Healthy Community Design Baseline Project:

Neighbourhood Design Survey and Physical-Form Indicators

Guelph



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Wellington-Dufferin-Guelph Public Health (WDGPH) partnered with the City of Guelph to create a tailored baseline of Healthy Community Design (HCD) indicators for the city via a survey among local residents and the collection of physical design data.

The objectives of this project were:

- 1. To determine residents' preferences for the built design of neighbourhoods as well as how residents perceive and travel within their current neighbourhood;
- 2. To gain an understanding of residents' knowledge of the links between HCD features and healthy lifestyle behaviours; and
- 3. To collaborate with municipal planning departments to strategically select and map valuable, community-specific, physical HCD indicators to be monitored over time.

The baseline indicator data was used to establish collaborative recommendations and will help Guelph identify priorities for HCD and plan for growth. The survey and collection of physical indicator data will be repeated again in five, ten, and fifteen years to monitor changes over time as the community grows. There is a strong relationship between population health and the built environment in which people live, work and play. Communities can be designed in ways that provide economic cost-savings, promote healthy choices and behaviours, and enhance the social well-being of residents. However, there has historically been a lack of available data related to healthy community design, both at the physical level and from residents' perspectives. Collaborative data collection and planning efforts between public health practitioners, municipal planners, and other disciplines can address municipal priorities and offer significant benefits to a community.¹

Healthy Community Design Framework

A Framework for Healthy Built Environment developed by the BC Centre for Disease Control, identifies important elements and principles of a healthy built environment and describes the links between design features, planning and health (Figure 1). Wellington-Dufferin-Guelph Public Health uses the features of this framework to engage with communities to support healthy community design.

The Baseline Indicators Project was structured around four of the five feature areas from this framework: neighbourhood design, transportation networks, natural environments, and food systems. The following sections of the report will highlight the key indicators and findings from these areas.



Figure 1: A Framework for Healthy Built Environment.¹ Adapted with permission by BC Centre for Disease Control (2018).

Icons

Icons used throughout this report indicate the connections among HCD features and the relationships that exist between the various components of this framework.



Survey Development and Distribution

The Neighbourhood Design Survey (NDS) was developed by WDGPH with input from City of Guelph municipal staff. In partnership with Forum Research Inc., survey data was collected from October 10th to December 15th 2017. The NDS was primarily promoted and completed online. However, in order to ensure appropriate geographic representation from each study area, geo-targeted random digit dial telephone recruitment as well as in-person, random (i.e. 4th passerby of the general public) interviewing using tablet devices or hardcopy surveys in public spaces, was used to increase the number of completed surveys.

In recognition of differences in the built design across areas of Guelph, the city was divided into five assessment areas that were aligned to match with Census boundaries. They are referred to in this report as the "Older Built-up", "North-East", "North-West", "South", and "South-Central" areas (Figure 2). A total of 2,478 Guelph residents were recruited to complete the NDS through the various primary data collection methods depicted in Figure 3. Specifically, 27% of survey respondents were residents living in the Older Built-up area, 23% from the North-East, 16% from North-West, 12% from South, and 22% from South-Central.



Figure 2. Map of City of Guelph illustrating the five assessment areas used for the project.

The people who completed the survey tended to be more educated, younger in age, more likely to be female, and represented more residents from the Older Built-up area and less from the North-West area, compared to the general population. To compensate for these differences, statistical weighting techniques were used to adjust the survey results to reflect the demographics of Guelph residents as measured by the 2016 Census.²

During analysis of the NDS similar variables were combined into one measure to simplify results and identify themes (e.g. "somewhat prefer" and "strongly prefer" combined into "prefer"). The data presented in the following sections of the report highlight key findings and interpretations of these themes. Detailed tables of all variable data can be found in the Appendix. Additionally, when significance testing identified differences in results among the five assessment areas, findings are presented separately, otherwise, results represent Guelph residents overall.

Physical-form Indicators

Collaborative discussions between WDGPH and City of Guelph planning staff guided the selection of HCD physical-form indicators that reflected municipal growth priorities. Indicator data on these physical components of the built environment was collected from available data sources and, using GIS technology, the data was mapped to align with the assessment areas. The physical design data indicators, in combination with NDS perception indicators, help to illustrate the complexity of the built environment in Guelph.

The mapped data is presented at the dissemination area (DA) level of geography.³ There are several reasons for doing this. Primarily health data is not generally available at a geography lower than DA due to PHIPA and other privacy and confidentiality legislation. The DA boundaries are also part of the Standard Geographical Classification (SGC), which means they share a standard geography with additional data sources such as the Census and Canadian Community Health Survey. The Assessment Areas are comprised of DA's as a building block making data integration seamless. In some cases it is useful for planners to have access to more granular data and in these instances maps are provided as both household level and summarized by DA. Ultimately all physical form indicators in this report are reported either at the DA or Assessment Area levels of geography. The



Figure 3. NDS completion rates from online (68%), in-person (18%) and telephone (14%) recruitment methods.

Assessment Area boundaries were decided early in the project by consensus between the City of Guelph and WDGPH to represent distinct areas of the City of Guelph.

The specific geographic area encompassing the University of Guelph presented a challenge for physical-form data collection. Statistics Canada and Census data does not capture the student population and therefore the population and demographic measures for the area of the university are unreliable. The University of Guelph has a student population of approximately 30,000 students, and on campus housing for just over 5000 residents.⁴ In addition, private roads and green space (e.g. Arboretum) may be available and accessible to the general public but were not included in the City of Guelph park inventory as they are located on private property. Where data for the university was not available, an outline of the University of Guelph boundaries is included on the physical-form indicator maps to advise that such data should be considered incomplete. For future data collection, collaboration with the university to address this data gap is recommended.

Neighbourhood Design

Vision

Neighbourhoods where people can easily connect with each other and with a variety of day-to-day services.¹



Healthy neighbourhood design describes a community where people of all ages and abilities can live, work, play, connect, and access amenities.¹ When land use decisions prioritize the development of complete, compact, and connected neighbourhoods, communities benefit from environmental and economic gains as well as positive impacts on the health and well-being of residents.¹ Specifically, when neighbourhoods have high residential density, mixed land use, and strong connectivity, residents are encouraged to walk and cycle within their community.¹



For the purposes of this survey, "neighbourhood" was defined as anywhere within approximately one kilometer from a person's home, which is about a ten minute walk or three minute bicycle ride.

Neighbourhood Density (Intensification)

In addition to setting provincial mandates for increases in population growth and density, the Government of Ontario prioritizes intensification as a key policy in the Growth Plan for the Greater Golden Horseshoe under the Places to Grow Act (2005). Building compact communities with high increased residential and employment density naturally increases the proximity of community amenities to residents. As a result, residents are regularly encouraged to use active modes of transportation such as walking and cycling, to access work, school, recreation or other services.¹

Key Findings:

- The Older Built-up area had the greatest dwelling density at 13.1 dwellings/ha and the lowest was in the South area at 3.6 dwellings/ha.
- Guelph's population change from 2011 2016 was a growth of 8.3% with the greatest growth in the South area at 17.2%.

Mixed-Use Neighbourhoods

The City of Guelph Official Plan describes a complete community as one that meets the daily needs of residents throughout the lifespan by providing convenient access to various jobs, services, a range of housing, public transportation, and options for active transportation.⁵ Infrastructure in a complete community includes affordable housing, schools, recreation, and open space.⁵ Communities that encompass a diverse mix of residential, commercial, and recreational land uses support population growth and allow all residents to safely and easily access common amenities and destinations, engage in active transportation, participate in social interactions, and make connections within the community.¹

Key Findings:

- The majority of Guelph residents preferred mixed-use neighbourhoods, and almost all residents felt mixed-use neighbourhoods encourage healthy behaviours.
- The majority of Older Built-up residents and about half of South-Central residents felt their

neighbourhoods were mixed-use and physical design indicators correlated with these perceptions.

• The North-West assessment area appeared to be mixed-use, but the majority of residents did not feel this way about their neighbourhood.

Connectivity of Neighbourhoods

Neighbourhoods with street and sidewalk connectivity to residential, commercial, and recreational spaces create an efficient network that encourages active transportation, participation in social interactions, reduces dependency on vehicles, and contributes to improved air quality.1

Key Findings:

- Half of South-Central residents and the majority of residents across all other assessment areas preferred a connected neighbourhood design and 79% of all Guelph residents felt connected neighbourhoods encourage healthy behaviours.
- The greatest measures of intersection density were found in the Older Built-up and North-East areas, which corresponded with residents' perceptions of connectivity in these areas.





Statistics Canada 2016 Census (population density, and DA boundaries), Wellington-Dufferin-Guelph Public Health (Assessment Areas) and the City of Guelph (Land Parcels).

Dwelling density can be used to illustrate how populated a region is, with specific emphasis on housing, or living quarters (e.g. collective dwellings and private dwellings). Dwelling density was measured in two ways: 1) by unique dwellings per hectare within a Dissemination Area (DA) from Statistics Canada 2016 Census and 2) by creating a density using land parcel data to identify areas of high density.

What it tells us:

The overall dwelling density for Guelph was 6.4 dwellings/ha, with the highest measure in the Older Built-up area at 13.1 dwellings/ha and the lowest dwelling density in the South area at 3.6 dwellings/ha.

The maximum dwelling density observed for a DA in Guelph was 56.0 dwellings/ha and the lowest was less than 1.0 dwellings/ha



Making connections: 📋 🚱 🤐

The low dwelling density in the South assessment area is reflective of the large amount of undeveloped land in this area. Similarly, areas identified with dwelling densities under 1.0 dwelling/ha may represent green field land scheduled for development or industrial sites.

Considerations:

Parts of the City of Guelph have lower dwelling density due to different zoning (commercial/ industrial) or the presence of natural heritage feature that result in lower residential zoning.





Assessment Area	% Population Change
North-East	14.3%
North-West	2.7%
Older Built-up Area	5.3%
South	17.2%
South-Central	7.4%

Statistics Canada (2016 Census), City of Guelph, Wellington Dufferin Guelph Public Health.

Population change measures the difference in population over a period of time. It provides a snapshot of how the population is changing, specifically, whether it is increasing or decreasing. The use of Dissemination Area (DA) boundaries allows for a more specific measure of change within a smaller geographic area.

What it tells us:

Between 2011 and 2016, the overall population change in Guelph was a growth of 8.3%. All areas of Guelph observed positive population change with the most growth seen in the South (17.2%) and North-East (14.3%) areas, and the least population growth observed in the North-West (2.7%).

Making connections:

Population change alongside dwelling density may help explain general patterns of change in the community. For example, the South area experienced the greatest population change and measured the lowest in dwelling density. New developments and even small increases in residential dwellings in areas that were previously less developed, may have contributed to the positive population change.





Neighbourhood C: Grocery stores, shops, services, and a range of homes close together.



Neighbourhood D: Grocery stores, shops, and services further from homes.

96% of residents felt mixed-use neighbourhoods like Image C encourage healthy behaviours.

NDS questions:

The NDS used imagery questions to ask about residents' preferences for mixed-use (Image C) compared to less mixed-use (Image D) neighbourhoods. "Neighbourhood C" was described as having grocery stores, shops, services and a range of homes close together. "Neighbourhood D" had grocery stores, shops and services further from homes. Residents were also asked to select which design looked most similar to their current neighbourhood.

A follow-up question asked residents which of the two illustrated neighbourhoods would encourage behaviours such as walking, biking, or rolling to places they need to go, getting more daily exercise, feeling safe walking, biking or rolling to places, driving less to places, and socializing more with neighbours.

What did residents say?

Where residents lived	Preference for mixed-use	Perception of current neighbourhood as mixed-use	Perception that mixed-use encourages healthy behavours
North-East	75%	26%	96% of all Guelph
North-West	84%	43%	residents
Older Built-up Area	90%	65%	
South	83%	42%	
South-Central	80%	49%	



Making connections:

ALA

The majority of Guelph residents said they preferred mixed-use neighbourhoods and felt mixed-use design would encourage healthy behaviours, both of which could be used to support additional mixed-use planning in the community. Examination of physical design components such as connectivity and proximity to destinations may help explain whether residents' active travel behaviours were related to the built design of their neighbourhood.





Area	Commer- cial	Farm	Gov't	Industrial	Institutional	Multi- Residential	Residential	Special & Exempt	Vacant
North-East	3.7%	3.1%	0.8%	8.8%	2.3%	1.6%	47.4%	1.1%	31.1%
North-West	10.8%	1.1%	0.1%	32.8%	2.6%	3.3%	34.7%	3.0%	11.7%
Older Built- Up Area	7.7%	0.0%	0.2%	5.8%	7.9%	5.2%	63.9%	3.8%	5.5%
South	5.1%	14.7%	0.0%	16.6%	1.4%	0.0%	35.1%	0.1%	27.0%
South- Central	9.5%	2.4%	1.2%	11.8%	14.4%	2.2%	38.0%	0.7%	19.8%
Guelph	7.8%	4.4%	0.6%	16.1%	6.6%	2.2%	41.1%	1.5%	19.8%

City of Guelph, Wellington Dufferin Guelph Public Health.

Municipal Property Assessment Corporation codes were used to classify properties in Guelph by existing land uses.

What it tells us:

The Older Built-up area had the greatest percentage of land dedicated to residential and multiresidential use and second highest in institutional land use. Nearly half of all commercial properties in the city were also measured in the Older Built-up area. Interestingly, golf courses located in the North-East, South-Central, and South areas accounted for approximately half of the commercial area in these locations.

Making connections:

Land use and zoning can influence the physical design of neighborhoods. Residential, commercial, and institutional land use were examined to reflect mixed-use from a healthy community design perspective.

The types of land uses in the Older Built-up area correlated with the NDS findings as the majority of residents from this area felt their neighbourhood was mixed-use. Almost half of South-Central residents also felt that their neighborhood was mixed-use which aligned with the types of land use in that area.

The North-West area appeared to be mixed-use with a variety of land uses, but only 40% of residents in this assessment area felt their neighbourhood was mixed-use. This discrepancy may be due to the geographic separation between areas of residential, industrial, and commercial land use.









Neighbourhood E: Streets in a grid pattern with sidewalks on both sides of the road



Neighbourhood F: Curved streets, several cul-de-sacs, and may have fewer sidewalks

79% of residents felt "Neighbourhood E" would encourage healthy behaviours

NDS question:

Residents were presented with images and a brief description of two different neighbourhood connectivity designs. "Neighbourhood E" was described as having streets that are in a grid-pattern with sidewalks on both sides of the road. "Neighbourhood F" was described as curved streets, with several cul-de-sacs, and possibly fewer sidewalks. Respondents were asked to think about which neighbourhood they would prefer if they were moving to a different neighbourhood as well as which design best resembled their current neighbourhood.

In addition, residents were asked which of the two neighbourhood designs would encourage healthy behaviours such as walking, biking, or rolling to places they need to go, driving less to places, getting more exercise, feeling safe using active modes of travel, and socializing more with neighbours.

What did residents say?

Where residents lived	Preference for connectivity	Perception of current neighbourhood as connected	Perception that connectivity encourages healthy behavours
North-East	64%	50%	79% of all Guelph
North-West	71%	47%	residents
Older Built-up Area	78%	84%	
South	57%	40%	
South-Central	53%	35%	



Making connections: 🜔 🌍 🤐

Most Guelph residents thought connected neighbourhoods encourage healthy behaviours and at least half of residents in each assessment area preferred a connected neighbourhood design. With the exception of the Older Built-up area, most residents did not report that their neighbourhood was connected but other NDS findings such as resident reported active travel (see page 34) showed that many residents from all assessment areas were using modes of active transportation. This suggests that with enhancements to connectivity and proximity to destinations of interest, residents would likely engage in active travel behaviours more often.





City of Guelph, Statistics Canada, Wellington-Dufferin-Guelph Public Health, Ontario Ministry of Natural Resources and Forestry Roadnet-Element.

Intersection density can be used to describe the connectivity of neighborhoods. This indicator is derived from the number of intersections that connect streets in three or more directions, excluding cul-de sacs, dead-end streets, and crescents that do not provide connections to the broad transportation network.

What it tells us:

Intersection density varied across the city. The average intersection density for Guelph was 0.22 intersections/ha. Neighbourhoods in the Older Built-up area showed the greatest intersection density at 0.55 intersections/ha which was nearly double the measure in other areas. The lowest intersection density was measured in the South area at 0.12 intersections/ha.



Making connections: 📋 🚱 🤐

Measures of intersection density can describe neighbourhood connectivity. The greatest intersection density was in the Older Built-up area where 84% of residents perceived their neighbourhood as connected. The second greatest measure of intersection density was in the North-East area where half of residents reported that their neighborhood was connected. Guelph may benefit from enhancing connectivity through pedestrian sidewalks, cycling lanes, and seamlessly connected trails networks to further promote active living, reduce vehicular modes of travel, and encourage economic development across the city.





CAN-ALE Geo-Social Determinants of Health Research Group McGill University, Town of Orangeville, Statistics Canada, Wellington Dufferin Guelph Public Health.

The CAN-ALE Index measures how active travel-friendly an area is. It is comprised of three components: dwelling density, number of connected intersections, and number of destinations (e.g. shopping, libraries, parks, and other points of interest).⁶

What it tells us:

Guelph's overall CAN-ALE Index score of 0.07 indicates that the city is slightly more walkable than similar sized communities. Each assessment area had some measures of above average walkability but the Older Built-up area measured as the most walkable area and was the only assessment area with an overall positive CAN-ALE score (1.83). The highest Dissemination Area score indicated an area in the Older Built-up area that was nearly five times more walkable than similar sized towns. The South, South-Central, North-East, and North-West measured below average for walkability scores and the least walkable areas were located at the edges of the city.



Making connections: 📋 🚱 些

CAN-ALE tends to best capture active transportation potential for community life destinations such as shopping and daily life activities. Generally, higher population density, shorter and connected street blocks, and a variety of things to see and do result in more walkable neighborhoods with higher CAN-ALE scores. The CAN-ALE Index was highest in the downtown area of the city which aligned with the NDS findings that 94% of residents from the Older Built-up area felt that they could actively travel to amenities in their neighbourhood. However, a range of 77% - 93% of residents from the other assessment areas also perceived they could walk, bike, or roll to some or many locations in their neighbourhood and over half reported actively travelling to those locations. This suggests that active transportation in Guelph may be driven by the easy access and proximity to locations of interest for residents. For example, the NDS identified that residents felt that it was important to be able to access outdoor recreation destinations by active modes of travel, but these factors are not well capture by CAN-ALE.

Considerations:

The CAN-ALE Index does not account for recreational walking opportunities, nor the presence of sidewalks and paths. Raw CAN-ALE scores were used to create a walkability index based on other Ontario communities that had similar populations between 80,000 and 140,000 residents.

Transportation Networks

Vision

Safe and accessible transportation systems that incorporate a diversity of transportation modes and place priority on active transportion over the use of private vehicles.¹





Active Travel-Friendly Neighbourhoods

Communities that prioritize active transportation are designed to offer street connectivity, continuous sidewalks, bike lanes, and proximity and connection to trails and greenspace.¹ Active transportation networks promote universal active living, create safe and equitable access to amenities for residents of all ages and abilities, as well as provide environmental benefits through reduced vehicular emissions.¹



Key Findings

- The most active travel-friendly areas according to Guelph residents were the Older Built-up and North-West areas, while the least active travel-friendly area was the South.
- Many Guelph residents felt it was important to be able to travel actively to outdoor recreation destinations including parks/greenspace, trails, and for exercise.
- Less than half of residents in the Older Built-up area and only 13% of residents in the North-East were within 800m to a supermarket.
- Over 90% of dwellings across all study areas were within 800m of a bus stop and an average of 93% of all dwellings were located within 800m of a park.

Active Travel Behaviour (and On-road Safety)

Various factors influence a person's decision about how to travel in their neighbourhood including perceived and real safety, fear of crime and violence, traffic speeds, traffic volume, presence of sidewalks, lighting, cycling lanes, and accessibility of amenities.⁷

Key Findings

- The sidewalk to road ratio in Guelph indicated most roads had a sidewalk on one side of the road.
- The majority of residents in all assessment areas reported actively travelling to at least twothirds of the destinations they felt they could access by active transportation.



Most reported active travel-friendly locations across all Guelph assessment areas:



NDS question:

Residents completing the NDS were asked to think about their neighbourhood and select, from a list of 13 locations, those that could be accessed by walking, biking, and/or rolling. Locations included: a park or greenspace, a school, a grocery store, a farmers market, a community garden, a bus stop, a trail, local stores or shops, work, a health care provider, a community centre, family or friends, and to exercise.

What did residents say?

The majority of Guelph residents felt they could travel actively to at least five of the 13 locations. Specifically, 94% of Older Built-up residents, 93% of North-West, 90% of South-Central, 85% of North-East, and 77% of South residents felt they could travel actively to five or more locations.

The locations most frequently selected by residents in each assessment area were: a bus stop (83%) to 96% of residents) and a park or greenspace (82% to 96% of residents).

Making connections: (A)

Residents' perceptions on whether they could walk, bike, or roll to common destinations conveniently and safely likely influenced their decisions to do so. Closeness to active transportation networks including walkways, sidewalks, trails, and bicycle paths as well as the proximity of daily amenities may have contributed to residents' perceptions. Physical design indicators can help further explain such contributing factors in the built design that support residents' abilities to travel actively.





City of Guelph, Statistics Canada, Wellington-Dufferin-Guelph Public Health, Ontario Ministry of Natural Resources and Forestry.

This indicator identified the proportion of residential dwellings in the Guelph assessment areas that were located within 800m (measured by Manhattan distance) of a supermarket (i.e. locations classified as such in the Public Health HedgeHog Inspection database).

What it tells us:

Three out of five dwellings within Guelph were located within 800m of a school. The assessment area that showed the greatest percentage of dwellings within 800m of a school was the Older Built-up area (78%) and the lowest percentage was in the South-Central area (46%).



Making connections: 🟫



The NDS found that 61% of all Guelph residents felt they could actively travel to a grocery store, which was higher than would be expected based on the physical design indicators. For example, 75% of North-West residents felt they were within a 10 minute walk of a supermarket but the physical indicator showed that only 19% of dwellings were located within 800m. Further exploration of related community design indicators or resident perceptions of what defines a supermarket, may be useful in explaining this discrepancy.



City of Guelph, Statistics Canada, Wellington-Dufferin-Guelph Public Health, Ontario Ministry of Natural Resources and Forestry.

The indicator identified the proportion of residential dwellings that were within 800m (measured by Manhattan distance) of a school.

What it tells us:

Three out of five dwellings within Guelph were located within 800m of a school. The assessment area that showed the greatest percentage of dwellings within 800m of a school was the Older Built-up area (78%) and the lowest percentage was in the South-Central area (46%).



Making connections: A



Interestingly, resident perception data indicated that 85% of all Guelph residents felt they could walk, bike or roll to a school with the highest perceptions from North-West residents and the lowest perceptions from South residents (see Appendix). Further exploration of related community design indicators and considerations of child walking behaviours may help in understanding this indicator.

Considerations:

School bussing policies in the region require that students walk to school beyond the 800m distance that was used in this indicator. The travel distance for students to be eligible for bus transportation is 1.6 km (for children ages 4-11), 3.2 km (for children ages 12-14) and 3.5 km for children 14 and older.8



City of Guelph, Statistics Canada, Wellington-Dufferin-Guelph Public Health, Ontario Ministry of Natural Resources and Forestry.

The indicator identified the percentage of residential dwellings within each assessment area located within 800m (measured by Manhattan distance) of a park.

What it tells us:

Overall, 93% of dwellings in Guelph were located within 800m of a park. Measures were highest in the Older Built-up area with 99% of dwellings within 800m of a park and lowest in the South-Central area with 89% of dwellings within 800m to a park.



Making connections: 🕋



The Older Built-up assessment area measured the highest in dwelling density compared to the other assessment areas and had the highest percentage of dwellings within proximity to parks or greenspace. Similarly, the area with the lowest dwelling density (South) had the lowest measure of dwellings within 800m to parks or greenspace. Resident perception data correlated with this physical design indicator as 93% of all Guelph residents felt they could actively travel to a park or greenspace.

Active Travel-Friendly Neighbourhoods Indicator: Percent of dwellings within 800m distance to a transit stop





Data description:

City of Guelph, Wellington-Dufferin-Guelph Public Health.

The indicator identified the percentage of residential dwellings that were within 800m (measured by Manhattan distance) to a bus stop.

What it tells us:

Guelph had 28 bus routes across the city with a total of 604 bus stops. On average, 96% of all dwellings in Guelph were within 800m of a bus stop with highest measures identified in the Older Built-up area (100%) and the lowest measures found in South-Central (91%).

Making connections: 🗰 🌍 🤐

The transit network extended across the majority of the city, especially the areas of higher dwelling density. This enhances access to transit for residents, contributes towards a well-connected transportation network and supports active travel among residents. Resident perception data aligned with these findings as 93% of residents felt they were within a ten minute walk of a bus stop.





City of Guelph, Wellington-Dufferin-Guelph Public Health.

The sidewalk to road ratio was used to measure the amount of roads with sidewalks on one or both sides of the street. It was calculated by dividing the length of sidewalks located in a Dissemination Area (DA) by the length of roads within the DA. For example, a measure of 2.0 would represent a road as having sidewalks on both sides, 1.0 for a sidewalk on one side of the road, and 0.0 for no sidewalks.

What it tells us:

Guelph had an overall sidewalk to road ratio of 1.20, indicating that there was most often sidewalks on one side of the road. The highest ratio of sidewalks to roads was found in the North-East at 1.55, closely followed by the Older Built-up area at 1.47. The lowest sidewalk to road ratio was observed in the South area at 0.84.



Making connections: 🕋 🌍 🤐

This indicator found some trends of higher sidewalk to road ratios in areas with higher dwelling density, but there were also areas that lacked sidewalks on both sides of the road. However, 59% to 72% of residents across the various assessment areas reported traveling actively to locations they felt could be accessed through active modes of travel. This suggests that residents may be using other types of active transportation networks in addition to sidewalks, such as trails or bike lanes.

Considerations:

Sidewalks are often non-continuous which presents a challenge to link directly with roads and creates difficulty in quantifying this type of relationship.



Percentage of residents who walked, biked, or rolled to at least two-thirds of the locations they reported as active travel-friendly:



NDS question:

For the locations residents indicated in a previous question that they could actively travel to, residents were subsequently asked whether they actually did walk, bike, or roll to those places in the past three months.

What did residents say?

The majority of Guelph residents reported travelling actively to at least two-thirds of the locations they reported they could travel actively to. Such travel was reported most often by residents in the Older Built-up area (72% of residents), followed by South Central (68%), North-East (66%), South (66%), and reported the least by North-West residents (59%). Refer to the Appendix for a detailed list of reported active travel to specific locations.

Making connections: 🔬 🌍 🥗

The NDS found that 94% of Older Built-up residents felt they could travel actively to at least five of thirteen common destinations so it is not surprising that residents from this area reported high active travel behaviours. In contrast, 93% of North-West residents reported the perception of being able to travel actively to some or many locations, but the active travel behaviours reported by North-West residents was only 59%. Physical design indicators such as the presence of active transportation networks, as well as the proximity to amenities and destinations, may help explain contributing factors in the built design that support residents' abilities to travel actively in different parts of the city.





66% (all Guelph): Outdoor recreation destinations



39% (South-Central) | 50-56% (other areas): Community Life Destinations



41% (all Guelph): Commuting Destinations

NDS question:

The NDS asked residents to imagine moving to a different neighbourhood and to indicate the importance of being able to walk, bike, or roll to a list of 13 different destinations.

For analysis, locations were categorized into three general destination categories: 1) community life destinations included grocery store, farmers markets, community garden, local stores/shops, health care provider, community centre, family/friends; 2) outdoor recreation destinations included park/ greenspace, trail, and exercise; and 3) commuting destinations included school, bus stop, and work.

What did residents say?

Where residents lived	Community Life Destinations	Outdoor Recreation Destinations	Commuting Destinations
North-East	50%	66% of all Guelph	41% of all Guelph
North-West	53%		
Older Built-up Area	56%		
South	54%		
South-Central	39%		

Making connections:

Knowing the types of locations that residents like to travel actively to could be useful for prioritizing mixed-use and connectivity throughout the community. Aligning community design with residents' interests would also encourage active transportation since most residents reported actively travelling to locations they felt they could reach by walking, biking, or rolling.

Natural Environments

Vision

A built environment where natural environments are protected. Natural elements are incorporated and are experienced by/accessible to all.¹



The development of communities that integrate and connect to natural heritage spaces and greenspaces can be beneficial for the health and well-being of the population while sustaining a healthy environment.¹

63

Buildings, shade, greenspace, and parks and playgrounds that are plentiful and appealing, support activity-friendly environments for residents of all ages and abilities.¹

Greenspace

Designing neighbourhoods that are connected closely to recreational parks and open greenspace provides easy access for residents to engage in various ways with the natural environment. This has been shown to have a positive impact on physical activity levels, mental health, and overall well-being.¹ In addition, regular maintenance and snow removal on trails and pathways allows residents to enjoy the benefits from natural parks and greenspace throughout the year.

Key Findings

- The majority of Guelph residents felt shops and cafes, bus stops, and bike lanes, paths, and routes were important neighbourhood features.
- Measures of park area were highest in the Older Built-up area at 7.9% of total area and the lowest in the South area at only 1.8% of total area.

Green Infrastructure

The benefits of nature are not limited to access to natural parks and open greenspace. The incorporation of natural landscapes, such as street trees, can offer many benefits including improved air quality, reduced storm water runoff, and decreased impervious surface cover which minimizes extreme weather events.¹ Furthermore, a tree canopy can provide shade, thereby offering UV protection as well as an aesthetic appeal that can encourage residents' engagement in outdoor physical activity.

Key Findings

- The majority of Guelph residents felt that active and natural features such as street trees, nearby trails and nearby natural features were important.
- The number of street trees per km of road in Guelph was 21.7 trees/km, with the highest measure in the North-East area and the lowest measure in the South area.



Percentage of Guelph residents who felt each identified feature was important in their neighbourhood:



NDS question:

Residents were presented with a list of six features and asked to report on whether they felt the identified feature was important to have if they were moving to a different neighbourhood. Features included: street trees; nearby trails; bus stops; bike lanes, paths, routes; nearby natural features; and neighbourhood shops/cafes.

	Street Trees	Nearby Trails	Nearby Natural Features	Neighbourhood Shops/Cafes	Bus Stops	Bike Lanes, Paths, Routes	
Where residents lived		Percentage	e of resident	s who felt each feat	ure was imp	oortant	
North-East	78%	64%	67%	65% of all Guelph residents	56% of all Guelph	53% of all Guelph	
North-West	68%	53%	63%	resid	residents resid	residents	residents
Older Built-up Area	84%	67%	79%				
South	72%	69%	74%				
South-Central	73%	61%	69%				

What did residents say?



Making connections: 🕋 🗭



The frequency of residents selecting street trees, nearby trails, and nearby natural features as important to a neighbourhood varied across the assessment areas. There were no significant differences between residents' responses related to the selection of neighbourhood shops and cafes, bus stops, and bike lanes, paths, and routes. These findings aligned with residents' preferences for mixed-use and connected neighbourhood designs as well as interest in using various modes of active transportation. The importance of natural environment features further corresponds to the NDS finding that 66% of all residents felt it was important to be able to travel actively to outdoor recreation destinations such as park/greenspace, trails, and for exercise.





Area	% Area is Park
North-East	7.6%
North-West	3.7%
Older Built-up	7.9%
South	1.8%
South-Central	4.3%

City of Guelph, Statistics Canada, Wellington-Dufferin-Guelph Public Health, Ontario Ministry of Natural Resources and Forestry.

The percentage of parks (trails excluded) was calculated by measuring the number of hectares of park in the assessment area divided by the overall area of that assessment area.

What it tells us:

The overall percentage of park area in Guelph was 5%. Measures of park space were highest in the Older Built-up area at 8% of total area, and the lowest proportion of park space was measured in the South area at 2%.

Making connections: 🟫



The South area measured the lowest on park area, however, this indicator may change over time as this area contains a large amount of greenfield lands. The North-West measured second least in park area which reflects the mixed-use design and the large amount of industrial land use in this assessment area.





City of Guelph, Statistics Canada, Wellington-Dufferin-Guelph Public Health, Ontario Ministry of Natural Resources and Forestry Roadnet-Element.

This indicator was calculated as the number of street trees owned and maintained by the City of Guelph per kilometer of road.

What it tells us:

The average number of street trees per km of road in Guelph was 21.7 trees/km, with the highest measure in the North-East area (41.5 trees/km road) compared to the South area (9.3 trees/km of road).



Making connections:

Street trees were identified in the NDS as being an important neighbourhood feature by residents



in all assessment areas. The maturation of existing trees will offer both environmental and health benefits to the community. Such information may be useful for promoting additional tree coverage throughout the city.

Considerations:

There was no associated data related to tree canopy or crown diameter so it was not possible to determine the current condition, age, or size of street trees in Guelph. There were also significant tree losses due to the recent emerald ash borer infestation that could have affected different parts of the city.

Food Systems

Vision

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A built environment that can support access to, and availability of, healthy foods for all.¹

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Designing communities that allow for all residents to have equal opportunity to access affordable, safe, nutritious, and culturally appropriate foods, reduces health inequities and supports positive health and well-being of the whole population.¹ Protection of agricultural lands and supporting community food programs, farmer's markets, and community gardens can make healthy foods more accessible.



Furthermore, the connection to healthy food retail outlets by use of pathways and trails increases the accessibility to food sources for all residents while also encouraging active transportation.

Access to Healthy Food Options

The Modified Retail Food Environment Index (mRFEI) is commonly used to measure community access to food sources. Specifically, it identifies access to healthy food options and areas that may have an overabundance of less healthy food options.⁹

Food sources are classified as healthy or less healthy according to a definition from the US Centers for Disease Control (CDC). According to this definition healthy food sources include supermarkets, fruit stands, farmers markets, and butchers/seafood.⁹

The healthy food outlets are then calculated into a proportion of all food sources to result in a score between 0-100. Higher scores indicate a greater prevalence of healthy food options in the area and a score of 0 indicates that there are no healthy food sources available.

Key Findings:

- The Older Built-Up area appeared to have the greatest accessibility to healthy food options.
- The North-East area had the lowest mRFEI score, indicating that healthy food sources were not as readily available.



Wellington-Dufferin-Guelph Public Health, Statistics Canada.

The mRFEI was calculated by placing one kilometer buffers around centre points of Dissemination Blocks (DB), which are smaller and fully contained by a Dissemination Area (DA). The buffers were then used to identify all food sources that are available to residents within a DA.

What it tells us:

The average mRFEI score for the City of Guelph was 9.6. The Older Built-up area had the greatest accessibility to healthy food options with an mRFEI score of 13.4. The lowest measure, indicating that healthy food sources were not as readily available, was in the North-East with a score of 4.2.



Making connections: 🔬 🛱

Some areas may have appeared to have lower mRFEI scores but were actually in close proximity to healthy food options. This was likely the result of a grocery store being surrounded by fast food outlets, variety stores, or restaurants, which reduced the mRFEI score. The percentage of dwellings located within 800m of a supermarket provides a better indication of whether healthy food options are available for residents. The Older Built-up area showed 42% of dwellings within 800m of a supermarket and only 13% of dwellings in the North-East within the same proximity. Further exploration may be necessary to fully understand the accessibility of healthy food for Guelph residents.

Considerations:

The mRFEI only indicates that healthy options are available and that the same location may also offer unhealthy options. Also, areas that contain few to no food sources altogether can influence mRFEI scores to appear higher or lower than reality. Furthermore, since the mRFEI is calculated for specific locations at the DA level, caution should be used interpreting the results at the assessment area level.

1. Share findings from the Baseline Indicators Project

Sharing the key findings with the City of Guelph council may help inform local decision makers of the status of local healthy community design and strengthen efforts towards improving aspects of healthy community design.

2. Use baseline indicators for related community projects

The collection of healthy community design baseline indicator data is unique. The applicability and transferability of this data to existing and future community planning efforts would be beneficial for evaluating sustainability actions and strategies.

3. Use the findings to support policy planning

Application of data from the Baseline Indicators report should be used by committees and stakeholders to support advocacy efforts, strategic planning, funding requests, or updates to related land-use and policy planning documents.

4. Share key findings with public

The report should be made available for public review on WDGPH and City of Guelph websites. Key findings and educational information could also be shared through social media and/or community events, as appropriate.

5. Partner on planning

WDGPH is currently on circulation lists for review of development applications within the City of Guelph. Expansion of this partnership to include WDGPH in reviews of other policy documents and plans would allow Public Health to highlight areas for consideration that align with best practices and the healthy community design baseline indicators in Guelph.

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Supplemental Resources

- Guelph Neighbourhood Design Survey: Appendix
- Physical-form Indicators Maps: Data Methodology