OTTAWA NEXT
BEYOND 2036

Draft Final Report
Scenarios, Change Drivers, and Planning Considerations
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Ottawa The Planning Partnership URBAN STRATEGIES INC.

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In December 2016, Ottawa City Council directed staff to undertake a planning study to "…identify trends in housing, employment, and identify opportunities to create complete communities which, together with current Official Plan policies create an affordable and sustainable city beyond 2036…"

The goal of the Ottawa Next: Beyond 2036 study was to identify the forces that will shape Ottawa over the next century to help position the City to build both resiliency and adaptability into the next Official Plan. In order to carry out this goal and to address the high level of uncertainty of the city's long-term future, Ottawa Next: Beyond 2036 was undertaken as a scenario based planning study to:

- identify trends and disruptors that will influence the city beyond the current 20-year planning horizon;

- identify possible future scenarios, which extend beyond the normal planning time-frame and arise from the identified drivers and disrupters; and

- identify planning considerations that will allow the City to create complete communities and be resilient and adaptable to future change.

The scenarios and planning considerations identified in this report will help to inform the setting of priorities within the next Official Plan, and may also frame the updates of the City's other supporting Growth Management documents including the:

- Transportation Master Plan;

- Infrastructure Master Plan;

- Greenspace Master Plan; and the

- Development Charges By-law.

Photo: City of Ottawa

2.0 PREFACE

The City of Ottawa's vision is to become the most liveable mid-sized city in North America over the next century. There is no singular definition of liveability and what one person finds important to liveability may not be shared by others. However, despite the lack of a universal definition, liveability can be described as the many elements that create a quality of life in a given place.

A liveable city or place should be more than just habitable. It should provide safety, quality education, choices in mobility, opportunities to financially support oneself, access to health care, shops, services, public space and natural areas as well as recreational and cultural opportunities. Liveability supports physical and emotional health by creating environments where people can thrive. It should give its citizens the sense of freedom that comes from knowing that each person can pursue their own fulfilment within a supportive, equitable and enriching social environment. Liveability also extends to the security and resiliency of the aforementioned elements to ensure stable and adaptive access that meets shared public need.

A key component to Ottawa's progress towards being the most liveable mid-sized city in North America is the establishment of complete communities. Complete communities are defined as:

"Places such as mixed-use neighbourhoods or other areas within cities, towns, and settlement areas that offer and support opportunities for people of all ages and abilities to conveniently access most of the necessities for daily living, including an appropriate mix of jobs, local stores, and services, a full range of housing, transportation options and public service facilities. Complete communities are age-friendly and may take different shapes and forms appropriate to their contexts."[1]

As part of the Ottawa Next: Beyond 2036 engagement strategy, the City reached out to Ottawa residents via an online questionnaire to ask what liveability meant to them (Annex 1). Of the 302 respondents, the majority felt that liveability means:

- vibrant, safe and inclusive neighbourhoods where everything you need is within walking distance and is accessible to people with reduced mobility, including jobs, services, shopping, schools, greenspace, and recreational opportunities;
- a diversity of housing options that meet the needs of residents;
- affordable, accessible and convenient public transit, safe cycling and walking infrastructure including reduced reliance on the car;
- good-quality job opportunities; and
- a healthy natural environment and lots of greenspace.

Ottawa is well placed to address ongoing and future changes to maintain and expand its current liveability. Ottawa boasts an existing high quality of life supported by its culturally rich and diverse social and built environments, its remarkable natural environment, positive growth patterns, its stable yet increasingly diverse economy, as well as its extensive educational and health systems.

As the Ottawa-Gatineau region grows into the next population tier of global cities (the 2-3 million range), it has the opportunity to build on these attributes by identifying how liveability could be affected by local, national and global influences in the future, and by ensuring that the city is resilient and adaptable to these changes.

3.0 INTRODUCTION

3.1 CONTEXT

Ottawa's population will reach 1 million people in 2019; doubling its population over the past fifty years. However, the Ottawa of today is not just a bigger city. It is a city that in many respects is fundamentally different than it was fifty years ago. Fifty years ago, less than half of women were in the workforce and now over eighty percent work outside the home. Fifty years ago, there were no personal computers, internet, or social media. Fifty years ago, development stopped at the Greenbelt; however, now, major communities exist and grow outside the Greenbelt.

What are the forces that will change Ottawa as it grows from 1 million to 2 million people? What are the major trends that will shape our city? What are the forces that are harder to predict but that will nevertheless push us in new directions (i.e., the 'disruptors')?

3.2 BACKGROUND

In December 2016, Council directed staff to undertake a planning study to "…identify trends in housing, employment, and identify opportunities to create complete communities which, together with current Official Plan policies create an affordable and sustainable city beyond 2036…"

The purpose of the Ottawa Next: Beyond 2036 study was to:

- identify trends and disruptors that will influence the city beyond the current 20-year planning horizon;

- identify possible future scenarios, which extend beyond the normal planning time-frame and arise from the identified drivers and disruptors; and

- identify the key areas of policy or strategic planning that will allow the City to create complete communities and to be innovative, nimble, resilient and adaptable to future change.

Other aspects of the December 2016 motion will be addressed in the context of the Official Plan review.

Ottawa Next: Beyond 2036 will inform the development of the next Official Plan as well as other major planning initiatives including the Transportation Master Plan and the Infrastructure Master Plan. It can also assist other stakeholders and partners , in developing strategic planning instruments that respond to the challenges and opportunities discussed in this report.

3.3 REPORT OUTLINE

The following chapters of the Ottawa Next: Beyond 2036 report encompass the work done to identify the forces that will change the city in the future and what change may mean for Ottawa. They also identify key planning considerations for the upcoming review of the City's growth management plans that will help the cityto adapt to a future of uncertainty in a way that makes Ottawa the most liveable mid-sized city in North America.

Chapter four, *Planning for Liveability in the Future*, outlines the importance of long-range planning and why scenario planning was used in the context of this planning study. Chapter four also includes a discussion on what other mid-sized cities are doing to compete in a global context, particularly the key considerations for Ottawa as it grows.

Chapter five, *Methodology*, outlines the process followed to develop the Ottawa Next: Beyond 2036 study, including an overview of the public engagement strategy employed to ensure a broad cross-section of feedback was obtained from key stakeholders and planning partners.

Chapter six, *Scenarios, Drivers of Change and Planning Considerations*, sets out possible future scenarios, as well as key drivers of change and planning considerations across four fundamental themes. Importantly, this chapter sets out planning considerations to guide the City and other key stakeholders in the development of the Official Plan and other growth management plans to ensure the city is resilient and adaptable to future changes.

4.1 WHY SCENARIO PLANNING?

The aim of the Ottawa Next: Beyond 2036 planning study was to identify and address long-term trends and drivers of change beyond the traditional planning scope and horizon. This type of long-range planning deals in a high degree of uncertainty where it is unknown if the current trends will continue to hold, and where the impacts of change, whether economic, environmental, social or technological, are difficult to understand.

For this reason, a scenario planning approach was used. Scenario planning is a strategic planning tool used to examine different plausible future outcomes. Scenario planning is distinct from forecasting as it is based on uncertainties inherent in long-range planning, including emerging disruptions and drivers of change that are global, national, and local in scale. Forecasting, as an approach to long-range planning, becomes problematic based on the lack of data and the higher risk of disruptions altering the trajectory of current trends.

Scenario planning is also distinct from visioning exercises as it identifies possible futures as opposed to desired futures. In this way, scenario planning presents a more balanced account of the future, and allows the City to consider (and respond to) plausible events that it may or may not wish to see materialize. The scenario planning process is purely descriptive and outlines what the future may hold as well as possible planning considerations. Scenario planning does not recommend specific policies or identify priorities. Priority setting and policy development will take place through the development of the City's corporate and strategic plans.

Scenario	Forecasts	Visions
Possible, plausible futures	Probable futures	Desired future
Uncertainty based	Based on certain relations	Value based
Illustrate risks	Hide risk	Hide risk
Qualitative or quantitative	Quantitative	Usually qualitative
Needed to know what we decide	Needed to dare to decide	Energizing
Rarely used	Daily used	Relatively often used
Strong in medium to long-term perspective and medium to high uncertainties	Strong in short-term perspective and low for degree of uncertainty	Functions as triggers voluntary change

4.2 GLOBAL SETTING

Ottawa is a global mid-sized city, which experiences special advantages that come from being a national capital. In order to position Ottawa as the most liveable mid-sized city, it is instructive to review the strategies employed by other comparable cities around the world to advance economic development, as well as overall quality of life.

The background forces of the urban economy appear to be trending towards agglomeration. Bigger cities are getting ever larger, making the economic role of being a city with a regional population of 2-3 million even more challenging. The key dynamics behind global urban growth also apply to mid-sized cities, whose job it is to remain competitive, distinct and opportunistic, while offering a quality of life and other advantages that larger global cities increasingly struggle to provide. Several key strategies appear to be critical:

- ensuring the presence of core digital and financial services industries that make up the modern city economy;

- enhancing the critical role of airports and other forms of high-speed inter-urban connectivity, particularly to the urban clusters at the top of the economy; and

- the central importance of universities in providing a well-trained workforce and consequently assisting the processes of innovation on which the modern city depends.

Cities are also driven by their sense of place and the tourism and cultural offers that support their unique identities, often allowing mid-sized cities to develop a particular advantage.

Around the world many mid-sized cities are striving to enhance and enrich their advantages with uniquely creative strategies that nonetheless recognize the realities of the wider global economy. The breadth of examples suggest that it may actually be easier for such cities to experiment and innovate as compared to the more unwieldly global metropolis. While no two cities are alike and their political, historic and economic context will be very different, there are nonetheless interesting lessons to be learned.

The first task for a mid-sized city is to attach itself securely to the global economy. Dublin, the capital city of Ireland, has an urban area population of approximately 1.9 million. Through a range of financial incentives and the presence of two well-ranked universities, it has:

- attracted many multi-national companies, notably in digital industries;
- developed Dublin Airport as a major continental entry hub and low-cost airline centre; and
- invested heavily in cultural and tourism destinations and activities.

The city is open to immigration and benefits from distinguishing itself from England, while reaping the benefits of sharing a common language. Ottawa already has a digital industry base and two universities capable of driving the future urban economy; to successfully become the most liveable mid-sized city in North America, both sectors must be advanced. Ottawa also has an opportunity to take advantage of cost and congestion pressures at Toronto Pearson International Airport, building on its already extensive network of air connectivity.

Bordeaux, with a population of 1.2 million, is located approximately 600 kilometres from Paris. The recent introduction of high-speed train service has reduced the trip time from city centre to centre to three hours and has sparked remarkable economic growth in the city. Bordeaux had worked hard, through excellent urban design and place making alongside the introduction of Light Rail Transit (LRT) service to prepare the ground for its revitalization – offering a rich but different lifestyle to that of the capital city of France.

Lyon, the second city of France with a population of 2.3 million, has experienced a similar revival. Supported by high-speed train connectivity with Paris for over two decades, Lyon's pharmaceutical and advanced research activities have prospered in connection to the metropolitan economy. Ottawa should critically assess how to best enhance its linkages to Montréal and Toronto in order to present itself as an attractive alternative to big city locations.

Austin, Texas, with a population of 2.1 million, provides another example of a city taking advantage of being a smaller city in relation to larger metropolitan centres. Located in the middle of a triangle of Dallas/Fort Worth, Houston and San Antonio, Austin has, by virtue of its high-quality university offering and unique life-style and music scene, become one of the most important centres of the innovation economy in the United-States. Austin is one of the fastest growing mid-sized United-States cities, based on its ability to draw in a highly-skilled and university-destined labour force and the presence of a strong entertainment economy for entry-level jobs.

Even among smaller cities, size matters and being bigger is better as it provides a larger market for both social and physical infrastructure. Ottawa should examine how best to proactively accelerate its population growth and attract additional immigration so as to increase its critical urban mass. The role of the universities and hospitals, along with the hospitality and tourism sector, is central to such a strategy, providing the range of employment opportunities for sustainable population growth.

Helsinki, the capital city of Finland, has a metropolitan population of 1.4 million and is a northern city with a climate similar to that of Ottawa. It can provide useful objectives for Ottawa in several respects. It has had a very successful tourism marketing program, particularly aimed at Asian visitation, and has a strong emphasis on local food and product design activity. Helsinki has also been recognized as one of the easiest European cities in which to move around, increasing affordability with well-balanced transit, bike and walking infrastructure while still accommodating automobile use. Helsinki considers itself as a "real-life testbed" for innovative mobility solutions. The transportation authority funds contests to find new mobility initiatives, partners with private companies to pilot mobility services, and provides open data that can be used to develop new mobility apps. Both the City and private companies have been experimenting with 'total mobility' applications, which offer on a subscription basis on-demand use of car share, parking access, transit usage, taxi, and bike share. Ottawa's opening of key LRT routes through the city, and its digital industry capacity, offers a unique opportunity to become a North American leader in developing such mobility packages.

Manchester, the leading city of northern England with a metropolitan population of 2.8 million, has had to work hard to resuscitate itself after a steep industrial decline. It has developed a broad range of economic, cultural and touristic strategies to fuel that recovery. Two might be of particular interest to Ottawa. First, its focus on sports and second its revitalization of previously inaccessible waterfront lands. Manchester is famous for its football teams and the City has been an active partner in assisting their physical expansion. On the Salford riverfront, a formerly inaccessible decaying port area, the city has extended transit and actively attracted major media and performance facilities and businesses to create a powerful new destination place in the urban region. The Ottawa River corridor could benefit from a comparably powerful strategy to create an exciting new presence in the heart of the city.

Many other examples can be drawn from other mid-sized cities as to the ways in which they can both improve their economic standing and provide the quality of life, which remains their key competitive advantage. In chapter six of this report, there are numerous vignettes that illustrate further specific examples from other precedent cities. In short, the aforementioned cities have demonstrated the need for a more entrepreneurial and less risk-adverse management style in order to position themselves to complete globally as mid-sized cities.

Photo: A. MacPherson

5.0 METHODOLOGY

5.1 OTTAWA NEXT: BEYOND 2036 STUDY – PROJECT TIMELINE

Action Item	Date Completed
1. Literature review	October 2017
2. Creation of Sounding Board	October 2017
3. Identification of Change Drivers	January 2018
4. Scenario Development	February 2018
5. Online Questionnaire Dissemination --residents	January – April 2018
6. Online Questionnaire Dissemination --youth	March 2018 – April 2018
7. Stakeholder Engagement (Ottawa Youth Engagement Committee)	April 2018
8. Development of Planning Considerations	April 2018
9. Draft Final Report	July 2018
10. Presentation to Planning Committee	September 2018

5.2 LITERATURE REVIEW

The Ottawa Next: Beyond 2036 study began in the fall of 2017 with a literature review of long-range scenario planning in Ottawa as well as other jurisdictions. The project team partnered with graduate students from Queen's University to examine scenario planning methodologies in Canada and across the world, including the identification of trends and disruptors. A copy of the executive summary of the Queen's University report can be found in Annex 2.

5.3 SOUNDING BOARD

A Sounding Board made up Ottawa stakeholders, as well as City of Ottawa staff from departments with direct involvement in urban planning, was created to provide a broad cross section of perspectives in the development of the Ottawa Next: Beyond 2036 study. External members of the Sounding Board included members of community associations, the business community, non-government organization and advocacy groups (transportation, envi-ronment, housing, food security, agriculture, and arts).

5.4 IDENTIFYING DRIVERS OF CHANGE

The project team, with input from the Sounding Board, identified the forces that will shape Ottawa in the future (the 'drivers of change'), both the trends we know about, as well as new elements that may disrupt current trends and push us in new directions (the 'disruptors').

In addition to the input from the Sounding Board, the Ottawa Youth Engagement Committee (OYEC) was engaged to gain a youth perspective on potential forces that will shape the future of the city. OYEC is comprised of 18 youth between the ages of 15 and 24 working in partnership with the City of Ottawa to encourage youth engagement and representation. A summary of the discussion is contained in Annex 3.

5.5 DEVELOPING POTENTIAL FUTURE SCENARIOS FOR OTTAWA

The project team met with the Sounding Board to discuss and identify what Ottawa may look like in the future based on the trends and disruptors they had identified. City staff took this input and developed three separate potential scenarios under four themes: (1) mobility and urban form, (2) economic development, (3) the environment, and (4) quality of life and social/cultural considerations. The four themes are not meant to be separate and standalone, but rather, should be read as interrelated with one another. Notably, the environment is at the base of our ability to develop our society, economy, and quality of life.

5.0 METHODOLOGY

5.6 DEVELOPING PLANNING CONSIDERATIONS

Following scenario development, the project team held discussions with the City's Senior Leadership Team (SLT) and the Sounding Board around how Ottawa (both the municipal corporation and the city more broadly) can respond to changes that underlie the future scenarios. The driving question behind this discussion was: "What do we need to consider to be adaptable and resilient to future changes and become the most liveable global mid-sized city in North America?" Chapter six of this report includes planning considerations associated with the drivers of change, organized by theme.

5.7 PUBLIC ENGAGEMENT STRATEGY

In order to expand the scope of input into the Ottawa Next: Beyond 2036 study, the City engaged with residents to:

- capture the diversity and strength of the public opinion;
- generate new ideas; and
- ensure the study outcomes are comprehensive and responsive to views of residents.

The City reached out to Ottawa residents via an online questionnaire to better understand their opinions related to three key questions:

1. What does liveability mean to you?

2. What are Ottawa's strengths in each of these areas (mobility, jobs, economic security and economic opportunities, housing, natural environment, arts, culture and recreation, sense of community, inclusive, healthy and vibrant neighbourhoods)?

3. What are Ottawa's opportunities in each of these areas?

In total, 302 people responded. A summary of the public survey responses can be found in Annex 1.

In addition, the City also reached out to Ottawa youth via an online questionnaire that was distributed through community associations, schools, and organizations who work with this population. The questionnaire was available online between March 16, 2018 and April 6, 2018. In total, there were 10 survey respondents. The survey consisted of the following four questions:

1. Social/Cultural and Quality of Life – What will quality of life look like in Ottawa in 20, 30 or 50 years?

2. Environment – What will Ottawa's natural environment look like in Ottawa in 20, 30 or 50 years?

3. Economic Development – What will Ottawa's economic landscape look like in Ottawa in 20, 30 or 50 years?

4. Urban Form and Mobility – What will Ottawa look like as a city in 20, 30 or 50 years?

A summary of the youth survey responses can be found in Annex 4.

Photo: Moriyama & Teshima Architects

This section encompasses a summary of future scenarios, drivers of change and planning considerations grouped under four major themes:

- Economic Development
- Social/Cultural and Quality of Life
- Environment
- Urban Form and Mobility

Under each theme, three scenarios have been developed to illustrate what Ottawa could look like beyond the traditional planning horizon.

The very nature of scenario planning presents infinite possibilities. As such, the scenarios included in this document should not be considered a comprehensive snapshot of Ottawa's future. It is also acknowledged that in creating a small set of distinct scenarios, some of the drivers of change identified are either not represented or are underrepresented.

These scenarios are not intended to be predictive; nor will one be selected over the others. The basis of scenario planning is to provide a range of plausible outcomes for assessment and critical review.

Following the scenarios is a summary of the drivers of change and key planning considerations. The drivers of change were identified by the Ottawa Next: Beyond 2036 project team in consultation with key stakeholders, and form the foundation on which the scenarios were developed.

By executing this scenario based planning approach, the City will be positioned to critically and strategically review key inputs and possible outcomes in order to build adaptability, resiliency and innovation into core planning activities and initiatives. This will position the City to aptly address future uncertainties.

6.1 ECONOMIC DEVELOPMENT

All cities experience a tension in developing strategies to support local business and to attract new outside investment. However, the evidence suggests that such strategies are in fact complementary. In a climate of fluctuating trade and investment instability, cities have to think and act both globally and locally, and find their future in that creative interaction.

As cities reach a certain critical mass in population, they also begin to generate more opportunities, both from the organic growth of a larger domestic market, and from increased investment interest from global stakeholders seeking opportunities. Larger cities become more integrated into global exchange networks that align with areas of economic activity and focus. This

in turn generates opportunities for improved regional, national and transnational transportation connections, greater worldwide visibility, more cultural and artistic vibrancy and presence, and a greater power of attraction. If carefully planned and supported, this may result in an acceleration of economic diversification.

As Ottawa reaches the next threshold in population, economic development considerations become a key catalyst for the city's ability to respond to the challenges, disruptions and opportunities identified in this report.

Photo: City of Ottawa

SCENARIO 1: GOVERNMENT TOWN

Ottawa has not significantly diversified its economy, which continues to be based on the public sector.

The federal government continues to be the dominant source of employment in Ottawa as the city struggles with commercialization of high-tech research and development. Jobs and profits from this high-tech research and development continue to flow out of Ottawa.

However, Ottawa's health care and biotech sectors have increased in importance. Ottawa is internationally recognized for its leadership in these fields.

Ottawa remains a beautiful and liveable city with an abundance of parks, greenspace, and heritage. Ottawa is a place where people want to visit and recreate, and tourism is strong throughout the year. In addition to hosting festivals and sporting events annually at a regional and international level, Ottawa takes advantage of its rural character and develops an agri-tourism sub-sector.

Ottawa has diversified its economy into the IT sector, but the majority of the companies in that field are local branches of firms headquartered elsewhere. As such, the city remains vulnerable to the ebbs and flows of restructurings, closures and movements decided elsewhere.

Photo: iStock

ECONOMIC DEVELOPMENT
SCENARIOS

Following significant investment and marketing, a major new employer has located in downtown Ottawa, bringing with it 100,000 new jobs in a significant knowledge-based sector. Since this event, several other mid-sized to large complementary companies have located to Ottawa, producing an additional 50,000 downtown jobs.

This has created a corresponding increase in jobs in the construction and service industries. The high-tech industry now surpasses the federal government in economic impact in Ottawa and the National Capital Region.

The city works actively with the high-tech sector and post-secondary institutions in the international recruitment of high skilled workers and in making the public investments to attract these workers (culture, parks, transit, quality of life etc.).

There are greater partnerships between businesses, NGOs, and community organizations to pursue social goals.

Advances in automation replaces some employment in front-line retail and manual-oriented sectors. Employment growth focuses on knowledge-based and specialty vocations.

Retraining for older workers in sectors adversely affected by automation is only partially successful, resulting in an increase of seniors living in poverty and greater inequality in wealth distribution.

Ottawa's post-secondary institutions cannot keep up with the demand for knowledge-based education and a new post-secondary education institution is established. Ottawa's airport service and interconnectivity with the city have improved significantly to accommodate frequent North American and international travel and freight.

Photo: Shutterstock

SCENARIO 3: MEGA-REGION

The Ottawa-Gatineau, Toronto, and Montréal regions together act as a mega-region to compete globally for investments and talent in high-tech and related industries. The three regions have developed a successful partnership based on respective strengths and high-speed rail connectivity to attract high-tech companies and workers. This partnership has attracted several mid and large-sized high-tech firms to the region.

Ottawa-Gatineau is seen as the most liveable, balanced, and affordable city in the mega-region. As a result of high speed rail and greater access to next generation networks, a significant number of workers in Ottawa work from home and commute once or twice a week to work in Montréal or other parts of the mega-region. Similarly, a more affordable housing market attracts an influx of people who work in Toronto or Montréal to Ottawa-Gatineau.

High-tech companies in Ottawa are locating downtown, in suburban areas well served by transit, and at locations that provide quick access to high-speed rail.

Advances in automation replaces some employment in front-line retail and manual-oriented sectors.

Employment growth focusses on knowledge-based and specialty vocations. The federal government continues to be a major employer.

Planning and other regulatory frameworks focused on small-business incubation lead to a rise in entrepreneurship. There is significant growth of new small businesses that can easily network within the mega-region to gain international prominence, leading to an increase in the number of head offices locating and remaining in Ottawa.
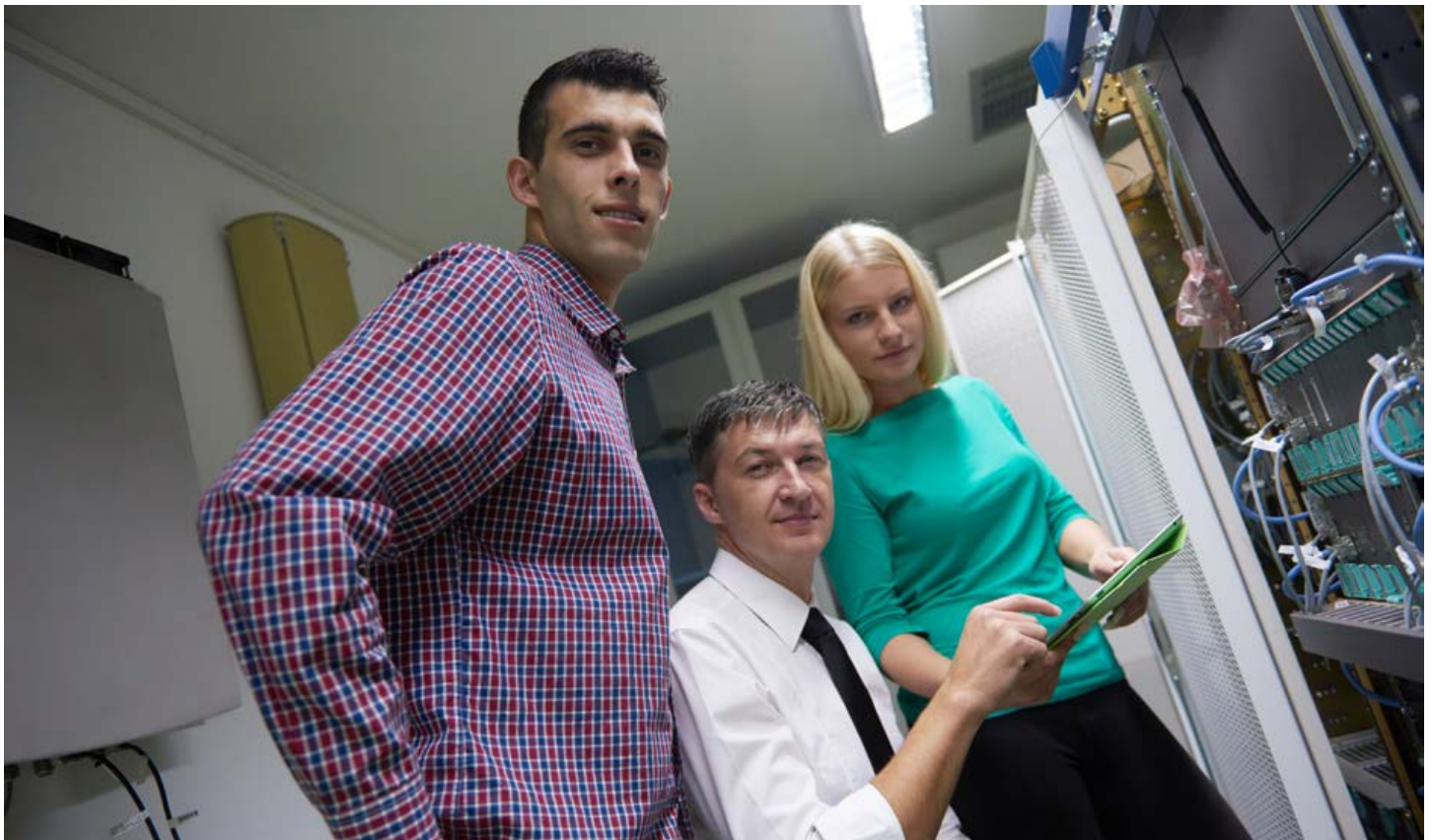

Photo: Shutterstock

ECONOMIC DEVELOPMENT
DRIVERS OF CHANGE AND PLANNING CONSIDERATIONS

As a G-7 capital, Ottawa's strong and continuing government presence provides an economic resilience unique among global mid-sized cities. Its workforce appears to be one least threatened by Artificial Intelligence (AI) and other workplace revolutions.[2] The stable and relatively well-remunerated workforce also provides the basis for a strong service sector and retail economy, and supports the rich cultural and artistic life of the community.

In addition, Ottawa has numerous advantages that correspond attractively to the emerging demands of the private sector economy. The contemporary urban economy relies on highly-trained human capital, and the city's universities are well-positioned to maintain that supply particularly through the attraction of an increasing number of foreign students. The established healthcare and bio-tech sectors in the city are a testament to that strength.

New well-trained immigrants are also drawn by the city's quality of life. Ottawa's capital city attractions provide a strong demonstration of its unique sense and style of place. It also supports a level of air connectivity that is distinctive for a city of its size, which is of critical importance to attracting globally operating companies. Good ground rail connections to Toronto and Montréal will be increasingly important to consolidate links to those global metropolitan economies.

Photo: City of Ottawa

1. GROWING IMPORTANCE OF DIVERSIFICATION OF KNOWLEDGE-BASED ECONOMY

The digital revolution is transforming all sectors of the economy, as more digital processes replace traditional human functions. Although research suggests that the public sector, as well as health and social services may be the most protected, emerging digital technologies will nevertheless dramatically change how these sectors operate.

The application of artificial intelligence (AI) is wide reaching, with notable examples being medical diagnosis, automated vehicles, financial analysis, and day-to-day online assistance. It is estimated that the global GDP will be 14% higher in 2030 as a result of AI; equivalent to approximately $15.7 trillion (USD)[3]. As it is anticipated that Ottawa will be relatively protected from the AI revolution, strategically planning to accommodate this innovation will be key to staying ahead of the change.

Planning Considerations

- Understanding how technology can be implemented to the benefit and in support of the City's goals and objectives
- Maintaining non-technological functionality for key functions in order to uphold resiliency and emergency preparedness
- Integration of innovation in all aspects of city life and management
- Requirement for enhanced training at all levels
- Competitive strategies to attract and retain talent to grow and diversify the economy
- Provision of infrastructure needed for innovation
- Role of Not-for Profit, social enterprise and opportunities for partnership

ECONOMIC DEVELOPMENT
DRIVERS OF CHANGE AND PLANNING CONSIDERATIONS

2. INCREASING IMPORTANCE OF KNOWLEDGE-BASED SECTOR

The world's economies are increasingly based on knowledge and information. Knowledge-based sectors use information and innovation to create value known as intellectual capital.

Most economic development in contemporary cities will be in the knowledge sector, and this will create greater demand for highly-skilled workers. Industries where this trend will be relevant goes beyond the commonly-known research and innovation based fields to fields such as transportation, logistics, retail, and service sector supports. Even areas such as agribusiness will be increasingly characterized by a rising knowledge content.

As the knowledge-based sector grows in importance, Ottawa's approach to separating land for industry and employment from residential commercial lands may need to be reviewed to allow for more mixed use communities in order to attract talent in the knowledge based sector.

Planning Considerations

- Defining and building on key knowledge based industry sectors where the City has the potential to become global leaders
- Greater partnerships between post-secondary institutions and industry
- University attraction, development, diversification and retention
- Creating and strengthening urban environments that are supportive of a knowledge-based work force
- Understanding the impacts of the digital transformation on employment

3. GROWING DEMAND FOR QUALITY LABOUR SUPPLY

Well-trained labour will be at an increasing demand both locally and internationally with the rise of knowledge-based sectors.

The labour market's preference will lean towards highly-skilled workers, especially those with knowledge of advanced technologies. Universities and colleges will continue to adapt and respond to the new labour requirements of the economy. Local companies will have greater focus on the retention of their workforces and their ongoing competitiveness by continuing retraining. Ottawa must proactively attract new talent to the region by offering both high-quality education and a superior quality of life. The city itself becomes the advertisement for its new economy.

Planning Considerations

- Retention of local human capital
- Need for higher domestic and international immigration
- Key place-making initiatives
- Immigrant education/qualification processes
- Further development of, and addition to, the city's roster of post-secondary education institutions

4. INCREASING "SPIKINESS" OF CITIES AND BUSINESSES

Economic activity seems to be increasingly concentrated in fewer cities and major companies that act as power-houses driving the global economy. For example, New York City's economy alone is close to that of Spain and Canada.[4]

Ottawa-Gatineau should see itself as part of a mega-region with the Montréal and Toronto regions, and focus on connection and integration rather than independent strategies. Business networks will be particularly important. The Ottawa International Airport will also play a key role in accelerating the diversification of our economy.

Planning Considerations

- Importance of business linkages and relationships with Toronto and Montréal (within the mega-region) and other global cities
- Multi-scale strategy: Ottawa as hub for eastern Ontario/western Quebec; links/relationships to Toronto and Montréal as the largest mega-region in eastern Canada
- Linkages of ground and air transportation networks

Vignette: Economic Development

Photo: Denver, Rich Grant

One of the strongest urban economic forces restructuring the world's system of cities is that of 'spikiness', the trend towards concentration of higher-order economic activity in fewer and fewer cities. Mid-sized cities need to work harder and smarter to attract human capital. The focus on training and higher education remains critical, but the offer of a higher quality of life, a rich cultural offer and excellent connectivity can provide a powerful competitive edge.

Denver has been very successful in offering a unique entertainment, sports and cultural offer in its downtown, along with an attractive re-use of many of its heritage buildings. At the same time, Denver International Airport has cleverly positioned itself as the airport in the middle of the continent, accessible to everyone in the same day.

Photo: Shutterstock

5. GROWING IMPORTANCE OF INTER-CITY AND GLOBAL CONNECTIVITY

The new economy is highly dependent upon inter-city communications. The airport has a distinct role to play both in supporting that national and global connectivity and in providing space for the types of economic activity increasingly drawn to airport proximity.[5]

High-speed rail links to Montréal and Toronto also become an important part of the city's economic strategy, connecting easily to their business and financial centres. A high-speed rail link that stops at the Ottawa Airport would allow the city to grow its roster of flight destinations by drawing from Montréal and Toronto, and providing relief from the overcapacity of their airports. Capitalizing on the growth of international air connections will be an important strategy for Ottawa to distinguish itself from other global mid-sized cities. Seamless links between high-speed rail, air transportation and urban transit will be equally important to the successful integration of mega-region links and networks.

In addition to the importance of transportation for people, are transportation systems for information. Digital connectivity is the backbone infrastructure of the knowledge based economy, and is ever evolving to accommodate the needs for high quality and high capacity digital connectivity that is affordable.

Planning Considerations

- Future role of the airport both for Ottawa and in the context of the mega-region
- Impacts of high speed rail links to Toronto and Montréal, corridor protection and station location(s)
- Growing importance of high quality, high capacity ubiquitous digital connectivity
- Identifying strategic markets and partnerships
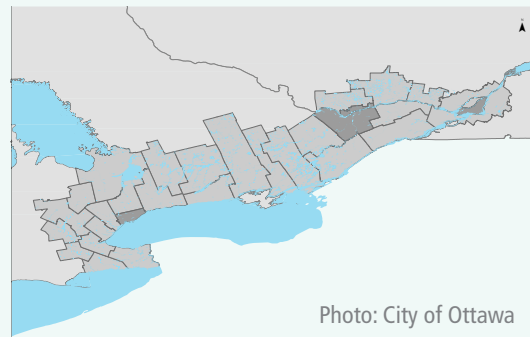
Vignette: The Mega-Region

Photo: City of Ottawa

According to University of Toronto Professor Richard Florida, mega-regions are integrated sets of cities and their surrounding suburban areas across which labor and capital can be reallocated at very low cost. Mega cities have populations and GDPs that rival medium sized nation states and compete against each other on a global scale for investment and talent. Given technological advances in communications and mobility, it is likely that the creation of mega-regions will continue.

With good digital connectivity, improved air and high-speed rail connections, and smoothly integrated links between inter-urban and urban transit, Toronto, Ottawa and Montréal have the opportunity for heightened cooperation and coordination, to create a mega region that would allow them to be a global competitor at a scale not possible in isolation.

This mega region has a 2016 population of over 15 million and the three major cities alone had a combined GDP of almost $600 million in 2017- similar to the GDPs of Austria, Thailand and Norway.

Ottawa's role in the mega region could focus on its strengths in high tech, life sciences, higher education, affordability, culture and quality of life, as it emerges as a larger, more urbane population centre.

ECONOMIC DEVELOPMENT
DRIVERS OF CHANGE AND PLANNING CONSIDERATIONS

6. INNOVATION PLAYS AN INCREASING ROLE IN COMPETITIVENESS

New economic activity seems to be generated by a critical mass of highly-trained specialists, supportive institutions, business networks, and venture capital. That mix must be fostered in a culture of experimentation, acceptance of risk, and the potential for failure to generate the necessary innovation.

Ottawa's unique mix of public, private, and non-profit enterprises could, appropriately stimulated, provide a unique and rich environment for the commercialization of new ideas. Interesting areas to explore are government itself, and the innovative provision of public services, and the agricultural sector, for which strong infrastructure now exists.

Overall, the key consideration is to gain a thorough understanding of the evolving conditions that lead to invention and innovation, and to be sufficiently nimble to be able to shift regulatory frameworks and systems of support to enable creativity in the context of upholding the public interest, diversifying our economy, and channeling new ideas toward productive and constructive contribution.

Planning Considerations

- Attracting a critical mass of human talent and providing advanced training
- Availability of venture capital
- Cross-pollination between sectors, entrepreneurs, government and not-for profit
- Acceptance of failure in public and private sectors
- Promoting Ottawa's emerging agricultural sector as a key sector of the economy

7. SHIFTING VALUES IN URBAN CHOICES

Providing a range of mobility options, amenities and public spaces, a rich employment mix, as well as lifestyle and cultural offerings is critical in the attraction and retention of workers.

Quality of life has become an important factor for both businesses and workers' motivation to locate in certain places. More and more, cities are focusing on providing and enabling community services, lively public spaces and streets, interesting urban design including built heritage, entertainment options and cultural offerings, dubbed 'soft infrastructure'[6]. Brick-and-mortar retail and services are offering experiences beyond just the purchase of goods. Maintaining and enhancing Ottawa's high quality of life and the rich cultural offerings will be critical.

Beyond the generic, it is of critical importance to continue to nurture the city's identity and soul, and to continue to define it more clearly through the arts, architecture, urban design and the societal values that underpin its actions, in order to establish and reinforce global visibility and attractiveness.

Planning Considerations

- Attracting workers
- Lifestyle and employment offerings
- Rebalancing the mix of hard and soft infrastructure in the City to promote Ottawa's diverse cultural communities
- Seeing the public realm and urban design as part of the strategy to develop economic opportunities
- Understanding the future of retail and embedding it adequately into the city fabric
- Economic opportunities and mobility in rural areas to attract immigrants looking for high quality of life in rural communities

8. SIGNATURE PROJECTS PLAY A LARGER ROLE IN CITY BRANDING

Many cities have been successful in rebranding themselves with signature projects, such as Chicago's Millennium Park, Bilbao's Guggenheim Museum, and Seattle's Olympic Sculpture Park. Signature projects can range from redevelopment of a large underused site, to creating or developing destinations or districts, or simply improving the access to an existing asset. They can have a long-lasting impact by promoting an image of the city to the world. Furthermore, they can act as catalysts for economic development through attracting tourism and other investments.

Signature projects have been built in Ottawa in the past: the Canadian Museum of History (1986), the National Gallery of Canada (1988) and the Canadian War Museum (2005) are recent examples. Those projects were federally-initiated and funded. To contemplate non-federally initiated or funded signature projects, the City would need to enter into partnerships with local (and perhaps global) partners and develop a highly targeted and bold strategy in branding, city image and place-making. Such propositions carry high levels of risk, but can be exponentially rewarding if well executed.

At a more basic level, Ottawa could explore an opportunity for impactful projects that can create a destination for residents and visitors. The Ottawa River corridor is an example, where creating an improved connection from the city to this great natural asset could be explored, along with place-making opportunities and new activities by the riverfront.

Ottawa can also prepare strategies for enhancing the identities of its distinctive neighbourhoods and communities through high quality urban design and by using signature projects as possible anchors. This would expand the number of must-see destinations for tourists, which would create touring networks that would lead to extended average visitor stays. The emergence in recent years of tourist interest in districts like Chinatown, Little Italy, Wellington West/Westboro, and rural villages like Carp and Manotick provide great opportunities to pursue such strategies.

Ottawa's new light rail transit system, the revitalization of Lansdowne Park, the redevelopment of Arts Court, the new Ottawa gallery and the proposed new Main Central Library are more current examples of city lead signature projects that are helping to transform the city from one that is seen as a government town to capture its more civic identity.

Planning Considerations

- Major tourism/cultural venues
- Development of distinct, interesting, and memorable places
- Expanding the scope of the "tourist city" to include more neighbourhoods and rural communities
- Promoting projects that act as place making catalysts
- New partnerships with private sector, not for profit sector and public sector
- Enhanced access to the Ottawa River and natural areas

The Social/Cultural and Quality of Life theme encompasses aspects of daily living and the evolving identity of Ottawa. Culture and society shape how people think, behave, and relate to each other. Quality of life can be defined as the general well-being of individuals and society.

Societal changes can take place for reasons or factors that are well beyond the City's control. Any number of disruptive changes, including those identified within this theme as well as the other themes of this report, can trigger social/cultural change.

The following three scenarios are generally based on the degree of inequality and community cohesion that may occur as a result of future changes.
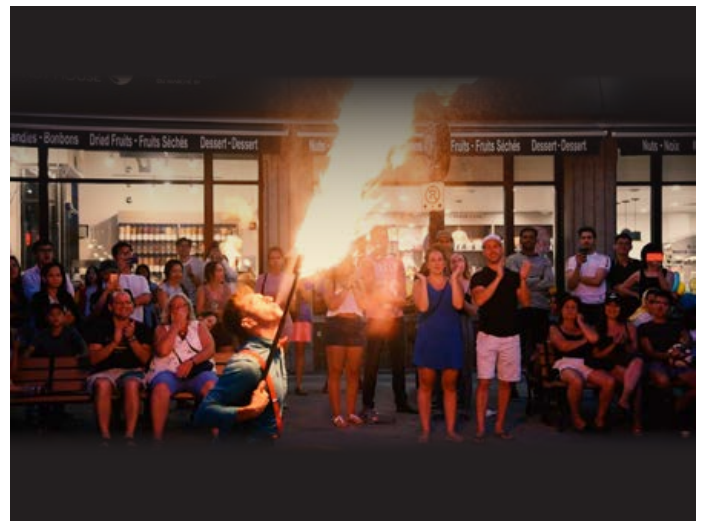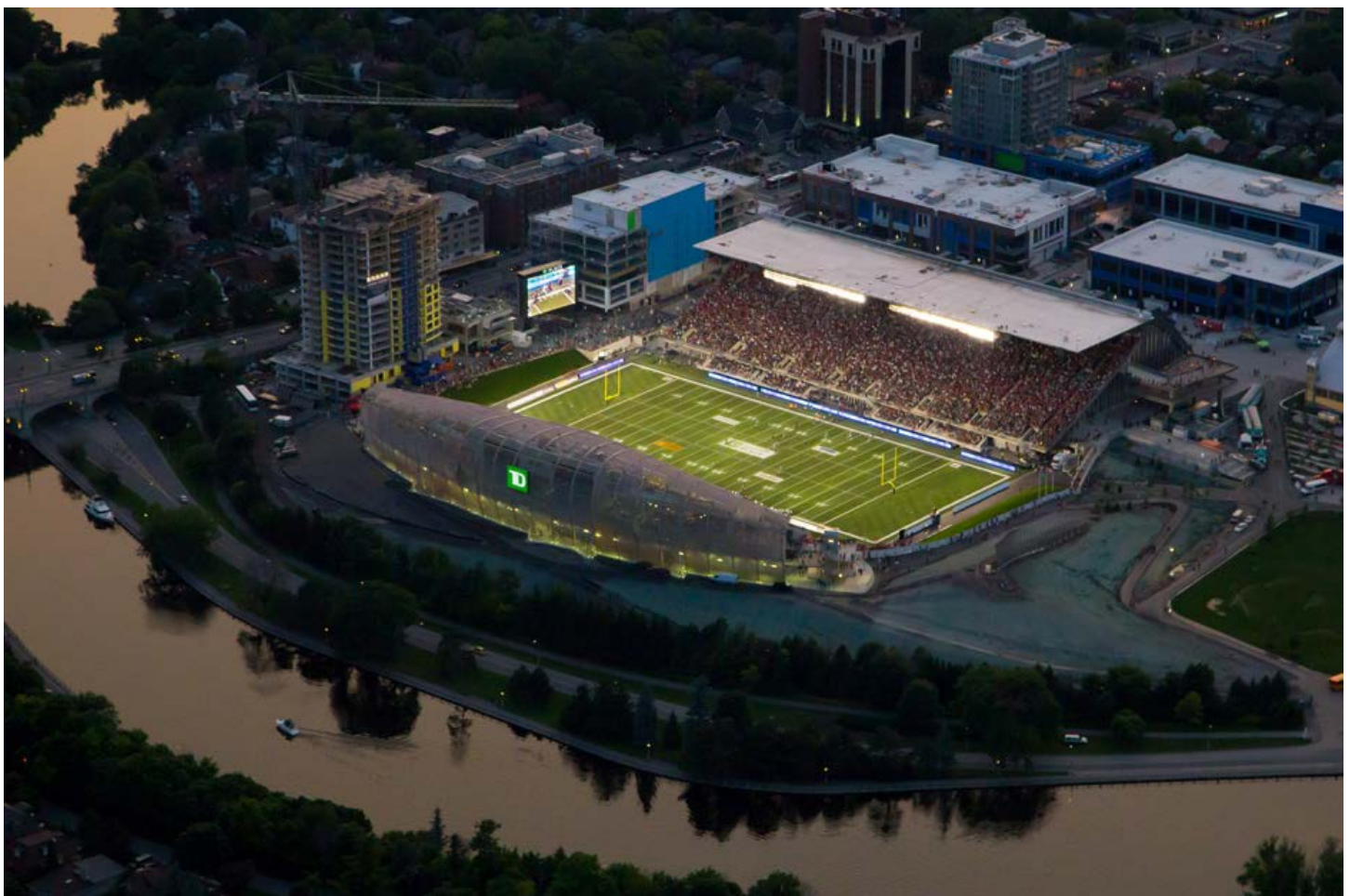

Photo: City of Ottawa

Photo: City of Ottawa

SCENARIO 1: HIGH INEQUALITY / LOW COMMUNITY COHESION

The gap between rich and poor becomes more pronounced in the new economy.

Immigration is the most significant component of Ottawa's population growth. Ottawa has been successful in attracting young, educated and highly-skilled immigrants to work in the high-tech sector. Ottawa is also attractive to a wide diversity of immigrants who are seeking a new home and new opportunities but do not necessarily have skills to work in the high-tech sector. Ottawa's relative housing affordability also attracts migrants form other major cities.

Unemployment rates are high for large segments of the population who have not transitioned to the new high-tech economy. Governments, including the City of Ottawa, are not able to provide basic services.

While skilled workers generally live downtown or in affluent suburban neighbourhoods, poorer people live in multi-family buildings far from transit stations where housing prices are lower. Frequently, this includes fitting six to ten people in apartments with only two to three bedrooms.

These areas are generally not complete communities and suffer problems associated with high unemployment including substance abuse, domestic violence, crime, poorer health outcomes, and a sense of alienation from the broader city.

Recreation and cultural activities thrive in the more affluent areas of the City while poorer areas lack facilities and services, as well as transportation options to access facilities and services in other parts of the city.

The City is divided into areas based on socio-economic characteristics and relationships between the various communities in Ottawa is tense. Private security in more affluent neighbourhoods becomes the new norm.

Ottawa's downtown continues to be marketed as part of a green Capital City and holds one international and several national events a year. However, civic pride amongst residents is at a modest level.

Photo: City of Ottawa

SCENARIO 2: MEDIUM INEQUALITY / MEDIUM COMMUNITY COHESION

Community is now largely expressed online across city and country boundaries based on shared interests.

More people are working from home, at large employment nodes, and at high-rise complexes near transit stations, leading to a significant decline in the local public sphere, and less value is placed on public spaces and services.

Most interaction occurs online, leading to a significant increase in mental health issues, greater feelings of isolation, and increased physical health issues related to a lack of physical activity.

Income disparities are still prevalent, but growing more slowly.

Community cohesion is not strong but there are no significant hot button issues amongst communities in Ottawa, as community is being defined more and more by online relationships and networks as opposed to neighbourhoods or ethnic backgrounds.

Greater flexibility of movement with on-demand vehicles means lower opportunities for unplanned social interaction.

Less value placed on public services has meant a very difficult life for people living in poverty who are not interacting online.

Ottawa residents are much less involved in public life than in the past and are less tied to public space such as recreational facilities and greenspace.

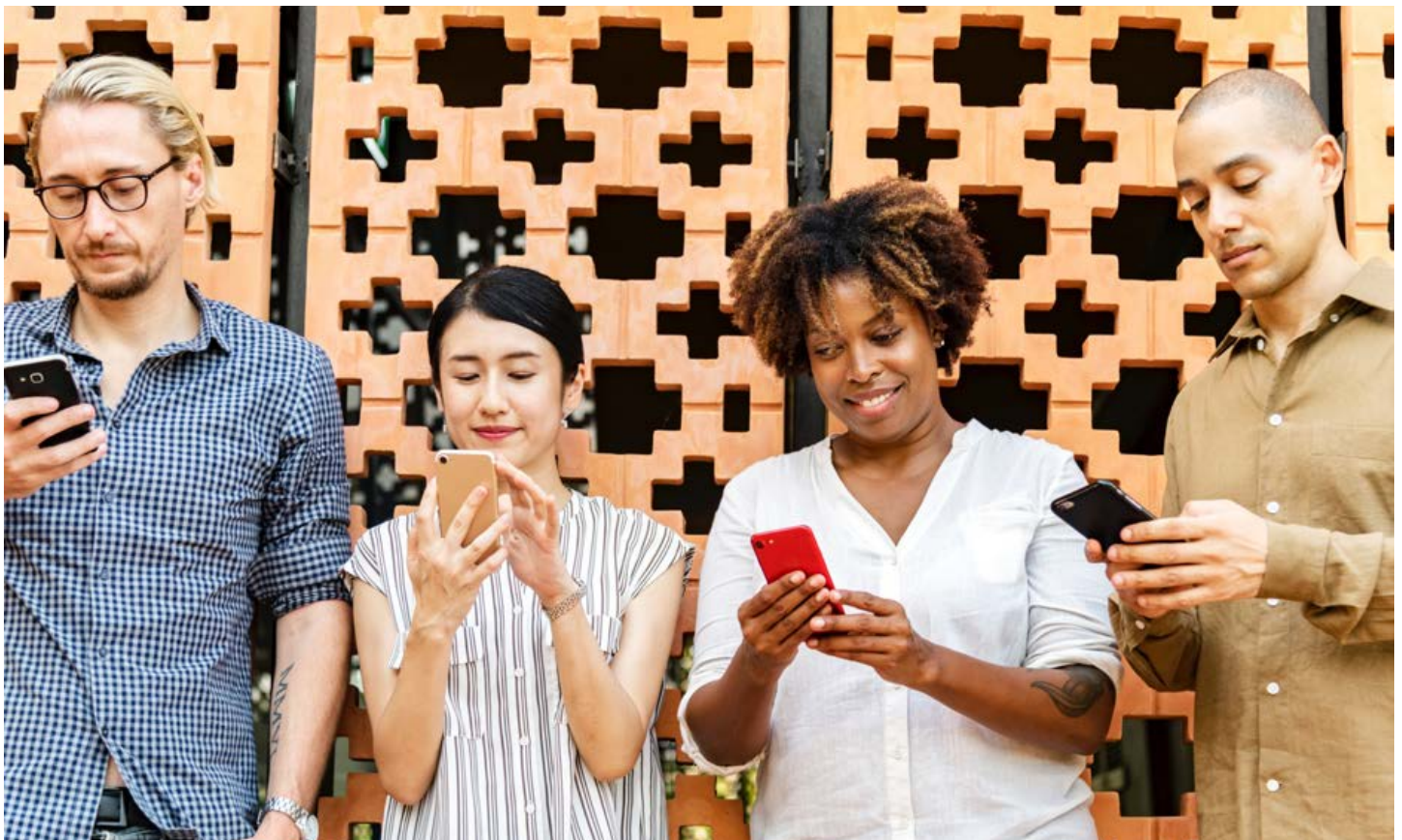Ottawa still struggles to define its identity beyond being the Capital City.

Photo: iStock

SCENARIO 3: LOW INEQUALITY / HIGH COMMUNITY COHESION

Ottawa is a very liveable, vibrant, global mid-sized city whose identity is based on its communities and neighbourhoods, which through their public spaces and urban design, feel like they solidify the city's role as the national capital.

In order to attract and retain new immigrants and to better support refugees, all levels of government, including the City of Ottawa, have invested heavily in creating employment opportunities, social services, and affordable housing (both home ownership and rentals).

Income disparities are still prevalent, but are not growing. Strong, vibrant, complete communities have sprung up in different parts of the City, and bring with them new arts and cultural offerings, new retail, as well as vibrant new food cultures. Local food production is flourishing. In general, there are positive ties between neighbourhoods. In general, vulnerable and marginalized populations are better integrated into local neighbourhoods and broader city life.

There is a strong attachment to public spaces, including green spaces, and the variety and richness of these spaces has increased significantly.

In general, family sizes are smaller, although large extended families living together is also common. Ottawa residents are experiencing better health outcomes.

Ottawa's identity beyond the capital has shifted to reflect the diversity of its residents. While Ottawa continues to have an abundance of green space, museums, and galleries, its identity is increasingly based on its image as a global city with new and thriving ethnic communities in both inner urban and suburban areas. This new identity includes new international and regional festivals, new restaurants and shops, and a unique voice in the arts. This new identity has become key to attracting newcomers and businesses to the city.

Photo: City of Ottawa

Photo: Shutterstock

The social/cultural and quality of life theme includes the provision of adequate housing, food, social security, and public health supports for diverse communities. Immigration and cultural diversity will continue to grow as Ottawa's regional population continues to grow to reach 2 to 3 million. Growth has its challenges, and the manner by which the City accommodates, integrates, and supports new citizens will be a key factor in the evolution of the City's quality of life. Other considerations are the evolving age profile of the population, notably children, seniors, and individuals with disabilities. According to Statistics Canada, by 2056, it is projected that there will be 50 seniors for every 100 workers . Accessibility, proximity of services, active transportation opportunities that promote walkable neighbourhoods, and implementation of crime prevention through environmental design are some of the strategies that can assist with creating a healthy, liveable, safe, and accessible environment.

Photo: City of Ottawa

Vignette: The Youthful City

Photo: Alec Donnell Luna, DEDAgency

If Ottawa is to become a more vibrant city, a more innovative and inclusive city, a more prosperous city, it must attract and retain smart and enterprising young people. In 2017, Ottawa ranked the fourth most youthful city in Canada based on a number of criteria including transit, diversity, health, safety, employment opportunities, affordability, food, nightlife, sports, music and public space. The report from Youthful Cities, a Toronto-based social enterprise, notes that Ottawa ranked especially high with regard to availability of transit.

As Ottawa continues to grow, and as the economy continues to shift away from traditional manufacturing and retail jobs towards the knowledge economy, Ottawa will need to compete for young talent. It will need to focus on, and make investments in, areas that are important to youth such as housing affordability, removing barriers for vulnerable populations, inclusive and vibrant neighbourhoods, support for the transition from university into the job market, as well as good mobility options including transit, walking and cycling.

1. GREATER IMMIGRATION LEADING TO GREATER CULTURAL DIVERSITY

Given Ottawa's low birthrate, immigration is essential to maintaining and increasing the population and in supporting the growth of its labour force. In 2016, more than one in five Ottawa residents were born outside of Canada, totaling approximately 200,000 people. Furthermore, Ottawa experienced the third highest growth rate (23%) of immigrant population amongst Canadian cities from 2006 to 2011.[7]

Immigrants who settle in Ottawa are attracted by high-paying professional jobs or post-secondary studies. They are typically more educated, earn higher wages, and have higher levels of employment than immigrants who settle in other cities.[8]

However, a significant number of immigrants who move to Ottawa will leave for other Canadian cities or return to their home countries. This is mainly due to a lack of employment opportunities and fewer business growth opportunities compared to larger city centres. Other contributing factors to this trend include:

- a lack of access to public services;
- a lack of affordable housing;
- negative social experiences; and
- lingering systemic discrimination against racialized groups.[9]

The distribution of growth within the city will continue to evolve, with urban locations that offer quick access to rapid transit stations becoming more prominent. The bulk of future population growth will primarily come from immigration and migration from other parts of Ontario and Canada.[10]

Photo: City of Ottawa

Job opportunities and skills accreditation are crucial to attracting and retaining immigrants. Equally important is the availability of complete communities that provide:

- Proximity to affordable transportation to work, school, shopping, places of worship, childcare, clinics and recreation;
- Suitable and affordable housing that does not force newcomers to divert income from essentials such as food and educational material to pay rent; and
- Convenient access to services that meet the needs of newcomers.

Complete communities are important to promoting social integration for newcomers who may be looking for work, learning a new language and who do not have access to a car.

Planning Considerations

- Integration of new immigrants (employment, support networks, recognition of accreditation)
- Creating affordable housing for newcomers in walkable, transit supportive, communities.
- Ottawa-based immigration attraction and retention strategy (universities, hospitals, international marketing)
- Establishing Ottawa as one of the top target cities for immigrants in all federal efforts and campaigns to promote immigration to Canada
- Developing or strengthening incubation programs and support mechanisms that help immigrants start businesses

SOCIAL / CULTURAL AND QUALITY OF LIFE
DRIVERS OF CHANGE AND PLANNING CONSIDERATIONS

2. CHANGING DEMOGRAPHICS

According to Statistics Canada, for every 100 working-age persons, there were 15 seniors in 1971 and 21 in 2006. By 2056, it is projected that there will be 50 seniors for every 100 workers.[11] Furthermore, life expectancy is projected to increase by about eight years for men—up to 88 years, and increase five years for women—to age 89 years, by 2063.[12]

In 2016, seniors made up 15% of the city's population. Seniors are the fastest growing segment of the population and by 2031 this group will represent over 21% of the population.[13] The majority of seniors currently live in the central areas of Ottawa, but it is expected that the suburban and rural areas will experience a shift in demographics as the trend to age-in-place accelerates.[14]

An aging population brings a number of public health and mobility considerations. Healthcare spending is expected to rise as people live longer, and chronic diseases such as obesity, cardiovascular disease, diabetes, asthma, and respiratory disease will continue to increase.

However, seniors who remain actively engaged in life and socially connected are happier, physically and mentally healthier, and better able to cope with life's transitions common in older age.[15]

Beyond 2036, the demographic profile could be rebalanced through increased levels of immigration and the City's population could start to feature much higher proportions of young people starting in about 2040. At that point, if the sole focus of our forward planning has been the aging demographic, we may have neglected the essential components of what attracts the young people needed to rebalance our population. A careful balance should be considered to ensure that the City remains accessible to seniors and at the same time appealing to youth. Ultimately, a key aspect of liveability is a city's ability to be equally enjoyed by all generations.

To encourage an active and socially connected lifestyle, there will be greater needs related to:

- City services that meet the needs of seniors, especially in rural areas and for marginalized populations;
- City services and programs that are enticing to younger generations as a means to remain attractive to the demographics that are likely to consider moving here from within Canada and from other countries;
- Accessibility for those with mobility limitation;
- A safe and secure walking environment and public realm, especially in the winter where ice and snow can make mobility difficult;
- Accessible, reliable and affordable public transit;
- Adequate housing and supports for older adults to support aging in place;
- Affordable and high-quality retirement homes and long-term care facilities, particularly in rural areas; and
- Shelters that meet the needs of an aging population.

Planning Considerations

- Promotion of complete communities
- City service delivery targeting shifting population demographics
- Different forms of residential and assisted living
- Accessibility policies
- Age-in-place opportunities: accessible assisted care, coordinated/local services, complete community design, and supportive mobility infrastructure and services
- Outward promotion of the City as a good place for young people and as a city of opportunity

3. INCREASED PRESSURE ON COMMUNITY COHESION

A liveable city is one where all of its communities are socially, economically, and culturally connected. Community cohesion creates a shared sense of belonging for residents of all backgrounds and supports diversity. There are equal opportunities for everyone and equal access to services, employment, and education. Pressures from population growth and increased immigration can result in disruptions to community cohesion if not addressed correctly. At the same time, population growth creates economies of scale that allow new amenities, cultural offerings, livelier public spaces and urban diversity to grow.

The rising trend of virtual communication, social media, online shopping and dating applications has already significantly affected residents' use of the public realm. A significant rise in feelings of isolation and depression may occur in the absence of options for residents to feel part of, and included in, the life of the city. There is a much greater need to develop a fulsome understanding of the interrelationships between the aspects that animate public spaces, starting with streets, and to remove barriers to the successful development of vibrant public realms. A strong public realm with pedestrian supportive streetscapes, interesting urban design and accessible public gathering spaces will support social interaction, at passive and active levels, and will provide spaces for social gatherings.

Increased pressures from growth, economic disparities, cultural diversity, and means of communication can result in disruptions to community cohesion with constraints in service delivery, access to social services, and social interaction. It can also result in increased disparities between communities. Equal access to appropriate housing, schools, libraries, health, services and amenities, and employment opportunities become increasingly important to a healthy inclusive and vibrant city.

Photo: City of Ottawa

Planning Considerations

- Policies that support public realm and vibrant streets for all ages and communities
- Access to quality schools, libraries, and other social services
- Community based economic development

4. INCREASED SOCIAL INEQUALITY

Social inequality is accentuated when not everyone has equal opportunities, and when there is an unequal distribution of resources and positions in society. As a result, inequality can have a negative effect on a wide range of health, social, public order, and economic outcomes.

Although the average household income in Ottawa is relatively high, the gap between rich and poor is increasing. For instance, among households headed by one parent, those in the top 10% of earners grossed 13.8 times more than those in the bottom 10%, an increase from 8.7 times in 2000.[16] In addition:

- Over 115,000 individuals live on a low income in Ottawa, which translates to more than 55,000 households.[17]

- 62.6% of female lone-parent families with children under 6 are living in poverty[18]

- 39% of households in Ottawa that rent are paying 30% or more of their income on housing, above the level which the Canadian Mortgage and Housing Corporation (CMHC) defines as affordable[19]

- In 2017, over 10,000 people were on a waiting list for affordable housing; an increase of 5.1% from 2016.[20]

Population growth, immigration, and cultural diversity may result in further social inequality if the basic needs of the population are not met. In addition, there are also risks that a significant number of workers will be negatively impacted by the transformation to the knowledge economy. The replacement of jobs by AI will lead to the same type of labour displacement crises as assembly-line automation or the adoption of digital technologies in the 20th century, or industrialization in the 19th century.

Should the trend of income inequality continue, the costs of living in Ottawa may become a more prominent issue. This includes access to affordable housing, affordable mobility options, city services and health care, and healthy, culturally appropriate foods.

In addition, providing workforce entry support for those living in poverty, and for marginalized groups in particular will be of particular importance.

New forms of partnerships between the city, the private sector, the philanthropic and not-for-profit sectors and community groups may be needed to provide innovative solutions to poverty-related issues.

Planning Considerations

- Provision of quality affordable housing
- Affordable, reliable and accessible transit/mobility options
- Targeted opportunities/programs (elderly, youth, rural, indigenous, immigrants)
- Removing barriers to the "digital divide"
- Equal access to services
- Promoting access to affordable, local, and culturally appropriate food
- Promoting social enterprise and partnerships
- Mitigating potential inequalities for people not skilled in the knowledge economy
- Promoting opportunities in rural communities (tech and non-tech) for new immigrants

5. EVOLVING CITY IDENTITY

The City of Ottawa is known as the capital of Canada. Ottawa is proud of its heritage and image as Canada's capital city; however, there are many other facets that can assist in defining Ottawa as a global mid-sized city. These elements need to be protected and enhanced through actions that support and celebrate the unique characteristics of the City.

As Ottawa becomes more diverse through immigration, there is an opportunity to support this diversity by advancing its many cultural offerings through festivals, the arts, food, craft and artisan innovations, and emerging technologies. Ottawa is also a rural city, which, to date, has not been a prominent component of the city's identity. There may be an opportunity to develop an internationally recognized image of Ottawa as an urban city, alongside an image of Ottawa as a region that encompasses diverse, rural and natural places.

A vibrant public realm, innovative place making, protection and promotion of Ottawa's built heritage, neighbourhood identity and street life, and a renewed focus on the Ottawa River, are all aspects of an Ottawa of the future whose identity will go further than its role as Canada's capital city.

Planning Considerations

- Branding Ottawa beyond Canada's Capital City
- Advancing Ottawa's cultural offerings beyond national institutions (e.g., national museums)
- Distinct cultural quarters or cultural cohesion/ cooperation (neighbourhoods, urban, rural, new Canadians)
- Promoting and supporting cultural industries in Ottawa
- Fostering innovation and emerging areas
- Green city, access to the outdoors
- Strengthening and promoting Ottawa as a food city, as a music city, and as a cultural destination
- Capitalizing on the City's rural villages as a key component of Ottawa's unique identity
- Capitalizing on Ottawa's heritage as a key element of identity

Vignette: Socio-Cultural

Cities are where an increasing percentage of the world's population now live. Consequently, cities have become the focus of cultural and artistic life. Ottawa by virtue of being a capital city is blessed with a rich array of cultural activity. Other similarly sized capitals offer many initiatives and ideas about how that cultural offer could be expanded. Typically, this includes cultural festivals, groups and activities that might not be accommodated by mainstream institutions.

The Edinburgh International Festival, and the associated Fringe Festival, has offered a wide-ranging menu of large and small, indoor and outdoor, famous and breakout events since 1947. This festival takes over the city centre for a week, providing residents and tourists a way of seeing the city in a fresh light.

Photo: Edinburgh Fringe Festival, The Globe and Mail

6. INCREASED PRESSURE ON COMMUNITY HEALTH

As Ottawa diversifies, so will the needs of its population. Access to services has already been identified as one of the most significant barriers to integration. In a recent survey of immigrants across Ontario, 62% reported having problems in accessing general settlement services, including community and social support services (Ontario Council of Agencies Serving Immigrants, 2012).[21]

Ottawa accepts approximately 2,000 refugees annually. This number could rise in response to increased global instability.[22] To successfully settle in Ottawa, refugees require additional services such as language training and interpretation, trauma counselling, housing and employment assistance, and programs to create social connections in the community.

The types of neighbourhoods where people live also has a significant effect on public health. A 2009 report from the Canadian Senate estimates that 10% of health outcomes are related to the built environment.[23] Complete communities can help improve the population's health through design that supports transit, active transportation, social cohesion, a range of housing options, food access, walkable and green neighborhoods, and a rich and vibrant public realm.

Increasing temperatures and extreme weather brought on by climate change will also put pressure on community health through new infectious diseases, as well as morbidity and mortality due to heat and decreased air quality.

Planning Considerations

- Improved health promotion and education
- Improved access and quality of healthcare and health services
- Improved community design to promote healthy outcomes; promotion of daily physical activity
- Improved health outcomes monitoring

Photo: Shutterstock

6.3 ENVIRONMENT

The environment theme encompasses the effects of climate change, including both greater temperature variability and increased number of extreme weather events. It includes the associated impacts of climate change on Ottawa's natural systems, on agriculture, on public health and on city infrastructure, as well as the city's approach to reducing greenhouse gas emissions. This theme also includes the impacts of urban growth on natural systems, particularly the pressures on the preservation and enhancement of greenspace and Ottawa's tree canopy, as well as impacts of storm water and increased energy demands.

The following three future environment scenarios were developed based on the drivers of change identified by the Ottawa Next: Beyond 2036 Sounding Board. The scenarios differ based on these change drivers having different impacts on the city- positive or negative, and the city responding to these impacts in different ways.

Photo: A. MacPherson

Photo: City of Ottawa

SCENARIO 1: CONTINUED ENVIRONMENTAL PRESSURES – BUSINESS AS USUAL

There is ongoing climate disruption and continued pressure on Ottawa's greenspaces, including natural areas, urban trees, and wetlands. Invasive species, ongoing pollutants, and climate change have meant a decrease in the overall health of greenspace inside the Greenbelt.

There has been a significant loss of mature trees in the city's urban areas. In suburban communities and in rural areas outside the NCC Greenbelt, greenspace continues to disappear due to increasing suburban development and agriculture. Tree survival rates in new developments are low meaning that the mature tree canopy is not being replaced.

Climate change and advances in water technology have resulted in a longer growing season and a boom to Ottawa's diversified agricultural sector. Formerly abandoned agricultural lands have been cleared and drained for more intensive agriculture practices and farming has increased in the NCC Greenbelt. Increased fertilizer run-off to rivers and lakes increases the risk to fish and hazardous algae blooms.

The human and economic impacts of extreme and irregular weather events such as flooding, heat waves, and ice storms continue to grow as Ottawa struggles to upgrade its infrastructure to keep pace. Health impacts such as heat stress, asthma, and obesity are on the rise, especially for Ottawa's vulnerable populations.

Inconsistent adoption of carbon pricing provides little incentive to move away from fossil-based fuels. Energy production sees a shift from aging nuclear to natural gas. Renewable sources see a modest increase of generation share.

Photo: A. MacPherson

Photo: M. Copestake

SCENARIO 2: GREEN OTTAWA – BUILDING OUR NATURAL ASSETS

Ottawa has made significant investments in green infrastructure to reduce the impacts of climate change.

Extreme weather events are more common but after several years of flooding, Ottawa has made significant investments in more robust and resilient stormwater infrastructure, including greening more streets, designing with nature, and the conservation of waterways and riparian areas as natural infrastructure to adapt to a 'new normal'.

Ottawa River water quality and flooding is managed by a joint Ottawa-Gatineau Agency with the support of provincial governments.

Neighbourhoods are designed in a way that embeds the ecological function of green elements and infrastructure into their design. Significant investments in tree protection and planting have retained, and improved, a healthy urban tree canopy. Greenspace is valued as a means of creating a liveable outside environment and as an integral component of the urban public realm.

Climate change has resulted in a longer growing season, but extreme weather and new invasive species have kept the growth of the local agricultural sector to a minimum. Warmer temperatures and more variable rainfall have caused adaptations in the practice of farming in the region. Improvements to nutrient and water management have helped maintain water quality in rivers and lakes.

Electricity generation is more decentralized as technological advances allow renewables to have a larger generation share. Carbon pricing continues to push industry towards reducing emissions. Heating and transportation are more electrified.

Photo: iStock

Photo: A. MacPherson

Ottawa faces significant impacts of climate change and has focused adaptation on building efficiency and liveability. Unpredictable and extreme weather events, increased heat island effect, and invasive species have resulted in significant impacts on Ottawa's environment, economy and liveability.

Ice storms and severe rain and windstorms are frequent, with increased economic and social impacts from power disruptions, impassable roads and the cost of emergency services.

Resiliency plans are in place, but investments have not kept pace with the impacts of extreme weather and invasive species. Significant amounts of urban greenspace and the urban tree canopy are disappearing over time and efforts to replace lost tree have not been sufficient.

Given the more extreme climate, people have less of a connection to outdoor natural areas and spend more time indoors where the climate is controlled and neighbourhoods are designed to reflect the new 'indoor' reality. Health impacts such as heat stress, asthma, and obesity are on the rise, especially for Ottawa's vulnerable populations.

Energy demands increase with interior cooling. Carbon release, although moderated by alternative energy sources, continues to go up.

However, this trend has led to innovations in energy efficient and green design. New buildings are net zero and cars are almost entirely non-carbon fueled. Wastewater is filtered on-site in commercial, industrial and apartment buildings. Community design has relieved some of the effect of the urban heat island.

Energy demand per capita increases. Energy generation becomes more centralized with nuclear as the main generation source, augmented with significant growth in renewable energy.

Photo: City of Ottawa

Vignette: Environment

There are many ways in which good urban planning can support broader environmental objectives; principal among them is the skillful management of urban growth to maximize efficient land-use and the clear connection of intensification to the improved accessibility provided by transit lines. Both these strategies reduce the overall amount of movement in the city and reduce the need for private automobile trips.

Portland has been impressive on both counts. It has developed one of North America's most sophisticated urban growth management plans, significantly reducing urban sprawl. It also has a highly developed, continually expanding MAX Light Rail Transit (LRT) network with 5 separate lines serving 97 stations. The LRT network has provided a clear structure around which higher intensity development has coalesced.

Photo: Max LRT, nMotion

ENVIRONMENT
DRIVERS OF CHANGE AND PLANNING CONSIDERATIONS

Within the context of the environment, climate change is a major driver of change that will affect natural areas, agricultural lands and urban areas. In short, considering resiliency planning is becoming more important for Ottawa in response to rising temperatures, shifts in weather patterns, and emergency response.

Urban development will also put pressure on rural, forested and agricultural lands surrounding the existing built-up area, the urban tree canopy, and may affect existing greenspaces that assist with sequestering carbon and reducing the urban 'heat island' effect.

1. GREATER PRESSURE ON OTTAWA'S NATURAL ENVIRONMENT FROM URBAN DEVELOPMENT

Ottawa contains, within its city limits, thousands of hectares of forests, wetlands and other natural lands in close proximity to, and within, the built-up areas of the city. These features are central to many residents' sense of what makes Ottawa a liveable city. However, to accommodate an increase in population, Ottawa will not only likely grow outward but will also become increasingly dense and compact over the coming decades.

Intensification will make it more challenging to maintain and find new areas for urban greenspace. The increase in building footprints resulting from intensification will present new challenges related to adequate integration of existing trees and soil volume to plant replacement trees. Dense, built up areas result in more constrained and difficult growing conditions. Outward urban growth will make it more challenging to protect existing natural systems such as woodlands, habitat corridors and rural landscapes. The established practice of segregating buildings, green spaces or corridors, and urban functions in greenfield areas could produce greater percentages of greened areas on paper, but would continue to increase distances that typically lead to further dilutions of active transportation modes.

Planning Considerations

- Natural heritage protection, restoration, and enhancement within existing natural areas and in emerging and existing urban areas, and the ability to integrate environmental considerations in accordance with each planning context (urban, suburban, rural)

- Integrated watershed management programs with social, economic, and environmental benefits

- Retention of existing tree canopy into both urban infill and suburban development

- Diversification, protection, and enhancement of natural systems as a means to capture larger percentages of stormwater

- Stewardship programs to protect and enhance private natural assets (urban and rural)

- Environmental planning built into healthy community development

- Mitigation of heat island effect

2. RISING TEMPERATURE

According to Environment Canada, Ottawa's average annual mean temperature has already increased by 1.7°C over the last century, and the Government of Ontario estimates that Eastern Ontario will see increases in summer temperatures of 2° to 3° by 2041-2070, with increases in winter temperatures of up to 4°C. Along with these temperature increases, there will also be increased temperature variability. Specifically, more heat waves and cold snaps, as well as increased freeze-thaw cycles.[24]

As a result, Ottawa can expect more frequent freezing rain and heat wave events, more variable precipitation, and associated environmental stressors in coming years. The direct and indirect effects of these changes on Ottawa's natural systems include:

- changes in ecozones can place stress on animals which depend on certain habitat types but may not be able to move or adapt easily;

- an increased risk of invasion by non-native or invasive species which upset the natural balance of ecosystems; and

- greater drought stress, and wind or ice loading which may result in increased tree mortality and susceptibility to pests or diseases.

There are also direct and indirect effects on Ottawa's human population and built environment, including:

- a rising propensity to want to stay indoors, leading to greater use of cooling and heating energy;

- rising costs of heating, cooling and insulating buildings, especially detached buildings with four exterior walls open to the elements;

- the gradual abandonment of outdoor public spaces that offer no refuge from the elements, or are too distant from refuge from the elements;

- greater stress on roads, buildings and other infrastructure from extreme and fluctuating temperatures; and

- rising incidences of health impacts from temperature variability and extremes.

Figure 1: Historical Temperature Trend for Ottawa CDA. Ontario

Average Annual Mean Temperature - Ottawa CDA
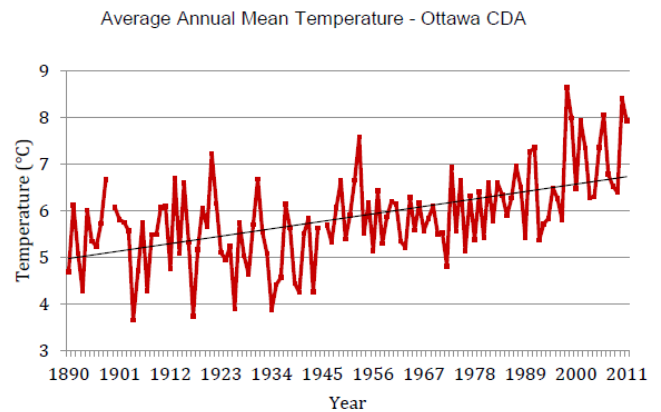
Planning Considerations

- Infrastructure design standards to meet new climate conditions

- Sustainable infrastructure operation and maintenance in light of increasing need and cost

- Building technologies and development approaches that maximize energy efficiencies and reduce emissions

- Protection and establishment of connected natural habitat for wildlife and plant systems

- Climate resistant design of public and private spaces

- Building resiliency into all facets of City Planning and Operations

- Retention and maintenance of urban forest

- Appropriate responses to invasive species

3. INCREASED STORM EVENTS

With increasing levels of carbon dioxide in the atmosphere and rising temperatures, there are increasing occurrences of more intense storms and natural disasters. Ottawa is vulnerable to flooding, wind, and ice storm events, all of which can cause significant damage to property and infrastructure. For example, the 1998 ice storm in Ottawa required a substantial reconstruction of the electricity distribution infrastructure. The ice storm impacted approximately 600,000 electricity consumers, over 100 high-voltage transmission towers were damaged and more than 10,000 poles required replacement.[25]

Planning Considerations

- Coordinated response capacity
- Ice, wind and flood-resistant design for buildings and energy distribution networks
- Natural, or more resilient, storm water infrastructure
- Storm and sewer management resilience
- Appropriate restrictions on the use of flood plains to mitigate future impacts of flooding
- Enhanced weather monitoring
- Urban tree retention
- Building resiliency into emergency management response

4. GREATER PRESSURE ON AGRICULTURE AND FOOD SOURCES

Ottawa is a city of both rural and urban lands, which poses unique challenges. Within the municipality's rural lands, farmland occupies approximately 40% of the total land area, comprising almost 1,200 agricultural operations. As many as 10,000 jobs in the City's overall economy are directly and indirectly related to agriculture.[26]

Ottawa's agricultural sector could derive some benefits from climate change, most notably longer and warmer growing seasons. However, while this warming trend could benefit the production of corn, soybeans, forages and horticultural crops, a decrease in water availability over the growing period may be a significant limiting factor for future crop production. In addition, climate change may also negatively affect agriculture through changes in agricultural pests, invasive species, weeds and disease.

In short, in a future of more variable water and climate, technology will be key to driving agricultural success.

Planning Considerations

- Promotion of local food sources and protection of agricultural land through land use policy and zoning
- Precision agriculture opportunities
- Agricultural low water management
- Nutrient management to protect rivers and lakes
- Local and coordinated food systems
- Access to affordable nutritious food

ENVIRONMENT
DRIVERS OF CHANGE AND PLANNING CONSIDERATIONS

5. GREATER PRESSURE ON PUBLIC HEALTH AND EMERGENCY RESPONSE

The key climate change impacts likely to affect public health in Ottawa include extreme weather events and natural hazards such as severe storms, heat waves, hurricanes, floods, wildfires and droughts.

Environment Canada estimates that the number of days per year when the temperature will exceed 30ºC in Ottawa will increase from the current 22 days per year to over 40 days per year by the end of the century. In addition, the number of days per year when the nighttime temperature will be greater than 22ºC will increase from 4 per year to 18 per year by the end of the century.[27]

The effects of climate change on public health and emergency response include:

- Increased heat-related mortality;[28]

- Increase in vector-borne diseases such as Lyme disease and West Nile Virus;

- Greater air pollution and decreased air quality;

- Contamination of food and water; and

- Introduction of new infectious diseases to Canada, as well as the possible re-emergence of diseases that were previously eradicated.[29]

Planning Considerations

- Enhanced emergency event response capacity
- Public education and protection in regard to climate change
- Urban design that supports public health, including greater access to tree-shaded public spaces and streets across the city
- Monitoring and surveillance of the health impacts of climate change
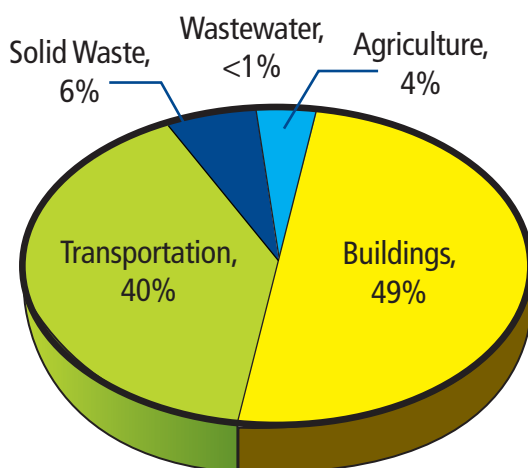
Photo: Shutterstock

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6. INCREASED PRESSURE TO CONSERVE ENERGY, REDUCE GREENHOUSE GAS EMISSIONS AND DESIGN FOR A LOW CARBON FUTURE

In 2016, Ottawa City Council approved a GHG emission reduction target for Ottawa of 80% below 2012 baseline levels by 2050.

To meet this target, the City will be required to pursue relatively aggressive changes to support a sustained transition away from fossil fuels towards a low carbon economy. This will include a significant increase in the use of public transit and active transportation, the electrification of public and private motor vehicles, the implementation of district energy systems based on low carbon thermal sources, and increased local renewable energy production. In addition, the City will need to seek equally large reductions through energy conservation and efficiency in the buildings and transportation sectors.

This approach will require significant infrastructure investments (transit levels of service, electric vehicle charging, district energy) as well as a focus on more compact complete communities.[30]

Planning Considerations

- Meeting municipal GHG emissions reduction targets
- Shifting of source electricity generation and distribution systems; promotion of individual generation and renewables, biogas from solid waste
- Increased energy efficiency through green building design and construction for new buildings and remodelling of older buildings
- Comprehensive mobility strategy involving reduction in car use and the design of public transit and active transportation networks to be more convenient
- Opportunities for energy capture through various sources, including waste digestion
- Innovation in movement of people and goods in rural areas
- Innovations in mass mobility considering urban and rural needs
- Electrification of private and public fleets including expansion of the number of charging stations
- Support for public/private/philanthropic collaboration to achieve goals

Figure 2: Percentage CO2e Emissions by End Use, Ottawa 2012

Solid Waste, 6%
Wastewater, <1%
Agriculture, 4%
Transportation, 40%
Buildings, 49%

ENVIRONMENT
DRIVERS OF CHANGE AND PLANNING CONSIDERATIONS

7. INCREASED COSTS ASSOCIATED WITH DRINKING WATER, WASTEWATER, AND SOLID WASTE MANAGEMENT

Water security related to both drinking and wastewater, as well as water-related infrastructure failures and costs associated with heavy rains and flooding are increasing due to fluctuations in temperatures and increasing severe storm events.

Ottawa has reduced combined sewer overflows by 80% from 2006-2015 and continues to make significant investments to prevent future overflows due to storm events.[31] However, as the frequency and severity of these storms increase, new investments will be needed as well as partnerships with large landowners to support more resilient stormwater management, including green infrastructure.

Solid waste will likely become increasingly complex to manage given difficulties in locating new waste facilities, challenges related to the lack of markets for many recyclables, and increasingly strict regulatory environments.

Planning Considerations

- Preservation and enhancement of wetlands, forests, streams and biodiversity to build environmental resilience and investment in green engineered infrastructure
- Innovative partnerships with rural landowners to manage stormwater
- Preservation of water balance, both in quality and quantity
- Water conservation measures
- Waste as an energy source and circular economic development opportunity
- Enhanced waste recycling programs and financing approaches
- Increased composting
- Disincentives to excessive packaging

Photo: A. MacPherson

6.4 URBAN FORM AND MOBILITY

Urban form refers to the physical structure of a city and the comprehensive relationships of all its fundamental components. Mobility refers to all the means by which people and goods move within that structure. The various types of urban form that may exist in a city involve the way in which buildings, the uses of those buildings, streets and open spaces are assembled and mixed. This typically includes a gradation from the very intensive (downtown, urban neighbourhoods, mainstreets), through to the less intensive (suburbs, rural communities). Built form is also a reflection of the time of construction of each area of the city, the type of transportation options available at the time, as well as the social, cultural and economic conditions that existed at the time of construction of each layer of the city.

Mobility includes personal and mass mobility and the movement of goods, as well as the infrastructure that supports it. Mobility is a continuum that starts with self-propulsion (foot and cycle) and continues with mass mobility (transit, ride-share, rail and air) and personal mobility (car-share, taxi, personal vehicles). In parallel, there is a cost continuum to the citizen and to the municipality associated with each mode of mobility, from the free to the most expensive.

Goods movement also involves a scale continuum, from hand-pushed delivery carts and cargo bicycles, to delivery vans, trucks, freight trains and cargo aircrafts.

Urban form and mobility are inherently linked as one will drive or influence the other while at the same time, optimally, providing choices.

The three urban form and mobility future scenarios are generally differentiated by how the city will grow in the future, and the possible implications of those growth patterns. The first is based on a more compact growth in the urban area inside the Greenbelt, and the level of transit service to support it. The second is based on the growth and maturation of the city's large suburban communities. The third scenario focuses on the creation of a major new community beyond the existing built-up area, and its relationship to the urban core and existing suburbs.

Photo: City of Ottawa

SCENARIO 1: GROWTH WITHIN THE URBAN AREA

Downtown continues to be Ottawa's economic, transportation, and cultural hub.

Ottawa's downtown has doubled in size, through the completion of the West Downtown (Lebreton, Zibi, Bayview), and accommodates significantly more employment and residents. High-rise and mid-rise buildings define the image of downtown. Residential communities around the downtown core also continue to intensify with low-rise and mid-rise buildings and become more complete communities with vibrant main streets. Experiential shopping is thriving in Ottawa's urban core. Families shop on foot and move by transit.

The urban area inside the Greenbelt captures the majority of population growth, and this growth is spearheading the gradual redevelopment of "bungalow-belt" neighbour-hoods into more complete urban communities.

Light rail has expanded to connect the centres of all suburban communities with the downtown core. The network has added two new urban lines and is integrated with the Ville de Gatineau under a Regional Transit Authority (RTA) to offer integrated fare collection region-wide.

High-speed rail connects Toronto, Ottawa, and Montréal allowing commuters to reach Toronto in about two hours and Montréal in under an hour. A new high-speed rail/regional transit station has been built downtown. Private car ownership has declined significantly in the urban communities where transit, shared electric vehi-cles, and active transportation are more efficient means of moving around.

Living downtown is expensive. Affordable housing is pushed outward from the urban core and located in high-rise developments around transit stations. These high-rise areas struggle to be complete communities. In addition, neighbourhoods outside of the city limits including several parts of Gatineau experience an influx of people looking for affordable options, even if it means being further removed from rapid transit.

Suburban growth outside the Greenbelt continues, but at a reduced rate. Suburban neighbourhoods look and feel more like urban villages, with better walkability and limited mix of uses.

Personal vehicles continue to be the dominant form of transportation. Goods distribution is dominated by smaller vehicles out of new local distribution centres at the urban periphery.

Photo: City of Ottawa

SCENARIO 2: DECENTRALIZED GROWTH

Taking advantage of better transit connections and more modern infrastructure, some new employers are locating in the suburbs.

The communities of Orléans, Kanata, and Barrhaven have grown and intensified significantly with the arrival of new businesses that have chosen to locate in the suburbs. This shift is supported by the quality of transit connections, strong real estate opportunities on large parcels of land that were ready to redevelop, and better infrastructure.

These suburbs have transformed into more complete, mixed-use communities providing access by foot, bike, transit, and car to jobs, shopping, learning, open space, recreation, and other amenities and services. Despite an increase in transit ridership and shared vehicle use, private car ownership rates remain much higher in the suburbs than inside the Greenbelt.

Downtown Ottawa experiences steady growth, but continues to be dominated by the federal government. However, a few new knowledge-economy employers have taken root in Ottawa.

The urban neighbourhoods continue to intensify at a steady rate, taking advantage of proximity to light-rail transit (LRT) stations to maintain a constant stream of development projects. The gradual transformation of "bungalow-belt neighbourhoods" is underway thanks to the introduction of new Bus Rapid Transit (BRT) lines linking major corridors with LRT stations.

Ottawa remains a relatively affordable place to live compared to other large Canadian cities. Affordable housing is clustered along transit lines and outside the Greenbelt. As the population ages, there is an increasing need for the availability of retirement residences and services for long-term care in the suburbs.

Travel patterns have become more complicated as more people travel between suburbs without the need to go downtown. As transit was designed to get people from the suburbs to the downtown, the transit system is not responsive to new travel patterns. As a result, cars remain the dominant form of transportation outside the Greenbelt, creating increased congestion as well as challenges for vulnerable populations.

Photo: City of Ottawa

SCENARIO 3: A TALE OF TWO CITIES

A large corporate headquarters establishes in undeveloped land outside of the existing suburbs, bringing with it 100,000 direct and indirect jobs. The headquarters also attracts other smaller sized companies and is the impetus for the establishment of a new technical university nearby.

A large new "smart" community grows from the ground-up around the corporate headquarters based on a vision of a connected work force around the clock and minimal commute times.

Based on Smart City principles, homes, places of work, schools, libraries, roads, sidewalks, parks, water, energy generation, and transmission and storage are all interconnected to communicate and access services, monitor service delivery, collect data, and provide analytics.

The new community is near a new high-speed rail station that connects Toronto, Ottawa, and Montréal, allowing commuters to reach Toronto in about two hours and Montréal in under an hour. The site is connected to downtown through a dedicated LRT line.

Ottawa's downtown continues to grow at a steady pace and remains the city's nightlife and cultural centre, although more shops and cultural venues aimed at youth are moving to the new community.

Growth in the existing suburbs is focused on the development of complete communities with additional services and amenities for their own populations, however much of the new investment is directed towards the new community.

Transportation within the communities shifts towards providing greater access across multi-travel modes. Light rail expands to connect the centres of suburban communities with the downtown.

Vignette: Urban Form

Ottawa is working to meet the common urban form and design challenges of the modern city: how to properly direct growth, how to intensify within the urban area, how to link new development to transit and how to create memorable places and complete communities. All cities have their unique challenges, and one of Ottawa's distinctive opportunities is to increase the role that the river valley plays in the actual and symbolic life of the city. Seattle provides a magnificent example of a unique response to its unique challenge, connecting the downtown to the waterfront.

The Seattle Art Museum Olympic Sculpture Park was the winning design of an international competition. It creates a continuous constructed landscape for art and forms an uninterrupted Z-shaped "green" platform, descending 40 feet from the city to the water, capitalizing on views of the skyline and Elliot Bay, rising over the existing infrastructure to reconnect the urban core to the revitalized waterfront.

Photo: Seattle Olympic Sculpture Park, Seattle Art Museum

A city's form and the way people move around in it has evolved over time and will continue to do so. Built form and mobility have a distinct reciprocal relationship. At the beginning of the 20th century, Ottawa was a much smaller city, limited by the transportation technology of the times: electric trolleys and horses. However, a significant transition in the shape and function of the City occurred with the dominance of the private automobile after the 1940's. With the convenience of private autos providing inexpensive personal mobility, the city expanded rapidly by building low-density suburban communities with residential, shopping and employment areas distinct and distant from one another. Today, major communities are growing outside the Greenbelt with commensurate efforts to improve mobility connections, particularly to provide viable and reliable alternatives to private car use.

The shape of the city and mobility within the city will continue to evolve, particularly due to the new LRT system and other new technologies in rapid transit, as well as vehicular automation. With these changes it is critical to recognize the importance of healthy lifestyles, including increasing walkability, safe cycling networks, physical health opportunities and the need for to reduce carbon emissions. The following eight change drivers will greatly influence this evolution over the coming century.

Vignette: Mobility

The city and region of Lille, in northern France, struggled with transportation throughout the 1960's and 1970's as its small medieval core found itself heavily congested by automobile traffic and its much larger and populous suburban areas lacked in density and connectivity. Along with neighbouring cities Roubaix and Tourcoing, the Lille region opened the world's first driverless metro in 1983, and embarked on a comprehensive strategy to densify and urbanize the areas served by its stations. Thirty-five years after the metro began service, the city of Lille (pop. 225,000) and its metropolitan area (pop. 1.2 million) have a transit system with two automated metro lines with a total of 60 stations, two tramway lines, and 88 bus routes.

As a result of the high level of transit service, commutes by single driver dropped by 18% between 1998 and 2006, and transit ridership increases on an annual basis. Lille has also integrated its transit fare payment system with bike-share and car-share services. Despite its unusually low density for a French city, 41% of its households don't own a car.

Photo: Tolling, Network For Transport Measures

DRIVERS OF CHANGE AND PLANNING CONSIDERATIONS

1. EVOLVING URBAN/RURAL STRUCTURE

Ottawa's population today stands at 985,000 and will surpass the 1 million mark in 2019. We are a fast-growing city. Between 2006 and 2016, Ottawa grew by 15.0%, faster than Ontario (10.6%) and Canada as a whole (11.2%).[32]

Reliable population projections beyond 2041 do not exist and there are many factors that could affect population growth. However, it is conceivable that the population of the Ottawa Gatineau region will be between 2 to 3 million by the end of the century. This growth will be supported by international immigration and migration to Ottawa from other parts of Ontario and Canada.

The way the city is structured to accommodate this population increase will have significant economic, social and environmental impacts. Complete, compact and connected communities have the potential to improve liveability and reduce the costs of infrastructure and service delivery including roads, transit, water and wastewater. Vibrant, prosperous rural villages can provide an alternative to Ottawa's urban neighbourhoods.

However, the issue of housing affordability has become a significant issue for cities that are trying to become more compact, often resulting in residents moving to adjacent municipalities with more affordable housing options.

Planning Considerations

- Striking the appropriate public policy framework within a context of evolving market-driven housing demands, to properly guide evolution;

- Transforming existing suburbs into more complete communities with supporting mobility planning;

- Coordination with the City of Gatineau and other adjacent municipalities regarding regional mobility networks and the movement of people seeking lower housing prices;

- Policy and cost implications of intensification or expansion;

- Working with the development industry to develop new dwelling typologies that can meet evolving market demands and community-building goals;

- Creating vibrant and distinct rural villages; and

- Communication and coordination between the urban core, suburban communities, and rural communities.

2. LAND USE DEMANDS

Land use demands are becoming more complex and challenging traditional land use planning approaches. The nature of the workforce is changing due to a shift to a knowledge-based economy, improved communications technology, and an increasingly flexible work culture. At the same time, retail and service industries are transforming as a result of online options, goods delivery systems, increased operating costs and shifting consumer preferences.[33] These changes are ongoing and will require that Ottawa ensure that its land use policies act to attract and retain workers in the knowledge based economy.

Ottawa will be affected in its established, transit-rich urban areas by an increasing demand for residential opportunities. This demand will be closely associated with increased demand for affordability in housing. At the same time, as the retail market makes significant adjustments including 'bricks and mortar' stores seeking to redefine their roles, many commercial forms, such as large-format, land-extensive retail shopping areas, will struggle to compete and remain relevant. With the increase in online shopping and goods movements, truck deliveries could further exacerbate already congested roadways, as well as increase traffic in quieter neighbourhoods.

In the communities outside the Greenbelt, the increased demand for affordable housing will lead to a continuation of higher-density development in the form of multiple-family and attached units, as detached dwellings become too expensive for most. An upside to increased density in greenfield areas is that compact built form supports more economical transit nodes.

Planning Considerations

- Demand for flexibility/diversity in land use categories
- Changing requirements for employment land supply
- Implications of evolving retail delivery
- Lower square metres/person for workspace, retail, and residential
- Future of greenspace

Photo: City of Ottawa

3. PRESSURE ON COMMUNITIES

As Ottawa grows and changes, communities will face new opportunities and challenges. Downtown will intensify and grow vertically, and the influx of new residents will create pressure on amenities, services and public spaces. Urban neighbourhoods will continue to experience transformation through infill, putting pressure on maintaining neighbourhood character. Ensuring housing affordability in these neighbourhoods will also be increasingly challenging. At the same time, this intensification may lead to a more vibrant public realm, greater diversity in cultural offerings and more retail and job opportunities within walking distance.

Suburban neighbourhoods may grow into more complete communities with more retail, services, job opportunities and educational opportunities. However, ongoing reliance on cars may cause higher levels of local road congestion and hinder attempts to make these communities more complete. Introducing a more balanced array of mobility choices in those communities will be a key challenge.

Rural villages may become attractive to those seeking more affordable housing but may face challenges in maintaining their distinct identity should the urban boundary continue to expand. The identity of those villages and the ongoing ability to maintain a wide array of choices in schools, retail and community services will be a key consideration in cases where the line between rural and suburban becomes more blurred.

Planning Considerations

- Requirements for complete communities (adaptive design, local services and amenities, infrastructure, mobility options, employment, mix of housing, density, parks, urban forest and tree canopy, etc.)
- Tailored response to needs of different communities to become more complete
- Responding to life cycle changes of a community
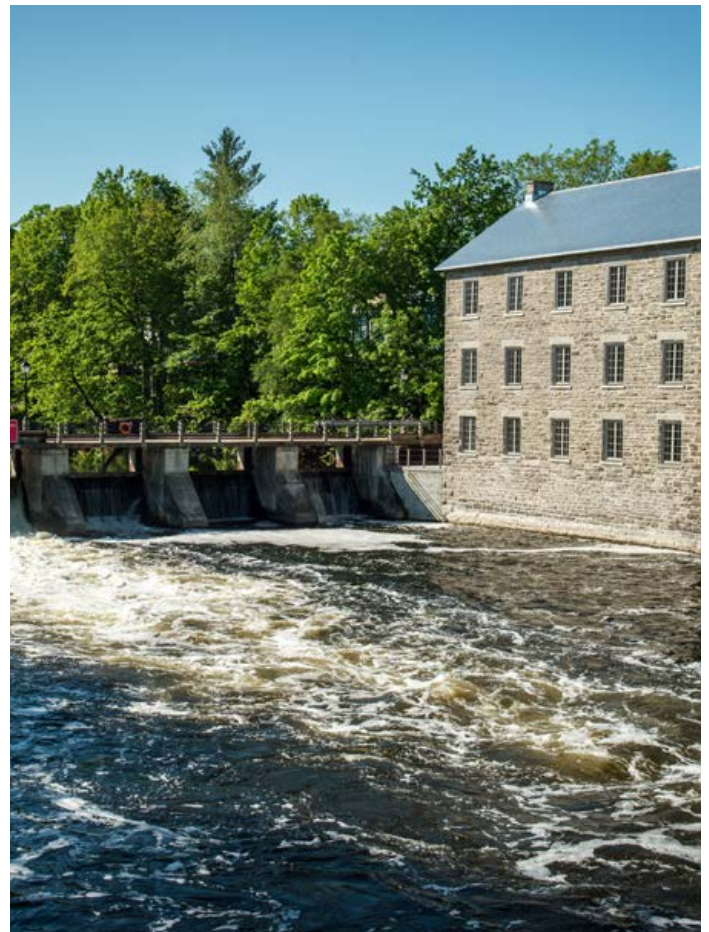- Key place-making initiatives
- Future of Public Spaces

Photo: City of Ottawa

4. CHANGING HOUSING DEMANDS

The provision of housing in Ottawa is facing some very challenging demands. While still an affordable place to live in comparison to other major Canadian cities such as Toronto or Vancouver, access to affordable housing is a significant and growing issue in Ottawa. Almost 12% of residents in Ottawa-Gatineau are in core housing need and in 2017, over 10,000 people were on a waiting list for subsidized housing, with wait times lasting up to five years.[34]

The increasing cost of housing is leading people to seek affordable housing options, such as combined living arrangements or moving to more affordable suburbs. This shift creates a greater pressure on household budgets in regards to transportation and in turn further influences affordability. The long-term economic and social risks of a lack of affordable housing options are an inability to attract and retain workers, increased homelessness and an increasing divide between affluent and non-affluent neighbourhoods.

Housing demand in Ottawa already features a much wider range of dwelling types than typical North American cities of our size. Housing starts data reveals that the Ottawa market, on a typical year, absorbs about 5,000 units per year, of which one-third are single-detached homes, two-fifths are townhouses, one-fifth are condo apartments and the balance are condo towns or stacked towns. About four out of five dwellings are ground-oriented, and the market exhibits a healthy appetite toward the so-called "missing middle" forms of housing (townhouses, stacked townhouses and condo towns).[35]

Changing demographics and preferences will continue to change housing needs. An older population will require housing that will allow them to age in place in addition to communities that are accessible for people with mobility limitations. New Canadians may be looking for flexible housing for extended family. Younger populations moving to the city to pursue studies or business opportunities may seek options for live-work arrangements that possess quick, inexpensive access to services and business support mechanisms.

Planning Considerations

- Ensuring a mix of affordable housing options that meet future needs
- Diversity of affordable housing locations in downtown, suburbs and rural communities
- Allowing for the gradual evolution of established areas through the introduction of appropriate dwelling typologies that fulfill demographic needs
- Understanding the correlation between the life-cycle of housing and the life-cycle of urban infrastructure to better map areas of opportunity

Photo: City of Ottawa

5. DEMAND FOR HOUSING AND EMPLOYMENT CLOSE TO TRANSIT

The demand for housing and employment close to transit is generated by a reciprocal relationship of greater transit level of service, greater urban density and vitality, and greater transit ridership. Residential locations close to rapid transit allow residents and businesses to alleviate their transportation costs and benefit from the opportunities that exist in transit-rich areas where a diversity of services is available. At the same time, distance and a higher percentage of transit commutes reduces road congestion, and therefore, pressure on municipal road budgets. As the City prepares for significant shifts in mobility patterns with the launch of O-Train service, greater attention needs to be focused on supporting the development or evolution of complete communities within walking distance of stations. Furthermore, greater coordination is required between the O-Train and the street bus network to extend the radius of accessibility of those stations to surrounding areas. The drive to accelerate this level of change requires significant consultation, planning, and financial considerations.

Enhanced live-work opportunities close to transit services provide many benefits. With reliable transit within a 5-10 minute walk of home or employment, the need for multiple car ownership is reduced. Considering that the average automobile costs about $12,000 per year to own, maintain and operate, eliminating or reducing this household expense represents a significant savings. In addition, reduced car ownership has an important effect on greenhouse gas reduction, as well as in fulfilling daily exercise needs by promoting active transportation to transit service points.

Mixed-use transit nodes enable a range of choices in affordable housing while at the same time providing and supporting local walkable shops, services, and public squares. For employers, small businesses and retailers, locations that do not require the provision of off-street parking are cheaper to operate, easier to incubate, and can be strengthened by the nearby presence of other employers and businesses that increase the value of a location. This is a key factor in promoting employment diversification and the incubation of small businesses.

Planning Considerations

- Removing financial barriers to the creation of new mixed-use districts around stations
- Striking the right balance in the policy, regulatory and financial framework to allow for the evolution of existing areas that receive a transit station to become full-service, walkable, mixed-use neighbourhoods
- Strategic use of public land
- Allocation of appropriate density and mix of uses
- Ensuring affordability of housing in proximity to transit
- Access to transit stations from surrounding communities (including for those with reduced mobility)
- Ensure that transit services meet evolving travel pattern needs
- Establishing closer links between urban planning and transit route planning for all transit modes (rail and bus)

6. INCREASED DEMAND FOR INTEGRATED MOBILITY AND GOODS MOVEMENT

Ottawa's future prosperity is linked to the efficient movement of people and goods. If well managed, a strong and integrated mobility network will allow Ottawa to compete with cities both nationally and globally.

Mobility, both of people and goods, has a profound impact on residents' daily life. In the future, there will be increasing pressure to have seamless mobility systems to allow people and goods to move throughout the city as efficiently as possible. For a growing number of people, this may include a shift away from existing patterns toward a more integrated continuum of mobility-as-a-service. This shift will be supported by the arrival of new technologies such as LRT, ride-hailing, car sharing and bike sharing.

Same-day delivery as well as the rapidly expanding trend towards on-line shopping, is creating a growing shift in public expectations related to goods movement. This entails a careful consideration of the means by which goods are shipped, not only to urban areas like downtown Ottawa but also to suburban and rural communities. Emerging trends in other parts of the world include click-and-collect pick-up points at transit stations, or in neighbourhood storefronts that form part of walkable communities. On a larger scale, the shipping and delivery of merchandise, food and larger manufactured goods is also continuing to evolve. The City needs to consider the changing logistical implications of goods movement and leverage assets like the airport or key roadside locations in a deliberate way.

The arrival of new technologies, such as driverless vehicles or drones, will raise the need for new rules and policies. These rules and policies will have to be carefully considered in order to promote positive outcomes for residents.

Planning Implications

- Network integration (all forms of transport)
- Innovative payment and service systems
- Integration of active transportation network into urban design
- Neighbourhood traffic management
- Land use implications of retail distribution
- Impact of drones/airspace restrictions
- Role of Automated Vehicles (including in relation to transit)
- Ottawa-Gatineau goods movement and impacts
- Transit links between Ottawa and Gatineau
- Active transportation links between Ottawa and Gatineau
- Mobility options for rural communities

7. GROWING IMPORTANCE OF CONSUMER EXPERIENCE AND NEED TO TRAVEL

The need to travel to work, home and to fulfill our personal life objectives has largely been supported by the personal automobile. However, emerging trends suggest that consumers are looking for a wider array of mobility options. At present, the auto fleet in major North American cities doubles in size every 20 years. The main reason for this is that the car is often the most viable choice for people residing in areas that feature significant distance and land-use separation.

Over the past few decades, fewer and fewer young people are choosing to acquire a car or, to even get a driver's license.[36] With personal mobile devices, social media and the ability to work and communicate from home, the need to drive to support daily needs has started to decline. In addition, the high cost of operating and maintaining a vehicle is often well beyond the personal means of young individuals who would rather put their money towards a smart phone, entertainment, paying down student loans, or saving for a home. As transit service becomes more frequent, safer, and comfortable (e.g., WiFi on the bus), and as active transportation systems become better linked, (e.g., designated city bike lanes), individuals are finding they can get around more economically.

A shift in personal transportation choices and priorities will ripple through Ottawa's transportation, built form, employment and recreation sectors. The demand for affordable and convenient transportation along the entire continuum will continue to increase.

Planning Implications

- Shift in consumer preference – comparative impact on choice of transportation mode (comfort, safety, convenience, and reliability)

- Considering ways for the more effective means of transportation to be designed as the quickest and most convenient for people to use

- Mobility equity and choice (vehicle ownership, transit availability, etc.)

- Lifestyle mobility evolution

- Dynamic evolution in the nature of work, workplace, and socialization

Photo: City of Ottawa

8. GROWING DEMAND FOR REGIONAL/ INTERNATIONAL MOBILITY

Regional and international mobility is fundamental to Ottawa's economy and to its future growth. Improvements to regional linkages between Ottawa, Toronto, and Montréal are necessary, as these three urban economies are already linked, and those links continue to grow. Personal inter-city and international travel continues to increase, as individuals take advantage of convenient and affordable options. Ground, rail and air links, while already established, will need to transform to meet increasing demands for faster and smoother routes, while at the same time increasing capacity over the next few decades. Due to increased online shopping delivery demands (i.e., same day deliveries), delivery logistics for freight will need to change significantly, as volumes continue to increase on already heavily used routes.

International travel is already a priority for Ottawa in its role as the nation's capital. However, mobility options to and from the airport need to be improved while airport capacity, in response to Ottawa's increased role as an international city and business and tourism destination, will require significant growth.

At a metropolitan scale, mobility networks between Ottawa, Gatineau, and surrounding municipalities in Eastern Ontario and Western Quebec will require careful consideration. Already, several regional transit companies serve Ottawa and Gatineau, the two core cities, from various outlying areas. Network and fare integration, coordination of transfer points and route numbering, and levels of transit service to surrounding municipalities, can have a beneficial impact on road congestion in the two core cities and on the development patterns in all municipalities.

These accelerating demands for improved and more integrated mobility will require careful planning, as expansion of ground, rail and air services will tolerate only minimal disruption. The road link to and from the airport will be under pressure to expand its capacity while a direct mass transit link would also alleviate congestion. High-speed rail between Ottawa, Montréal and Toronto, and to American Eastern Seaboard cities, can provide speed and convenience to the business and personal-travel sectors, offering an alternative to air and auto travel while providing expandable capacity. Corridor protection, station location and integration with urban mobility networks are key considerations in planning for future high-speed rail.

Increased truck traffic on highway systems is already in conflict with automotive use. Freight delivery logistics are essential to business operations and financial competitiveness. Designated truck lanes or times of operation are already being considered in other cities. Any freight route improvements will take careful planning, and while these logistical changes may be both costly and inconvenient, they are essential to Ottawa's future growth.

Planning Considerations

- Airport capacity and links
- High speed rail (HSR), appropriate corridors for rail capacity and links, station location(s)
- Greater integration of different modes of transportation of people and goods
- Shift in freight and delivery logistics - future of highways and trucking traffic
- Accommodation of airport/HSR employment generation

7.0 CONCLUSION

As the Ottawa region grows to a range of 2 to 3 million people over the course of this century, it will experience significant change. Ottawa's form and feel will change, shaped by demographic and technological shifts, a changing climate and a changing economy. As it reaches the next threshold of population, it will also start to benefit from the economies of scale and the global linkages that result from being a larger city.

Through the development of scenarios under each theme, the Ottawa Next: Beyond 2036 planning study provided ideas for how some of these changes could possibly play out in the future. While not predictive or comprehensive, the scenarios nevertheless compel us to consider how we plan today for the uncertainty of the future.

By taking a longer-term view than the traditional 20-year planning time-frame, and by examining the approaches taken in other jurisdictions, the Ottawa Next: Beyond 2036 study provides a lens with which to review the City's growth management documents, specifically to ensure they promote resiliency and adaptability over the long-term. Some key questions include:

- Ottawa's economy is stable, and housing is still relatively affordable compared to other cities, however, there is still not sufficient affordable housing choices for all segments of the population. How do we work with the private sector, the not-for-profit sector and other municipalities to provide greater choice?

- The City is making big strides in diversifying mobility options; however, the City cannot predict how technological innovation and the changing landscape of employment will affect future transportation needs. How do we position the city to be adaptable in this regard?

- Growth is manageable and we have made good progress towards meeting our intensification objectives, but as the city grows, what type of urban land will be needed to support future employment and housing needs while also addressing issues of community liveability and affordability for supporting infrastructure and for housing?

- In the context of climate change and increased growth, how will Ottawa protect and enhance our urban tree canopy as well as our natural areas and waterways? How will growth affect our ability to transform Ottawa into a thriving city powered by clean renewable energy?

- Downtown communities feel that they are not seeing all of the benefits normally associated with intensification, and suburban communities remind us that there remains significant shortcomings in the diversity of job opportunities and the long commutes. Rural communities feel that the lack of growth opportunities contributes to the loss of local service, and that rapid residential development in some villages blurs the line between rural and suburban. How can our planning framework be more responsive to each context?

The City's next Official Plan is an opportunity to work with the findings of the Ottawa Next: Beyond 2036 study to frame the key questions that will underpin the preparation of a policy framework which reflects the new realities of Ottawa. This policy framework will consider Ottawa in its present form, and how it might evolve, taking into account the drivers of change and the various scenarios discussed herein, their implications, and the policy considerations that are associated with each of the themes.

A key focus for the next Official Plan will be to provide a policy framework that is flexible and adaptable to allow the city to be resilient in addressing and responding to changes that we may not know about and that can have a profound effect on how we need to manage future growth and change. The next Official Plan in addressing the more traditional elements of land use, urban form and mobility will need to be more strategically informed by matters associated with economic growth and diversification, climate change, and social culture and quality of life issues.

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OTTAWA NEXT: BEYOND 2036
SUMMARY OF RESPONSES FROM PUBLIC SURVEY

JANUARY 23, 2018 TO APRIL 4, 2018

ANNEX 1
PUBLIC SURVEY

1.0 Introduction

The Ottawa Next: Beyond 2036 study is a council directed initiative, launched in October 2017. The goal of the study is to identify trends and disruptors that will shape Ottawa in the future and to identify the policy implications that flow from these trends and disruptors.

Specifically, the purpose of the Ottawa Next: Beyond 2036 study is to:

- identify trends and disruptors that will influence the city beyond the current 20 year planning horizon

- identify possible future scenarios, which extend beyond the normal planning time-frame and which arise from the identified drivers and disrupters; and

- identify the key policies and/or directions that will allow the City to create complete communities and to be, innovative, nimble, resilient and adaptable to future change.

The study is intended to inform the preparation of Ottawa's Next Official Plan and the City's other Strategic Initiatives.

As part of the study's public engagement strategy, the City reached out to Ottawa residents via an online questionnaire that was hosted on the Ottawa Next: Beyond 2036 webpage (https://ottawa.ca/ottawanext) between January 23, 2018 and April 4, 2018. In total, there were 302 survey respondents with an overall response rate of 76%.

2.0 Questions

The survey consisted of the following four questions:

1. What does liveability mean to you?

2. What are Ottawa's strengths in each of these areas?

    a.   Mobility

    b.   Jobs, economic security and economic opportunities

    c.   Housing

    d.   Natural environment

    e.   Arts, culture and recreation

    f.   Sense of community

    g.   Inclusive, healthy and vibrant neighbourhoods

3. What are Ottawa's opportunities in each of these areas?

    a.   Mobility

    b.   Jobs, economic security and economic opportunities

    c.   Housing

    d.   Natural environment

    e.   Arts, culture and recreation

    f.   Sense of community

    g.   Inclusive, healthy and vibrant neighbourhoods

4. Are there any other thoughts or ideas that you would like for us to consider?

3.0 Methods

The Ottawa Next: Beyond 2036 project team used a Machine Learning tool to identify trends in responses. In brief, the Machine Learning tool grouped responses based on their degree of similarity. This approach helps identify the strongest trends within the data set and provides a representative sample of responses.

4.0 Summary of Results

The following five machine-generated topics were identified from the survey responses:

1. Sense of community (426 responses)

2. Transportation (293 responses)

3. Affordable housing (239 responses)

4. Economic development (190 responses)

5. Environment (165 responses)

The topics identified through the survey have significant overlap with the four themes identified by the Ottawa Next: Beyond 2036 Sounding Board and project team:

1. Urban Form and Mobility

2. Economic Development

3. Environment

4. Social/Cultural and Quality of Life

However, the topic of affordable housing, which was identified in 239 responses was not identified by the Sounding Board as a stand-alone theme, but rather as an overall trend in the report. This difference prompted a review of the final report by the project team, particularly in terms of both the change drivers and the policy implications. The primary focus of this review was to ensure that the values and directions associated with comments related to affordable housing were reflected.

5.0 'As we heard it' – Representative Responses by Question with Topic Association

To provide a high-level overview of what was heard through the survey, a sample of ten representative responses for each question is outlined below. Responses were selected by the machine-learning tool based on relatedness to the question.

Q1: What does liveability mean to you?

Respondent Number	Topic	Response
307	Transportation	Liveability means good transportation routes, both for auto and truck transport, as well as public transit. This implies having sufficiently wide roadways and north south routes through the city that enables the free flow of people and goods, but also accessibility for logistical infrastructure, service vehicles, and hardworking Canadians.
320	Sense of Community	To me, it means: the ability to engage in daily activities - Work, recreation, socializing, child care, errands - efficiently and with a minimum of stress. This means ease of getting around, a pleasant and safe environment, and vibrant neighbourhoods that are fun to walk around.
10	Sense of Community	Liveability is the the summation of the social, economic, political and personal attributes that contribute to the willingness for people to choose to live, work and visit a specific location.
294	Sense of Community	Inclusive and diverse. Meaningful opportunities for engagement and participation, both formal and spontaneous. Includes fun and whimsy. Easy access to nature and gardens. Accessible. Affordable. Close to shops, services, employment and entertainment. Good public spaces welcoming to all. Includes art and culture. Provides spaces for active living (sports fields, arenas, community centres) and focuses on healthy, equitable and inclusive transportation. Includes support services for those with ongoing needs as well as robust crisis response services.
73	Sense of Community	An efficiency of movement and function in everyday life - that means short commute times, all the amenities close to your home, access for all (adults, children, disabled, etc.)
106	Sense of Community	I recently moved to Ottawa in November 2017 and live in Centretown West. I'm increasingly happy with this neighbourhood. Liveability to me means a robust neighbourhood, accessible necessities and pleasures and safety. The latter, I feel, could be stepped a bit. I see an awful lot of drunk/disorderly people, don't feel safe walking at night and have had packages stolen off my step.
6	Sense of Community	Live, work, play and learn all in one place. Or at least in a short distance from where you live. Liveability means integrated complete neighbourhoods. A place to shop, buy groceries, walk to a pub and entertainment, pick up your daily essentials. It also means employment and opportunities for growth.
285	Sense of Community	Liveability for me can be defined as the degree of ease of a liveable place. Ease can be made up of many factors depending on the place. For a city, the people, artistic culture, availability of services and communal transportation are all important aspects that work towards being more liveable for me.
264	Sense of Community	Clean, safe, vibrant. Easy access to parks, libraries and sports centers for all communities.

Q2. What are Ottawa's strengths in each of these areas?
i. Mobility

Respondent Number	Topic	Response
39	Transportation	Ottawa is 'on track' with rail expansion the city is well-positioned to keep expanding this effort: to the airport, to Orleans, to Kanata, to Barrhaven, to Gatineau. Similarly, the ongoing expansion of bike lanes and bike paths is a good thing for Ottawa. The Sparks Street revitalization will hopefully ensure it continues to benefit downtown pedestrians for decades to come Lansdowne and the west end of York Street could--should!--follow suit.
331	Transportation	We have a pretty good transit system, including Para transpo, but there are still many problems with delays, transfer points and construction.we have wonderful bike and walking trails and many new bike lanes, but many people, especially drivers, are resistant to bike traffic. Our roads are in great disrepair despite the ongoing construction work. Sidewalk traffic is bad for wheelchair drivers as many are cracked and broken and some do not have necessary curb cuts to allow passage on and off sidewalk pathways. Many establishments have 'just one step' at the door, making them entirely inaccessible to wheelchair users.
224	Transportation	Transit - is on its way, but there is a need to coordinate lights with vehciles/pedestrians to give cars the ability to travel, and pedestrians the ablity to safely cross at intersections - all way crossing should be put in place in many downtown intersection.
201	Transportation	Forward thinking on rapid transit. Need more for elderly. Dedicated bike lanes a good start. As driver dislike Queensway. Like roads like Hunt club instead.
273	Transportation	Good bike path network, finally putting in a train system, lots of walkways, good parkway system
266	Transportation	OC Transpo is terrible. They need to be timely and make things easier for users. I couldn't wait to get a vehicle so I could stop using this horrible service. Not enough bike lanes.
253	Transportation	Good bike Lanes, very nice pedestrian bridges, main Street is awesome, my driving commute is reasonable.
325	Transportation	Still needs transit south of the city to Greely and airport should have a shuttle train to downtown Ottawa and portage Hull.
290	Transportation	The dedicated bus lanes are a strength. The segregated biking paths and walking trails in Ottawa are fabulous.
297	Transportation	The Confederation is a good downpayment, a good start on a sustainable transit system. Cycling infrastructure is improving.

ii. Jobs, economic security and economic opportunities

Respondent Number	Topic	Response
106	Economic Development	Lots of opportunity, being bilingual opens doors for you in Ottawa. Apart from obvious government jobs, I feel marketing and B2B business opportunities are a strength in Ottawa.
201	Economic Development	High skills jobs here a plus. Fed govt jobs usually mean security. Educated population has helped grow tech jobs.
87	Economic Development	Overall I feel jobs and economic opportunities are pretty good however this is my perception as a person with higher education. There may be a bit of a shortage of well paying jobs for those without education. For example manufacturing. If we had that, it may also diversify our employment a bit so when the government lay offs occur it has less of an effect overall.
144	Economic Development	With government as a primary employer seconded by high tech, Ottawa is unique in having a relatively recession proof economy.
204	Economic Development	With the federal government, high tech, services, etc., I feel that jobs and economic opportunities are strong.
312	Affordable Housing	Too many people who live in awful conditions, because they have income that does not give them a living in this City.
228	Economic Development	Mix of stable federal government jobs, high tech and retail. The slow decline of the tech sector is concerning and I am happy to hear about some innovation centres that have been created (Bayview yard, etc).
226	Economic Development	Ottawa remains primarily a government town. Some good opportunities in high tech.
284	Economic Development	Thankfully, I have a wonderful job at Shopify and they are establishing a fragrance-free policy at the Ottawa office.
210	Transportation	Central and west end good. East end needs commitment from the city.

iii. Housing

Respondent Number	Topic	Response
48	Affordable Housing	No architectural review of new construction (residential, commercial) means ugly and/or dull buildings that don't fit well with their neighbourhood. City planning in the pocket of developers bylaws and city long-range are meaningless. Not enough low rise densification too much emphasis on high rise apts and condos. Not nearly enough low income housing and what there is, isn't maintained well by the landlords.
216	Affordable Housing	Housing affordability is the city's main challenge, not unlike Montréal, Toronto and Vancouver, especially for families. All new units constructed are condos for single person or couple, which put extra pressure on units with 3-4 bedrooms and sufficient storage for a familly a middle-class family can't afford to live in Ottawa proper, has to go in the suburbs, and then can't benefit from good mobility (first answer) and contribute to the revitalisation of main streets.
166	Affordable Housing	Our housing stock apparently is largely affordable and mixed. However, design of new suburban townhouses and row houses are sometimes ugly and uninspired.
16	Affordable Housing	Housing for the dying middle class and wealthy generally OK. Limited options for the poor - especially families, student housing increasing.
197	Affordable Housing	Low income housing remains a huge challenge. I'm definitely sceptical about the approach taken to approving the Salvation Army facility on Montréal Rd.
259	Affordable Housing	Seeing densification and variety of housing options (condos, detached housing and rentals). Some affordable housing.
321	Affordable Housing	Allow for increased density in residential areas 4 one bedroom units or two - 2-3 bedroom units —and not 4 to 6 4 bedroom units.
120	Affordable Housing	Although a wide range of housing stock is available, much of it is at a high cost, out of the reach of the lowest income earners.
278	Affordable Housing	Too expensive for us to buy, but compared to Toronto or Vancouver still attainable. We've opted to join a Housing cooperative instead of purchasing property. I'd like to see more support of the cooperative housing model to encourage quality affordable housing.
243	Affordable Housing	As rents and costs of buying homes continues to rise, young people are being left behind.

iv. Natural Environment

Respondent Number	Topic	Response
39	Environment	The city has lots of greenspace for its size, and an enviable canopy (that can nonetheless be expanded). The city has room to grow inside the greenbelt to prevent sprawl--thus preserving undeveloped land for future generations.
69	Environment	Parks, parks, and parks. The city was planned very well with lots and lots of wonderful parks. It would be nice to see more accessible and marked trails next to streams and creaks.
310	Environment	We have a wonderful green belt and some great outdoor spaces. We seem committed to doing our part to clean up the Ottawa river and not continue to dump sewage into it
194	Environment	The rivers and the canal, and the natural environments along each. The green-belt areas, with their trails. The experimental farm. Our parkland, including some linear parks.
294	Environment	Proximity of Gatineau Park. Accessibility of canal and rivers. Experimental Farm and Arboretum. Beaches. Hidden Harvest.
120	Environment	Both the urban and rural areas of Ottawa are blessed with large amounts of well preserved natural spaces accessible to the public.
270	Environment	Building on the City's streams and rivers, like the Carp, Jock and Rideau is a recipe for flooding.
59	Environment	We're in an excellent location. Between the Rivers, canal, Farm, and proximity to Gatineau, we're doing good here.
197	Environment	The river, the canal, the parks, and our proximity to Gatineau Park are all incredible assets.
168	Environment	A lot of natural environment in our surroundings and opportunities to connect natural linkages.

v. Arts, Culture and Recreation

Respondent Number	Topic	Response
331	Sense of Community	We are a city very active in arts, culture and recreation. We have many music festivals, of all styles and cultures. Young people are encouraged and supported to try out their own voices in expression. I am sad to see the music programs in schools taking losses. They are so important.
32	Sense of Community	We have too many subsidized festivals in this city. We need more events like food markets and food halls, outdoor operas and plays in the summer. More public summer camp options for kids.
116	Sense of Community	Brilliant! A highlight of Ottawa. Big city events without the downsides of a big city. So much variety and diversity. Lots to do in all seasons and of all interests.
220	Sense of Community	Neighbourhood celebrations, city hall events, children 's playgrounds , musical events, special events o n Parliament Hill
19	Sense of Community	Lots of small, pop-up events across the city - active population interested in making the city interesting and fun!
197	Sense of Community	The NAC and National Gallery provide our citizens with quality arts and culture uncommon for a city this size.
161	Transportation	Great that a lot of the recreational paths and areas are accessible and free. Especially for snowshoeing and cross-country skiing.
319	Sense of Community	This city has a reputation as a boring place, and we seem to be making a strong effort to end that. I've seen a lot more going on here in the last couple years, as opposed to when I first moved here in 2012. Lansdowne has made the area I live in much more exciting.
312	Sense of Community	Should be subsidized by the City, so there is access for all. Most people I know cannot afford the programs at their community centre.
218	Sense of Community	Ottawa has so much to offer, as a family, we are overwhelmed with opportunities for affordable arts and entertainment.

vi. Sense of Community

Respondent Number	Topic	Response
168	Sense of Community	There are several well established communities with long-time members who 'know how things work' and who have active community associations with a lot of political pull and/or influence.
259	Sense of Community	Many people in Ottawa are not from here so you bond over not being from here, forming strong friendships. Some areas have a very good sense of community like the Glebe and Westboro.
46	Sense of Community	Great local events and in some areas engaged neighbourhood groups (Glebe, Westboro) with strong sense of character
34	Sense of Community	Depending on what neighbourhood you live in. There seems to be a lot of transient people but also lots that care of about their local community neighbourhood.
229	Sense of Community	Big city with small city feel. Great place to raise a family.
6	Sense of Community	Depends what neighbourhood you live in. There are neighbourhoods that have loads of community feel, others you don't want to admit you live it.
16	Sense of Community	Community associations seem to be active, but I'm not sure this translates in an Ottawa sense of community
73	Sense of Community	Established communities such as the Glebe, Westboro, etc are strong - just look at their community associations.
4	Sense of Community	Each area of the City is different and each area shows the diversity of what we have to offer here.
80	Sense of Community	The city is very supportive of community associations and needs to keep up the good work.

vii. Inclusive, healthy and vibrant neighbourhoods

Respondent Number	Topic	Response
312	Affordable Housing	Housing should be mixed. Every high-rise or condo building should have some units that are available for people of varous incomes and economic conditions. Affordable housing units in every new development that is built.
184	Sense of Community	Ottawa is extremely friendly and polite and very active. There are a visible majority of people taking advantage of walking and running and skating.
253	Sense of Community	Some neighborhoods are walkable enough that people will walk to restaurants, and get I volves in local activities. The gleebe and hintonburgh are really exemplary!
179	Sense of Community	In addition to info noted above under sense of community, walks and other activities are organized in our ward. Ottawa is already inclusive in all aspects. Our Ward is becoming more inclusive and again I believe that having Councillor Darouze in our ward has afforded us more opportunities to have events that are more and more inclusive.
320	Affordable Housing	Downtown neighbourhoods with a mix of housing, including affordable housing, and support services where needed.
116	Sense of Community	I live in a small village for this very reason, though the vibrancy is hard to maintain.
10	Sense of Community	There is a broad variety of neighbourhoods with varied atmospheres and cultures. More integration into a common neighbourhood would ease the atmosphere and avoid threatening well established norms.
323	Transportation	Yes we do but shopping areas (Merivale Road, Bells Corners, Hazeldean Road etc) need to be rethought - it would seem that only cars have been thought about - frankly I am afraid to walk on the sidewalks!
142	Affordable Housing	Very high except for certain known crime areas that need a new approach to reduce the violence inherent in these neighbourhoods.
218	Sense of Community	Abundance of community centres, parks, outdoor rinks.

Q3. What are Ottawa's opportunities in each of these areas?

   i. Mobility

Respondent Number	Topic	Response
329	Transportation	Sidewalk clearing and deciding for elderly, wheelchairs and general walk ability. No bike paths on busy streets like hunt club. Can have a separated path like Woodroffe between slack and Fallowfield. Continue to expand public transit including LRT to reduce traffic congestion.
308	Transportation	Roads are the worst in Canada, especially all the gravel roads. It's unbelievable that there are still gravel roads! 2.2 Billion wasted on an electric train, that will be susceptible to many many problems, and not remove 1 car from the road! A ring road should have been built for that money. There are sidewalks and bicycle paths where needed.
73	Transportation	Bicycle network is very weak - good to see some investments recently - a very long way to go. Very good bang for you buck on bikes. Walking in winter - not enough priority on sidewalk plowing. Streets are currently clear, sidewalks covered in ice. Unacceptable.
220	Transportation	Increase width of sidewalks in new or renovated areas, increase safer bicycle lanes, more crossing signals, reduce speed on Parkdale and other streets connected to the freeways eg. Queensway, increas public transit.
177	Transportation	Setting much more ambitious targets for increasing walking, cycling and transit mode shares combined with significantly accelerated budget investments and timelines to reach them (over current targets and timelines).
184	Transportation	Limited dependable transit throughout the day and night. I love 24 minutes south of Carleton University and there is no safe way for me to cycle the entire way, no bus nor light rail. There is a CN rail path used by skidooers but it doesn't safely connect to the bike path along lLimebank Rd. The E-W roads to connect with are all no shoulder roads dominated by big trucks and fast moving cars. Deadly.
153	Transportation	More dedicated bus only lanes, improve traffic flow around the city, many interections could be redesigned with turning lanes. Look at bottle neck areas on the highway, keep people from driving too slow on the highway. Improve road condition/repave. Time the traffic lights better. When building subdvisions have two ways in/out. Create a new highway. Make all new roads two lanes both directions.
330	Transportation	Complete a network of LRT to far west, east and south with a solid feedin bus network. Do not forget roads as electric cars are coming. Be ready.
98	Transportation	Solve the downtown interprovincial truck problem!. Make more of the existing roads less hostile to cycling, more bike share options at transit stations outside the core.
205	Transportation	Expand public transit to decrease wait and travel times, expand bike lanes, reduce traffic by offering more options.

ii. Jobs, economic security and economic opportunities

Respondent Number	Topic	Response
312	Affordable Housing	No more Senior Home or low income people high rises. Mixed neighbour-hoods, expecially downtown areas.
222	Economic Development	Govt if Canada ensures a relatively stable job market but Ottawa should pursue high tech corridor idea.
305	Economic Development	Increase housing density in downtown core - so affordable housing increase also benefits those with lower incomes.
54	Economic Development	External direct investment from national and international firms to create more jobs, more opportunities for small businesses.
330	Affordable Housing	Diversify beyond govt and high tech, more support for small businesses, tourism and cultural industries.
322	Affordable Housing	Mechanical & biochemical engineers are having trouble finding work here. Make Ottawa a hub for biotech / Cleantech
329	Economic Development	Attract profitable companies, tech and otherwise. Partner with universities and colleges to attract talent.
200	Economic Development	Diversification. Ottawa is a classic mill town with the federal government as the mill owner.
228	Affordable Housing	More investment in tech incubators, and attempting to diversify the economy away from federal jobs.
319	Economic Development	As a recent graduate, I cannot find a job in my field (or even get an interview). I do not know if this is not a science-heavy city, or if the jobs just aren't there right now, but I would love to see more science jobs here, so that younger graduates don't face the same stagnation that I do.

iii. Housing

Respondent Number	Topic	Response
320	Affordable Housing	If intensification is to reduce the demand for sprawl, we need units big enough for families (2-3 bedrooms). We need to stop sprawl, and can do so - this requires strict prohibitions on building new sprawl, as well as policies to make intensification easier.
5	Affordable Housing	Make denser housing economically more viable - stop subsidizing low density housing, with transit service, utility fees, development charges.
208	Affordable Housing	More sensitive development. Enough of tiny condos. There is not enough housing stock for families (ie. 2 - 3 bedroom units). Make a substantial speculator tax for anyone buying just for 'flip'.
209	Affordable Housing	Where to start. Real support for newcomers. Mixed use neighbourhoods and streets, with mixed housing of various price ranges. Stop catering to developers. More real affordable housing that is well-designed and kept up so that residents take ownership and can be proud of where they live. Smaller and sustainable urban dwellings.
95	Affordable Housing	Property taxes way to high downtown compared to suburbs. Condo tax double to larger house tax.
49	Affordable Housing	More densification in core, but insist on design standards -- look at some of the ugly towers planned, for e.g., Albert Street. No more ugly.
60	Affordable Housing	Incorporate low income housing among 'higher end' areas to avoid creating ghetto areas.
242	Affordable Housing	More density, mixed use neighbourhoods. Less focus on 'luxury' condo developments. More normal apartment buildings that are affordable!
221	Affordable Housing	Stop permitting so many crappy suburban subdivisions. Insist on an URBAN street layout, not crappy cul-de-sacs.
75	Affordable Housing	Lower rents.yearly rental increases are strains on families. lower hosing costs and utilities.

iv. Natural Environment

Respondent Number	Topic	Response
112	Sense of Community	Outdoor recreation spaces and activities for teens and young people should be encouraged, also for seniors.
221	Environment	Pave it. Joking, but not by much. Smarter green space and parks, not green space for green space's sake.
61	Environment	We have the opportunity to grow our green spaces. You should create more urban parks in unused concrete spaces.
96	Environment	Gotta figure out the sewage overflow solution. Mainly, I would say we must protect the City's green spaces. Continuous growth and development in a finite space (like our City) is not sustainable and will lead to a detriment in liveability.
33	Environment	The city isn't building parks inside the greenbelt and relies far too much on the NCC for greenspace.
152	Environment	Need to maximize the hidden green spaces throughout the city: roadsides, alleys, parkettes and more.
58	Environment	Continuing to ensure that some green space is preserved even with all the new development that's happening.
205	Transportation	Continue to maintain beautiful parks and expand waste reduction.
307	Affordable Housing	There are not enough North - South bike routes in the city. Expand Percy street bike path so that it goes all the way to the Glebe with no stop signs or cars.
209	Sense of Community	Make sure it is integrated in all plans, when planning new build, infill, neighbourhoods, etc.

v. Arts, Culture and Recreation

Respondent Number	Topic	Response
70	Sense of Community	Again, amazing opportunities for all ages. Music of all sorts, dance, sports, ethnic events. One lifetime is not long enough to participate in all this amazing city offers. Love it.
11	Sense of Community	Maybe a city museum? How about city parks with flowers and plants, for that matter what about some greenery on city land, it's all broken concrete covered in weeds. Thank God for the NCC as vanilla as they are.
239	Sense of Community	Accessible well lit parks. More outdoor arts events, like art in the park, Craft sales, something to get neighbours out and making connections.
293	Sense of Community	Allow residents to keep small number of chickens. Ensure every neighbourhood has equal arts, culture and recreation facilities.
291	Sense of Community	Do more to make arts, culture and the arts affordable to all - there is not enough affordable arts programming in community centres.
173	Sense of Community	Curling rinks in every village to encourage senior and youth participation in winter.
118	Transportation	Convert closed schools into centres for arts, culture and recreation.
80	Sense of Community	Build a ratio to fund recreation centres. Have a centre for every 5-8k residents.
187	Sense of Community	Huge opportunities need to consult with local and international thinkers to develop ideas.
76	Sense of Community	Arts and culture are severely lacking for a capital of a major first world country.

vi. Sense of Community

Respondent Number	Topic	Response
205	Sense of Community	Expand community options for young child free adults who have finished post secondary education and want to feel a part of the community.
186	Sense of Community	Support organizations like OCISO, which are doing great work to build community and connections between refugees and new immigrants with established community members.
4	Sense of Community	Each ward should have at least 3 'community days' . Set up sop in a local park and have different speakers, try different foods, bring together people of all walks of life.
318	Sense of Community	There isn't one much, everyone is in their own bubble and acts selfishly more often than not need someway for people to feel proud of being Ottawans such that they care about the place and their neighbours/other people.
19	Sense of Community	Vibrant public spaces that are walkable and close to where people work and live. Places for sitting, for interaction, and for programming.
82	Sense of Community	Could use more community events i like the tai chi and volleyball at city hall also like the community garage sales.
68	Sense of Community	Take more effort to integrate immigrant communities with local culture, stopping the sense of exclusion amongst certain communities (e.g. Glebites acting like businesses in the area 'belong' to them and their hostility towards visitors to the area, especially Lansdowne).
157	Sense of Community	More community events. Neighbourhood watch programs. Clean-up days expanded.
76	Sense of Community	Sense of community in Ottawa is based on complaining about other cultures.
289	Sense of Community	I am not aware of the dynamics re this area but know public support is important.

vii. Inclusive, healthy and vibrant neighbourhoods

Respondent Number	Topic	Response
60	Sense of Community	Provide city Councillors a specific allocation that must be spent on creating inclusive, healthy and vibrant communities (through activities, collaboration on morning walks, inclusive to all ages, backgrounds and positions).
259	Sense of Community	Encourage active living by making it easy for people to walk and cycle. People who get out of their homes and walk meet their neighbours, get much needed social interaction (this is especially important for the elderly).
186	Sense of Community	Same comment as above as well -- set up programs to encourage multi-generational activities -- e.g. pairing seniors with youth.
155	Sense of Community	I find once outside the city there are neighbours like there used to be... maybe a program to promote old fashioned block parties?
330	Sense of Community	Need to build more community hubs and streetscapes to have more sense of community.
157	Sense of Community	Neighbourhood watch programs. Greater access to medical clinics.
209	Sense of Community	Work together with community (health) partners who are out in the community already and streamline services. Bring services to where they are needed and be forward looking (I.e safe injection sites, etc). Create a sense of pride for the otherwise often marginalized. Bring people together - the Overbrook musical was a perfect example of this - the City can promote and subsidize grassroots groups who take initiative.
211	Sense of Community	Neighbourhood governance with independent funding (like BIAs).
287	Sense of Community	Libraries as community hubs, more gardens, parks.
226	Sense of Community	Focus on community recreation programs, especially for kids.

Q4. Are there any other thoughts or ideas that you'd like for us to consider?

Respondent Number	Topic	Response
255	Transportation	Move to an integrated completed transportation network with priorities as follows walking, cycling, public transit, taxis, cars and trucks. Compatible LRT with Gatineau over Prince of Wales bridge and another LRT bridge from Gatineau airport to Blair station. Must increase policing effort by 1/3 to 1/2 as the current trend is frightening. PS the French version of the survey does not respond, a major mishap for a Bilingual City.
69	Transportation	Please, please, please carry out stage 2 LRT and the baseline Transitway. You should seriously consider partnering with Moose Rail as it would get more people connecting from towns surrounding Ottawa to connect onto the LRT. PUT THE OTRAIN TO GATINEAU.
47	Affordable Housing	What about having an overall plan for the city instead of a patchwork? This way we are not at the mercy of developers and urban development fits into an overall plan instead of planning adapting to developers.
231	Transportation	Here are 4 big ticket goals I'd like the City to strive for in the coming decades (once Phase II of light rail has been completed) 1. Build the Hwy 417 by-pass south of the city and get those through-traffic trucks off the Queensway!!! 2. Finish the missing links in the city's bicycling network 3. When rehabbing a street using the complete street approach (a la Churchill Avenue) bury the utilities lines 4. Bury the elevated portion of the Queensway (a la the Big Dig in Boston).
55	Environment	The greenbelt was an attempt to prevent urban sprawl. It failed causing suburbs to develop several km further from city centre. This fact should be recognized and careful, well planned development of this white elephant should begin.
5	Affordable Housing	Make denser housing economically more viable - stop subsidizing low density housing, with transit service, utility fees, development charges. Charging by the residential unit does not recognize the additional costs of serving low density areas. Providing a base level of transit service regardless of usage subsidizes low density areas. Charging the same transit fare regardless of distance subsidizes low density development.
161	Transportation	I think the city has the right idea trying to bring people back to downtown for entertainment/social events but they're going about it the wrong way. Just because you take away roads for drivers and put in more paid parking does not mean people will take public transit. Fix the transit system 1st especially for Barrhaven. Later running routes that are clear (too much confusion of some routes ending in different stations/locations despite being the same route). Less Wellington congestion w/ STO.
193	Transportation	Please invest in improving mobility along existing thoroughfares: Hunt Club, Merivale, Baseline, Carling. Dedicated bus lanes, more frequent buses, or streetcars in combination with increased density would make commuting, living and shopping along these streets much better.
201	Affordable Housing	Just stop growing. World will be a mess by 2036. All over by 2050 unless serious changes re climate change.
184	Transportation	I would love to see LRT expansion to support Orleans commuters and another for Vanier commuters and a third for Greely/Manotick. There needs to be a bike trail to connect Osgood Trail with Manotick. I can't safely get to Manotick unless by car. I biked in Phoenix and Vancouver but I won't here. Too many hit and run fatalities. Roads are being built now without consideration for cicylists.

ANNEX 2

CANADA'S RESILIENT CAPITAL:
OTTAWA IN THE NEXT HALF CENTURY

REPORT FROM QUEEN'S UNIVERSITY
EXECUTIVE SUMMARY

DECEMBER 2017

Ottawa is currently embarking on a planning study under the project name Ottawa Beyond 2036: Setting the Stage for Ottawa's Next Official Plan (Beyond 2036). Under the auspices of this project, the City will use a scenario planning process to analyze its responsiveness to environmental, demographic, technological, and economic 'drivers of change' which could significantly affect the City's future over the latter half of the 21st Century. Opportunities to enhance the City's responsiveness to these changes will be identified.

The purpose of this report is to:

1. Identify and review the primary drivers of long-term change which could affect Ottawa's future;

2. Explore municipal best practices for city resilience; and,

3. Make recommendations on how the City of Ottawa can best conduct its scenario planning process.

The project team began by reviewing recent research pertaining to scenario planning. The team then examined the existing long-range planning context of the Ottawa region. This was done to explore which 'drivers of change' Ottawa had identified across four categories: environmental, demographic, technological, and economic. The term 'driver of change' refers to any issue, challenge, or opportunity which will affect Ottawa's future growth and development.

The team then gathered 37 municipal resilience and long-range growth plans to determine which drivers of change were identified in each municipal plan. Next, a workshop was held with students, academics, and professional planners in attendance. The participants identified the drivers of change and municipal plans they felt were most relevant and important to Ottawa's future. The list of 37 cities identified as important for each category of driver was then narrowed using different selection criteria, with the results seen in Table 1. The strategies these cities used to address Ottawa's most important drivers were then examined.

Table 1: Cities with long-range plans identified as relevant to Ottawa for each category of driver

Environmental	Demographic	Technological	Economic
Athens, Greece *Athens Resilience Strategy for 2030*	Birmingham, UK *Birmingham 2026: Our Future Vision*	Baltimore, USA *City of Baltimore Master Plan*	Calgary, CanadaCalgary *Resilience Strategy*
Boston, USA *Resilient Boston*	Boston, USA *Resilient Boston*	Berkeley, USA *Berkeley Resilience Strategy*	Edmonton, Canada *Edmonton Metropolitan Growth Plan*
Calgary, Canada *Calgary Resilience Strategy*	Chicago, USA *Go To 2040: Comprehensive Regional Plan*	Birmingham, UK *Birmingham 2026: Our Future Vision*	New York City, USA *OneNYC: A Strong and Just City*
Istanbul, Turkey *2013-2023 Istanbul Regional Plan*	Christchurch, NZ *Resilient Greater Christchurch*	Helsinki, Finland *Helsinki City Plan Vision 2050*	Pittsburgh, USA *OnePGH: Resilient Pittsburgh*
London, UK *City of London Local Plan*	Edmonton, Canada *Edmonton Metropolitan Growth Plan*	Manchester, UK *Core Strategy Development Plan*	

Environmental	Demographic	Technological	Economic
New York City, USA *OneNYC: A Strong and Just City*	Melbourne, Australia *Resilient Melbourne*	New York City, USA *OneNYC: A Strong and Just City*	
Paris, France *Paris Adaptation Strategy*	New York City, USA *OneNYC:A Strong and Just City*	Tokyo, Japan *Creating the Future: Long Term Vision*	
Pittsburgh, USA *OnePGH: Resilient Pittsburgh*	Vejle, Denmark *Vejle Resilience Strategy*		

The project yielded the following recommendations for Ottawa's scenario planning project:

1. Scenario planning is a valuable tool for building resilience.

2. Consider the 41 drivers of change listed in Table 2 in Ottawa's scenario development process, as they are particularly important to Ottawa's future.

3. Respect relationships between drivers in scenario development.

4. Consider Ottawa's varying degree of control over drivers of change in scenario development.

5. A multi-layered approach should be taken when building scenarios, including foundational elements, vulnerabilities, and opportunities.

6. Develop scenarios in a collaborative process involving diverse stakeholders like that outlined in the Conclusions & Recommendations (Chapter 8)

7. Develop a mechanism for multi-jurisdictional cooperation to address drivers of change.

8. Ensure future resilience strategies embrace a range of uncertainty.

9. Identify specific strategies to address drivers of change.

Table 2: List of drivers identified as important to Ottawa's future.

Environmental	Demographic	Technological	Economic
Floods	Immigration	Autonomous Vehicles	Employment Skills/Training
Transition to Renewable Energy	Population Growth	Ageing Infrastructure	Diversification
Supply of Developable Land	Ageing Population	Digital Infrastructure	Globalization
Extreme Storms	Housing	Transit Oriented Development	Economic Competition
Demand for Power	Shifts in the Labour Market	Infrastructure Demand	Automation
Increase in Rainfall Intensity	Social Mobility	Inadequate Public Transit	Economic Change
Urban Heat Islands	Placemaking	Regionalization (Transit)	Regionalization
Wastewater Capacity	Unemployment	Cyber Security	Industry Mix Changes
Damage to Natural Areas	Retention	Renewable Energy	Inequality
Warmer Temperatures	Education	Infrastructure Failure	Economic Uncertainty
Decreased Air Quality			

☐ Opportunities   ☐ Vulnerabilities

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Report Available: www.queensu.ca/geographyandplanning/surp/project-courses

OTTAWA NEXT: BEYOND 2036
SUMMARY NOTES FROM MEETING WITH THE OTTAWA YOUTH ENGAGEMENT COMMITTEE

APRIL 4, 2018

1.0 Introduction

The Ottawa Next: Beyond 2036 study is a council directed initiative, launched in October 2017. The goal of the study is to identify trends and disruptors that will shape Ottawa in the future and to identify the policy implications that flow from these trends and disruptors.

Specifically, the purpose of the Ottawa Next: Beyond 2036 study is to:

- identify trends and disruptors that will influence the city beyond the current 20 year planning horizon

- identify possible future scenarios, which extend beyond the normal planning time-frame and which arise from the identified drivers and disrupters; and

- identify the key policies and/or directions that will allow the City to create complete communities and to be, innovative, nimble, resilient and adaptable to future change.

The study is intended to inform the preparation of Ottawa's Next Official Plan and the City's other Strategic Initiatives.

2.0 The Ottawa Youth Engagement Committee

As part of the Ottawa Next: Beyond 2036 public engagement strategy, members of the project team met with the Ottawa Youth Engagement Committee (OYEC) on April 4th, 2018 to solicit the committee's views on the future of Ottawa.

OYEC is comprised of 18 youth between the ages of 15 and 24 who are passionate and committed to making Ottawa a better, safer, more equal place for all youth. OYEC partners with the City of Ottawa to encourage youth engagement and amplify youth voice and representation at the City of Ottawa.

3.0 Summary of Discussions

3.1 Social/Cultural and Quality of Life

- There will be more online engagement and thus more active engagement (more accessible); through social media is how the youth engage

- Ottawa needs to make communities more vibrant and ensure they each have their own identity; not just focus mainly on downtown and in the core

- There needs to be more and better connections between downtown and the suburbs and the rural area – it's difficult to be socially engaged when everything is downtown and it's difficult to get there by transit

- Youth are more politically aware and involved than other generations. Ottawa being the Capital will drive more youth here

- Ottawa will be more ethnically diverse

- There will be more cultural enclaves but Ottawa needs to make sure there isn't social inequality and injustice throughout the City

- Communities need to have a mix of income or else there will be more ghettoization of low-income communities

- Have social housing throughout the City

- If we move everything online, there will be more sense of identity of neighbourhoods or the City

- More social programming, including language services (more than just English and French) will be important as more immigrants arrive in Ottawa

- Increasing population means increase in homeless people – this needs to be addressed for the future and there needs to be more services for them

- More services, including mental health services, for Indigenous people need to be dispersed throughout the City and integrated in community hubs

- Indigenous services need to recognize traditional medicine and healing
- If we are tearing down buildings, Ottawa should consider giving some of the land back to Indigenous people
- There will be a higher Inuit population in Ottawa – need to think about how to include and welcome them into the community and ensure they have all the services they require
- More museums and city art would make Ottawa livelier
- Increase mingling between francophones and angolophones – bilingualism would be a reality
- Further integration, especially language related, for immigrants
- There will be younger generations in positions of power to reflect changes of the City – this will lead to more giving/helping others type of mentality in the City
- Although increase in tech use, cultural shift to engage with others and help others will be prevalent
- Standard of living will increase
- 'Community' looks like a more virtual/online network
- Ottawa needs to ensure it has an identity (not just Ottawa 150 celebrations)
- Technology and the tech divide could lead to more isolation/loneliness and mental health issues
- Ottawa needs to make sure services are digitalized
- Increase fast food services make decrease the likelihood of a healthy lifestyle

3.2 Environment

- Youth are more environmentally conscious – they have been raised to be environmentally conscious so this needs to be recognized and capitalized on
- Ottawa needs more electrical chargers for cars
- There will be more no waste grocery stores in Ottawa

- Ottawa needs to fight to keep the greenbelt
- Ottawa needs more resilient infrastructure
- There will be more flooding in Ottawa; the floodplain cannot be built on
- Ottawa needs to ensure they are consulting with the federal government and NGOs – they are knowledgeable about certain aspects that the City may not be
- Green infrastructure should be built in Ottawa – permeable surfaces, rooftop gardens, etc.
- There should be more composting bins downtown
- Tech industry will lead to more energy use and consumption throughout the City
- There will be more of a shift towards companies/homes/institutions adopting environment/green practices (i.e. more green bins)
- Ottawa needs to clean up its rivers
- Support for green entrepreneurs

3.3 Economic Development

- Work will have more flexible hours and location (teleworking)
- AI will replace people – this affects people and what they will do
- AI greatly affects people with disabilities as they may be only to work entry level jobs which AI will replace
- There will be more non-profit jobs in Ottawa in addition to the federal government
- Employers need to allow for more co-op or intern students – this will help Ottawa be able to retain students after they graduate
- There's more vulnerable/precarious employment these days – this needs to change
- People need to be more creative and emotional (can be viewed as human skills) in order to ensure that AI can't replace them
- With teleworking it will be all work, all the time (no social life or work/life balance)

- Many companies are implementing better "homier" offices, super casual, luxury, nice spaces, where people want to stay at work (leads to longer hours)
- Ottawa needs to support start-ups (competitions or funds for young entrepreneurs) and need to encourage start-ups to stay in Ottawa
- Ottawa needs to support young artists
- Universities/Colleges/High Schools need to offer programs that are relevant to the changing workforce

3.4 Urban Form & Mobility

- There will be more Uber and Lyft
- UberEats and Post Mates (goods delivery company) will be become more the norm as more and more people order online (including groceries) to get delivered to their house
- There's a boost of young farmers – surge coming from knowing where your food comes from
- If there's the Hyperloop or high speed rail, people will live here because it's cheaper and they will work in Montréal and/or Toronto
- Ottawa will continue to expand more East and West to encompass rural communities
- Cycling infrastructure will be built slowly
- OC Transpo needs to run later to the suburbs
- OC Transpo needs to have consistent infrastructure; not only peak times

- Ottawa needs affordable transit – this needs to be made a city priority
- In the future there may be public aerial transportation
- There will be more AVs and EVs
- Businesses will congregate around LRT stations
- Extend the O-train
- Community is not only a place to live, but recreation and libraries make it a hub for life
- Ottawa needs more urbanization in more rural areas such as Kanata and Barrhaven

3.5 Comments on sounding board/ public consultation process

- Make sure indigenous population is represented
- Make sure youth are highly engaged as it is their future – can use social media to achieve this. For example, Instagram ads
- Connect with university and colleges student associations
- For high school student consultation, can work with the civic classes
- Franco-Ontario Youth Group could be contacted.

ANNEX 4

OTTAWA NEXT: BEYOND 2036
SUMMARY OF RESPONSES FROM YOUTH SURVEY

MARCH 16 TO APRIL 6, 2018

1.0 Introduction

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Specifically, the purpose of the Ottawa Next: Beyond 2036 study is to:

- identify trends and disruptors that will influence the city beyond the current 20 year planning horizon
- identify possible future scenarios, which extend beyond the normal planning time-frame and which arise from the identified drivers and disrupters; and
- identify the key policies and/or directions that will allow the City to create complete communities and to be, innovative, nimble, resilient and adaptable to future change.

As part of the study's public engagement strategy, the City reached out to Ottawa youth via an online questionnaire that was sent out through community associations, schools, and organizations who work with the city's youth. The questionnaire was available online between March 16, 2018 and April 6, 2018. In total, there were 10 survey respondents.

2.0 Questions

The survey consisted of the following four questions:

i.   Social/Cultural and Quality of Life – What will quality of life look like in Ottawa in 20, 30 or 50 years?

ii. Environment – What will Ottawa's natural environment look like in Ottawa in 20, 30 or 50 years?

iii. Economic Development – What will Ottawa's economic landscape look like in Ottawa in 20, 30 or 50 years?

iv. Urban Form and Mobility – What will Ottawa look like as a city in 20, 30 or 50 years?

3.0 Methods

Due to the low response rate, the Ottawa Next: Beyond 2036 project team was able to review individual responses and did not require a specific methodology to analyze trends.

4.0 'As we heard it' – Responses by Question

1.   **Social/Cultural and Quality of Life – What will quality of life look like in Ottawa in 20, 30 or 50 years?**

If Ottawa does not explicitly acknowledge and deal with systemic inequality, injustice, racism/prejudice, and other social inequities, more technology will only exacerbate, not solve, the divide between the haves and have-nots.
Inclusion of Indigenous needs to be worked on.
Youth homelessness needs to be dealt with.
Ottawa needs to face the real consequences of many refugees filling our shelters.
Community hubs are required.
There will be a bigger rural and urban divide as jobs move downtown and internet connectivity is greater in urban areas.
Need to engage marginalized communities or else residents will not be happy and healthy.
Neighbourhoods need to be developed equitably. Neighbourhoods that are new or have money to be redeveloped will have technology integration and others will be ghettoized.
Need greenspaces right in the communities.
Easy access to resources/information and services.
Hopefully people are more socially conscious in the goods and services available (fair trade goods and environmentally conscious products).
Ottawa will be seen as a multicultural and vibrant City.
Communities will be extremely diverse in culture and languages.
Ottawa should develop cultural events other than Canada Day, and people will have more opportunities to be socially engaged.

2. **Environment – What will Ottawa's natural environment look like in Ottawa in 20, 30 or 50 years?**

3. **Economic Development – What will Ottawa's economic landscape look like in Ottawa in 20, 30 or 50 years?**

There will be more extreme weather events and Ottawa's geography (urban core surrounded by the greenbelt) and the image of the rivers and watersheds and Gatineau Hills to the north will change because of these weather events.
More extreme weather events means the need to ensure our natural amenities and recreational opportunities be protected.
Infrastructure will need to be more climate resilient and Ottawa's more flood-prone areas will be affected by extreme weather events – people won't be able to live near the water.
Ottawa will have moved towards the use of electric energy and needs to get better at composting in order to protect our natural environment for the future.
Ottawa needs to encourage local food production, either in people's own backyards or in community gardens.
In the future, there will be green buildings, more houses will have solar panels, wind power may be used, and street lights will be self energizing and be motion censored.
In the future, green spaces and agricultural land will be destroyed.
In the future, more people will have EVs, so more charging stations throughout the city will be required.
In the future, developers will try to push their way into the greenbelt but it will remain one of the unique features of Ottawa and will be one of the main attractions for people to move to Ottawa.
More waste green grocery stores will be around and the City will need to encourage businesses, residents and city buildings to purchase solar panels and have a smaller ecological footprint.
Composting and recycling will become more increasingly important.
The City needs to make the environment a priority in order to ensure Ottawa is ready for the future
Ottawa needs to conserve the natural ecosystem

There will be more focus on the tech industry and this will be what the major employers in Ottawa are.
AI/automation will replace jobs – including from entry-level jobs to white-collar jobs to 'traditional' jobs such as a teacher or doctor.
Jobs in the future will be highly creative/artistic jobs, ethical related jobs, and emotionally supportive jobs (mental health, therapy, etc.).
Jobs will involve more teleworking (less time commuting), and will have more flexible work hours (jobs will no longer be the typical 9am-5pm).
Jobs will be focused on supply management, refugee services and communications focused roles for multi-national companies (social services jobs).
In terms of jobs in the future, universities and schools need to provide more practical learning and employers need to incorporate coop and intern students in the workforce. This will also help ensure that universities and colleges in Ottawa offer skills that are required in the future workforce and that students will stay and work in Ottawa (not move elsewhere for employment).
In additional to tech, people will also need to be highly trained in education and languages. With the free flor of immigration to Canada and Ottawa being Canada's capital, we will need plenty of people who are able to speak the diverse languages of the world.
Educating future generations in elementary and high school will be important to fill all the tech positions, and positions of linguistics.
As humans, we need to learn technical skills and develop creative skills, and ensure that we have relationship skills to truly be human as we are increasingly interacting with technology.
It will be harder to find employers that offer benefits to their employees.
VR will affect the way we work in the future.
The City needs to make the environment a priority in order to ensure Ottawa is ready for the future

4. **Urban Form and Mobility – What will Ottawa look like as a city in 20, 30 or 50 years?**

Ottawa will need to think about how to incorporate the buildings that we have today that will into the future as they will no longer be needed (such as large parking garages downtown).
Ottawa will have more bike lanes, small shops and neighbourhood hubs.
Hopefully more green will be incorporated into the city's architecture in the future.
In the future, more concentration of businesses and population will be in the core and the rural areas will be fairly empty.
There will be less storefronts as more shopping will be done online.
There will be city-wide Wi-Fi.
Technology will change the way our city is built; like Toronto's Google smart city. Technology will be the backbone of the City.
People will be driving AVs; the City's transit will be self-driving – all vehicles will be electric.
Ottawa's future will need a subway system.
There will be less retail stores and those that exist will be different than they are now – perhaps they will have screens that you can view products on to purchase online.
Technology will impact where you decide to live and how you live (for instance, Uber or UberEats do not go out to the rural areas).
The division between downtown and suburbs will cease to exists.
People will mainly use city transportation (LRT and busses).
People will value the location of where they live more than anything.
Technology will lead to 3D printing of homes.
Apartments and the downtown area's population density will go up.
Ottawa's future will either see people moving less because of virtual reality or people moving more because of AVs.