OUR CITY

A Peg Report on the Natural and Built Environment
On behalf of the International Institute for Sustainable Development (IISD) and United Way Winnipeg, we are proud to present the third annual Peg report on well-being in Winnipeg, highlighting indicators related to our natural and built environment.

Each year, Peg produces a report for Winnipeggers focusing on indicators related to our well-being. It is like a report card that points our attention to the places where we as a city are improving, and where we have more collective work to do.

This year’s report focuses on Winnipeg’s natural and built environment. It paints a picture of the many ways that factors such as the homes we live in and the quality of our air and water are related to our physical, mental, and social health and well-being.

The report is intended to add to important conversations that are already underway in our community about how we can improve conditions and make Winnipeg a healthier and more sustainable place to live for all. This conversation will inform and inspire collaboration among individuals, leaders and policy-makers in our city who are working hard to address our greatest challenges.

It is our hope that this report will encourage us, as a community, to both celebrate our successes, and to rally and work together to make a difference where change is needed.

The following report outlines how we are doing on 13 indicators related to the natural and built environment. This table provides an overview of the information to follow.

Comparing the earliest data in Peg with the most recent data available, the third column answers the question, “Is our city’s well-being improving in this area?”

The City of Winnipeg is pleased to partner with Peg to measure how we are doing as a city and work toward inspiring change and moving the needle on important issues.

Peg is an important piece of community infrastructure that tracks indicators affecting our quality of life as Winnipeggers. Providing clear, measurable data on important issues allows us to identify areas where we are making progress as well as areas where we need to work differently.

Our environment continues to be the foundation for our economic and social health. At a municipal level, we make decisions that directly impact the quality of the environment. Today, Winnipeg is a growing, thriving city, and over the next 20 years we are on track to grow to one million people strong. As our city grows, we cannot forget about the important potential and responsibility we have to monitor the impact a growing city can have on the environment, and to find ways to protect and enhance the health of the environment.

Peg’s third annual well-being report helps us do just that. It highlights 13 indicators of our natural and built environment. It explores how our infrastructure impacts our physical, social, and mental health, and how we as citizens are impacting the environment around us.

As Winnipeggers, we have a lot to be proud of in terms of our city, and as our city grows there are also opportunities for improvement. Together we can work to ensure that we are building a safe, healthy, and sustainable city — not just for our families, neighbours, and fellow citizens today, but also for all future generations to enjoy.

Mayor Brian Bowman
City of Winnipeg

### How Are We Doing? At a glance

The following report outlines how we are doing on 13 indicators related to the natural and built environment. This table provides an overview of the information to follow. Comparing the earliest data in Peg with the most recent data available, the third column answers the question, “Is our city’s well-being improving in this area?”

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<thead>
<tr>
<th>SECTION</th>
<th>PEG INDICATOR</th>
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<tr>
<td></td>
<td>Air Quality: Ozone: Scotia Street (Residential)</td>
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<td>Core Housing Need</td>
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<td>Total Residential Waste and Waste Diversion</td>
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<td></td>
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<td>Environment’s Impact on People</td>
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<td></td>
<td>Collision Victims</td>
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<tr>
<td></td>
<td>Perception of Safety</td>
<td>NO CHANGE</td>
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</tbody>
</table>

**LEGEND**

- ✓ Improving
- ✗ Worsening
- NO CHANGE

**Note:** The standard threshold used is 3 percentage points. Where an indicator value has changed by less than the threshold of 3 percentage points, the trend is set at No Change. The choice of 3 percentage points as the threshold is subjective.
The United Nations Sustainable Development Goals perceive sustainable communities as inclusive, safe, and resilient. Sustainable communities are places that have well-functioning social, economic, and environmental realms that enhance and strengthen the community in a holistic manner. While Winnipeg’s natural and built environment indicators lie within the environment realm, they overlap with and influence both the economy and society. Our ability to work, live, play, and care for one another is what makes a city a great place to live.

Cities are also incredibly complex. Just as the environment, economy, and society interconnect and impact one another, so too do the varied and diverse elements that make up a city, such as, buildings, roads, parks, rivers, utilities, and services. A change in one factor can directly or indirectly impact another, either positively or negatively. For example, decisions related to dwelling density can influence choices regarding the development of transportation infrastructure, which connects to greenhouse gas emission levels, which in turn impacts our air quality.

This third edition of Our City, a Peg Report, looks at the relationship between people and their natural and built environment to see how well our city is built for the people who live here, and how we affect the environment around us. The state of our environment has a profound impact on our health, well-being, and ability to prosper. We, in turn, also have a profound impact on our surrounding environment through our daily actions—how we travel to and from work and school, how much water and energy we use, and how much waste we produce. The indicators in this report were chosen based on three perspectives: the state of the natural and built environment around us, how we impact our environment, and how our environment impacts us.

Each indicator in this report includes a definition, an explanation of why the information is important, and a description of current trends in the city. An explanation of the data is given to show how we are doing, accompanied by a graph. We have also included comparisons to other Canadian cities or national data (where comparisons are available) and a link to Peg videos where Winnipeggers tell their stories behind the data.

The data in this report, as well as in Peg, is organized around Winnipeg’s 12 community areas and the 25 neighbourhood clusters within them. These boundaries are used by the City of Winnipeg, Province of Manitoba, and the Winnipeg Regional Health Authority.
WHY THIS MATTERS
Exposure to ground-level ozone and particulate matter can increase the risk of lung disease and other related health issues, especially for people with pre-existing conditions. Both of these elements of air quality are included in the federal government’s Air Quality Health Index (AQHI)—a measuring system that tells people when they should adjust their activity levels to reduce short-term exposure to harmful air pollutant concentrations (Environment and Climate Change Canada, 2016). Poor air quality can also negatively affect one’s health, increasing the risk of lung disease and other health issues, especially for those with pre-existing conditions. Additionally, these pollutants are included in the AQHI.

Air quality is the amount of pollution in the air around us, as determined by measuring the level of two common outdoor air pollutants, ground-level ozone (O₃) and particulate matter (PM₂.₅). The levels are measured at two Winnipeg locations representing the downtown area (Ellen Street) and residential areas (Scotia Street).

In 2016, there were 50.7 parts per billion of ground-level ozone at the downtown Ellen Street location and 45.9 parts per billion on Scotia Street. Between 2004 and 2016, the amount of ground-level ozone has increased in both the residential and downtown locations but continues to remain below (i.e., better than) the Canadian Air Quality Standards (CAAQS) recommendations of 63 parts per billion. Between 2013 and 2015, particulate matter has remained relatively constant in both locations (18.1 micrograms per m³ downtown; 20.3 micrograms per m³ residential) and well below the 28 micrograms per m³ standard.

* Further detail on this and all other indicators in this report found at www.mypeg.ca

For a map showing Winnipeg’s 12 community areas, see page 4.

Videos
Please visit www.youtube.com/mypegCIS for stories related to Peg indicators.
WATER QUALITY

While water quality is an important indicator of the state of the environment, there are many components of water quality, and different criteria they can be compared against. The Province of Manitoba uses the Canadian Council of Ministers of the Environment Water Quality Index as one tool to assess water quality and its suitability for various uses, such as a source of drinking water, recreation, irrigation, and protection of aquatic life. Manitoba Sustainable Development and its partners collect water samples from a network of stations across the province, including several around the City of Winnipeg. Winnipeg falls within the Prairie Ecozone, which in 2014 had a water quality index of 70 ("fair" quality), meaning "water quality is usually protected but occasionally threatened or impaired; conditions sometimes depart from natural or desirable levels" (Manitoba Conservation and Water Stewardship Annual Report, 2015–2016). Since 1992, water quality in the Prairie Ecozone has ranged between "fair" to "good" with some fluctuation. This means that overall there is a minor to occasional degree of threat or impairment, and conditions rarely to sometimes depart from natural or desirable levels.

WHY THIS MATTERS

Water is an important natural resource and greatly affects our way of life. Cities impact water systems through industrial waste pollution, aging sanitation, grey water, and storm runoff infrastructure, among others. Clean waterways provide Winnipeg with a healthier natural environment as well as safer places for water use and recreation, both within Winnipeg and downstream.

PARKS AND OPEN SPACES

Parks and open spaces measures the amount of land used for these purposes within the city boundaries. There is an average of 4.5 hectares per capita of parks and open spaces for Winnipeggers to enjoy across the city. These spaces are most abundant in Assiniboine South, where Assiniboine Park and Assiniboine Forest are located, and least abundant in the downtown core. Communities with more parks and open spaces than the city average include Fort Garry, St. Vital, and Transcona.

WHY THIS MATTERS

Parks and open spaces include aspects of both the natural and built environments. They provide us with spaces for recreation and physical activity, social interaction, and enhance the beauty of our surroundings, helping us to connect with nature while improving emotional well-being. They can also help support wildlife and plant species that are important to the surrounding ecosystem.
Dwelling density measures how many dwellings there are per square kilometre (km²). Across Winnipeg, dwelling density increased by 6 per cent between 2001 and 2011. Dwelling density is currently at 566 dwellings per km² for the city as a whole. At the community level, dwelling density has increased the most in Seven Oaks and St. Boniface and has decreased in the River Heights, Inkster, and Downtown community areas (which encompasses an area stretching from The Forks to Polo Park; see map on page 4).

Winnipeg’s dwelling density is typical of many Canadian cities, with a dense urban core and low density in the outlying suburban areas. The following map provides a visual representation of Winnipeg’s density by neighbourhood clusters. River Heights East is the densest part of the city, with 3,699 dwellings per km², followed by Downtown East, with 3,609 dwellings per km². In contrast, St. Boniface East is the least populated area of the city with only 605 dwellings per km². Winnipeg’s density is highest in the centre and centre-west of the city with pockets of higher density in the east and north-east (St. Vital North, River East South, and River East West).

**Why this matters**

Building density is unusual because a rate that is too high or too low can have a negative impact. A high degree of urban sprawl requires local resources to be allocated to building and maintaining infrastructure such as water, sewage, electricity, roads, public transit, and schools. Alternatively, higher population densities mean a larger burden on infrastructure and higher pollutant levels in these areas. Additionally, the design of the built environment has a major impact on how we live—how we get around, how we spend our time, and how we spend our money.
Core housing need measures the percentage of households for whom housing: i) costs more than 30 per cent of their income, ii) requires major repairs, or iii) is too small for the number of occupants, and cannot afford to pay the median cost of rent for housing that would meet these standards. This indicator does not include individuals or families who fall within the homelessness spectrum.

Between 1991 and 2011, the percentage of people living in core housing need in the Winnipeg Census Metropolitan Area (CMA), dropped from about 15 per cent to 10 per cent. The majority of this decrease happened between 1996 and 2001, with only very small decreases since then. Since 1996, Winnipeg has had a smaller proportion of people in core housing need than the Canadian average. In 2011, this rate was comparable to Calgary (10 per cent) and lower than Ottawa and Edmonton (11 per cent).

Of the 10 per cent of Winnipeggers living in core housing need in 2011, 18 per cent were below the affordability standard, 9 per cent were below the adequacy (repair) standard, 7 per cent were below the suitability (crowding) standard, and 30 per cent fell into one or more of these categories. Compared to Canada, more Winnipeggers can afford their homes, but a higher percentage of people live in crowded homes and homes needing major repairs.

Core housing need speaks to the importance of having adequate, affordable housing with sufficient space. When any or all of the above criteria for standard living conditions are not met, households have more stress placed on their resources and health.
People’s Impact on the Environment


Waste and Waste Diversion measures the amount of residential waste that goes to the landfill each year on a per capita basis and the amount of waste that is diverted through recycling (and other) programs.

Per capita, the amount of residential waste (combining both waste sent to the landfill and waste diverted through recycling and compostable yard waste programs) reached a peak in 2005 and has been dropping slowly ever since. The amount of waste going to the landfill has decreased from 322 kg in 1997 to 248 kg in 2015. Winnipeggers have more than tripled the amount of waste diverted through recycling in that same period. While the yard waste diversion program is still considerably smaller than recycling, it too has increased significantly, now diverting 46 kg per capita of compostable yard waste away from the landfill.

It is also important to note that the collective amount of residential waste, combining both waste sent to the landfill and waste diverted through recycling and compostable yard waste programs, has seen an overall increase since 1997, despite a downward trend since 2005.

The waste we generate has a lasting effect on the natural environment. Plastics and other hazardous household wastes can take generations to decompose and can leach harmful chemicals into the soil, water, and air. In some cases, significant resources are also used to create this waste (e.g., to create packaging materials and disposable products) and in other cases perishable products such as food are thrown away. Waste diversion helps to reduce the amount of primary resources being used by keeping the same materials within the supply chain and out of the landfill.
WHY THIS MATTERS

Greenhouse gas emissions are a major contributor to climate change. Growing concentrations in the atmosphere are resulting in an increase in the global average temperature, which directly affects climate patterns, ultimately affecting the health and well-being of ecosystems and societies.

Climate projections for Winnipeg based on a business-as-usual scenario* suggest that spring precipitation will increase from a current average of 117 mm to 128 mm by 2030. This may mean more severe spring flooding and a greater burden on infrastructure. Temperatures will also rise, increasing the average number of days above 30°C from 11 to 15 days by 2030 and to 35 days by the 2060s. This can have a large impact on health, especially for seniors and people with health conditions.

* The business-as-usual scenario assumes that we continue to emit very large amounts of greenhouse gas emissions into the atmosphere (Source: Prairie Climate Centre, Climate Atlas).

WATER USE

Water use is the average amount of water used per person per day. The amount of water used on a per person basis has seen a continual downward trend, decreasing from 349 litres per capita per day (L/c/d) in 1995 to 234 L/c/d in 2015, a drop of close to 50 per cent. Looking at the total amount of water consumed by, or billed to, Winnipeggers per day, we also see a downward trend over time. This means that we have individually reduced our consumption faster than the population has increased. In looking at the total amount of water used in Winnipeg, we are able to provide a better idea of the city’s overall impact on our water source. Here, too, we see a constant decrease between 1995 and 2015 on both a per person and total basis. Winnipeg has been gradually reducing the amount of water it draws from Shoal Lake from 414 million litres per day (L/day) in 1995 to 271 million L/day in 2015.

GREENHOUSE GAS EMISSIONS

Greenhouse gas emissions measures the City of Winnipeg greenhouse gases, or carbon dioxide-equivalent emissions (CO₂e), released into the atmosphere. This number tells us how much CO₂e is being emitted by Winnipeggers. In 2011, Winnipeggers emitted 5,379,024 tonnes of total CO₂e from building electricity and natural gas, vehicles, transit, water and wastewater, and through waste disposal. The largest emitters of CO₂e were residential and commercial vehicles combined, contributing 3.86 tonnes of CO₂e per person, natural gas use for buildings contributing 2.60 tonnes of CO₂e per person and waste disposal, contributing 1.15 tonnes of CO₂e per person.

At 7.8 tonnes of CO₂e per person per year, Winnipeg has significantly lower greenhouse gas emissions on a per capita basis compared to several other Canadian cities. Ottawa emits 9.5 tonnes of CO₂e per person per year, Edmonton emits 11.8 tonnes of CO₂e per person per year, and Calgary emits 13.5 tonnes of CO₂e per person per year.
Environment’s Impact on People

Our surrounding environment influences how we live. This section shows how Winnipeg’s natural and built environments impact Transportation, Collision Victims, Active Leisure Time, Activity Limitations, and Perception of Safety.

TRANSPORTATION

The transportation indicator shows how people commute to work. It measures the proportion of people age 15 and over who commute by vehicle, either as a driver or passenger, who use public transportation, or who bike or walk to work. In 2011, throughout the city, more than 76 per cent of people commuted to work by vehicle. Meanwhile, 15 per cent took public transit and 8 per cent biked or walked to work. These figures were similar to national figures, where 80 per cent of Canadians commuted to work by vehicle, 12 per cent used public transportation, and 7 per cent biked or walked.

Patterns are similar within most Winnipeg neighbourhoods, however, the highest proportion of people using public transportation live in the Downtown, Point Douglas, and River Heights community areas. Almost half (46 per cent) of all people living in the Downtown area used public or active transportation to get to work. River Heights also reported higher than average levels of active transportation, with 13 per cent of residents walking or biking and 17 per cent taking the bus. In contrast, only 8 per cent of people in Assiniboine South used public transit and 3 per cent in Seven Oaks. In Transcona and Assiniboine South, 4 per cent of people walked or biked to work.

Collision victims reports the number of injuries or fatalities resulting from traffic accidents. Between 2012 and 2015, the number of injuries reported from traffic collisions within the city increased. In 2015, there were 9,107 injuries. The average number of injuries reported from traffic collisions during this time period was 8,462. Deaths from traffic collisions in Winnipeg have decreased over time. Although the number of deaths from traffic collisions can fluctuate from year to year, since 1995, the number of deaths has dropped by almost half. In 2015, there were 13 deaths from traffic collisions, versus 22 in 1995.

WHY THIS MATTERS

Transportation choices are about more than personal preferences. The built environment plays an important part in this decision-making process. Reliable and accessible public transportation, safe bicycle and pedestrian corridors, and road quality are key factors in encouraging people to use alternative modes of transportation on a regular basis. Regular, heavy traffic flow can increase the burden on infrastructure and has negative effects on air quality and the surrounding environment. Public and active transportation help to decongest roads and improve overall health of the population through increased daily physical activity.

WHY THIS MATTERS

The number of injuries and/or fatalities reflects the safety of road infrastructure and factors like the design of the built environment, car safety features, and driver behaviour. Driver education, school zone speed bylaws, as well as maintained and snow-cleared streets can also help to improve safety behind the wheel.
Active leisure time refers to the percentage of people 12 years and over who spend some of their leisure time being physically active. This indicator does not account for physical activity at work. Since 2003, at least half of all Winnipeggers have been active during their leisure time either often or some of the time. This is similar to the Canadian average. In 2014, 52 per cent of Winnipeggers were active during their leisure time. This was a drop from 61 per cent in 2013, and slightly lower than the Canadian average of 54 per cent.

Activity limitation measures the percentage of Winnipeggers who are sometimes or often limited in their ability to participate in an activity or carry out a daily activity due to inadequate physical or mental support. Between 2003 and 2014, the percentage of people who reported facing such limitations increased. An average of 34 per cent of Winnipeggers reported having activity limitations during this period—3 per cent higher than the Canadian average (31 per cent).

** WHY THIS MATTERS **

Regular physical activity helps to keep us healthy, reduces stress, decreases the risk of chronic diseases, and improves our mood. Our natural and built environments directly influence how often and what types of physical activities we do. Winnipeg’s many parks and trails as well as public recreational facilities provide a variety of options to be active year-round.

** WHY THIS MATTERS **

All Winnipeggers have the right to access services and participate in community and social activities. Common accessibility barriers are architectural or physical in nature, although they may also be technological, organizational, attitudinal, or communication-related. Accessibility is important so that all Winnipeggers can reach their potential.
This report tells a story—the story of a relationship between humans and the natural and built environment and our desire to live in sustainable communities. This relationship is incredibly complex when considering the interconnection between the social, economic and environmental realms and how each interdependent element and indicator impacts another.

The state of our natural and built environment provides the context for this relationship. This report illustrates that some indicators, such as core housing need and dwelling density, are improving. These indicators identify where our collective efforts are making a difference. But there are other aspects of our environment where we need to pay more attention, such as the state of our water quality.

We are increasingly aware of the impact that we have on our natural environment and the role we can play in improving its state. For the most part, our efforts are improving many aspects of the natural environment. We are emitting fewer greenhouse gases, using less water, and diverting more of our waste from the landfill. However, while we are sending less to the landfill, we are throwing more away (i.e., the cumulative total amount of garbage, recycling, and compost is increasing). We have more to do and can strengthen our efforts—but the trends are heading in the right direction.

Also important is the environment’s impact on our lives and well-being. Here, the indicators tell a mixed story. There is no significant change in how much we use public transportation or in our perception of safety. We are experiencing fewer collision fatalities, while more Winnipeggers report activity limitations. The relationship between humans and our environment requires attention, care, and work in order to achieve our goals towards sustainability and well-being. This report affirms where our efforts have made a difference, while identifying where we must do more together.

The relationship between humans and our environment requires attention, care and work in order to achieve our goals towards sustainability and well-being. This report affirms where our efforts have made a difference, while identifying where we must do more together. Our collective attention to our amount of waste, to water quality, and to supports for those with activity limitations will allow us to further the well-being of our city and Winnipeggers overall.

We all aspire to live in sustainable communities—healthy, safe, inclusive, and vibrant places to live, work, and play. Working together to improve the state of our natural and built environment moves us in the right direction and closer to this goal.
Peg is a community indicator system that was developed to inspire action and create change through tracking key measures of well-being. Peg measures the health of our community year-over-year in ways that count. Our mission is to build the knowledge and capacity of Winnipeggers to work together to achieve and sustain the well-being of current and future generations.

For more information:
Peg: [www.mypeg.ca](http://www.mypeg.ca)