	Recorded Value	Multiplier	Multiplier x Recorded Value
		Imageability				
1.1	Buildings with Identifiers	250-256 Phillip Street is apart of the Blair House development project; the most identifiable feature is the wood frame podium seperating the tower and the ground floor	One Side	2	0.11	0.22
1.2	Buildings with Non-Rectangular Shapes	Development is Rectangular	Development	0	0.08	0
1.3	Prescence of Outdoor Dining	Balzacs, located on the ground floor operates an outdoor dining	Development	1	0.64	0.64
					Total Imageability Score (+2.44)	**3.3**
		Human Scale				
2.1	Building Height	Height of Development	Development	51	-0.003	-0.153
2.2	Small Planters	Planters with Trees and Flowers are located the front lot line	Development	2	0.05	0.1
2.3	Pieces of Street Furniture	No pieces of street furniture are located in front of the development	Development	0	0.04	0
					Total Human Scale Score (+2.61)	**2.557**
		Complexity				
3.1	Buildings with Basic Building Colours (Black, Grey, Beige, Brown, White)	The development façade is constructed with grey and brown building materials	Development	2	0.23	0.46
3.2	Buildings with Accent Colours	The development is not built with accent colours	Development	0	0.12	0
3.2	Number of Public art	No Public Art Features	Development	0	0.42	0
				Total Divided by 4	0.03	0.00345
					Complexity Score (+2.61)	**2.61345**

View of 250-256 Phillip Street



View of Outdoor Dining



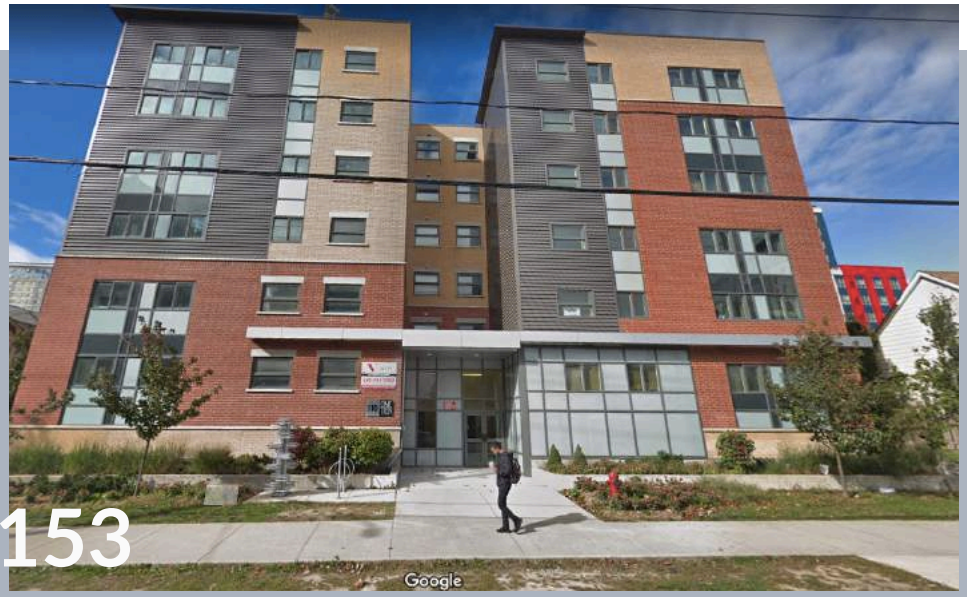
Appendix C: Urban Design Checklist (con't)

3

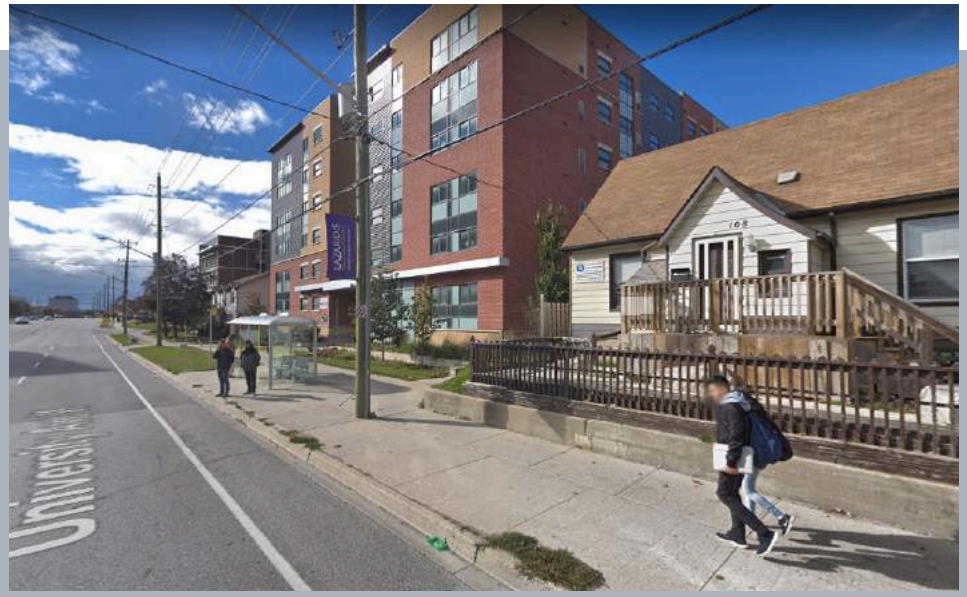
Development: 110 University Avenue	
Street	University Avenue
From	Lester Street
To:	Sunview Street

Step #	Step	Process	Direction	Recorded Value	Multiplier	Multiplier x Recorded Value
Imageability						
1.1	Buildings with Identifiers	The identifiable feature in 110 University Avenue West is the inconsistent building pattern and material, which breaks up the façade	One Side	1	0.11	0.11
1.2	Buildings with Non-Rectangular Shapes	Development is Rectangular	Development	0	0.08	0
1.3	Prescence of Outdoor Dining	No presence of outdoor dining	Development	0	0.64	0
					Total Imageability Score (+2.44)	**2.55**
Human Scale						
2.1	Building Height	Height of Development	Development	18	-0.003	-0.054
2.2	Small Planters	Two Planters are located along the outline of the building	Development	2	0.05	0.1
2.3	Pieces of Street Furniture	No pieces of street furniture are located in front of the development	Development	0	0.04	0
					Total Human Scale Score (+2.61)	**2.656**
Complexity						
3.1	Buildings with Basic Building Colours (Black, Grey, Beige, Brown, White)	The development façade is constructed with black panelled , light grey and beige building materials	Development	3	0.23	0.69
3.2	Buildings with Accent Colours	The development façade is constructed with red accent building materials	Development	1	0.12	0.12
3.2	Number of Public art	No Public Art Features	Development	0	0.42	0
				Total Divided by 4	0.03	0.006075
					Complexity Score (+2.61)	**2.616075**

View of 110 University Avenue



View of site from Sunview Street



Appendix C: Urban Design Checklist (con't)

4

Development: 64 University	
Street	University Avenue
From	Hazel Street
To:	Hemlock Street

Step #	Step	Process	Direction	Recorded Value	Multiplier	Multiplier x Recorded Value
		Imageability				
1.1	Buildings with Identifiers	64 University is apart of the Wilfrid Laurier University Campus; the major institutional investment in Northdale. The identifying feature is the wood panelled circular atrium.	One Side	1	0.11	0.11
1.2	Buildings with Non-Rectangular Shapes	The development is non-rectangular.	Development	1	0.08	0.08
1.3	Presence of Outdoor Dining	No presence of outdoor dining	Development	0	0.64	0
					Total Imageability Score (+2.44)	**2.63**
		Human Scale				
2.1	Building Height	Height of Development	Development	21	-0.003	-0.063
2.2	Small Planters	Planters are located infront of the atrium; while larger planters are located along the streetscape	Development	6	0.05	0.3
2.3	Pieces of Street Furniture	The benches form the outline of the planters along the street	Development	3	0.04	0.12
					Total Human Scale Score (+2.61)	**2.967**
		Complexity				
3.1	Buildings with Basic Building Colours (Black, Grey, Beige, Brown, White)	The development façade is constructed with black and brown panelled building materials	Development	2	0.23	0.46
3.2	Buildings with Accent Colours	The development is not built with accent colours	Development	0	0.12	0
3.2	Number of Public art	No Public Art Features	Development	0	0.42	0
				Total Divided by 4	0.03	0.00345
					Complexity Score (+2.61)	**2.61345**

View of 64 University Avenue

View of site from Hemlock Street

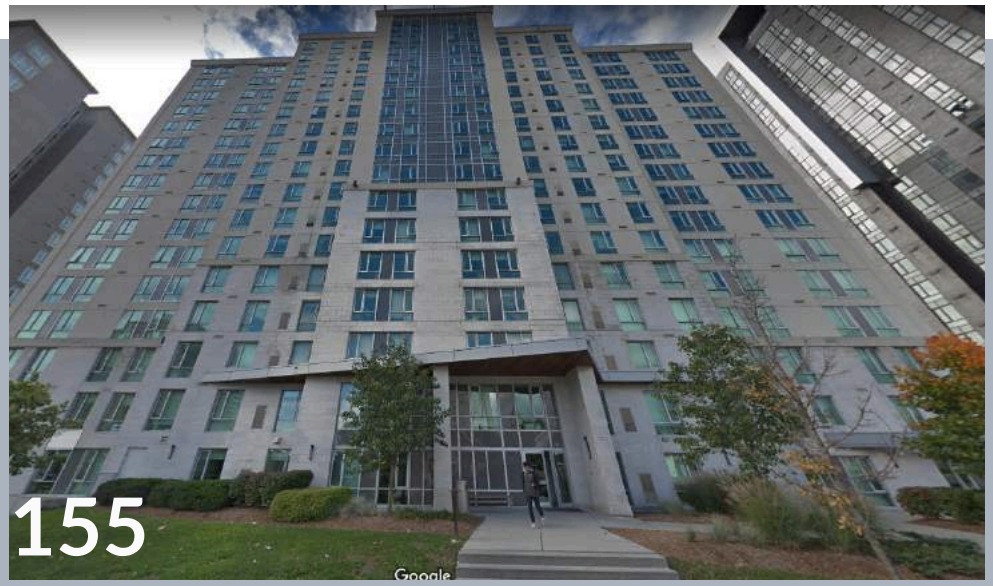
Appendix C: Urban Design Checklist (con't)

5

Development: 333 King Street	
Street	King Street
From	Columbia Street
To:	Hickory Street

Step #	Step	Process	Direction	Recorded Value	Multiplier	Multiplier x Recorded Value
		Imageability				
1.1	Buildings with Identifiers	333 King Street is part of the Luxe Development Project and does not have any identifiable features; that make it stand out from the rest of the developments along King Street	One Side	0	0.11	0
1.2	Buildings with Non-Rectangular Shapes	The development is rectangular	Development	0	0.08	0
1.3	Presence of Outdoor Dining	No presence of outdoor dining	Development	0	0.64	0
					Total Imageability Score (+2.44)	**2.44**
		Human Scale				
2.1	Building Height	Height of Development	Development	54	-0.003	-0.162
2.2	Small Planters	No Planters located	Development	0	0.05	0
2.3	Pieces of Street Furniture	A bench is located adjacent to the entrance to the building	Development	1	0.04	0.04
					Total Human Scale Score (+2.61)	**2.488**
		Complexity				
3.1	Buildings with Basic Building Colours (Black, Grey, Beige, Brown, White)	The development is constructed with gray building materials	Development	1	0.23	0.23
3.2	Buildings with Accent Colours	The development is not built with accent colours	Development	0	0.12	0
3.2	Number of Public art	No Public Art Features	Development	0	0.42	0
				Total Divided by 4	0.03	0.001725
					Complexity Score (+2.61)	**2.611725**

View of 333 King Street



View of site from Hickory Street

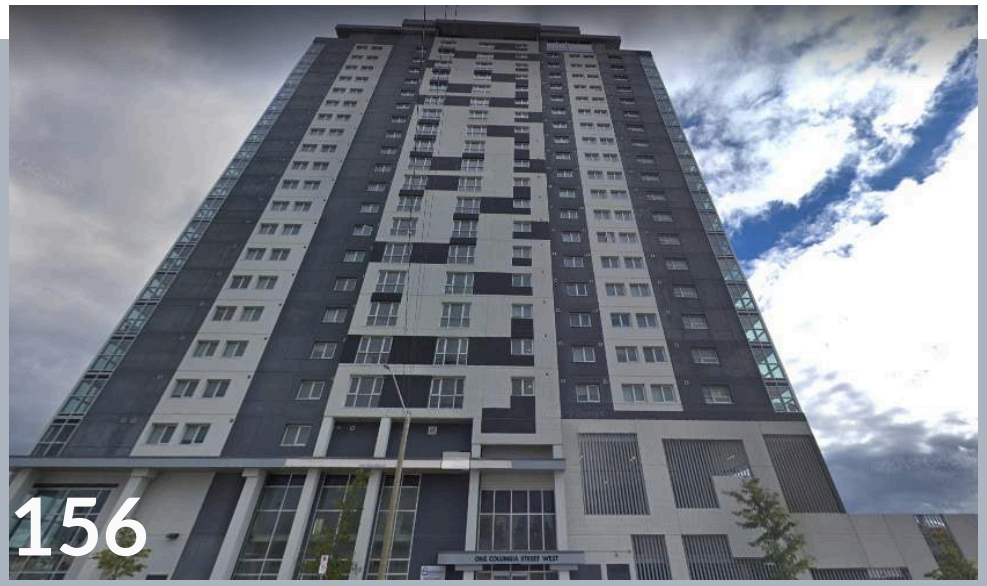
Appendix C: Urban Design Checklist (con't)

6

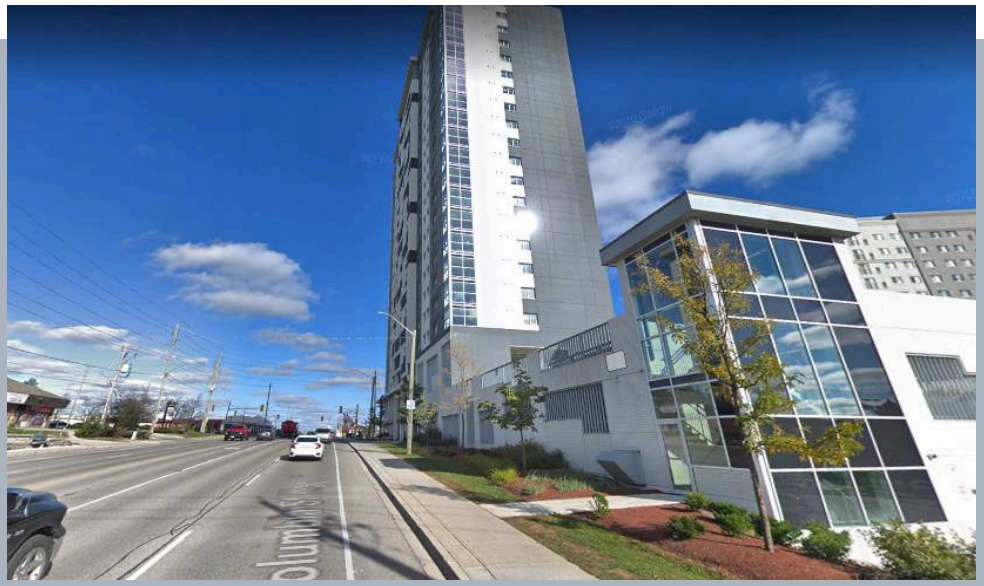
Development: 1 Columbia Street West	
Street	Columbia Street
From	King Street
To:	Spruce Street

Step #	Step	Process	Direction	Recorded Value	Multiplier	Multiplier x Recorded Value
		Imageability				
1.1	Buildings with Identifiers	The identifiable feature in 1 Columbia Street West is the black-white façade pattern in the middle of the building	One Side	1	0.11	0.11
1.2	Buildings with Non-Rectangular Shapes	Development is Rectangular	Development	0	0.08	0
1.3	Prescence of Outdoor Dining	No presence of outdoor dining	Development	0	0.64	0
					Total Imageability Score (+2.44)	**2.55**
		Human Scale				
2.1	Building Height	Height of Development	Development	66	-0.003	-0.198
2.2	Small Planters	No Planters located	Development	0	0.05	0
2.3	Pieces of Street Furniture	Two Benches are located in the entranceway	Development	2	0.04	0.08
					Total Human Scale Score (+2.61)	**2.492**
		Complexity				
3.1	Buildings with Basic Building Colours (Black, Grey, Beige, Brown, White)	The development façade is constructed with grey, and white building materials	Development	2	0.23	0.46
3.2	Buildings with Accent Colours	The development is not built with accent colours	Development	0	0.12	0
3.2	Number of Public art	No Public Art Features	Development	0	0.42	0
				Total Divided by 4	0.03	0.00345
					Complexity Score (+2.61)	**2.61345**

View of 1 Columbia Street West



View of site from King Street



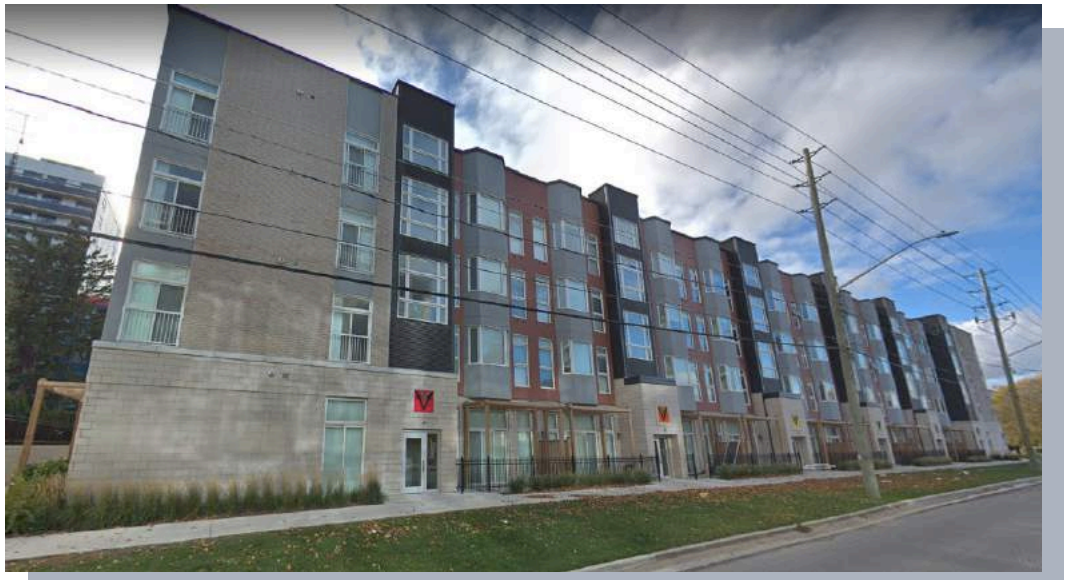
Appendix C: Urban Design Checklist (con't)

7

Development: 253 Albert Street	
Street	Albert Street
From	University Avenue
To:	Hickory Street

Step #	Step	Process	Direction	Recorded Value	Multiplier	Multiplier x Recorded Value
Imageability						
1.1	Buildings with Identifiers	250 Albert Street is part of the Sage Development Project and is named IVY Towns. The identifiable feature of the development is the different coloured icons placed on top of the entranceways.	Both Sides	5	0.11	0.55
1.2	Buildings with Non-Rectangular Shapes	Development is rectangular	Development	0	0.08	0
1.3	Presence of Outdoor Dining	No presence of outdoor dining	Development	0	0.64	0
				Total Imageability Score (+2.44)		**2.99**
Human Scale						
2.1	Building Height	Height of Development	Development	12	-0.003	-0.036
2.2	Small Planters	No Planters located	Development	0	0.05	0
2.3	Pieces of Street Furniture	No pieces of street furniture are located in front of the development	Development	0	0.04	0
				Total Human Scale Score (+2.61)		**2.574**
Complexity						
3.1	Buildings with Basic Building Colours (Black, Grey, Beige, Brown, White)	The Development is constructed with grey, beige, brown and black building materials	Development	4	0.23	0.92
3.2	Buildings with Accent Colours	The development is constructed with red accent building materials	Development	1	0.12	0.12
3.2	Number of Public art	No Public Art Features	Development	0	0.42	0
				Total Divided by 4	0.03	0.0078
				Complexity Score (+2.61)		**2.6178**

View of 253 Albert Street



Appendix C: Urban Design Checklist (con't)

8

Development: 222 Albert Street	
Street	Albert Street
From	University Avenue
To:	Hickory Street

Step #	Step	Process	Direction	Recorded Value	Multiplier	Multiplier x Recorded Value
		Imageability				
1.1	Buildings with Identifiers	The identifiable feature in 222 Albert Street is the silver panelled balconies.	Both Sides	5	0.11	0.55
1.2	Buildings with Non-Rectangular Shapes	The development has a slight shift to it, creating edges out of the rectangular frame	Development	1	0.08	0.08
1.3	Presence of Outdoor Dining	No presence of outdoor dining	Development	0	0.64	0
				Total Imageability Score (+2.44)		**3.07**
		Human Scale				
2.1	Building Height	Height of Development	Development	39	-0.003	-0.117
2.2	Small Planters	No Planters located	Development	0	0.05	0
2.3	Pieces of Street Furniture	Two benches are located at the front and corner.	Development	2	0.04	0.08
				Total Human Scale Score (+2.61)		**2.573**
		Complexity				
3.1	Buildings with Basic Building Colours (Black, Grey, Beige, Brown, White)	The development is constructed with white and brown building materials	Development	3	0.23	0.69
3.2	Buildings with Accent Colours	The development is constructed with silver building materials and blue-tinted window mater	Development	2	0.12	0.24
3.2	Number of Public art	No Public Art Features	Development	0	0.42	0
				Total Divided by 4	0.03	0.006975
				Complexity Score (+2.61)		**2.616975**

View of 222 Albert Street

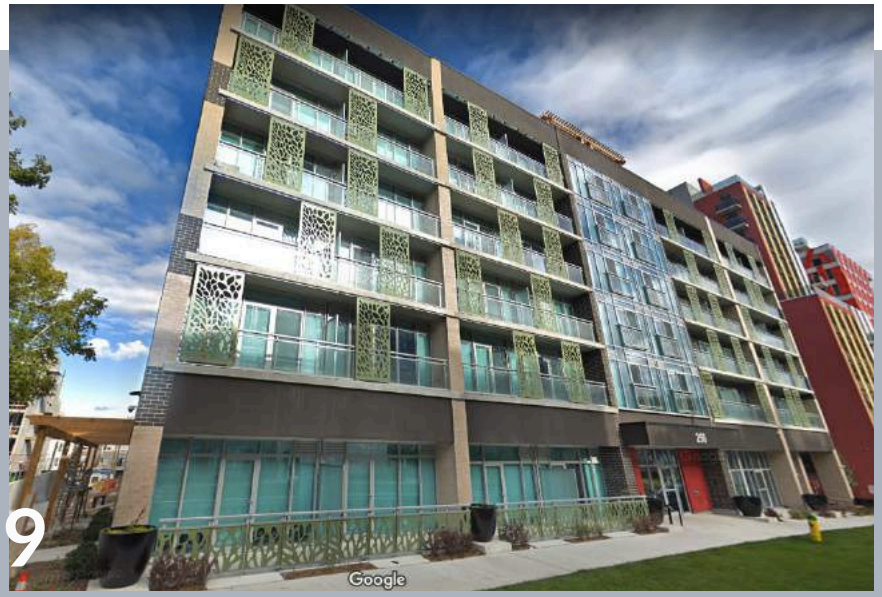
Appendix C: Urban Design Checklist (con't)

9

Development: 250 Albert Street	
Street	Albert Street
From	University Avenue
To:	Hickory Street

Step #	Step	Process	Direction	Recorded Value	Multiplier	Multiplier x Recorded Value
Imageability						
1.1	Buildings with Identifiers	The identifiable feature in 253 Albert Street is the green leaf patterned panels located on each floor.	Both Sides	5	0.11	0.55
1.2	Buildings with Non-Rectangular Shapes	The development is rectangular	Development	0	0.08	0
1.3	Presence of Outdoor Dining	No presence of outdoor dining	Development	0	0.64	0
					Total Imageability Score (+2.44)	**2.99**
Human Scale						
2.1	Building Height	Height of Development	Development	18	-0.003	-0.054
2.2	Small Planters	Black Planters are located along the the front lot line.	Development	6	0.05	0.3
2.3	Pieces of Street Furniture	2 benches are located at the side of the building	Development	2	0.04	0.08
					Total Human Scale Score (+2.61)	**2.936**
Complexity						
3.1	Buildings with Basic Building Colours (Black, Grey, Beige, Brown, White)	The development is constructed with grey and beige building materials	Development	2	0.23	0.46
3.2	Buildings with Accent Colours	The development is constructed with red and green accent building materials	Development	2	0.12	0.24
3.2	Number of Public art	There are 8 leaf patterned panels located on each floor.	Development	40	0.42	16.8
				Total Divided by 4	0.03	0.13125
					Complexity Score (+2.61)	**2.74125**

View of 250 Albert Street



View of site from Hickory Avenue

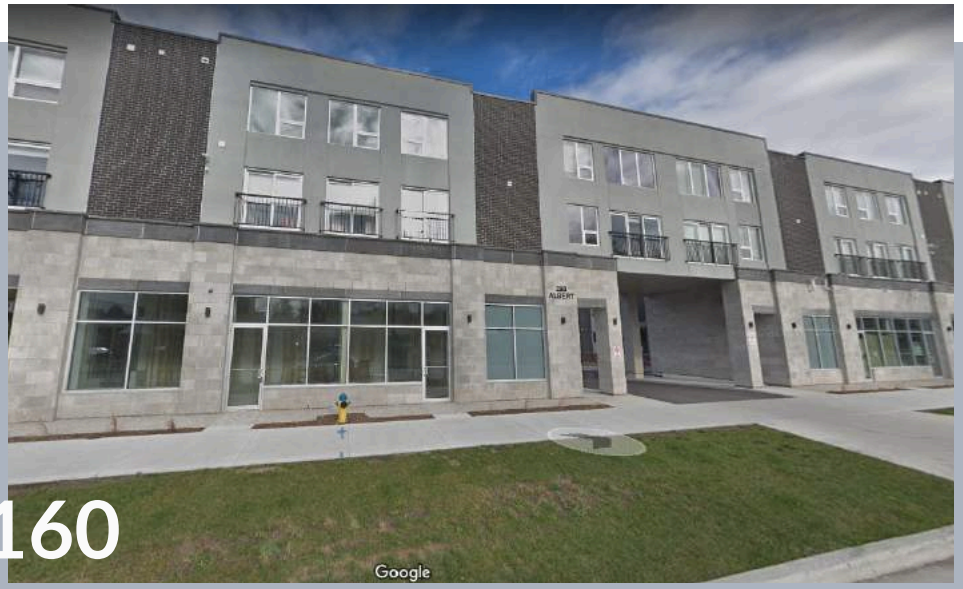
Appendix C: Urban Design Checklist (con't)

10

Development: 288-294 Albert Street / 287-289 Hemlock Street	
Street	Albert Street
From	Columbia Street
To:	Hickory Street

Step #	Step	Process	Direction	Recorded Value	Multiplier	Multiplier x Recorded Value
		Imageability				
1.1	Buildings with Identifiers	288 -294 Albert Street is part of the Sage Development Project and is named IVY Towns II. This property is a thorough lot, so it will be scored on both Hickory and Albert Street. The identifiable feature of the development is the cantilever in the middle of the development to the parking lot from Albert Street.	Both Sides	2	0.11	0.22
1.2	Buildings with Non-Rectangular Shapes	Development is rectangular	Development	0	0.08	0
1.3	Presence of Outdoor Dining	No presence of outdoor dining	Development	0	0.64	0
				Total Imageability Score (+2.44)		**2.66**
		Human Scale				
2.1	Building Height	Height of Development	Development	9	-0.003	-0.027
2.2	Small Planters	No Planters located	Development	0	0.05	0
2.3	Pieces of Street Furniture	No pieces of street furniture are located in front of the development	Development	0	0.04	0
				Total Human Scale Score (+2.61)		**2.583**
		Complexity				
3.1	Buildings with Basic Building Colours (Black, Grey, Beige, Brown, White)	The Development is constructed with grey, beige, and brown building materials	Development	3	0.23	0.69
3.2	Buildings with Accent Colours	The development is not built with accent colours	Development	0	0.12	0
3.2	Number of Public art	No Public Art Features	Development	0	0.42	0
				Total Divided by 4	0.03	0.005175
				Complexity Score (+2.61)		**2.615175**

View of 288-294 Albert Street / 287-289 Hemlock Street



View of site from Columbia Street

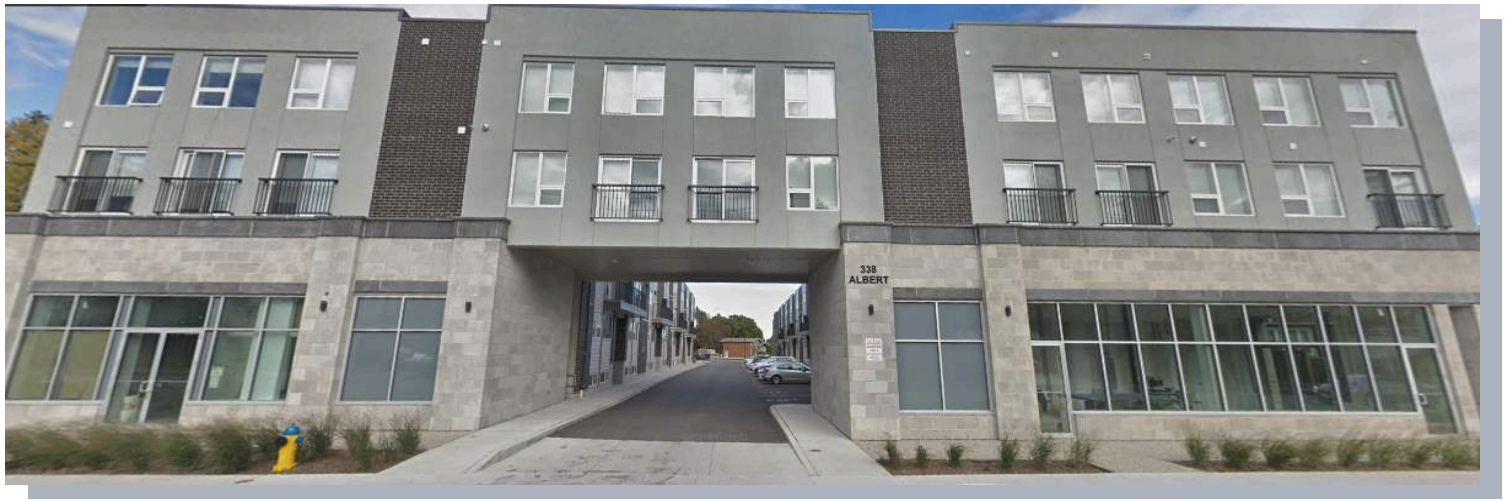
Appendix C: Urban Design Checklist (con't)

11

Development: 336 -338 Albert Street / 297-299 Hemlock Street	
Street	Albert Street
From	Columbia Street
To:	Hickory Street

Step #	Step	Process	Direction	Recorded Value	Multiplier	Multiplier x Recorded Value
		Imageability				
1.1	Buildings with Identifiers	336 -338 Albert Street is part of the Sage Development Project and is named IVY Towns III. This property is a thorough lot, so it will be scored on both Hickory and Albert Street. The identifiable feature of the development is the cantilever in the middle of the development to the parking lot from Albert Street.	Both Sides	2	0.11	0.22
1.2	Buildings with Non-Rectangular Shapes	Development is rectangular	Development	0	0.08	0
1.3	Presence of Outdoor Dining	No presence of outdoor dining	Development	0	0.64	0
				Total Imageability Score (+2.44)		**2.66**
		Human Scale				
2.1	Building Height	Height of Development	Development	9	-0.003	-0.027
2.2	Small Planters	No Planters located	Development	0	0.05	0
2.3	Pieces of Street Furniture	No pieces of street furniture are located in front of the development	Development	0	0.04	0
				Total Human Scale Score (+2.61)		**2.583**
		Complexity				
3.1	Buildings with Basic Building Colours (Black, Grey, Beige, Brown, White)	The Development is constructed with grey, beige, and brown building materials	Development	3	0.23	0.69
3.2	Buildings with Accent Colours	The development is not built with accent colours	Development	0	0.12	0
3.2	Number of Public art	No Public Art Features	Development	0	0.42	0
				Total Divided by 4	0.03	0.005175
				Complexity Score (+2.61)		**2.615175**

View of 336 -338 Albert Street / 297-299 Hemlock Street



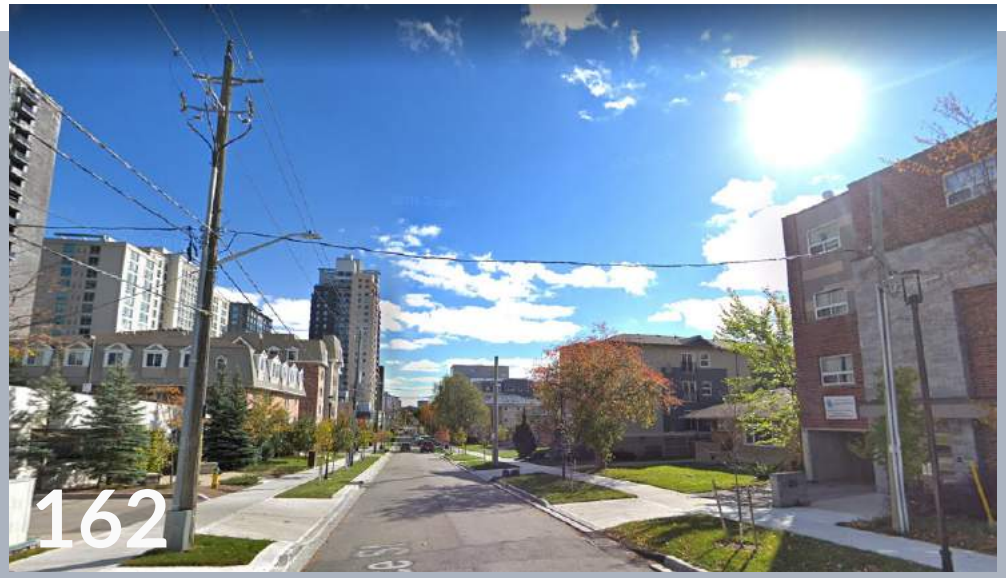
Appendix C: Urban Design Checklist (con't)

12

Development: 318 Spruce Street	
Street	Spruce Street
From	Columbia Street West
To:	Hickory Street West

Step #	Step	Process	Direction	Recorded Value	Multiplier	Multiplier x Recorded Value
		Imageability				
1.1	Buildings with Identifiers	313 Spruce Street is part of the Sage Development Project and is named Sage II - the most identifiable part of the Project is the Glass Plaza Podium seperating the Ground Floor and the Apartment Tower	Both Sides	3	0.11	0.33
1.2	Buildings with Non-Rectangular Shapes	Development is Rectangular	Development	0	0.08	0
1.3	Presence of Outdoor Dining	No presence of outdoor dining	Development	0	0.64	0
				Total Imageability Score (+2.44)		**2.77**
		Human Scale				
2.1	Building Height	Height of Development	Development	69	-0.003	-0.207
2.2	Small Planters	Planters are located infront of Restaurant	Development	1	0.05	0.05
2.3	Pieces of Street Furniture	Block are used as a Bench	Development	1	0.04	0.04
				Total Human Scale Score (+2.61)		**2.493**
		Complexity				
3.1	Buildings with Basic Building Colours (Black, Grey, Beige, Brown, White)	The façade of Sage Two's Apartment Tower is constructed with beige and grey building materials	Development	2	0.23	0.46
3.2	Buildings with Accent Colours	The development is not built with accent colours	Development	0	0.12	0
3.2	Number of Public art	No Public Art Features	Development	0	0.42	0
				Total Divided by 4	0.03	0.00345
				Complexity Score (+2.61)		**2.61345**

Spruce St. Buildings from Columbia St.



Planters and Street Furniture at 318 Spruce St.

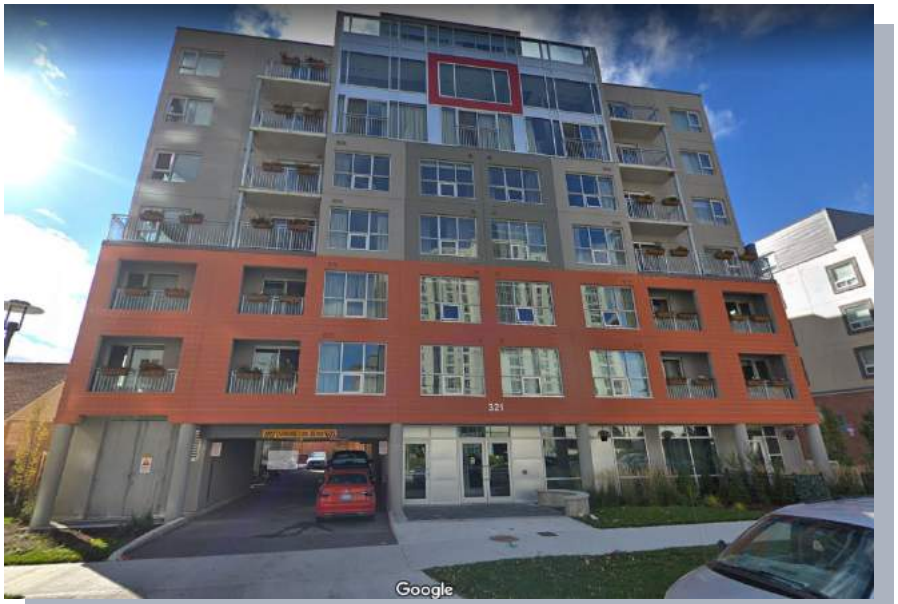
Appendix C: Urban Design Checklist (con't)

13

Development: 321 Spruce Street	
Street	Spruce Street
From	Columbia Street West
To:	Hickory Street West

Step #	Step	Process	Direction	Recorded Value	Multiplier	Multiplier x Recorded Value
		Imageability				
1.1	Buildings with Identifiers	The most identifiable feature of 321 Spruce Street is the outline of the top window by a dark red rectangle.	Both Sides	3	0.11	0.33
1.2	Buildings with Non-Rectangular Shapes	Development is Rectangular	Development	0	0.08	0
1.3	Prescence of Outdoor Dining	No presence of outdoor dining	Development	0	0.64	0
					Total Imageability Score (+2.44)	**2.77**
		Human Scale				
2.1	Building Height	Height of Development	Development	24	-0.003	-0.072
2.2	Small Planters	Two Planters for Almost all Windows on the Front Façade	Development	34	0.05	1.7
2.3	Pieces of Street Furniture	Circular Block utilized as a bench	Development	1	0.04	0.04
					Total Human Scale Score (+2.61)	**4.278**
		Complexity				
3.1	Buildings with Basic Building Colours (Black, Grey, Beige, Brown, White)	The top 4 floors of 321 Spruce Street are constructed using grey, and white building materials	Development	2	0.23	0.46
3.2	Buildings with Accent Colours	The bottom 2 floors of 321 Spruce Street is constructed with red- orange building materials. The outline around the top window is constructed with red accent material.	Development	2	0.12	0.24
3.2	Number of Public art	No Public Art Features	Development	0	0.42	0
				Total Divided by 4	0.03	0.00525
					Complexity Score (+2.61)	**2.61525**

View of 321 Spruce Street



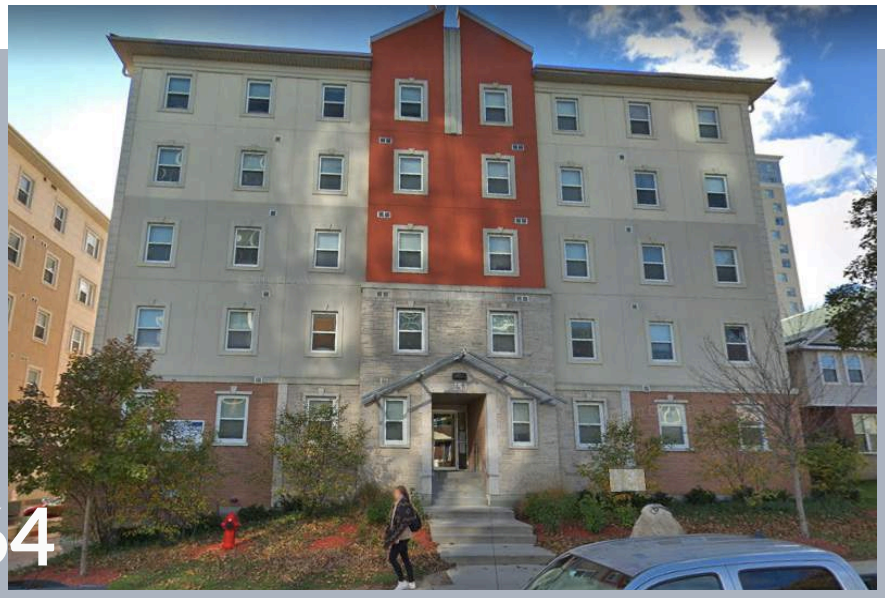
Appendix C: Urban Design Checklist (con't)

14

Development: 253-255 Lester	
Street	Lester Street
From	University Avenue
To:	Hickory Street

Step #	Step	Process	Direction	Recorded Value	Multiplier	Multiplier x Recorded Value
		Imageability				
1.1	Buildings with Identifiers	The identifiable feature in 253-255 Lester is the orange building material in the middle of the development; which breaks the façade of the building	Both Sides	5	0.11	0.55
1.2	Buildings with Non-Rectangular Shapes	Development is Rectangular	Development	0	0.08	0
1.3	Presence of Outdoor Dining	No presence of outdoor dining	Development	0	0.64	0
					Total Imageability Score (+2.44)	**2.99**
		Human Scale				
2.1	Building Height	Height of Development	Development	15	-0.003	-0.045
2.2	Small Planters	No Planters located	Development	0	0.05	0
2.3	Pieces of Street Furniture	No pieces of street furniture are located in front of the development	Development	0	0.04	0
					Total Human Scale Score (+2.61)	**2.565**
		Complexity				
3.1	Buildings with Basic Building Colours (Black, Grey, Beige, Brown, White)	The development façade is constructed with beige and grey building materials	Development	2	0.23	0.46
3.2	Buildings with Accent Colours	The development façade is constructed with red-orange accent building materials	Development	2	0.12	0.24
3.2	Number of Public art	No Public Art Features	Development	0	0.42	0
				Total Divided by 4	0.03	0.00525
					Complexity Score (+2.61)	**2.61525**

View of 253-255 Lester Street



View of Site from University Avenue

Appendix C: Urban Design Checklist (con't)

15

Development: 280 Lester Street	
Street	Lester Street
From	University Avenue
To:	Hickory Street

Step #	Step	Process	Direction	Recorded Value	Multiplier	Multiplier x Recorded Value
Imageability						
1.1	Buildings with Identifiers	The identifiable feature in 280 Lester Street is the orange columns, that breaks up the façade of the development	Both Sides	5	0.11	0.55
1.2	Buildings with Non-Rectangular Shapes	Development is Rectangular	Development	0	0.08	0
1.3	Presence of Outdoor Dining	No presence of outdoor dining	Development	0	0.64	0
				Total Imageability Score (+2.44)		**2.99**
Human Scale						
2.1	Building Height	Height of Development	Development	24	-0.003	-0.072
2.2	Small Planters	No Planters located	Development	0	0.05	0
2.3	Pieces of Street Furniture	Wooden benches are located along the side of building and front of the building	Development	2	0.04	0.08
				Total Human Scale Score (+2.61)		**2.618**
Complexity						
3.1	Buildings with Basic Building Colours (Black, Grey, Beige, Brown, White)	The development is constructed with white and brown building materials	Development	2	0.23	0.46
3.2	Buildings with Accent Colours	The development is constructed with orange accent building materials, in the form of columns	Development	1	0.12	0.12
3.2	Number of Public art	No Public Art Features	Development	0	0.42	0
				Total Divided by 4	0.03	0.00435
				Complexity Score (+2.61)		**2.61435**

View of 280 Lester Street

Outdoor Furniture

Appendix C: Urban Design Checklist (con't)

16

Development: 255 Sunview Street	
Street	Sunview Street
From	University Avenue
To:	Hickory Street

Step #	Step	Process	Direction	Recorded Value	Multiplier	Multiplier x Recorded Value
		Imageability				
1.1	Buildings with Identifiers	The identifiable feature in 255 Sunview Street is the slight wavy shape of the building	Both Sides	2	0.11	0.22
1.2	Buildings with Non-Rectangular Shapes	The development is non-rectangular, as it has a slight wavy shape along the facades	Development	1	0.08	0.08
1.3	Presence of Outdoor Dining	No presence of outdoor dining	Development	0	0.64	0
					Total Imageability Score (+2.44)	**2.74**
		Human Scale				
2.1	Building Height	Height of Development	Development	36	-0.003	-0.108
2.2	Small Planters	Planters of Small Trees are located along the front lot line	Development	3	0.05	0.15
2.3	Pieces of Street Furniture	No pieces of street furniture are located in front of the development	Development	0	0.04	0
					Total Human Scale Score (+2.61)	**2.652**
		Complexity				
3.1	Buildings with Basic Building Colours (Black, Grey, Beige, Brown, White)	The development façade is constructed with white and brown building materials	Development	2	0.23	0.46
3.2	Buildings with Accent Colours	The development is built with blue- tinted window materials	Development	1	0.12	0.12
3.2	Number of Public art	No Public Art Features	Development	0	0.42	0
				Total Divided by 4	0.03	0.00435
					Complexity Score (+2.61)	**2.61435**

View of 255 Sunview Street

View of Site from University Avenue

Appendix C: Urban Design Checklist (con't)

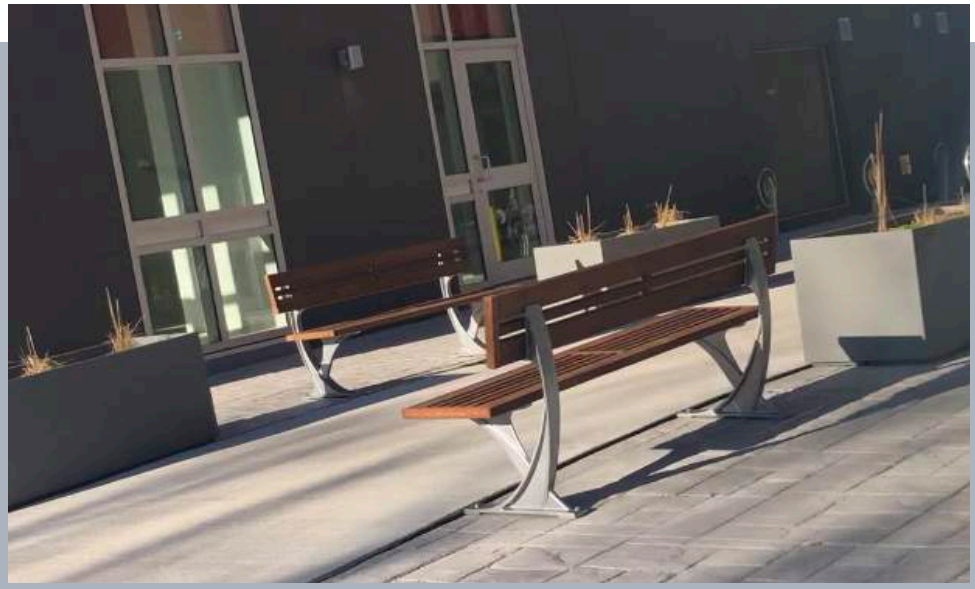
17

Development: 250-264 Sunview Street	
Street	Sunview Street
From	University Avenue
To:	Hickory Street

Step #	Step	Process	Direction	Recorded Value	Multiplier	Multiplier x Recorded Value
		Imageability				
1.1	Buildings with Identifiers	258 Sunview Street consists of three buildings. The identifiable feature in all three buildings is the contrast of accent colours along the façade of the building.	Both Sides	2	0.11	0.22
1.2	Buildings with Non-Rectangular Shapes	The development is rectangular.	Development	0	0.08	0
1.3	Presence of Outdoor Dining	No presence of outdoor dining	Development	0	0.64	0
				Total Imageability Score (+2.44)		**2.66**
		Human Scale				
2.1	Building Height	Height of Development	Development	39	-0.003	-0.117
2.2	Small Planters	There are three planters located in the middle of the buildings	Development	3	0.05	0.15
2.3	Pieces of Street Furniture	There are two benches located in the middle of the buildings	Development	2	0.04	0.08
				Total Human Scale Score (+2.61)		**2.723**
		Complexity				
3.1	Buildings with Basic Building Colours (Black, Grey, Beige, Brown, White)	The development is constructed with white and grey building materials	Development	2	0.23	0.46
3.2	Buildings with Accent Colours	The development is constructed with a contrast of red and blue accent building materials	Development	2	0.12	0.24
3.2	Number of Public art	No Public Art Features	Development	0	0.42	0
				Total Divided by 4	0.03	0.00525
				Complexity Score (+2.61)		**2.61525**

View of 250-254 Sunview Street

Planters and Street Furniture



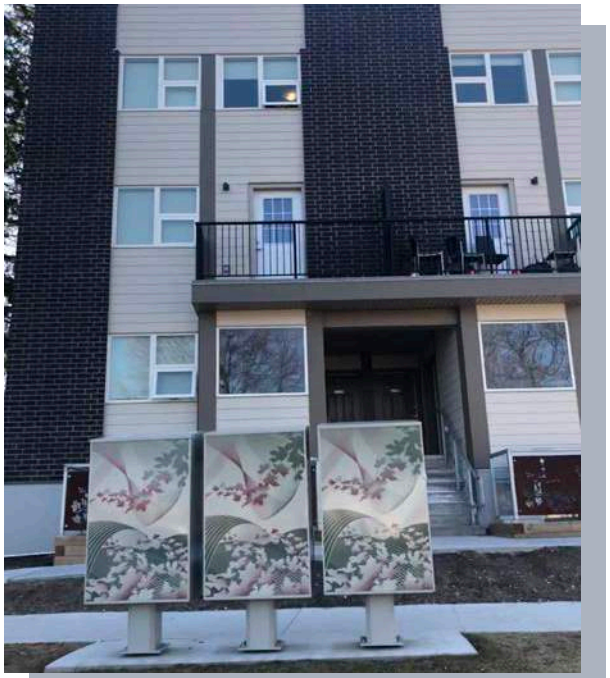
Appendix C: Urban Design Checklist (con't)

18

Development: 287-289 Hemlock Street / 288-294 Albert Street	
Street	Hemlock Street
From	Hickory Street
To:	End of Hemlock towards Columbia

Step #	Step	Process	Direction	Recorded Value	Multiplier	Multiplier x Recorded Value
		Imageability				
1.1	Buildings with Identifiers	287-289 Hemlock Street is part of the Sage Development Project and is named IVY Towns II. This property is a thorough lot, so it will be scored on both Hickory and Albert Street. There are no identifiable features	Both Sides	0	0.11	0
1.2	Buildings with Non-Rectangular Shapes	Development is rectangular	Development	0	0.08	0
1.3	Presence of Outdoor Dining	No presence of outdoor dining	Development	0	0.64	0
					Total Imageability Score (+2.44)	**2.44**
		Human Scale				
2.1	Building Height	Height of Development	Development	9	-0.003	-0.027
2.2	Small Planters	No Planters located	Development	0	0.05	0
2.3	Pieces of Street Furniture	No pieces of street furniture are located in front of the development	Development	0	0.04	0
					Total Human Scale Score (+2.61)	**2.583**
		Complexity				
3.1	Buildings with Basic Building Colours (Black, Grey, Beige, Brown, White)	The Development is constructed with grey, beige, and brown building materials	Development	3	0.23	0.69
3.2	Buildings with Accent Colours	The development is not built with accent colours	Development	0	0.12	0
3.2	Number of Public art	No Public Art Features	Development	0	0.42	0
				Total Divided by 4	0.03	0.005175
					Complexity Score (+2.61)	**2.615175**

Public Art and Street Furniture



Appendix C: Urban Design Checklist (con't)

19

Development: 297-299 Hemlock Street/336 -338 Albert Street	
Street	Hemlock Street
From	Hickory Street
To:	End of Hemlock towards Columbia

Step #	Step	Process	Direction	Recorded Value	Multiplier	Multiplier x Recorded Value
		Imageability				
1.1	Buildings with Identifiers	297-299 Hemlock Street is part of the Sage Development Project and is named IVY Towns II. This property is a thorough lot, so it will be scored on both Hickory and Albert Street. There are no identifiable features	Both Sides	0	0.11	0
1.2	Buildings with Non-Rectangular Shapes	Development is rectangular	Development	0	0.08	0
1.3	Presence of Outdoor Dining	No presence of outdoor dining	Development	0	0.64	0
					Total Imageability Score (+2.44)	**2.44**
		Human Scale				
2.1	Building Height	Height of Development	Development	9	-0.003	-0.027
2.2	Small Planters	No Planters located	Development	0	0.05	0
2.3	Pieces of Street Furniture	No pieces of street furniture are located in front of the development	Development	0	0.04	0
					Total Human Scale Score (+2.61)	**2.583**
		Complexity				
3.1	Buildings with Basic Building Colours (Black, Grey, Beige, Brown, White)	The Development is constructed with grey, beige, and brown building materials	Development	3	0.23	0.69
3.2	Buildings with Accent Colours	The development is not built with accent colours	Development	0	0.12	0
3.2	Number of Public art	No Public Art Features	Development	0	0.42	0
				Total Divided by 4	0.03	0.005175
					Complexity Score (+2.61)	**2.615175**

View of 297-299 Hemlock Street

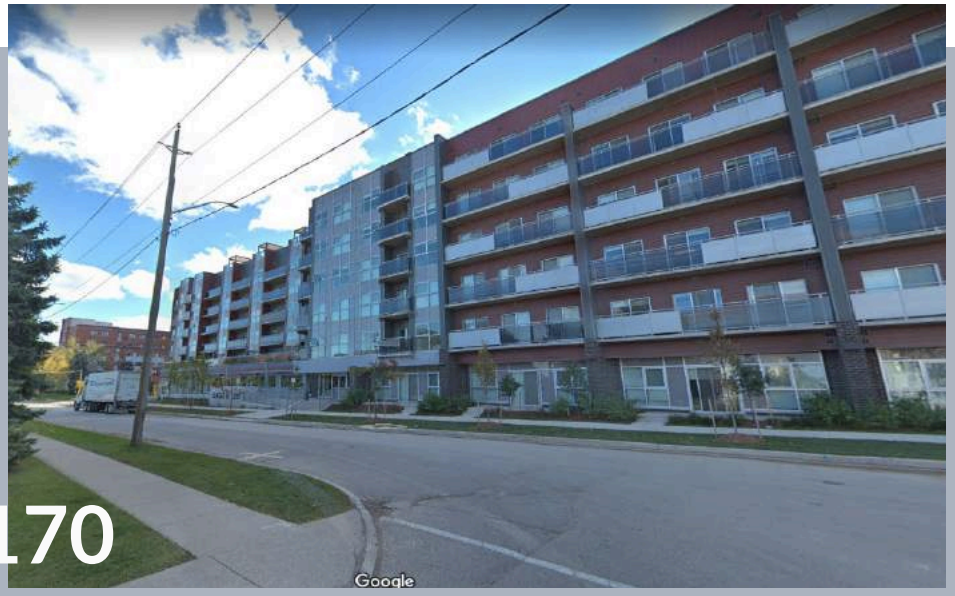
Appendix C: Urban Design Checklist (con't)

20

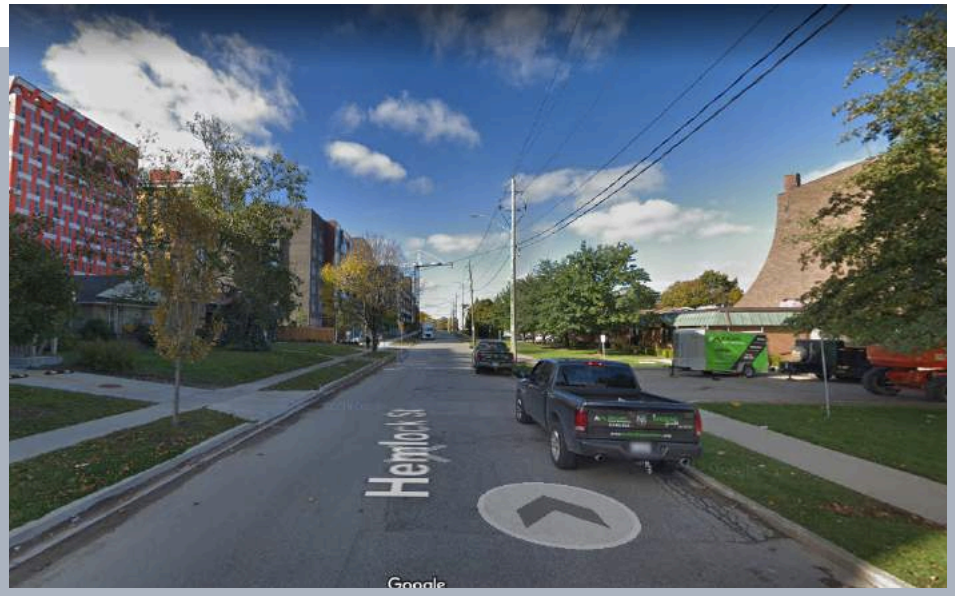
Development: 251 Hemlock Street	
Street	Hemlock Street
From	Balsam Street
To:	University Avenue

Step #	Step	Process	Direction	Recorded Value	Multiplier	Multiplier x Recorded Value
		Imageability				
1.1	Buildings with Identifiers	251 Hemlock Street is apart of the Sage Development Project, named Sage 6. The identifiable feature of the development is the median grey glass material, which breaks up the brick façade.	Both Sides	1	0.11	0.11
1.2	Buildings with Non-Rectangular Shapes	The development is rectangular.	Development	0	0.08	0
1.3	Presence of Outdoor Dining	The ground floor restaurant operates an outdoor dining establishment.	Development	1	0.64	0.64
				Total Imageability Score (+2.44)		**3.19**
		Human Scale				
2.1	Building Height	Height of Development	Development	21	-0.003	-0.063
2.2	Small Planters	Small Planters are located from the left side of the development to the middle	Development	5	0.05	0.25
2.3	Pieces of Street Furniture	No pieces of street furniture are located in front of the development	Development	0	0.04	0
				Total Human Scale Score (+2.61)		**2.797**
		Complexity				
3.1	Buildings with Basic Building Colours (Black, Grey, Beige, Brown, White)	The development is constructed with brown and grey bulding materials.	Development	3	0.23	0.69
3.2	Buildings with Accent Colours	The development is constructed with red accent building materials	Development	1	0.12	0.12
3.2	Number of Public art	No Public Art Features	Development	0	0.42	0
				Total Divided by 4	0.03	0.006075
				Complexity Score (+2.61)		**2.616075**

View of site from Balsam Street



View of site from University Avenue



Appendix C: Urban Design Checklist (con't)

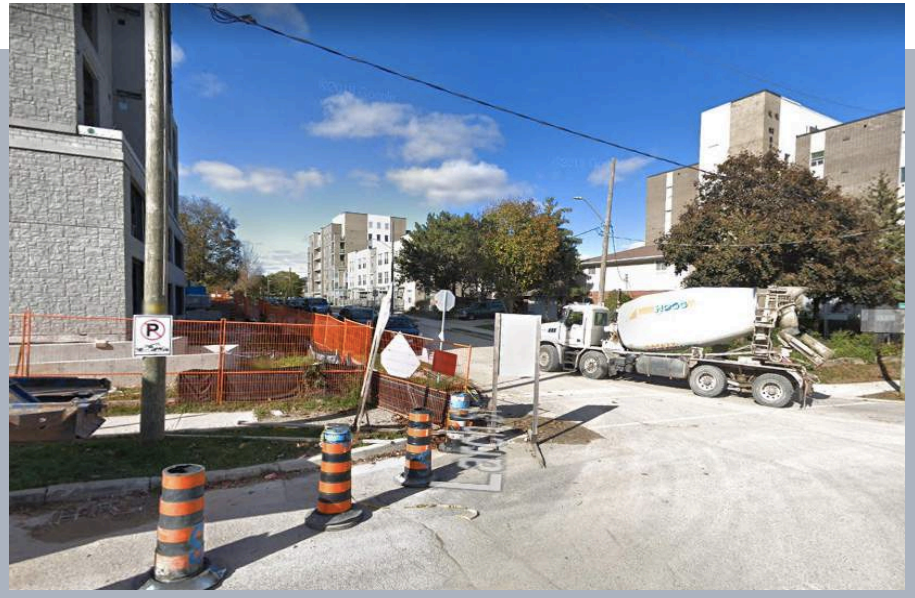
21

Development: 272 Larch Street	
Street	Larch Street
From	Hickory Street
To:	Balsam Street

Step #	Step	Process	Direction	Recorded Value	Multiplier	Multiplier x Recorded Value
		Imageability				
1.1	Buildings with Identifiers	The identifying feature of the development is the awnings located at each entranceway	Both Sides	1	0.11	0.11
1.2	Buildings with Non-Rectangular Shapes	Development is Rectangular	Development	1	0.08	0.08
1.3	Presence of Outdoor Dining	No presence of outdoor dining	Development	0	0.64	0
					Total Imageability Score (+2.44)	**2.63**
		Human Scale				
2.1	Building Height	Height of Development	Development	21	-0.003	-0.063
2.2	Small Planters	Planters are located along the side of building; leading to the steps to the ground floor commercial	Development	3	0.05	0.15
2.3	Pieces of Street Furniture	No pieces of street furniture are located in front of the development	Development		0.04	0
					Total Human Scale Score (+2.61)	**2.697**
		Complexity				
3.1	Buildings with Basic Building Colours (Black, Grey, Beige, Brown, White)	The development is constructed with brown and grey building materials	Development	2	0.23	0.46
3.2	Buildings with Accent Colours	The development is not built with accent colours	Development	0	0.12	0
3.2	Number of Public art	No Public Art Features	Development	0	0.42	0
				Total Divided by 4	0.03	0.00345
					Complexity Score (+2.61)	**2.61345**

View of site from Hickory Street

View of site from Balsam Street



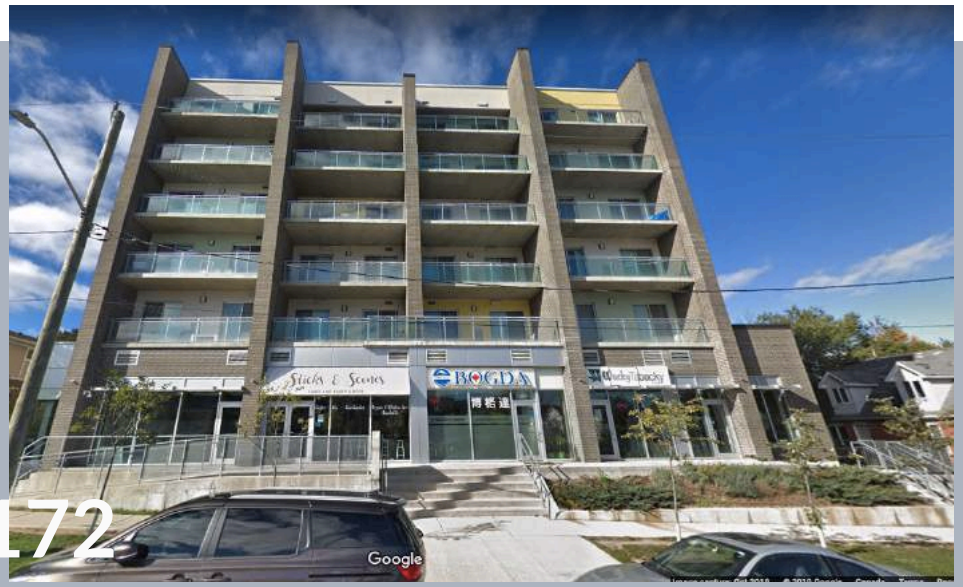
Appendix C: Urban Design Checklist (con't)

22

Development: 62 Balsam Street	
Street	Balsam Street
From	Hazel Street
To:	Larch Street

Step #	Step	Process	Direction	Recorded Value	Multiplier	Multiplier x Recorded Value
		Imageability				
1.1	Buildings with Identifiers	The identifiable feature for 62 Balsam Street is the inconsistent pattern of yellow accent building materials	Both Sides	1	0.11	0.11
1.2	Buildings with Non-Rectangular Shapes	Development is rectangular	Development	0	0.08	0
1.3	Presence of Outdoor Dining	No presence of outdoor dining	Development	0	0.64	0
					Total Imageability Score (+2.44)	**2.55**
		Human Scale				
2.1	Building Height	Height of Development	Development	18	-0.003	-0.054
2.2	Small Planters	One Planter is located at the front of the development, adjacent to the steps.	Development	1	0.05	0.05
2.3	Pieces of Street Furniture	No pieces of street furniture are located in front of the development	Development	0	0.04	0
					Total Human Scale Score (+2.61)	**2.606**
		Complexity				
3.1	Buildings with Basic Building Colours (Black, Grey, Beige, Brown, White)	The developmnt is built with brown and white building materials	Development	2	0.23	0.46
3.2	Buildings with Accent Colours	The development is built with accent yellow building materials.	Development	1	0.12	0.12
3.2	Number of Public art	No Public Art Features	Development	0	0.42	0
				Total Divided by 4	0.03	0.00435
					Complexity Score (+2.61)	**2.61435**

View of 62 Balsam Street



View of site from Hazel Street

APPENDIX D

Appendix D: Frontage Comparison 2012-2018

Frontage Type	Zoning Provision	2012 Zoning By-Law 1108
Active	Uses	Dwelling Units are not permitted on the ground floor
		Non-Residential Uses on Ground Floor
	Minimum Ground Floor Storey Height	4.5 metres
	Minimum Front Yard Setback	1.0 metres
	Maximum Front Yard Setback	3.0 metres
	Maximum Front Yard Setback for Coffee Shops	6.0 metres
	Minimum Side Yard Setback	-
	Minimum Rear Yard Setback	7.5 metres
	Minimum Number of Building Entrances on Ground Floor	1 every 25 metres of façade
	Maximum Number of Vehicular Entrances	1 per lot
Convertible	Uses	Residential Uses and Non-Residential Uses
	Minimum Ground Floor Storey Height	4.5 metres
	Minimum Front Yard Setback	1.0 metres
	Maximum Front Yard Setback	For a minimum of 75% of the façade: 5.0 metres
	Side Yard Setback	5.5 metres (except Townhouse & Terrace Dwellings)
	Minimum Rear Yard Setback	7.5 metres

2018 Zoning By-Law 2018-050	Comment
Dwelling Units are not permitted on the ground floor	Same
4.5 metres	Same
1.0 metres	Same
3.0 metres	Same
-	No Provision for Front Yard Setback within 2018 Zoning By-Law
3.0 metres	No Provision for Side Yard Setback within 2012 Zoning By-Law
7.5 metres	Same
For Townhouse/ Townhouse Linear & Terrace Dwellings: Each Dwelling Unit located on ground floor must have independent private entrance For other Uses: 1 for every 25 metres of façade length	Differentiated between Townhouse/ Terrace Dwellings and other Built Forms
1 per lot	Same
Residential Uses and Non-Residential Uses	Same
4.5 metres	Same
1.0 metres	Same
For a minimum of 75% of the façade: 5.0 metres	Same
3 metres	In New Zoning By-Law, reduced side-yard setback and does not differentiate between built form
7.5 metres	Same

Appendix D: Frontage Comparison 2012-2018 (con't)

	Minimum Number of Building Entrances on Ground Floor	1 for every 15 metres of façade length
	Maximum Number of Vehicular Entrances	One Per Lot
Neighbourhood Frontage	Uses	-
	Minimum Ground Floor Storey Height	-
	Minimum Front Yard Setback	3.0 metres
	Maximum Front Yard Setback	6.0 metres
	Side Yard Setback	3.0 metres
	Minimum Rear Yard Setback	7.5 metres
	Minimum Number of Building Entrances on Ground Floor	Each Dwelling Unit located on ground floor must have independent private entrance
	Maximum Number of Vehicular Entrances	One Per Lot

For Townhouse/ Townhouse Linear & Terrace Dwellings: Each Dwelling Unit located on ground floor must have independent private entrance For other Uses: 1 for every 15 metres of façade length	Differentiated between Townhouse/ Terrace Dwellings and other Built Forms
One Per Lot	Same
Dwelling Units shall be permitted on the first storey	No Provision for Uses within 2012 Zoning By-Law
4.5 metres	No Provision for Minimum Ground Floor Height within 2012 Zoning By-Law
3.0 metres	Same
6.0 metres	Same
3.0 metres	Same
7.5 metres	Same
For Townhouse/ Townhouse Linear & Terrace Dwellings: Each Dwelling Unit located on ground floor must have independent private entrance For other Uses: 1 for every 15 metres of façade length	Differentiated between Townhouse/ Terrace Dwellings and other Built Forms
One Per Lot	Same

Appendix D: Zone Comparison Table

ZONE	TYPE OF USE	ZONING PROVISION
NMU-6 / RN-6	N.A	Uses
	Townhouse/ Townhouse Linear & Terrace Dwellings	Minimum Lot Frontage
		Minimum Lot Area
		Minimum Building Step back above Podium
		Amenity Area
		Minimum Landscaped Open Space

2012 ZONING BY-LAW 1108	2018 ZONING BY-LAW 2018-050	COMMENT
- Townhouse Dwelling - Townhouse Linear Dwelling - Terrace Dwelling - Apartment Dwelling - Dwelling Units in Storeys Above the First Storey **Non-Residential** - Bake-Shop (1) - Clinics - Coffee Shop (1) - Office (1) - Personal Service Shop (1) - Retail Store (1) - Variety Store (1) - Community Garden - Nursery School (1) - Religious Use (1) - Post-Secondary School (1) (1) Not Allowed on Batavia Place, Hemlock Street or North-side of Hickory Street	**Primary Use** - Townhouse Building - Freehold Townhouse Building - Stacked Townhouse Building - Multi-Unit Residential Building (including Apartment Building) - Mixed Use Building with Dwelling Units Above the First Storey **Complimentary Use** - Municipal Recreation Facility - Private School - Spiritual Use **Ancillary Uses** - Home Occupation Ancillary Uses to Multi-Unit Residential Building, Mixed Use Building with Dwelling Units above First Storey, Stacked Townhouse Building - Bake Shop - Café - Childcare Centre - Medical Clinic - Office - Personal Service Shop - Pharmaceutical Dispensary - Retail Store - Variety Store	Zoning By-Law 2018-050 differentiated uses through classifying primary, complimentary and ancillary uses
5.5 metres	5.5 metres	Same
-	-	Same
-	-	Same
-	3 sq. metres for the first bedroom and 2 square metres for each additional bedroom in the dwelling unit	New Provision within Zoning By-Law 2018
30% of Lot Area	30% of Lot Area	Same

Appendix D: Zone Comparison Table (con't)

ZONE	TYPE OF USE	ZONING PROVISION
		Minimum Parking Spaces (Residential Component)
		Minimum Visitor Parking Spaces
		Parking Spaces for Non Residential Uses
		Minimum Bicycle Parking Spaces
		Minimum Building Height
		Maximum Building Height
		Maximum Podium Height
		Minimum Podium Height
		Minimum Density
		Maximum Density
		Maximum Tower Footprint above the 8th storey
		Minimum Tower Separation Distance
		Maximum Horizontal Tower Dimension
	General Uses	Minimum Lot Frontage
		Minimum Lot Area
		Minimum Building Step back above Podium
		Amenity Area
		Minimum Landscaped Open Space
		Minimum Parking Spaces (Residential Component)
		Minimum Visitor Parking Spaces
		Minimum Parking Spaces for Non Residential Uses
		Minimum Bicycle Parking Spaces

2012 ZONING BY-LAW 1108	2018 ZONING BY-LAW 2018-050	COMMENT
1.0 spaces per unit	1.0 spaces per unit	Same
-	-	Same
-	3.0 per 100 square metres of Building Floor Area	New Provision within Zoning By-Law 2018
-	Residential: 1 per Dwelling Unit Non-Residential Uses: 1 per 100 square of Building Floor Area	New Provision within Zoning By-Law 2018
-	-	Same
20 metres	21.5 metres	Slight Difference in Quantitative Measures
-	-	Same
-	-	Same
-	-	Same
250 bedrooms per hectare	250 bedrooms per hectare	Same
-	-	Same
- - 20.0 metres	- - 20.0 metres	Same Same Same
1,000 sq. metres -	1,000 sq. metres -	Same Same
-	3 sq. metres for the first bedroom and 2 square metres for each additional bedroom in the dwelling unit	New Provision within Zoning By-Law 2018
30% of Lot Area (including Rooftop Garden)	30% of Lot Area	Same
0.20 parking spaces per bedroom 0.05 visitor spaces per bedroom	0.20 parking spaces per Bedroom 0.05 visitor spaces per bedroom	Same Same
4.0 spaces per 100 square metres of Building Floor Area	3.0 per 100 square metres of Building Floor Area	Reduced Parking Requirements in Zoning By-Law 2018-050
Residential: 0.25 bicycle spaces per bedroom	Residential: 0.25 bicycle spaces per bedroom	Increase in Bicycle Parking Requirements for Non-Residential Uses in Zoning By-Law 2018-050

Appendix D: Zone Comparison Table (con't)

ZONE	TYPE OF USE	ZONING PROVISION
		Minimum Building Height
		Maximum Building Height
		Maximum Podium Height
		Minimum Podium Height
		Minimum Density
		Maximum Density
		Maximum Tower Footprint above the 8th storey
		Minimum Tower Separation Distance
		Maximum Horizontal Tower Dimension
NMU-8 / RN-8		Uses

2012 ZONING BY-LAW 1108	2018 ZONING BY-LAW 2018-050	COMMENT
Non-Residential: 1.0 bicycle spaces for every 1,500 sq. metres of non-residential gross building floor area	Non-Residential: 1.0 bicycle spaces for every 100 sq. metres of non-residential gross building floor area	
-	-	Same
20 metres	21.5 metres	Slight Difference in Quantitative Measures
-	-	Same
-	-	Same
-	-	Same
250 bedrooms per hectare	250 bedrooms per hectare	Same
-	-	Same
-	-	Same
-	-	Same
- Apartment Dwelling - Dwelling Units in Storeys Above the First Storey **Non-Residential** - Art Gallery - Bake Shop - Clinics - Commercial Recreation - Coffee Shop - Office - Personal Service Shop - Restaurant - Retail Store - Variety Store - Nursing Home - Government Uses - Community Garden - Nursery School - Park - Post Office - Religious Use	**Primary Use** - Multi-Unit Residential Building (including Apartment Building) - Mixed Use Building with Dwelling Units above the First Storey **Complementary Uses** - Government Use - Municipal Recreational Facility - Private School - Spiritual Use - Library - Post Office **Ancillary Uses** - Art Gallery - Artist Studio - Bake Shop - Café - Child Care Centre - Commercial Recreation - Commercial Wellness - Medical Clinic - Office - Personal Service Shop - Pharmaceutical Dispensary - Restaurant	Zoning By-Law 2018-050 differentiated uses through classifying primary, complimentary and ancillary uses

Appendix D: Zone Comparison Table (con't)

ZONE	TYPE OF USE	ZONING PROVISION	
		Minimum Lot Frontage	
		Minimum Lot Area	
		Minimum Building Step back above Podium	
		Amenity Area	
		Minimum Landscaped Open Space	
		Minimum Parking Spaces (Residential Component)	
		Minimum Visitor Parking Spaces	
		Parking Spaces for Non Residential Uses	
		Minimum Bicycle Parking Spaces	
		Minimum Building Height	
		Maximum Building Height	
		Maximum Podium Height Minimum Podium Height	
		Minimum Density Maximum Density Maximum Tower Footprint above the 8th storey	
		Minimum Tower Separation Distance Maximum Horizontal Tower Dimension	
NMU-12/ RN-12		Uses	-

2012 ZONING BY-LAW 1108	2018 ZONING BY-LAW 2018-050	COMMENT
- Library - Post-Secondary School	- Retail store - Variety Store	
20.0 metres	20.0 metres	Same
1,000 sq. metres	1,000 sq. metres	Same
3.0 metres	3.0 metres	Same
-	3 sq. metres for the first bedroom and 2 sq. metres for each additional bedroom in the dwelling unit	New Provision within Zoning By-Law 2018
30% of Lot Area (including Rooftop Garden)	30% of Lot Area	Same
0.20 parking spaces per bedroom	0.20 parking spaces per bedroom	Same
0.05 visitor spaces per bedroom	0.05 visitor spaces per bedroom	Same
4.0 spaces per 100 square metres of Building Floor Area	3.0 per 100 square metres of Building Floor Area	Reduced Parking Requirements in Zoning By-Law 2018-050
Residential: 0.25 bicycle spaces per bedroom Non-Residential: 1.0 bicycle spaces for every 1,500 sq. metres of non-residential gross building floor area	Residential: 0.25 bicycle spaces per bedroom Non-Residential: 1.0 bicycle spaces for every 100 sq. metres of non-residential gross building floor area	Increase in Bicycle Parking Requirements for Non-Residential Uses in Zoning By-Law 2018-050
10.5 metres	10. 5 metres	Same
26 metres	27.5 metres	Slight Difference in Quantitative Measures
20 metres 10.5 metres	20 metres 10.5 metres	Same Same
- 450 bedrooms per hectare -	- 450 bedrooms per hectare -	Same Same Same
- -	- -	Same Same
- Apartment Dwelling - Dwelling Units in Storeys Above the First Storey	**Primary Uses** - Multi-Unit Residential Building (including Apartment Building) - Mixed Use Building with Dwelling Units above the first Storey - Assisted Living Facility - Long term Care Facility	Zoning By-Law 2018-050 differentiated uses through classifying primary, complimentary and ancillary uses

Appendix D: Zone Comparison Table (con't)

ZONE	TYPE OF USE	ZONING PROVISION
		Minimum Lot Frontage
		Minimum Lot Area
		Minimum Building Step back above Podium
		Amenity Area
		Minimum Landscaped Open Space

2012 ZONING BY-LAW 1108	2018 ZONING BY-LAW 2018-050	COMMENT
Non-Residential - Art Gallery - Bake Shop - Clinics - Commercial Recreation - Commercial School - Coffee Shop - Drug Store - Financial Institution - Office - Personal Service Shop - Restaurant - Retail Store - Variety Store - Nursing Home - Community Centre - Government Uses - Community Garden - Nursery School - Park - Post Office - Religious Use - Library - Post-Secondary School	**Complimentary Uses** - Government Use - Community Centre - Municipal Recreation Facility - Private School - Spiritual Use - Library - Post Office **Ancillary Uses** - Art Gallery - Artist Studio - Bake Shop - Café - Child-care Centre - Commercial Recreation - Commercial Wellness - Commercial School - Drug Store - Financial Institution - Medical Clinic - Office - Personal Service Shop - Pharmaceutical Dispensary - Restaurant - Retail Store - Variety Store	
20.0 metres	20.0 metres	Same
1,000 sq. metres	1,000 sq. metres	Same
3.0 metres	3.0 metres	Same
-	3 sq. metres for the first bedroom and 2 sq. metres for each additional bedroom in the dwelling unit	New Provision within Zoning By-Law 2018
30% of Lot Area (including Rooftop Garden)	30% of Lot Area	Same

Appendix D: Zone Comparison Table (con't)

ZONE	TYPE OF USE	ZONING PROVISION
		Minimum Parking Spaces (Residential Component)
		Minimum Visitor Parking Spaces
		Parking Spaces for Non Residential Uses
		Minimum Bicycle Parking Spaces
		Minimum Building Height
		Maximum Building Height
		Maximum Podium Height
		Minimum Podium Height
		Minimum Density
		Maximum Density
		Maximum Tower Footprint above the 8th storey
		Minimum Tower Separation Distance
		Maximum Horizontal Tower Dimension
NMU-25/RN-25		Uses

2012 ZONING BY-LAW 1108	2018 ZONING BY-LAW 2018-050	COMMENT
0.20 parking spaces per bedroom	0.20 parking spaces per bedroom	Same
0.05 visitor spaces per bedroom	0.05 visitor spaces per bedroom	Same
4.0 spaces per 100 square metres of Building Floor Area	3.0 per 100 sq metres of Building Floor Area	Reduced Parking Requirements in Zoning By-Law 2018-050
Residential: 0.25 bicycle spaces per bedroom Non-Residential: 1.0 bicycle spaces for every 1,500 sq. metres of non-residential gross building floor area	Residential: 0.25 bicycle spaces per bedroom Non Residential: 1.0 bicycle spaces for every 100 sq. metres of non-residential gross building floor area	Increase in Bicycle Parking Requirements for Non-Residential Uses in Zoning By-Law 2018-050
10.5 metres	10.5 metres	Same
40 metres	41.5 metres	Slight Difference in Quantitative Measures
20 metres	20 metres	Same
10.5 metres	10.5 metres	Same
250 bedrooms per hectare	250 bedrooms per hectare	Same
600 bedrooms per hectare	600 bedrooms per hectare	Same
800 sq. metres	800 sq. metres	Same
25 m from tower on the same lot a 12.5 m from an interior lot line or rear lot line	22 m from tower on the same lot a 11 m from an interior lot line or rear lot line	Slight Difference in Quantitative Measures
35 metres	35 metres	Same
- Apartment Dwelling - Dwelling Units in Storeys Above the First Storey **Non-Residential** - Art Gallery - Bake Shop - Clinics	**Primary Uses** - Multi-Unit Residential (including Apartment Building) - Mixed-Use Building with Dwelling Units above the First Storey - Assisted Living Facility - Long Term Care Facility **Complimentary Use** - Government Use - Community Centre - Municipal Recreation Facility - Private School - Spiritual Use - Library - Post Office	Zoning By-Law 2018-050 differentiated uses through classifying primary, complimentary and ancillary uses

Appendix D: Zone Comparison Table (con't)

ZONE	TYPE OF USE	ZONING PROVISION
		Minimum Lot Frontage Minimum Lot Area
		Minimum Building Step back above Podium
		Amenity Space
		Minimum Landscaped Open Space Minimum Parking Spaces (Residential Component)
		Minimum Visitor Parking Spaces
		Parking Spaces for Non Residential Uses Minimum Bicycle Parking Spaces
		Minimum Building Height

2012 ZONING BY-LAW 1108	2018 ZONING BY-LAW 2018-050	COMMENT
- Commercial Recreation - Commercial School - Coffee Shop - Drug Store - Financial Institution - Office - Personal Service Shop - Restaurant - Retail Store - Variety Store - Nursing Home - Community Centre - Government Uses - Community Garden - Nursery School - Park - Post Office - Religious Use - Library - Post-Secondary School	**Ancillary Uses** - Home Occupation - Art Gallery - Artist Studio - Bake Shop - Café - Child Care Centre - Commercial Recreation - Commercial Wellness - Commercial School - Drug Store - Financial Institution - Medical Clinic - Office - Personal Service Shop - Pharmaceutical Dispensary - Restaurant - Retail Store - Variety Store	
20.0 metres 1,000 sq. metres	20.0 metres 1,000 sq. metres	Same Same
3.0 metres	3.0 metres	Same
-	3 sq. metres for the first bedroom and 2 sq. metres for each additional bedroom in the Dwelling Unit	New Provision within Zoning By-Law 2018
30% of Lot Area (including Rooftop Garden) 0.20 parking spaces per bedroom	30% of Lot Area 0.20 parking spaces per bedroom	Same Same
0.05 visitor spaces per bedroom	0.05 visitor spaces per bedroom	Same
4.0 spaces per 100 square metres of Building Floor Area Residential: 0.25 bicycle spaces per bedroom Non-Residential: 1.0 bicycle spaces for every 1,500 sq. metres of non-residential gross building floor area	3.0 spaces per 100 square metres of Building Floor Area Residential: 0.25 bicycle spaces per bedroom Non-Residential: 1.0 bicycle spaces for every 100 sq. metres of non-residential gross building floor area	Reduced Parking Requirements in Zoning By-Law 2018-050 Increase in Bicycle Parking Requirements for Non-Residential Uses in Zoning By-Law 2018-050
10.5 metres	10.5 metres	Same

Appendix D: Zone Comparison Table (con't)

ZONE	TYPE OF USE	ZONING PROVISION
		Maximum Building Height
		Maximum Podium Height Minimum Podium Height
		Minimum Density
		Maximum Density Maximum Tower Footprint above the 8th storey
		Minimum Tower Separation Distance
		Maximum Horizontal Tower Dimension
NC4-25/ C1-81		Uses

2012 ZONING BY-LAW 1108	2018 ZONING BY-LAW 2018-050	COMMENT
81 metres	82.5 metres	Slight Difference in Quantitative Measures
20 metres 10.5 metres	20 metres 10.5 metres	Same Same
250 bedrooms per hectare	250 bedrooms per hectare	Same
750 bedrooms per hectare 800 sq. metres	750 bedrooms per hectare 800 sq. metres	Same Same
25 m from tower on the same lot a 12.5 m from an interior lot line or rear lot line	22m from tower on the same lot a 11m from an interior lot line or rear lot line	Slight Difference in Quantitative Measures
35 metres	35 metres	Same
- Automobile Service Station - Bank or Trust Company - Beer Store - Book Store - Camera Store - Commercial Recreation - Commercial School - Computer Software Store - Domestic Appliance Store - Drug Store - Florist Store - Food Store - Gift Store - Hardware Store - Home Improvement Store - Library - Nursery School - Office - Personal Service Shop - Post Office - Restaurant - Variety Store	**Primary Uses** - Bake Shop - Café - Commercial Service - Financial Service - Major Office - Medical Clinic - Office - Personal Service Shop - Restaurant, including Patio - Retail Store (includes Drug Store, Food Store, Variety Store) - Tech Office - Vet Clinic **Primary Uses** - Assisted Living Facility - Dwelling Units above the First Storey - Long Term Care Facility **Complimentary Use** - Alternative Education Centre - Artist Studio - Auditorium - Automobile Service Centre - Banquet Hall - Car Wash - Commercial Recreation	Zoning By-Law 2018-050 differentiated uses through classifying primary, complimentary and ancillary uses and adds residential uses as a primary use

Appendix D: Zone Comparison Table (con't)

ZONE	TYPE OF USE	ZONING PROVISION
		Minimum Lot Frontage
		Minimum Lot Area
		Minimum Building Step back above Podium
		Amenity Area
		Minimum Landscaped Open Space
		Minimum Parking Spaces (Residential Component)
		Minimum Parking Spaces (Visitor)

2012 ZONING BY-LAW 1108	2018 ZONING BY-LAW 2018-050	COMMENT
	- Commercial School - Commercial Wellness - Communication Production - Cultural Facilities - Government Uses - Hotel - Institution - Municipal Recreation Facility - Nightclub - Private Club - Private School - Public Market - Spiritual Use	
20.0 metres	-	2012 Zoning Provisions do not transfer to 2018 Zoning By-Law
1,000 sq. metres	-	2012 Zoning Provisions do not transfer to 2018 Zoning By-Law
3.0 metres	3.0 metres	Same
-	3 sq. metres for the first bedroom and 2 square metres for each additional bedroom in the dwelling unit	New Provision within Zoning By-Law 2018
30% of Lot Area (including Rooftop Garden)	Landscaped Buffer of 3 metres	2012 Zoning Provisions do not transfer to 2018 Zoning By-Law Minimum Landscaped Space is decreased in the New Zoning By-Law
0.20 parking spaces per bedroom	0.90 parking spaces per dwelling unit	2012 Zoning Provisions do not transfer to 2018 Zoning By-Law as calculations is changed from bedroom to dwelling unit, resulting in a decrease of parking spaces
0.05 visitor spaces per bedroom	0.1 parking spaces per dwelling unit	2012 Zoning Provisions do not transfer to 2018 Zoning By-Law as calculations is changed from bedroom to dwelling unit,

Appendix D: Zone Comparison Table (con't)

ZONE	TYPE OF USE	ZONING PROVISION
		Minimum Bicycle Parking Spaces
		Minimum Building Height
		Maximum Building Height
		Maximum Podium Height
		Minimum Podium Height
		Minimum Density
		Maximum Density
		Maximum Tower Footprint above the 8th storey
		Minimum Tower Separation Distance
		Maximum Horizontal Tower Dimension
NC6-25/ C1-81		Uses

2012 ZONING BY-LAW 1108	2018 ZONING BY-LAW 2018-050	COMMENT
		resulting in a decrease of parking spaces
Residential: 0.25 bicycle spaces per bedroom Non-Residential: 1.0 bicycle spaces for every 1,500 sq. metres of non-residential gross building floor area	40% of Motored Vehicle Parking Spaces	2012 Zoning Provisions do not transfer to 2018 Zoning By-Law as calculations methods differ
14 metres	-	2012 Zoning Provisions do not transfer to 2018 Zoning By-Law
81 metres	81 metres & 25 storeys	Same
20 metres	21 metres	Slight Difference in Quantitative Measures
10.5 metres 250 bedrooms per hectare	- 150 bedrooms per hectare	2012 Zoning Provisions do not transfer to 2018 Zoning By-Law Major Difference in Quantitative Measures
750 bedrooms per hectare	750 bedrooms per hectare	Same
800 sq. metres	1,000 sq. metres	Major Difference between Quantitative Measures
25 m from tower on the same lot a 12.5 m from an interior lot line or rear lot line	22 m from tower on the same lot a 11 m from an interior lot line or rear lot line	Slight Difference in Quantitative Measures
35 metres	40 metres	Slight Difference in Quantitative Measures
- Auditorium - Bank or Trust Company - Commercial Recreation - Commercial School - Hotel - Nursery School - Office - Personal Service Shop - Restaurant - Retail Store **Residential Uses** - Dwelling Units in Storeys above - Apartment Dwelling	**Primary Use** - Bake Shop - Café - Commercial Service - Financial Service - Major Office - Medical Clinic - Office - Personal Service Shop - Restaurant, including Patio - Retail Store (includes Drug Store, Food Store, Variety Store) - Tech Office - Vet Clinic	Zoning By-Law 2018-050 differentiated uses through classifying primary, complimentary and ancillary uses

Appendix D: Zone Comparison Table (con't)

ZONE	TYPE OF USE	ZONING PROVISION
		Minimum Lot Frontage
		Minimum Lot Area
		Minimum Building Step back above Podium
		Amenity Space
		Minimum Landscaped Open Space

2012 ZONING BY-LAW 1108	2018 ZONING BY-LAW 2018-050	COMMENT
Institutional Uses - Art Gallery - Government Use - Library - Nursery School - Post Office	**Primary Use** - Assisted Living Facility - Dwelling Units above the First Storey - Long Term Care Facility **Complimentary Use** - Alternative Education Centre - Artist Studio - Auditorium - Automobile Service Centre - Banquet Hall - Car Wash - Commercial Recreation - Commercial School - Commercial Wellness - Communication Production - Cultural Facilities - Government Uses - Hotel - Institution - Municipal Recreation Facility - Nightclub - Private Club - Private School - Public Market - Spiritual Use	
20.0 metres	-	2012 Zoning Provisions do not transfer to 2018 Zoning By-Law
1,000 sq. metres	-	2012 Zoning Provisions do not transfer to 2018 Zoning By-Law
3.0 metres	3.0 metres	Same
-	3 sq. metres for the first bedroom and 2 square metres for each additional bedroom in the dwelling unit	New Provision within Zoning By-Law 2018
30% of Lot Area (including Rooftop Garden)	Landscaped Buffer of 3 metres	2012 Zoning Provisions do not transfer to 2018 Zoning By-Law

Appendix D: Zone Comparison Table (con't)

ZONE	TYPE OF USE	ZONING PROVISION
		Minimum Parking Spaces (Residential Component)
		Minimum Parking Spaces (Visitor)
		Minimum Bicycle Parking Spaces
		Minimum Building Height
		Maximum Building Height
		Maximum Podium Height
		Minimum Podium Height
		Minimum Density
		Maximum Density
		Maximum Tower Footprint above the 8th storey
		Minimum Tower Separation Distance
		Maximum Horizontal Tower Dimension

2012 ZONING BY-LAW 1108	2018 ZONING BY-LAW 2018-050	COMMENT
0.20 parking spaces per bedroom	0.90 parking spaces per dwelling unit	Minimum Landscaped Space is decreased in the New Zoning By-Law 2012 Zoning Provisions do not transfer to 2018 Zoning By-Law as calculations is changed from bedroom to dwelling unit, resulting in a decrease of parking spaces
0.05 visitor spaces per bedroom	0.1 parking spaces per dwelling unit	2012 Zoning Provisions do not transfer to 2018 Zoning By-Law as calculations is changed from bedroom to dwelling unit, resulting in a decrease of parking spaces
Residential: 0.25 bicycle spaces per bedroom Non-Residential: 1.0 bicycle spaces for every 1,500 sq. metres of non-residential gross building floor area	40% of Motored Vehicle Parking Spaces	2012 Zoning Provisions do not transfer to 2018 Zoning By-Law as calculations methods differ
14 metres	-	2012 Zoning Provisions do not transfer to 2018 Zoning By-Law
81 metres	81 metres & 25 storeys	Same
20 metres	21 metres	Slight Difference in Quantitative Measures
10.5 metres	-	2012 Zoning Provisions do not transfer to 2018 Zoning By-Law
250 bedrooms per hectare	150 bedrooms per hectare	Major Difference in Quantitative Measures
750 bedrooms per hectare	750 bedrooms per hectare	Same
800 sq. metres	1,000 sq. metres	Major Difference between Quantitative Measures
25 m from tower on the same lot a 12.5 m from an interior lot line or rear lot line	22 m from tower on the same lot a 11 m from an interior lot line or rear lot line	Slight Difference in Quantitative Measures
35 metres	40 metres	Slight Difference in Quantitative Measures