

Calgary



Next 20: Making Life Better for Calgarians

State of the City



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Next 20 overview

The Municipal Development Plan (MDP) and the Calgary Transportation Plan (CTP) are Calgary's long-range land use and transportation plans that look 60 years in the future. The Plans help shape how the communities we live and work in grow, develop and evolve over time. The goal of the Next 20 project was to review the Plans to see what's working well and contributing to the quality of life Calgarians enjoy.





The first stages of the project set out to identify areas where the plans were working well, and how the plans might be improved going forward. This work included:

- Best practice reviews of land use and transportation plans from across the world.
- A multi-pronged engagement approach that included gaining feedback from subject matter experts, key stakeholders and the public.
- A forecast analysis of the 14 core indicators to evaluate their performance over the life of the plans.
- An update of the “Implications of Alternative Growth Patterns on Infrastructure Costs” study completed in 2009 by IBI Group, referred to as the “Cost of Growth” study.

This review was limited to considering critical amendments to deal with emerging or growing concerns and housekeeping items to align the Plans with policies approved in the past 10 years. Amendments were identified through a triage exercise based on the best practice review, stakeholder comments, and the results of analysis. This work highlighted the policy areas where changes were critically needed to ensure the continued progress of the plans.

The purpose of this report is to summarize the findings of the review process and the recommended changes to the plans.



Our changing city

Calgary has long been considered a great place to make a living, a great place to make a life. While we enjoy the reputation of being one of the most livable cities in the world, this does not mean our city has not, and will not, face challenges.

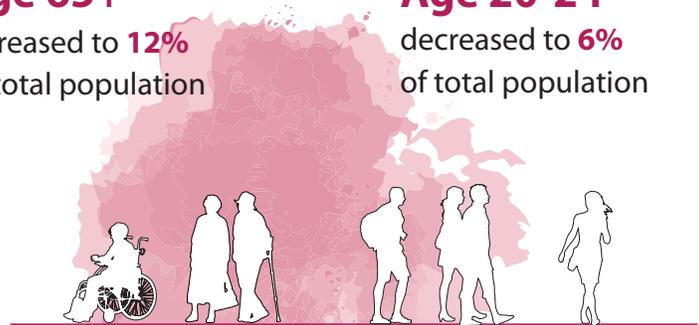


Figure 1: Our Changing City, 2009 to 2019



Age 65+
increased to **12%**
of total population

Age 20-24
decreased to **6%**
of total population



20% increase in households

85% of single family houses are owner occupied in 2019

57% of Calgary households lived in Single Family Housing in 2019



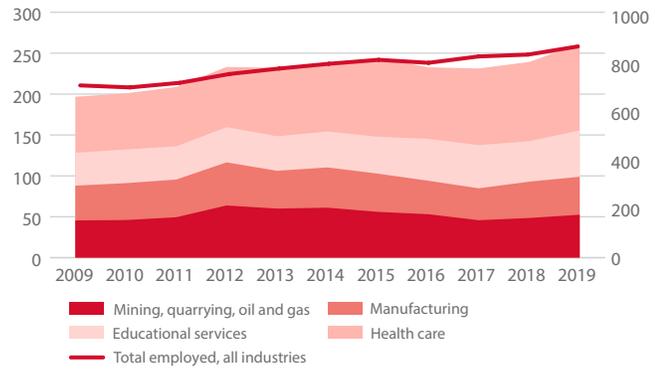
2.63 people is the average household size in 2019

Homeownership rates are declining from **71%** in 2009, to **66%** in 2019.

Over the past 10 years

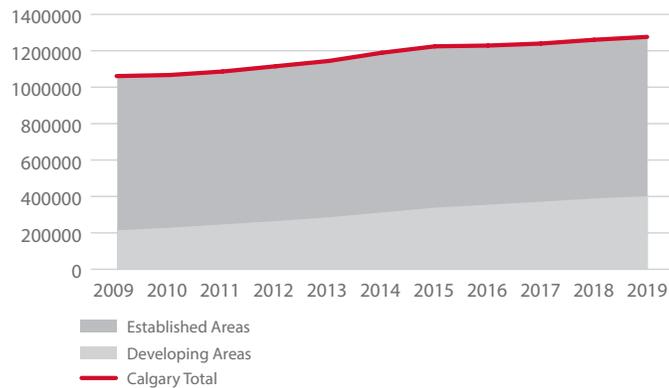
From 2009 to 2019, employment in the Calgary Metropolitan Area (which includes the city and Rocky View County) increased by over 160,000 jobs. However, the past decade was characterized by economic fluctuations. In 2009, Calgary was in a recovery period after the economy was impacted by the 2008 financial crisis. By 2012, our economy was booming with high growth in employment in the oil and gas, and manufacturing industry sectors. This period of high economic growth continued until 2015 when Calgary faced another recession and job losses. By 2019, total employment had recovered to pre-2015 levels. This recession led to a recalibration of Calgary’s economy. While significant job losses were experienced in Calgary’s traditional key industries, industries like health care and education experienced a period of growth. See Figure 2.

Figure 2: Employment in Key Industries, 2009 to 2019



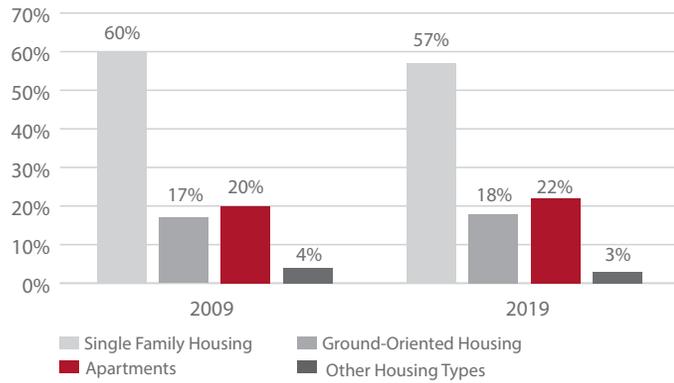
Even with economic uncertainty, Calgary’s population continued to grow, adding almost 220,000 new residents to our city. Most of the growth in population has been accommodated in the developing areas on the outer edges of the city, particularly in the southeast and north areas of the city. The established communities in the city did experience a net increase in population as about 10% of Calgary’s growth since 2006 was in these areas. Growth in established communities has fluctuated with the overall health of the economy. The population in established communities increased when the economy was growing and decreased when it declined. This suggests that redevelopment opportunities in Calgary are tied to the city’s economic growth. Growth in the outer edges of the city also fluctuated, but they never lost population, even during the economic decline. See Figure 3.

Figure 3: City of Calgary Population, 2009 to 2019



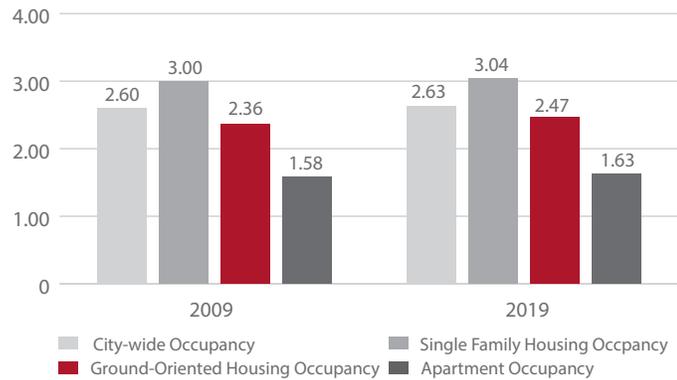
The number of dwellings where people live increased by almost 20 per cent over the past ten years. Single-family, detached housing continues to be the most common housing type across Calgary, but this has started to shift. In 2009, almost 60 per cent of Calgary households lived in single-family, detached housing. By 2019, this has declined slightly to 57 per cent of households. This shift is most noticeable in the developing areas of the city where new communities are building a wider variety of housing types. The mix of housing in the established communities has not significantly changed since 2009. See Figure 4.

Figure 4: City of Calgary dwellings by housing type, 2009 and 2019



Household sizes remain stable in Calgary, and average occupancy across the city has increased slightly from 2.60 people per dwelling in 2009 to 2.63 people per dwelling. This is due to a change in occupancy in ground-oriented housing such as duplexes and townhouses. The occupancy in these types of dwellings has increased by about 5 per cent from 2.36 in 2009 to 2.47 in 2019. This suggests that larger households are choosing to live in higher density ground-oriented housing. Occupancy in apartment dwellings also increased slightly during this time period. See Figure 5.

Figure 5: City of Calgary housing occupancy by dwelling type, 2009 and 2019

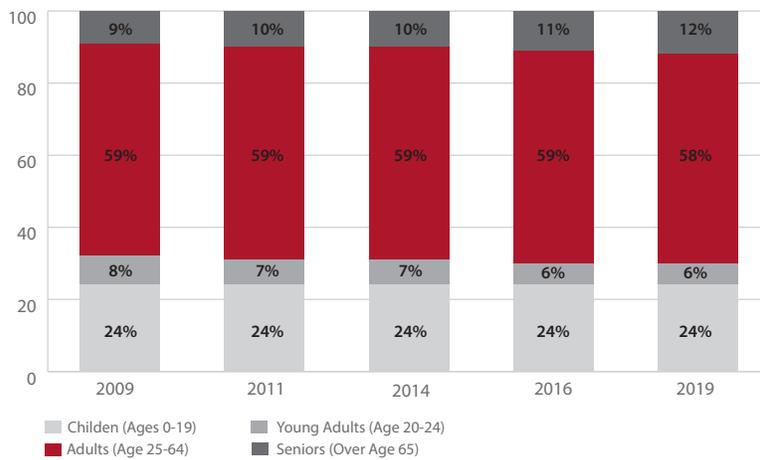


Homeownership rates are dependent on dwelling type as more people in Calgary own single-family homes than ground-oriented development and apartments. Around 85 per cent of single-family homes are owner occupied, compared with 60 per cent of ground-oriented housing and 30 per cent of apartments. Overall, homeownership has declined in Calgary since 2009 across all housing types, suggesting that fewer Calgarians are choosing to own their homes. The decline in homeownership rates has been steady over the past ten years, suggesting that is likely not related to short-term economic changes.

Vacancy rates in Calgary are low as only 4 per cent of dwellings are vacant, however this also varies with the dwelling type and economic conditions. Apartment dwellings have the highest vacancy rates and are the most sensitive to economic changes. The vacancy rate in apartments increased from just under 7 per cent in 2009 to almost 10 per cent in 2017 as a result of economic changes in the city. Ground-oriented housing experienced a similar shift in vacancy rates, although not as large. Single-family housing vacancy rates did not change significantly over the past 10 years. Currently, vacancy rates across Calgary have recovered to pre-recession conditions.

Like most cities across Canada, Calgary's population is aging. In 2009, almost 10 per cent of Calgary's population was over the age of 65. This increased to over 12 per cent in 2019 (Figure 6). Calgary is also experiencing a decline in the number of young adults in our city, as the number of people aged 20 to 24 declined by over five per cent from 2009 to 2019. This may be a sign that young adults are leaving Calgary, but it may also be related to natural demographic shifts.

Figure 6: Calgary population by age category, 2009 to 2019



New population creates additional demand on our transportation system. Since 2009, the amount of travel on Calgary's transportation system has increased by almost a million trips per day and about 80 per cent of those trips are made by people driving. To support this additional demand, Calgary has made a number of improvements to the transportation system which are shown in Figure 7.

Figure 7: Calgary Transportation System Improvements, 2009 to 2019



Roads

- New diverging Diamond interchange at 162 AV and Macleod TR.
- New interchange at Bowfort RD / Trans Canada Highway.
- Construction of Stoney TR on the north and east sides of the city.
- Change the one above to:
- Added over 400 km of new roads including a significant portion of Stoney Trail.
- Built more than 15 new interchanges.
- Built dozens of projects to continuously improve the transportation system.

Transit

- Light rail expansions to Calgary's Northeast and Northwest lines and new light rail line to the west side of the city.
- Built the 17 AV SE transitway completion and the start of the southwest transitway construction.
- Built the MAX bus rapid transit lines to provide high quality cross-town options to Calgarians.

Walking & Wheeling

- Enhancements to the pedestrian experience under CP rail bridges.
- Several pedestrian bridges, including the Peace Bridge which sees an average of almost 4,000 users per day.
- George C King bridge connects the north and south banks of the Bow River.
- Investment in bike infrastructure including 6.5 kilometres of cycle tracks in the downtown core.

This investment in walking and wheeling infrastructure, particularly in the downtown core, has led to an increase in the active mode share in both the Downtown Core (Table 1) and overall daily travel across the city (Table 2).

The recession had a significant impact to Calgary Transit. Overall, transit ridership declined between 2012 and 2017 (Figure 8). This led to a reduction in people taking transit in and out of downtown. Economic recovery in the Downtown Core remains slow, but transit ridership has recovered to pre-2015 levels.

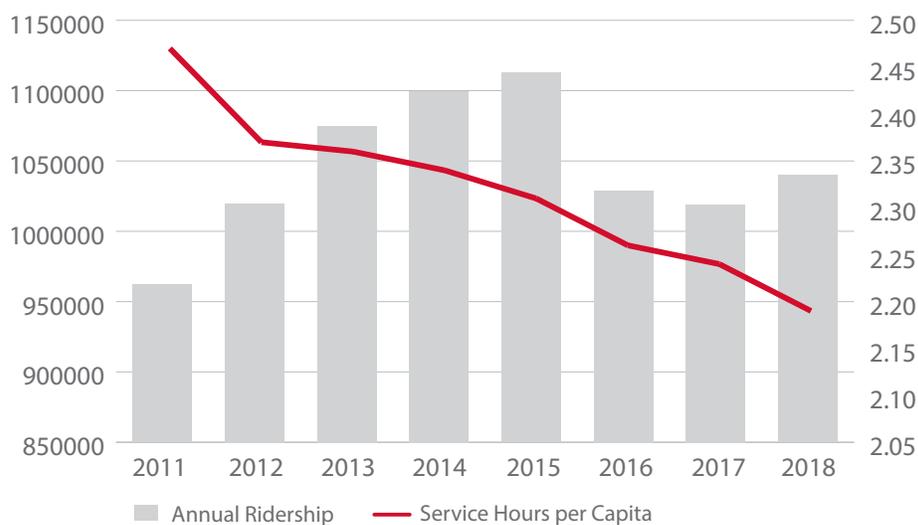
Table 1: Central Business District Cordon Count (2012-2018)

Mode	% Trips entering downtown (a.m. peak)	
	2012	2018
Walk	8%	8%
Bike	2%	4%
Transit	48%	45%
Auto	42%	43%

Table 2: All day, all-purpose mode split (2012 - 2016)

Mode	% All day, all-purpose trips	
	2012	2017
Active	14%	18%
Transit	9%	8%
Auto	77%	74%

Figure 8: Annual transit ridership and annual services hours per capita, 2011 to 2018.



Looking ahead to the future

Over the next 20 years, Calgary's economy is expected to continue to grow. Employment is anticipated to increase by over 350,000 jobs over the next 20 years, and almost double to just over 1.7 million jobs over the next 60 years. Economic forecasts suggest that the industries with the largest growth over the next 20 years will be in the construction, transportation and warehousing, finance and business industries. Over the next 60 years, significant growth in health care industries is expected due to the aging population in the region. See Figure 9.

Over the next 60 years, Calgary will experience steady population growth. We anticipate that our population will grow by about 400,000 people over the next 20 years and almost one million people over the next 60 years. Our population is expected to continue to age, people over 65 years of age are expected to increase from 12 per cent to over 20 per cent during this time. This may pose challenges to Calgary's economy as the increase in jobs over the next 20 years exceeds the increase in working age population (age 25-64). This suggests that more seniors may continue to work after the age of 65. See Figure 10.

Calgary's population growth will also have an effect on our transportation system. It is estimated that in 20 years, almost 2.5 million more trips will be made every day. About 80 per cent of trips in Calgary today are made by people driving a personal vehicle. Additional vehicles trips will increase traffic congestion on our roads, travel times, noise and greenhouse gas emissions.

Technology will help address some of the impacts current vehicles have. Over time, the move to electric vehicles will reduce greenhouse gas emissions and vehicle noise. This will help maintain Calgary's air quality. Full electrification will take some time, however, partial adoption of electric vehicles will help reduce greenhouse gas emissions and vehicle noise. A fully electric fleet of City vehicles will be needed by 2050 to achieve current climate reduction targets.

New transportation options such as transportation network companies like Uber and self-driving cars will change how people travel. These services provide benefits to many people with limited mobility options. However, there are challenges with new technology. Some new transportation technologies will add emissions as these trips may replace short walking, wheeling or transit trips. It may also increase

congestion as these new transportation technologies increase access to single occupant vehicles.

Managing congestion is complex. The adoption of new transportation technologies is not expected to help reduce traffic congestion. Analysis suggests that on-demand services like Uber or self-driving cars will contribute to traffic issues as they make taking a motor vehicle a more convenient travel option for more people.

It is not possible to build our way out of congestion. Research shows that increasing in-road capacity encourages more people to drive and more suburban development. This limits the effectiveness of the improvements while reducing the quality of life for people in adjacent communities. Increasing road capacity requires significant infrastructure investment. Traditional sources of infrastructure funding are expected to decline, limiting the resources available to add capacity to the system.

Figure 9: Calgary Economic Region Population and Employment Forecasts, 2019 to 2076

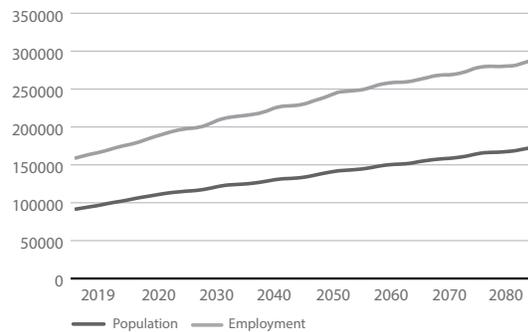
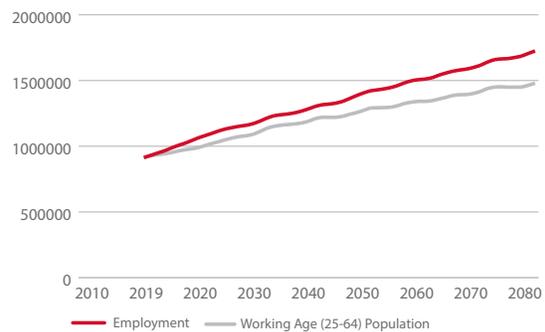


Figure 10: Calgary Economic Region employment and working age population (Ages 25-64), 2019 to 2076



Summary of Next 20 Review

Best practice review

The project team reviewed several national and international plans to identify how, and to what extent, emerging topics and trends have been addressed since the approval of Calgary's MDP and CTP. In general, the current MDP and CTP address most topics in recent plans. Some topics, such as climate change and future technologies, are not addressed currently and amendments are proposed relative to these items. Many cities have moved towards an overall City Plan that combines land use and transportation plans and other visionary elements. Also, new plans are more narrative-based and include considerations of equity, health, indigenous and social impacts. The anticipated full review of the plans will reposition the MDP and CTP in a similar fashion.



Public engagement overview

Two stages of engagement took place between February and May of 2019. Stage 1 looked at what was working well, what could be improved and what key trends the plans should consider. During Stage 2 we asked what it would take to achieve more progress, and where should progress be emphasized.

Public feedback was sought through an online survey on The City's online engagement portal, an interactive exhibit at the Central Library location and visits to several Calgary high schools. These engagement opportunities were advertised through online ads, newsletter articles, a Report to Calgarians television segment and distribution of flyers at several city-wide events and locations.

Over 500 surveys were completed during Stage 1 and 2. The results from the survey confirmed that when thinking of their city, the most important qualities to consider were:

- Environmental protection.
- Vibrant and lively entertainment scenes with many choices of activities.
- People of all ages can travel about the city regardless of ability.
- People can walk to amenities like parks, schools and services within their communities.
- Everyday needs can be met within a neighbourhood.

A wide cross section of organizations participated in focus groups. They represented academic, industry, economic and community interest groups. The focus group sessions were framed around four Council priorities: a healthy and green city, inspiring neighbourhoods, a prosperous city, and a city that moves. Participants were asked to share what was working for each priority and any trends or challenges they are seeing in their respective industries. Generally, feedback centred on the following themes:

- Desire a city consistent with the existing vision and policies.
- Challenges with respect to how policies were implemented.
- Issues that are being addressed through existing and planned City initiatives.
- Funding levels were not sufficient in many regards to achieve plan outcomes.

While feedback was sought on how the plans might be improved, most feedback received was of a more general nature. Policy amendments have been crafted to address key issues that were within the project scope.

Core indicator review

When the plans were approved in 2009, 14 core indicators were identified to measure progress toward the Plans' goals. A technical analysis was completed as part of the review to evaluate progress made since the plans were approved and to forecast future performance. The results of this analysis were used to inform potential plan amendments. This work augments the 2014 and 2018 MDP/CTP Monitoring Reports which discuss progress today. As with the monitoring reports, this analysis shows The City has made good progress on several core indicators and will need to continue to make diligent decisions in order to achieve others. Table 3 below summarizes the findings of the indicator analysis.

The results of the indicator analysis are found within the economy, environment, community and mobility sections of the report.

Table 3: Indicator review results

Stay the course 	Accelerate to achieve 	Review for effectiveness 
2 - Density	7 - Access to primary transit network	1 - Urban Expansion (50/50)
4 - Land use mix	8 - Transit service	3 - Population / Jobs Balance
5 - Residential Mix	10 - Transportation mode split	6 - Road and Street Infrastructure
11 - Accessibility to Daily Needs	13 - Urban Forest	9 - Goods Access
		12 - Watershed Health
		14 - District Energy

Stay the course

The indicators in this category are generally performing well and support the Plans outcomes. Some revisions to the core indicators in this category may be needed as land-use designations change with future updates to the Land Use Bylaw. Core indicators that are in this category are related to density and land-use diversification.

Accelerate to achieve

The core indicators in this category support the outcomes of the Plans and show where some progress has been made. However, improvement is needed to achieve the Plans' goals. This category includes some transportation and environmental core indicators.

Review for effectiveness

Many core indicators were established to measure variables that The City can directly influence. These indicators were helpful in assessing the 2009 Plans in terms of whether a future city, if achieved, would realize a broad range of benefits. This approach is less effective at measuring the progress of the MDP and CTP over time. The indicators in this category show a range of results, however the actual indicator is not effectively measuring whether the outcome is being achieved. This category includes urban expansion, and some transportation, economic and environmental indicators.

Savings arising from a more compact city

In 2009, IBI Group completed a study titled “Implications of Alternative Growth Patterns on Infrastructure Costs” for the Plan It Calgary process. It is more generally referred to as the “Cost of Growth” study.

The 2009 Cost of Growth study identified that the current MDP and CTP would result in societal savings of \$11 billion in capital costs over 60 years, and an annual operating cost savings of \$130 million at the final year of the plans. This is relative to the “dispersed” city scenario which reflected current policy and trends in 2009. These savings would be shared by multiple parties including The City, Province, School Boards and private developers. These savings were due to the reduced amount of linear and spatial infrastructure that would be required from a smaller city footprint.

Administration, using the methodology from the 2009 study, updated the analysis using current data and figures. Stormwater infrastructure was not included in the 2009 study, but was added to this analysis. The updated analysis finds that achieving the MDP and CTP goals would result in societal savings of \$16.8 billion in capital costs going forward over the next 60 years, and annual operating cost savings of \$260 million by 2070.

There are some important caveats that should be noted with respect to the updated analysis. Environmental and social benefits, beyond these cost savings, are not included in the calculation. The time period continues to look out over the next 60 years, so the updated calculations do not account for infrastructure costs and savings prior to 2019. The calculations look at how the city would grow spatially under different scenarios and use linear and area unit costs to determine overall savings. The work of the off-site levy review will identify city project-specific costs at a more detailed level, so some differences in overall costs are to be expected.

While the analysis continues to confirm that progress on a more compact urban form can have tangible savings, it is acknowledged that there are many costs to achieving a more compact city that are not reflected in the methodology. These include, but are not limited to, increased risk and timelines for project approval, increased land prices in central locations, and utility upgrade complications and risks. The work of the Established Areas Growth and Change Strategy, Main Streets, Downtown Strategy and related initiatives must continue to seek to address these factors if the full spectrum of savings is to be achieved.

Key Findings

Our economy

Following decades of dynamically shifting between boom and bust cycles, Calgary's economy is stabilizing with a growth rate similar to other major Canadian cities. In 2018, Calgary's GDP recovered to \$124 billion — the highest GDP per capita among Canadian cities. Calgary's energy sector is the largest in Canada with over \$110 billion in revenue in 2017. Calgary has strong agribusiness and logistics sectors and is the fourth largest financial centre in Canada.

Over the next 20 years, Calgary's economy expects to add about 350,000 more jobs. Technological advancements in automation and digitization, and a global emphasis on renewable energy and climate change are disrupting economies across the world. Calgary's economy is at a cross-roads. We can adapt to these changes by leveraging our young, educated workforce to advance established sectors and embrace new, emerging business sectors.



Five-year employment growth



Sustained job creation in the regional economy should occur with 87,200 new new jobs expected in five years from 2019 to 2024. It is an improvement over the last five years but behind the highs of 2009 to 2014.

IMPACTS OF THE MDP AND CTP

The MDP and CTP support economic growth in Calgary by creating a city that is attractive to both people and businesses. This is done through the development of safe, healthy, complete communities that are well connected to the activities that people do every day. Through the MDP and CTP, businesses are supported by providing a climate that supports economic activity, the retention and growth of existing businesses, locations for office growth outside the Downtown, and promoting Downtown Calgary as the location of choice for head offices.

As Calgary's economy changes, the focus will need to shift to support sustainable industries to preserve the economic and environmental integrity of the Calgary Region. Climate, land and energy issues linked to the economy cannot be addressed by one municipality alone.

The ability to meet citizen and business needs is dependent on a municipality's financial ability to provide and maintain infrastructure. The MDP supports sustainable municipal finances through the optimization of existing infrastructure, and accommodating growth while avoiding premature or unnecessary investment in new municipal infrastructure.

WHAT ARE OTHER CITIES DOING?

Calgary's economy is changing. Economic fluctuations are not uncommon as economies change. Cities that have been successful at managing this change adopt economic strategies that focus on adaptation. These strategies create a competitive and innovation business climate while fostering an environment that promotes global trade, new investment and allows local businesses to thrive. They also promote access to education and training for a skilled workforce, support for increased job growth, affordable housing, and cultivate a strong arts and culture sector.

Some examples of actions other cities have taken are:

- Develop and implement housing opportunities, including affordable housing through masterplan processes and partnerships with development industry.
- Establish partnerships with economic development agencies to help attract new business.
- Establish partnerships with post-secondary institutions to create opportunities to develop and retain students.
- Work with partners to advance development of a technology incubator/accelerator centre to help grow technology companies, increasing jobs and driving wealth creation.
- Develop streetscape projects to support premium retail destinations.
- Invest in neighbourhood projects focused on supporting economic mobility (e.g. child care, small business hubs, etc.).

Calgary has made several key partnerships with organizations like Calgary Economic Development, the Urban Alliance with the University of Calgary and various affordable housing agencies. Calgary is in the process of developing technology hubs with the first project being the 9 Avenue Parkade and Innovation Centre. This development will provide parking for both automobiles and bicycles and will allow for full conversion of the building into commercial or residential as demand for transition parking structures declines. A multi-use space has been incorporated into the design of the building to serve as an innovation centre for local businesses. More work is needed to fully implement streetscape projects and neighbourhood projects supporting economic mobility. While some streetscape projects have been completed, they have not been connected to premium retail destinations.

SUMMARY OF PROPOSED AMENDMENTS

While recognizing The City has limited ability to directly influence the economy, by planning for economic change we can harness opportunities to benefit Calgarians. We are proposing that the language within the MDP be strengthened to emphasize Calgary's economic resilience and support for a strong diversified economy. This change reinforces that Calgary is committed to facing economic challenges now, and in the future.

The desire to support Calgary's economic vitality and attract new businesses and residents is reflected in the proposed amendments. The updated policy language highlights the importance of shaping Calgary's economic calling card and fostering a diversified economy. A diversified economy provides improved overarching direction for attracting people and business that may assist with economic recovery after a downturn.

The proposed amendments will re-focus and re-prioritize investments by building on an evolving approach to managing growth. This emphasis reflects the key principle of building a compact city, with the goal of maximizing existing infrastructure and reducing long-term costs. The proposed amendments will outline the potential environmental and social costs of growth and financial investments that will support the quality of life needed to make our city attractive to new businesses and residents. Part 5 of the MDP will be strengthened to facilitate these outcomes.

To foster a next-generation economy, the proposed amendments will support economic mobility and improve access to opportunities for Calgarians. This will be done by focusing on greater equity for Calgarians and attracting and enabling small businesses and their growth. Finally, the proposed amendments will acknowledge Calgary's ever-growing and central role in supporting the region and enhanced protection of industrial areas because of the vital role they play in an evolving economy, with an emphasis on the logistics industry.

CORE INDICATOR EVALUATION

The monitoring and reporting program tracks two core indicators connected to economic success. These two indicators are:

- Population/job balance
- Goods access

Table 4 shows the baseline values established when the plans were approved, the current values from the most recent monitoring report and a forecasted value to track how this indicator is performing over the life of the MDP and CTP. Over time, analysis of these indicators was intended to help us improve accessibility between housing and employment communities which would potentially reduce commute times and improve the ability of business to move goods around the city.

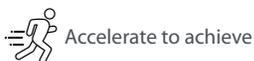
The population/job balance core indicator measures the ratio between population and jobs within each quadrant of the city. A higher ratio indicates that fewer

jobs are available relative to the population of the quadrant. Based on the data from the 2018 Monitoring Report, the population/job balance target has already been achieved and is only going to improve in the future. Going forward, this indicator should be reviewed for effectiveness to determine if the targets need to be adjusted or if there is a more appropriate indicator to measure economic outcomes.

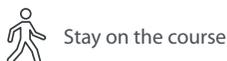
The goods access core indicator measures the percentage of intermodal and warehousing facilities that are near the Primary Goods Movement network. This indicator has not shown significant change over the past 10 years and is not expected to improve significantly in the future. This measure has been difficult to evaluate and forecast as definitions were not clear and the locations of future facilities are difficult to forecast. It is recommended that this indicator be reviewed and potentially replaced with a more appropriate measure.

Table 4: Economic Core Indicators

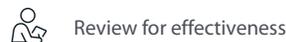
#	Core Indicator	Metric	Baseline	2018 Monitoring Progress Report	60-year target	60-year forecast (trends)	Status
3	Population/job balance	Population/jobs NW ratio	3.0	3.0	3.0	3.1	
		Population/jobs NE ratio	1.7	1.7	1.4	1.6	
		Population/jobs SW ratio	1.3	1.4	1.5	1.7	
		Population/jobs SE ratio	1.2	1.5	1.5	1.7	
9	Goods access	Per cent of intermodal and warehousing facilities within 1600 m of the Primary Goods Movement network.	73%	73%	95%	77%	



Accelerate to achieve



Stay on the course



Review for effectiveness



Our environment

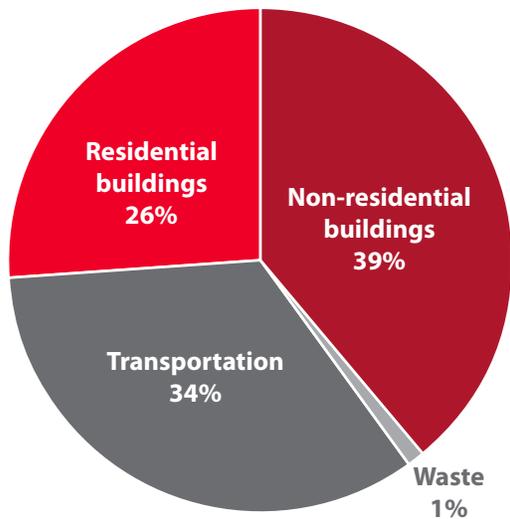
Sustaining and supporting the environment will keep Calgary resilient when the impacts of climate change are uncertain. Calgarians' quality of life relies on the responsible management of our natural assets and environment. Protecting watersheds preserves reliable sources of clean drinking water for people living in Calgary and the surrounding areas. Growing and nurturing our urban tree canopy improves air quality, provides people with natural shade, and helps make public spaces comfortable for people to enjoy.

Natural areas, parks, open spaces and healthy river systems make Calgary a great place to live. Reducing our impact on the city's natural assets and environment will help preserve these systems for future generations.

This past decade Calgary has faced severe urban flooding, damaging hail storms, drought conditions and periods of extremely poor air quality due to forest fires. Urbanization has threatened our natural areas and biodiversity. Steady population growth and urban expansion continues to challenge the sustainability of our city's natural areas and resources. The way we use our land and water, design our communities, buildings and infrastructure, and travel around the city impacts the amount of greenhouse gas emissions produced and the quality of our natural ecosystems.

Over the next 20 years, the effects of climate change could impact Calgary's natural environment and quality of life. Climate change will shift the frequency, intensity and timing of severe storms, heat waves and wildfires. This could result in Calgary experiencing flood damage to homes, city infrastructure, and natural areas, drought conditions with constrained water supply, and lower air and water quality. These environmental threats not only impact Calgary's natural environments, but also pose financial and economic risks, and impacts the health of Calgarians.

Calgary Community-wide Green House Gas Emissions by Sector (2018)



IMPACTS OF THE MDP AND CTP

The City has made significant investment in parks, open space networks, transit, waste reduction and green infrastructure. The MDP objectives for Greening the City are:

- Create green infrastructure.
- Protect, conserve and enhance land, water and ecological networks.
- Reduce waste.
- Reduce demand for fossil fuel use and greenhouse gas emissions.

The following City actions have been taken to achieve the goal of a green city:

- Incorporating watershed planning into land-use planning and encouraging green development practices.
- Investing in stormwater treatment infrastructure.
- Implementing sediment-control practices and protecting riparian, wetland and streambank areas.
- Monitoring water quality and protecting watershed health at a regional level.
- Implementing the green cart program.
- Implementing the National Energy Code.

Progress towards achieving the goals in the MDP and CTP has been slow, which emphasizes the need to ensure up-to-date policy to guide effective implementation.

WHAT ARE OTHER CITIES DOING?

Cities across the world are facing a growing range of adversities and challenges. Hundreds of cities are building urban resiliency by understanding their ecological systems holistically and adapting to help prepare for both the expected and unexpected. By understanding the underlying ecological systems of a city and the potential shocks and stresses it may face, a city can improve its development trajectory and the well-being of its citizens. Natural infrastructure and ecological systems provide critical services, connect urban assets and reduce physical vulnerability from climate change and extreme weather events.

Many cities have implemented bold climate action and investment in sustainable infrastructure and policies to bring down their greenhouse gas emissions while their populations increase and economies grow. The actions these cities took to reduce emissions include: de-carbonization of the electricity grid; optimizing energy use in buildings; providing cleaner, affordable alternatives to private vehicles; and reducing waste and increasing recycling rates. The analysis also demonstrated that the same steps they've taken to reduce their carbon footprints are also strengthening their local economies, creating jobs and improving public health.

Calgary is a world leader in energy production and is in a unique position to be at the forefront of climate change solutions.

SUMMARY OF PROPOSED AMENDMENTS

Many of the proposed MDP amendments are needed to update and align with other Council approved policies and departmental initiatives. The MDP's Greening the City section needs to better reflect the great work achieved by The City and to reflect current environmental practices. Since the adoption of the MDP in 2009, our understanding of how we impact our environment and the tools/solutions available have greatly improved.

The MDP will continue to support the city-wide parks and open space network, watershed management, green infrastructure, and growth in compact urban centres supported by an accessible transportation network.

To help realize Calgary's desire to be a leader in environmental health and resiliency, the proposed amendments address the policies and actions needed to achieve the following outcomes:

- Ensure that environmental policies, actions and regulations reflect current natural areas data and the evaluation of cumulative environmental impacts.
- Improve the quality and access to natural areas and open space city-wide, continue to build connections to the river system and expand city-wide trail and park networks and natural infrastructure.
- Consider guidelines, programs, partnerships and investments to improve the ecological functions and avoid, minimize or mitigate the impact of development on the natural environment.
- Support urban biodiversity through ecological restoration and protection, and identify and protect areas that support native species of birds, pollinators and other wildlife.
- Recognize The City's role in achieving greenhouse gas reductions and adapting to the impacts of a changing climate.
- Expand and enhance Calgary's cycling, walking and transit network to reduce greenhouse gas emissions.

Continued and new action in these areas will help us meet our global and local commitments to reduce adverse environmental impacts. It will also help us plan and prepare for the most significant consequences of climate change and reduce vulnerabilities to Calgary's health, infrastructure and economy.

CORE INDICATOR EVALUATION

Three indicators were selected to monitor progress on the MDP and CTP's goals related to the environment. They include:

- Watershed health
- Urban forest
- District energy

Table 5 contains the baseline values when the plans were approved, current estimates, targets and a forecast value showing the expected performance over the life of the Plans. These indicators help us understand how we are conserving and protecting Calgary's natural environment by maintaining or enhancing natural areas, tree coverage and reducing greenhouse gas emissions.

The watershed health indicator is the percentage of city area that is covered by impervious surfaces such as pavement or concrete. The measurement of impervious surfaces has a tangential impact on watershed health, but the indicator as stated in the MDP is likely not achievable. The city is expected to grow, and even with a balanced approach to growth, grassy lands on the outer edges of the city will be consumed by homes, roads, schools and retail centres. This will increase the percentage of land that is covered by impervious surfaces. The indicator methodology is not able to track positive improvements such as green roofs and infrastructure. This metric does not directly measure the health of the watershed or the quality of the water within the watershed. It is recommended that this indicator be reviewed for effectiveness.

The urban forest indicator is the one environment-related indicator that is measuring a direct outcome of the Plans. It measures the percentage of land covered by tree canopy. The increase in trees through City programs and private provision is not enough to meet the 14 to 20 per cent tree canopy goal. This also does not account for any potential tree losses anticipated from the effects of climate change. Achieving this goal will require investment and policy to support urban forestry and other environmental policies.

District energy systems produce energy, typically heat, at a central plant. The heat is then distributed to other buildings in the area through underground pipes. These systems are more efficient at heating and cooling buildings than if each building had its own boiler system. Currently, Calgary has one district energy system that provides heat to the City of Calgary Municipal Building, Bow Valley College, the Hillier Block Building, and the National Music Centre. The system produces enough heat to supply up to 10 million square feet of residential and commercial properties. The current indicator measures densities supportive of district energy, not the actual deployment of district energy systems. While the indicator targets have already been exceeded, no new district energy systems have been deployed over the past 10 years. It is recommended to review this indicator and determine if there is a better way to measure this outcome.

Table 5: Environmental core indicators

#	Core Indicator	Metric	Baseline	2018 Monitoring report	60-year target	60-year forecast (trends)	Status
12	Watershed health	The percentage of city area covered by impervious surfaces	33% (1998)	44%	10% - 20%	70%	
13	Urban forest	Percentage of city area covered by tree canopy	7% (1998)	825%	14% - 20%	9.7%	
14	District energy	Percentage of land area with densities supportive of district energy systems	1.8%	2.6%	1.7%	7.1%	

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Our communities

Communities are never static, they are constantly evolving and growing. As communities grow, change and adapt over time, the choices and opportunities for its existing and new residents should increase. By responding to the needs of Calgarians within their communities we can create high quality living and working environments, improve housing diversity and choice, enhance community character and distinctiveness, and provide vibrant public spaces.

Complete communities include a full range of housing, commercial, recreational, institutional and public spaces. They have more housing choices, offering people of all ages and diverse needs a place to live. This in turn encourages and supports local businesses, maintains student enrolment in neighbourhood schools and enhances overall community vibrancy. Complete communities ensure that future growth does not undermine what Calgarians value most in their neighbourhoods, communities and city.

This will be increasingly important as Calgary's demographics continue to change over the next 20 years. By 2040, the percentage of Calgarians age 65+ is expected to double to over 20 percent of our population. Housing surveys suggest that seniors are more likely to move to townhomes or condos. It is important that communities across Calgary have different types of housing, so people can find homes in their communities that meet their needs.

GROWTH IN NEW COMMUNITIES

Since 1985, Calgary's population and land area has roughly doubled. Over the past 10 years, Calgary's population increased by nearly a quarter of a million people, and 90 per cent of that growth was accommodated in new communities on the outer edges of the city.

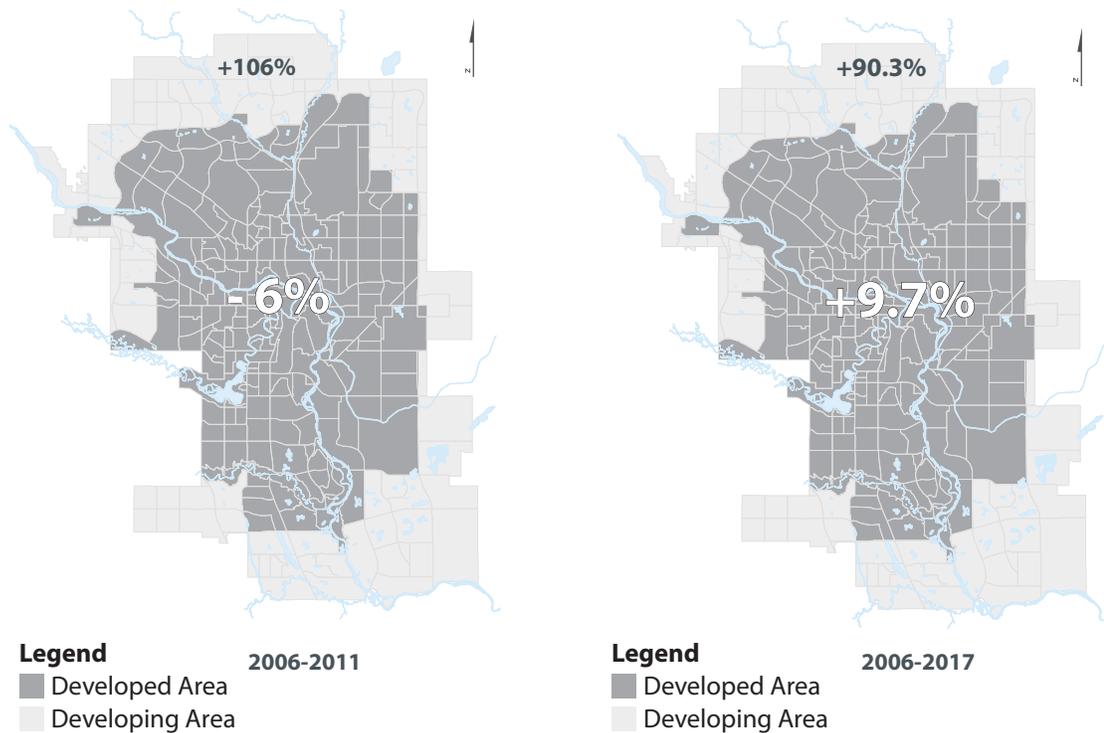
New communities often have families in similar stages of life, so they may have more family-friendly amenities, such as local parks and playgrounds. These communities are largely single-family homes that tend to occupy smaller parcels of land and are more energy efficient than those in older communities. New communities also have more multi-family homes, which are more likely to provide the population needed to support neighbourhood amenities like shops and services.

Additional new communities require more land, and this means more roads and street infrastructure, police and fire stations, utility lines and public green spaces to operate and maintain. It also means there may be delays in the construction of new amenities such as schools, libraries, recreation facilities until the community is fully developed.

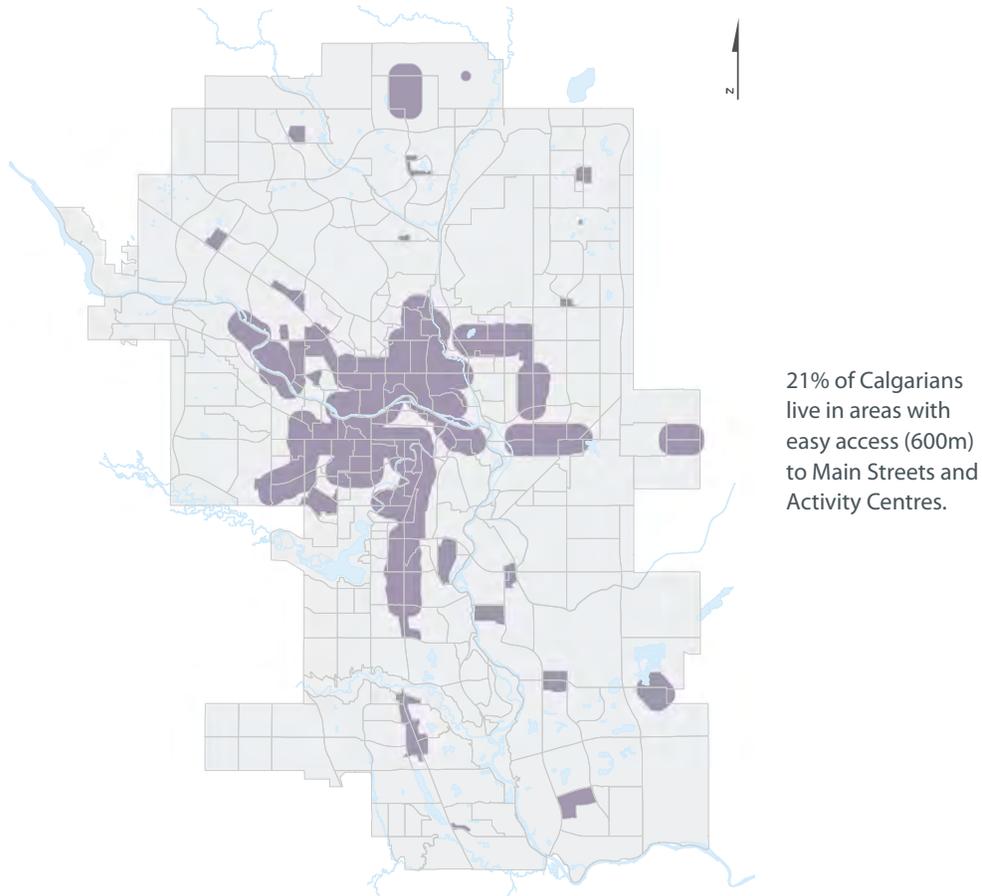
Since new communities are on the city's edge it can be difficult to provide frequent, efficient transit service due to long travel distances to workplaces, retail centres and educational institutions. This means most people rely on driving to meet their daily needs. More people driving means increased traffic congestion on major corridors around the city as traffic from outlying suburbs funnels through constrained roadways to centralized employment areas. This can lead to costly infrastructure upgrades and undesirable impacts to people living in established communities.

Strong growth within new communities continues to significantly outpace growth in existing areas. Building great communities is important in the suburban context to help offset some of these additional capital and operating costs. New communities should strive to provide a diverse mix of land uses and housing options, with a denser urban form and community population to support services and amenities.

Cumulative Population Growth Developed and Developing Areas



Accessibility to daily needs



REVITALIZING ESTABLISHED COMMUNITIES

As communities age, population tends to decline as children grow up and leave their family homes. This can lead to a decline in local businesses and closure of local schools. Redevelopment is therefore a natural part of a community's life cycle. It helps to revitalize neighbourhoods by making established communities more attractive for more people.

Accommodating some population growth through redevelopment of wide land parcels with single-family homes into multi-family homes like duplexes, townhomes and multistoried buildings can help make it more affordable for people to live in established communities. It also enables people to find different types of homes in the neighbourhoods they live in, as their needs change.

Shaping a more compact urban form is one of the primary goals of the MDP and is supported by encouraging density and growth in the Developed Areas, Activity Centres and Main Streets. Maintaining or increasing the number of people living in established communities across Calgary helps support and retain efficient transit services, existing schools, retail and services within short distances. This helps to maintain and renew the character and vibrancy of established communities. When coupled with investments that make walking, cycling and transit more convenient, redevelopment can help reduce local vehicular traffic and demand for on-street parking.

IMPACTS OF THE MDP AND CTP

The MDP policies that direct and plan for balanced growth aim to sustain and promote a healthy environment and an urban economy where people, businesses and neighbourhoods thrive. Development in new communities, where a greater range of residential uses are now required, has helped to improve the residential land use mix. The urban fabric in the Developed Areas is more established and change is incremental. The Developed Areas will need to evolve at a faster pace as Main Streets and Activity Centres continue to redevelop. Market forces, affordability, lifestyle choices, demographics and policy have all contributed to this change.

The City fosters the growth of compact and complete communities by strategically organizing development around Activity Centres and Main Streets that are connected, serviced and sustainable. The advancement of compact urban growth policies produces communities with higher densities that offer more housing and mobility options and have a socio-economically and age-diverse population that is better able to support amenities and infrastructure. City-wide, a denser urban form reduces the cost of services and requires less revenue in the form of taxes to provide the quality of life that Calgarians enjoy.

WHAT ARE OTHER CITIES DOING?

Cities across North America are focusing on building communities for people. People focused communities are walkable, designed for all ages and abilities, and have local amenities and services that meet every day needs. Streets are designed to prioritize people's health and safety, and are comfortable for seniors, adults and children to use.

Many cities are encouraging compact and mixed-use communities with multi-modal transportation to increase access to education, employment, services and amenities. There is a movement in many cities in the United States to densify existing neighbourhoods by ending exclusive, single-detached zoning. States such as Oregon, Washington State and Nebraska have all introduced or passed legislation eliminating single-family zoning to increase overall neighbourhood densities and allowing more medium density, multi-family developments.

Embracing diversity and providing for equity are key initiatives being practiced by other cities. Cities are addressing equitable access to services and infrastructure and reducing barriers for underrepresented segments of the population. In Los Angeles, tax credits and subsidies are offered to low income housing developments. The State of California has also introduced legislation to exempt environmental reviews for homeless shelters and affordable housing.

Safe, inclusive and inspiring neighbourhoods where residents enjoy a high quality of life are essential to a great city. Citizens, especially those who are vulnerable, need opportunities to participate in their neighbourhood, which in turn builds their capacity to contribute to civic life. When residents are actively involved they are likely to feel safer and more connected.

SUMMARY OF PROPOSED AMENDMENTS

The existing MDP sets out a framework of policies that focuses on housing, the quality of the physical environment and the amenities and services required for day-to-day, neighbourhood-focused living. The proposed amendments will continue to direct and plan for balanced and fiscally responsible growth, to ensure that we sustain and promote a healthy environment and an economy where people, businesses and neighbourhoods thrive.

To further advance the MDP, amendments were developed to guide decision-making in a way that recognizes the inter-related challenges Calgary communities face. These include: a continued focus on redevelopment in key intentional areas, supporting communities undergoing significant change, clarifying the role of identity and character as communities change, and advancing social equity through increased opportunities and access for everyone.

CORE INDICATOR EVALUATION

Five core indicators were selected to monitor progress on the MDP's goals related to communities. They include:

- Urban expansion,
- Density,
- Mixed land use,
- Residential mix, and
- Accessibility to daily needs.

Table 6 contains the baseline values when the plans were approved, current estimates, targets and a forecast value showing the expected performance over the life of the plans. These indicators give us an understanding of how the balance growth scenario in the plans helps us improve housing choice, community vitality and makes efficient use of public infrastructure to manage the costs associated with growth.

The urban expansion indicator is directly tied to policy within the MDP (5.2.2c and 5.2.2d) where 33% of growth from 2006 to 2039 is to be accommodated within the balanced growth area and 50% of growth over the next 60 years. This indicator should be reviewed for effectiveness as it is not well understood,

is divisive in nature, and does not articulate the change in specific strategic locations. If the current trends are extended, it is unlikely that the 33% target will be met. Increased urbanization and changing societal preferences may further increase intensification, but it is not likely that the change will be rapid enough to achieve the 2039 target.

The density, land use and residential diversity indicators are generally performing well. They suggest that the new communities built over the past 10 years have higher densities and a greater mix of land use and housing types. The diversity indicators are calculated based on detailed land use zoning in the Land Use Bylaw, which is currently under review. It is possible that these indicators may need to be revisited once the new Land Use Bylaw is approved.

The accessibility to daily needs indicator measures the percentage of population that lives within Main Streets and Activity Centres. This indicator should be reviewed as it is only achievable if the MDP's urban expansion targets are realized and it does not measure what services are provided within those areas.

Table 6: Community core indicators

#	Core Indicator	Metric	Baseline	2018 Monitoring Progress Report	60-year target	60-year forecast (trends)	Status
1	Urban expansion	Per cent of population growth from 2006 accommodated inside the balanced growth boundary	-6%	10%	50%	By 2039 18% By 2076 23%	
2	Density	People per hectare Jobs per hectare	20 11	25 14	27 18	30 16	
4	Mix land use	Land-use diversity index	0.53	0.56	0.7	0.7	
5	Residential mix	Residential diversity index	0.19	0.22	0.4	0.4	
11	Accessibility to daily needs	Per cent of population within Activity Centres and Main Streets	18%	21%	30%	31%	

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Mobility

The vitality of any city is driven by the people who live, work and play there. The types of activities that make up their daily lives are diverse: scheduled or unscheduled, routine or special occasion, and local or cross-town. Deciding how to move between activities depends on the number and attractiveness of the mobility options that are available and changes based on location and time of day. The City's transportation system exists to serve citizens' needs and desires to connect with each other, enabling the personal and business interactions that underpin Calgary's society, culture and economy. Calgary has been consistently ranked as having low auto congestion, and our LRT ridership remains one of the highest in North America.

In 2020, Calgary faces the challenge of maintaining its status as one of the world's "most livable cities" while disruptive changes occur in several areas that influence the transportation system. Disruptive changes include:

- An extended downturn in Alberta's economy, reducing the amount of funding available from traditional sources to The City for the planning, design and implementation of transportation services and infrastructure.
- The arrival of new forms of travel (e.g. Uber, electric bicycles, scooters) requiring changes to regulations, operating space within rights-of-way and changes to operational practices.
- Climate change effects, including more severe weather events requiring more people and equipment for response, and more spending on infrastructure improvements.
- Advances in vehicle technology (e.g. self-driving and electric vehicles), the incorporation of new infrastructure (e.g. EV charging stations) and changes in assumptions around how Calgarians will travel in the future.
- Aging infrastructure, requiring increased spending on maintenance, renewal and (in some cases) total replacement.

IMPACTS OF THE MDP AND CTP

Since being approved by Council in 2009, the MDP and CTP have resulted in:

- More transportation choices available for Calgarians, with more people walking and cycling.
- Increased residential density across Calgary, and growth in Main Streets and Activity Centres, improving the efficiency of transit service.

WHAT ARE OTHER CITIES DOING?

Other cities have established the reduction or elimination of growth in the total distance travelled by vehicles (known as 'vehicle kilometres travelled' or VKT) within the municipality as an objective in their plans. This prioritizes vehicle travel demand management measures, such as high occupancy vehicle (HOV) or high occupancy toll (HOT) lanes and the elimination of minimum requirements for parking for new developments.

The creation of area-specific goals for travel mode split (i.e. the proportion of trips made by automobiles, transit, walking and cycling) have been implemented by other cities. This recognizes that localized areas within a municipality can have significantly different travel patterns and offers different transportation network investment opportunities.

Expanding the availability of more sustainable travel options is promoted by other cities. This is done by prioritizing investments in walking and wheeling networks and by facilitating shared and micro-mobility alternatives. These alternatives include things like dedicating street space to low speed ways of travelling, creating designated 'community mobility hubs' that bring together dock-less bikes, e-scooters and car-sharing fleet vehicles.

Other cities have adopted traffic management policies that limit road network expansions and prioritize the flow of high-occupancy vehicles (e.g. transit buses, taxis, ride-sharing vehicles). This recognizes the additional travel demand that results from capacity improvements and the negative impacts of roadway widenings on adjacent communities and business areas.

With the change in funding opportunities, other cities have established new funding models for transportation infrastructure and services. The new funding models include the adoption of more direct, user-pay systems (e.g. tolling and road-pricing) and

dedicated municipal taxes for specific transportation system improvements.

Calgary has been expanding the availability of more sustainable ways of travelling through the implementation of the Cycling Strategy, Calgary and Area Pathway and Bikeway Implementation Plan and Step Forward, Calgary's pedestrian strategy. To support shared micro transportation, such as e-scooters and dockless bikes, pilot projects are underway to see whether they are viable in Calgary.

SUMMARY OF PROPOSED AMENDMENTS

Proposed amendments to the CTP improve the quality of the public realm through a review of existing City tools for acquiring land and interim use policies for City-owned rights-of-ways. The new policies cover setbacks and how to identify opportunities to better use City-owned rights-of-ways, this includes the review process, interim uses and when to dispose of surplus land. Expanded corridor descriptions to clarify intended function are also included.

Changes in technology have changed the ways in which people identify and select how they will travel. Applications that identify and recommend travel options amongst multiple modes and service providers (e.g. Google Maps) are very popular with users, and may become more important as new transportation modes and services become available. The City, as both a provider of public transit services and as the public transportation system provider, is in a position to facilitate the development of a seamless travel planning and payment application that could act as a universal fare and fee payment solution for users. Proposed amendments to the CTP include new policies on ensuring The City's data management and system capacity can support the acquisition, use and protection of transportation trip and transaction data for enabling mobility as a service (MaaS) digital applications, and support for the operation of shared-use mobility services within Calgary.

The City needs to keep at the forefront of new transportation technology while balancing the cost to the public with the benefits and risks. In some cases (e.g. electric vehicles, e-scooters) developing policy and conducting trials is already underway. The implications of other technologies are not as clear, and concerns exist that their ultimate effects could be negative without purposeful action on the part of municipalities. An important area of opportunity

exists with pooling, as the more seats that are filled in vehicles (cars, vans, buses and light rail) the lower the vehicle kilometres travelled. When fewer vehicles carry the same number of travelers, overall costs in terms of time, fuel, infrastructure and the environment are reduced.

Proposed amendments to the CTP include an entirely new Section 3.14 (New Transportation Technologies) with a formal objective to monitor the development and deployment of new transportation technology, and to plan for coordinated and timely responses that optimize the benefits of the technology at acceptable levels of cost and risk. New policies include the development of a comprehensive curb space management strategy and the investigation of the feasibility of road-pricing as a potential funding source replacement for fuel tax.

As part of the Climate Mitigation Plan, The City has identified that they will accelerate the shift to low emissions vehicles for City fleet vehicles. The proposed amendments to the CTP include new policies to support a 100 percent zero-emission community vehicle fleet by 2050 and expansion of publicly accessible electric vehicle charging stations.

A transportation system provides the most value to citizens when it offers choice. When people can choose the travel option that best meets their needs, user experiences improve while the costs of travel (time, land, infrastructure and emissions) are reduced. An effective and efficient transportation system should be planned, designed, delivered and operated in a manner reflective of the values of the community it serves: people. The proposed amendments to the CTP place a greater focus on the user experience rather than the type of vehicle or travel mode.

CORE INDICATOR EVALUATION

Four indicators were selected to monitor progress on the MDP and CTP's goals related to mobility. They include:

- Road and street infrastructure,
- Accessibility to Primary Transit Network,
- Transit service, and
- Transportation mode split.

Table 7 contains the baseline values when the MDP and CTP were approved, current estimates, targets and a forecast value showing the expected performance over the life of the plans. These indicators

help us understand how The City is changing the transportation network through the provision of transit service and roadway improvements and the impact those changes have on the travel choices made by Calgarians.

The road and street infrastructure core indicator measures the ratio of high-speed skeletal roads to arterial streets. Skeletal roads are high-speed, major transportation connections that carry cars and trucks long distances at high speeds. Arterial streets provide reasonably direct connections between communities and major destinations. A balance of both is needed to efficiently move people and goods across the city. This indicator should be reviewed as it does not directly measure any of the Plans' outcomes and the results fluctuate enough that it is not useful. For example, the ratio was under target in 2012, but was over target in 2017 after the construction of the Stoney Trail Ring Road.

The accessibility to Primary Transit Network indicator measures the percentage of people and jobs that are within 400 metres of the Primary Transit Network. The Primary Transit Network is a series of corridors where transit runs every 10 minutes, 15 hours per day, 7 days per week. After the plans were initially improved in 2009, there was significant investment in transit service which enabled the Red Line, Blue Line and Route 3 to operate at Primary Transit Network levels of service. In 2019, service adjustments were made that reduced service along key corridors so they no longer meet the criteria for the Primary Transit Network. If this goal is to be achieved, consistent investment in both capital and operating funds are required.

The Transit Service indicator measures the number of annual transit service hours per capita. Like the Primary Transit Network indicator, this indicator performed well after the plans were approved and investment in transit services increased. In recent years, transit service hours have decreased due to reductions in operating funding. Currently, the indicator is performing close to 2009 levels after making significant progress between 2009 and 2012. If the target is to be achieved, consistent investment in transit services is required.

The transportation mode split indicator measures the percentage of daily trips made by active, automobile or transit modes. This indicator is showing increases in active modes and corresponding decreases in automobile modes. This is most likely related to the increased investment in active mode infrastructure through the Cycling Strategy and Step Forward.

The transit mode has remained stagnant, and even decreased slightly in 2017. The decrease is likely due to the 2015 economic decline where transit trips to the downtown decreased due to job losses. This ridership reduction also contributed to the reduction in transit

funding. This indicator is one that The City cannot directly influence, but through investment in balanced growth and multiple transportation modes, this indicator will change as people begin to make different travel mode choices.

Table 7: Mobility core indicators

#	Core indicator	Metric	Baseline	2018 Monitoring Progress Report	60-year target	60-year forecast (trends)	Status
6	Road and street infrastructure	Skeletal roads to arterial streets ratio	0.72	0.61	0.56	0.55	
7	Accessibility to Primary Transit Network	Per cent of population within 400 m of Primary Transit Network	0	14%	45%	30%	
		Per cent of jobs within 400 m of Primary Transit Network	0	37%	67%	51%	
8	Transit service	Annual transit service hours per capita	2.2	2.24	3.7	2.38	
10	Transportation mode split	Walking and cycling mode split (all-purpose trips, 24 hours, city-wide)	14%	18%	20 - 25%	19%	
		Transit mode split (all-purpose trips, 24 hours, city-wide)	9%	8%	15 - 20%	10%	
		Auto mode split (all-purpose trips, 24 hours, city-wide)	77%	74%	65 - 55%	71%	

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What's next for the MDP/CTP?

Calgary's Municipal Development Plan (MDP) and Calgary Transportation Plan (CTP) were developed in 2009. The Plans looked to change the direction of Calgary's growth by providing a balance between suburban expansion and redevelopment in established communities as more people live and work in the city. Together, the Plans focus on the gradual intensification of strategic corridors and centres to create residential, employment, and retail areas that make walking, cycling and transit more safe and convenient, while still supporting driving, over the next 60 years.

The MDP and CTP are long-range policies that should be reviewed on a regular basis to ensure they continue to work towards the vision we have of Calgary's future. This review was a minor review and a full review and integration of the two plans is recommended for future work.

Our world is changing, and with that, how people live and work in Calgary will also need to change. Together, the MDP and CTP envision a city that that will continue to be attractive for all people to live in by building great neighbourhoods, providing transportation choices and protecting our water and natural resources — a city that allows Calgarians to make the best



Appendix A

Core Indicators

Core indicators for Land Use and Mobility (MDP)

#	Core indicators	Metric	Baseline	2018 Monitoring Progress Report	60-year target	Status
1	Urban Expansion	Per cent of population growth from 2006 accommodated within balanced growth boundary.	-5.9% (2005)	9.7%	50%	
2	Density	People per hectare	20 (2005)	24.7	27	
		Jobs per hectare	11 (2005)	13.5	18	
3	Population / Jobs Balance	Population/Jobs Northwest ratio	3.0	3.0	3.0	
		Population/Jobs Northeast ratio	1.7	1.7	1.4	
		Population/Jobs Southwest ratio	1.3	1.4	1.5	
		Population/Jobs Southeast ratio	1.2	1.5	1.5	
4	Mix Land use	Land Use Diversity Index	0.53 (2008)	0.56	0.7	
5	Residential Mix	Residential Diversity Index	0.19 (2008)	0.22	0.4	
6	Road and Street Infrastructure	Roads to streets ratio	0.72 (42% Roads and 58% Streets)	0.61	0.57 (36% Roads and 64% Streets)	
7	Accessibility to Primary Transit Network	Per cent of population within 400m of Primary Transit Network	0%	37%	45%	
		Per cent of jobs within 400m of Primary Transit Network	0%	14%	67%	
8	Transit Service	Annual transit service hours per capita	2.2	2.24	3.7	
9	Goods Access	Per cent of intermodal and warehousing facilities within 1600m (actual) of Primary Goods Movement Network	73% (2008)	73%	95%	
10	Transportation Mode Split	Walking and Cycling Mode split (all purpose trips, 24 hours, city-wide)	14% (2005)	18%	20% - 25%	
		Transit Mode split (all purpose trips, 24 hours, city-wide)	9% (2005)	8%	15% - 20%	
		Auto Mode split (all purpose trips, 24 hours, city-wide)	77% (2005)	74%	65% - 55%	
11	Accessibility to Daily Needs	Per cent of population within Major and Community Activity Centres, and 600m of Urban and Neighbourhood Corridors	18% (2006)	21%	30%	
12	Watershed Health	Per cent of impervious surface	33% (1998)	44%	10% - 20%	
13	Urban forest	Per cent of tree canopy	7% (1998)	8.25%	14% - 20%	
14	District Energy	Per cent of land area with densities supportive of district energy systems	1.8%	2.6%	1.7%	

