PROPOSED

PUD2020-1106
ATTACHMENT 3

BYLAW NUMBER 49P2020

BEING A BYLAW OF THE CITY OF CALGARY TO AMEND THE MUNICIPAL DEVELOPMENT PLAN BYLAW 24P2009 (PUD2020-1106)

*** ***

WHEREAS it is desirable to amend the Municipal Development Plan Bylaw 24P2009, as amended;

AND WHEREAS Council has held a public hearing as required by Section 692 of the *Municipal Government Act*, R.S.A. 2000, c.M-26, as amended:

NOW, THEREFORE, THE COUNCIL OF THE CITY OF CALGARY ENACTS AS FOLLOWS:

1. The Municipal Development Plan attached to and forming part of Bylaw 24P2009, as amended, is hereby further amended as follows:

   (a) Replace the entirety of Volume 1 with the contents of Schedule “A”.

   (b) Add a new Volume 3 with the contents of Schedule “B”.

2. This Bylaw comes into force on the date it is passed.

READ A FIRST TIME ON _____

READ A SECOND TIME ON _____

READ A THIRD TIME ON _____

_____
MAYOR

SIGNED ON _____

_____
CITY CLERK

SIGNED ON _____

PROPOSED

BYLAW NUMBER 49P2020

SCHEDULE “A”

Municipal Development Plan, Volume 1

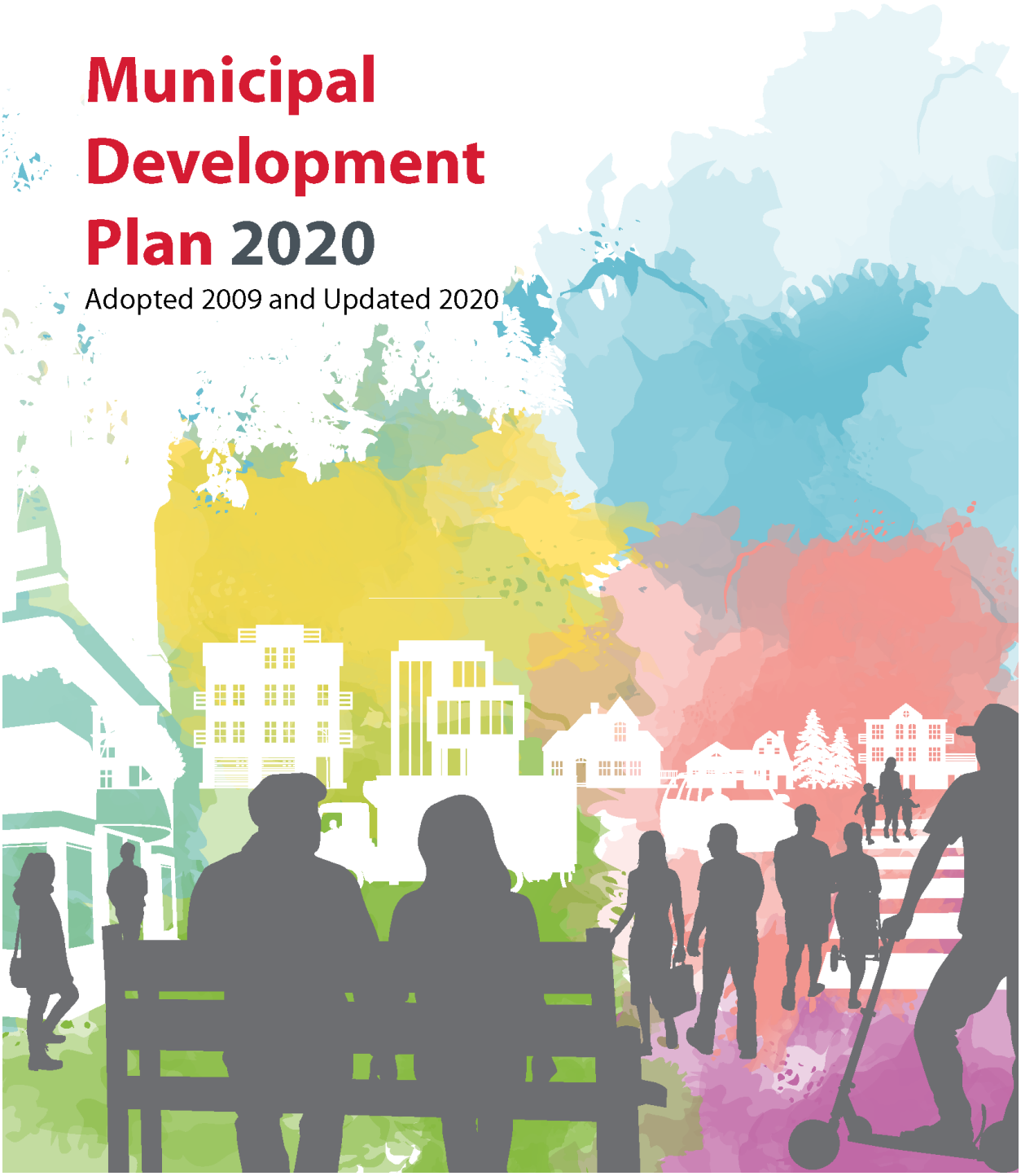
PROPOSED

BYLAW NUMBER 49P2020

Calgary

Municipal Development Plan 2020

Adopted 2009 and Updated 2020



PROPOSED

BYLAW NUMBER 49P2020

Publishing Information

Title
Municipal Development Plan (MDP) - 2020

Author
© The City of Calgary

Status
PROPOSED – 2020, October

Additional Copies
The City of Calgary
Records & Information Management (RIM)
Calgary Building Services
P.O. Box 2100, Station M, Mail Code: 8115
Calgary, AB T2P 2M5

Phone
311 or outside Calgary 403-268-2489

Fax
403-268-4615

calgary.ca/MDP

19-0003288/ADV-3487

Notice
In some cases, there may be gaps in policy numbering. This is to provide continuity on policy numbering with the previous Municipal Development Plan.

Contents

The Municipal Development Plan: Volume 1

Land Acknowledgment

In the Blackfoot language, Calgary is Moh'kin'stis; in Stoney Nakoda, Wiçispa Oyade; in Tsuut'ina, Gu'tsi'tsi and in Métis, it is Otoskwunee. For each of these Indigenous languages, the words translate to 'Elbow,' representing the confluence of the Bow and Elbow Rivers. This is where the story of Calgary begins as the confluence has been a trading hub for Indigenous peoples for millennia and the site where they celebrated natural abundance, ceremony, culture, and partnerships.

This plan acknowledges the traditional lands of the Treaty Seven Nations – the Blackfoot confederacy, (Siksika, Kainai, Piikani), the Tsuut'ina, the Îyâxe Nakoda Nations (Bearspaw, Chiniki, Wesley), the Métis Nation of Alberta, Region 3, and all people who have made Calgary their home. This plan honours their long history and deep connections to this land.

The strength and energy of Calgary comes from the land it was built on, as well as the Indigenous people and newcomers whose footsteps have marked this territory.

Canvas tepee and fur trading fort at Heritage Park

Where the Elbow River meets the Bow River

Indigenous Flags in Council Chambers

Part 1
Role and Scope of the Municipal Development Plan

The City of Calgary's Municipal Development Plan (MDP) is a strategic policy document that guides Calgary's growth and city building. Alberta's Municipal Government Act (MGA) requires that the council of every municipality must adopt a Municipal Development Plan by bylaw.

PROPOSED

BYLAW NUMBER 49P2020

The MDP and MGA

Calgary's MDP is a statutory document that establishes the orderly use of land and settlement to optimize the quality of the physical environment. The MDP fulfils the requirement of section 632 of the MGA as amended from time to time by addressing matters related to:

- Future land use, development, transportation systems, municipal services and facilities within Calgary and with adjacent municipalities.
- City's development constraints.
- Subdivision and development regulations.
- Municipal, school, environmental and conservation reserves.
- Calgary Metropolitan Region Board Growth Plan (CMRB Growth Plan) and intermunicipal development plans.

The MGA allows a municipal development plan to address other matters relating to the physical, social, environmental and economic development of the city. The MDP addresses these matters as they relate to the integrated land use patterns and mobility networks of the city.

1.1 Plan Foundations – Towards a Sustainable City

Sustainability has always been part of The City's long-range planning. The MDP and Calgary Transportation Plan (CTP) build upon the work of Calgary's previous transportation plan (The Go Plan –1995), which recognized the need to better link transportation and land use planning issues into long range planning for Calgary. A major emphasis of the Go Plan was to optimize the use of existing road and transit infrastructure by incenting land use and travel behavioural changes.

The Calgary Plan (1998), was a compilation of existing City policies that incorporated relevant direction from the Go Plan into land use and growth management policies. However, The Calgary Plan introduced the principles of sustainable development into the statutory planning framework and included policy direction to integrate social, environmental and economic objectives into a coordinated decision-making process.

These previous policy documents have been expanded upon in the MDP and CTP. They start by setting a long term 60-year strategy of a more sustainable city form for Calgary and the transportation networks needed to serve it. This is supported by a 30-year plan for managing growth and change, public investment and land use approval decisions. Finally, short-term, ten-year, corporate decision-making, business planning, implementation and accountabilities are aligned to the strategies and plan to support Calgary's move to being a more sustainable city.

1.1.1 SUSTAINABILITY PRINCIPLES AND KEY DIRECTIONS

In January of 2007, City Council adopted the Sustainability Principles. The Principles were derived from City of Calgary policy direction, well recognized Smart Growth principles, and the direction of the Long Range Urban Sustainability Plan for Calgary (imagineCALGARY).

The Sustainability Principles for Land Use and Mobility are:

1. Create a range of housing opportunities and choices.
2. Create walkable environments.
3. Foster distinctive, attractive communities with a strong sense of place.
4. Provide a variety of transportation options.
5. Preserve open space, agricultural land, natural beauty and critical environmental areas.
6. Mix land uses.
7. Strategically direct and manage redevelopment opportunities within existing areas.
8. Support compact development.
9. Connect people, goods and services locally, regionally and globally.
10. Provide transportation services in a safe, effective, affordable and efficient manner that ensures reasonable accessibility to all areas of the city for all residents.
11. Utilize natural infrastructure and buildings.

In November of 2008, City Council approved eight Key Directions for Land Use and Mobility, for use in the development of the MDP and CTP. The Key Directions represented the strategic moves that needed to be accomplished in order to guide Calgary towards the imagineCALGARY vision and the Sustainability Principles for Land Use and Mobility.

The Key Directions for Land Use and Mobility are:

1. Achieve a balance of growth between established and greenfield communities.
2. Provide more choice within complete communities.
3. Direct land use change within a framework of Activity Centres and Main Streets.
4. Link land use decisions to transit.
5. Increase mobility choices.
6. Develop a Primary Transit Network.
7. Create Complete Streets.
8. Optimize infrastructure.

Each goal of the MDP reference one or more of the relevant key directions that it supports.

1.2 Organization of the MDP

Volume 1: The Municipal Development Plan

The MDP is organized as follows:

Part 1 – Role and scope of the MDP

- Plan foundations, sustainability principles and key directions
- Alignment of the MDP with provincial legislation, regional authorities and policies and other City policies.
- Implementation of the MDP:
  - How the MDP is to be implemented through various planning processes.
- MDP review, updates and amending the Plan.
- Interpreting the MDP.

Part 2 – City-wide policies

- Broad, city-wide land use and mobility goals and objectives and comprehensive policies addressing:
  - Creating a prosperous economy
  - Shaping a more compact urban form
  - Creating great communities
  - Urban design
  - Connecting the city
  - Greening the city

Part 3 – Typologies for Calgary's future urban structure

- Land use, mobility and design policies for specific areas of the city.

Part 4 – Specific-use policies

- Policies relating to specific land use issues or development processes.
- Other policy and content areas required by the Municipal Government Act (MGA).

Part 5 – City Wide Growth Strategy

- Policies to manage growth and change and direct implementation and public investment decisions by The City.

Appendices

- Glossary - definition and interpretation of terms used in the MDP.
- Maps - supporting and aiding in the interpretation of the policies of the MDP.

Volume 2: Implementation

Part 1 - New Community Planning Guidebook

Part 2 - Centre City Guidebook

Part 3 - Developed Areas Guidebook

Volume 3: Calgary Transportation Plan

1.3 Role of MDP in Planning Hierarchy

Land use planning and decision-making in Alberta are done through various provincial legislation and policies and are implemented by a number of decision makers including provincial departments, regional boards and agencies and municipal governments.

Provincial land use planning in Alberta is centered on the Alberta Land Stewardship Act (ALSA), Land Use Framework (LUF), South Saskatchewan Regional Plan and the regional plans authorized under this Act. Municipal land use planning is primarily governed by the Municipal Government Act (MGA). Figure 1 below explains the hierarchy of land use planning in Alberta.

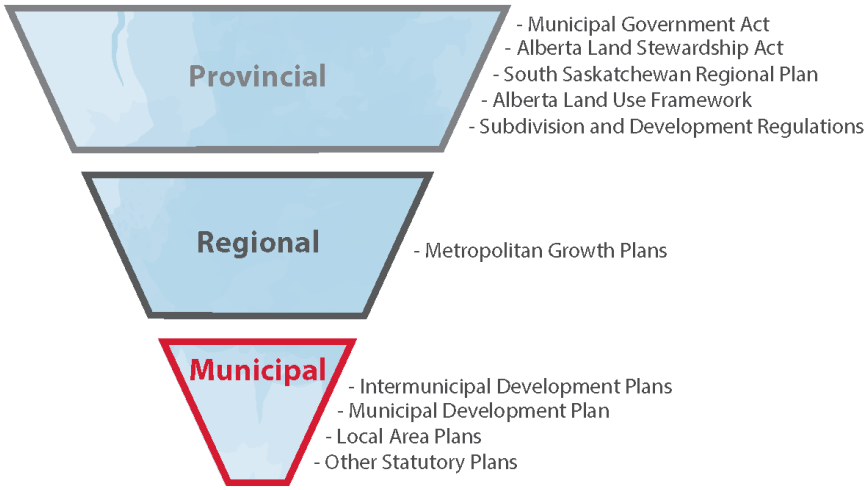


Figure 1-1: Land Use Planning in Alberta

1.3.1 CALGARY AS A REGIONAL PARTNER

The MGA and Provincial Land use Framework requires that local Municipal Developmen Plans align with:

- South Saskatchewan Regional Plan
- Calgary Metropolitan Region Growth Plan
- Intermunicipal development plans

1.3.2 SOUTH SASKATCHEWAN REGIONAL PLAN

Alberta Land Stewardship Act (ALSA) enables the provincial government to provide direction and leadership in identifying current land-use objectives of the province. In 2008, the provincial government adopted a policy statement titled the Land Use Framework. The purpose of this framework is to manage the provincial land and natural resources to achieve Alberta's long-term economic, environmental and social goals. ALSA enables the strategies identified in the framework including the creation of seven regional plans. The South Saskatchewan Regional Plan (SSRP) is the regional plan that applies to The City of Calgary. It establishes a long-term economic, environmental and social vision for the region. Policy plans approved by The City of Calgary, including the MDP, must be consistent with the SSRP.

1.3.3 CALGARY METROPOLITAN REGION BOARD GROWTH PLAN

The Government of Alberta established the Calgary Metropolitan Region Board (CMRB) of which Calgary is a member. The purpose of the CMRB is to provide for integrated and strategic planning for the long-term sustainability of the region. The Growth Plan and Servicing Plan must be consistent with the SSRP. Policy plans approved by The City of Calgary, including the MDP, must be consistent with the CMRB Growth Plan.

1.3.4 INTERMUNICIPAL DEVELOPMENT PLANS

Regional alignment facilitation may be done through the joint preparation of Intermunicipal Development Plans (IDPs) for common boundary areas with intermunicipal neighbours, including Rocky View County, Foothills County, and the City of Chestermere. IDPs include objectives for a shared area, including collaboration, consultation, infrastructure, transportation and land use planning, protection of growth areas and provisions for annexation. IDPs shall also provide guidance on referral requirements and communications for proposals within the plan area. Policy plans approved by The City of Calgary, including the MDP, must be consistent with any IDP covering the same land area. In the case of any inconsistency, the provisions of the IDP will prevail.

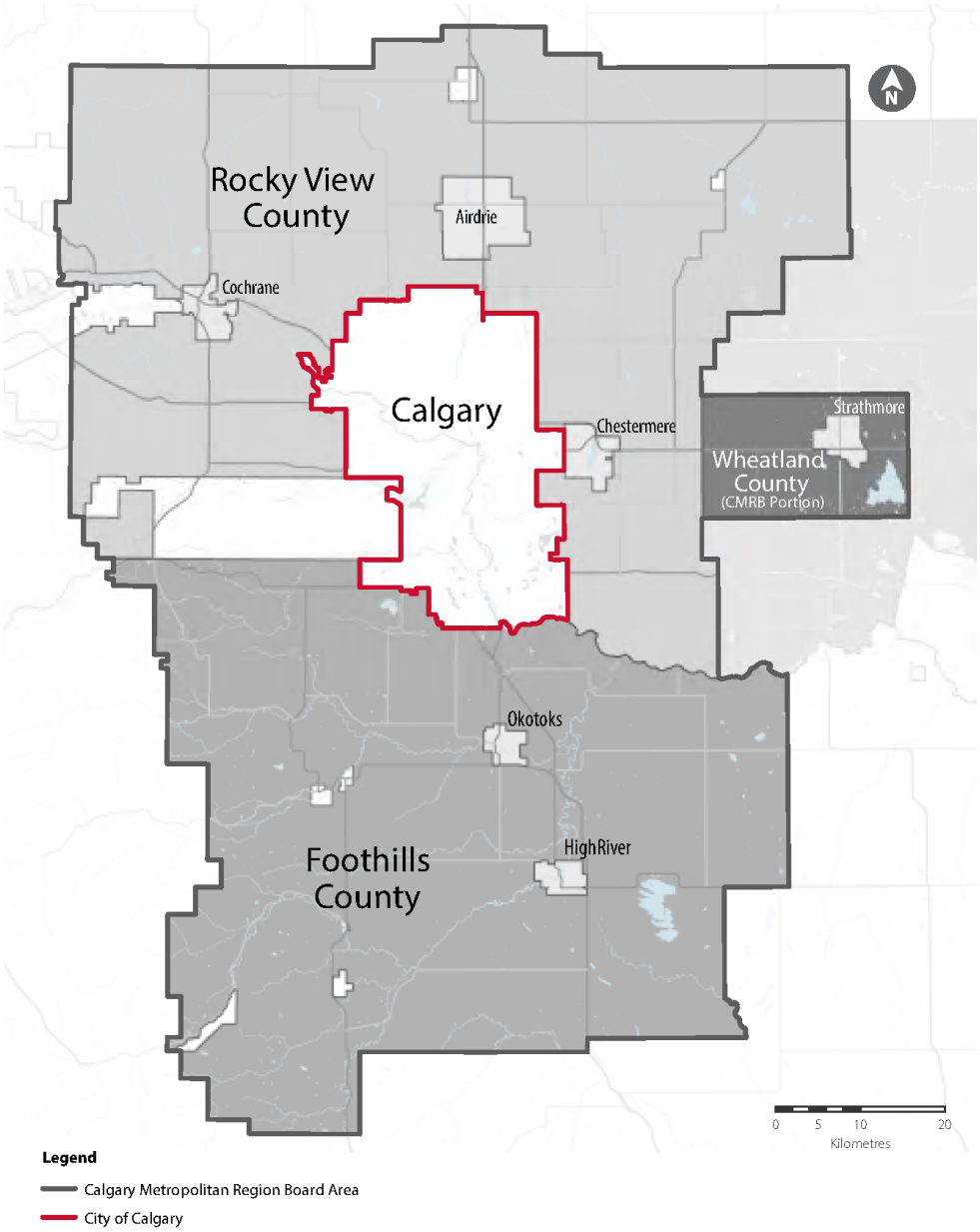


Figure 1-2: Calgary Metropolitan Region Board (CMRB) Members

1.3.5 ALIGNMENT WITH CALGARY'S OTHER STRATEGIC PLANS

The City has other Council policies that establish strategic direction in matters relating to social, environmental, economic and fiscal service delivery and management.

The MDP aligns with policies adopted by Council that establish strategic direction related to:

- Transportation – transit, Complete Streets, transportation choice.
- Housing – forms, types and affordability.
- Economic development – investment and planning to support growth, an innovative and diverse economy, sustainable municipal finances.
- Culture – heritage, public art, design excellence.
- Social Issues – quality of life, safety, food.
- Environment – climate resilience, air and water quality, watershed plans, natural areas, biodiversity, trees and waste.

The MDP has been prepared in context with these policies to ensure that where environmental, social and economic policies impact, or are impacted by, land use and transportation decisions, relevant policies are included within the statutory framework of the MDP. In some cases, references are made to these other policies within the discussion portion of the MDP to provide a broader context for the policies and actions that follow.

Air and water quality

1.4 Implementing the MDP

The MDP becomes effective following Third Reading by Council on the date set by Council in the bylaw. The MDP will be implemented through a variety of means and processes, to achieve the plan objectives. These processes are described below.

1.4.1 GUIDING STRATEGIC DECISIONS OF THE CITY

The MDP provides strategic direction to support corporate decisions around managing growth and change, prioritizing corporate initiatives and public investment. The MDP will be implemented in conjunction with the CTP as both plans were developed together and are highly linked. The MDP also helps to direct co-ordination between departments and business units to align directions and work programs to achieve the objectives of the MDP.

1.4.2 FACILITATING PRIVATE SECTOR INVESTMENT

Buy-in and investment by the private sector market is critical to achieving the vision of the MDP. The MDP provides the vision for growth and change in the city and direction and certainty to both business and communities, to support private sector investment to build housing, commercial and industrial developments.

1.4.3 SUPPORTING COMMUNITY-BASED INITIATIVES

The MDP can help provide city-wide context to support community-based planning initiatives. It can also provide guidance on smaller more locally-scaled initiatives that support neighbourhood and community development.

1.4.4 IMPLEMENTING THE MDP AND THE CALGARY TRANSPORTATION PLAN THROUGH PLANNING POLICY

Volume 3 of the MDP – The Calgary Transportation Plan

The MDP and CTP are Calgary's long-range land use and transportation plans. Together they align growth and development goals of the MDP with transportation goals of the CTP. Both plans support each other, with the MDP density targets being supported by the CTP's transportation goals and vice versa. These documents are meant to be implemented together. In the event of a policy conflict, the MDP Volume 1 will prevail.

Volume 2 of the MDP – Implementation Guidebooks

The implementation guidebooks apply to specific areas of the city and must be read in conjunction with the MDP, CTP and, where applicable, a local area plan. In the event of a conflict or inconsistency between the MDP Volume 1 and the implementation guidebooks in Volume 2, content in MDP Volume 1 will prevail. Volume 2 guidebooks only apply in areas where area structure plans or area redevelopment plans indicate that they apply.

Volume 2 of the MDP contains the following three Implementation Guidebooks:

- Volume 2, Part 1 – New Community Planning Guidebook
- Volume 2, Part 2 – Centre City Guidebook
- Volume 2, Part 3 – Developed Areas Guidebook.

Volume 2, Part 1 – New Community Planning Guidebook

The purpose of the New Community Planning Guidebook is to translate the policies and objectives of the MDP Volume 1 and CTP Volume 3 into implementation policy at the community level, provide a new framework for new community design, and set common standards for new community development.

Volume 2, Part 2 – Centre City Guidebook

The purpose of the Centre City Guidebook is to translate the policies and objectives of the MDP Volume 1 and CTP Volume 3 into implementation policy at the community level, set out land use framework using building blocks and policies to guide growth and change in the Greater Downtown.

Volume 2, Part 3 – Developed Areas Guidebook

The purpose of the Developed Areas Guidebook is to translate the policies and objectives of the MDP Volume 1 and CTP Volume 3 into implementation policy to facilitate and guide growth and change in the Developed Areas. Using building blocks as a land use framework and common policies to support development in the Developed Areas, it provides guidance on how to integrate new development into a community's existing urban fabric.

1.4.5 RELATIONSHIP OF THE MDP VOLUME 1 WITH VOLUME 2 AND OTHER PLANS

In the event of a conflict or inconsistency between the MDP Volume 1 and the implementation guidebooks Volume 2, Volume 1 will prevail.

Figure 1-3 below, illustrates the relationship of the MDP Volume 1 with the implementation guidebooks Volume 2, other statutory plans, Land Use Bylaw and planning applications.

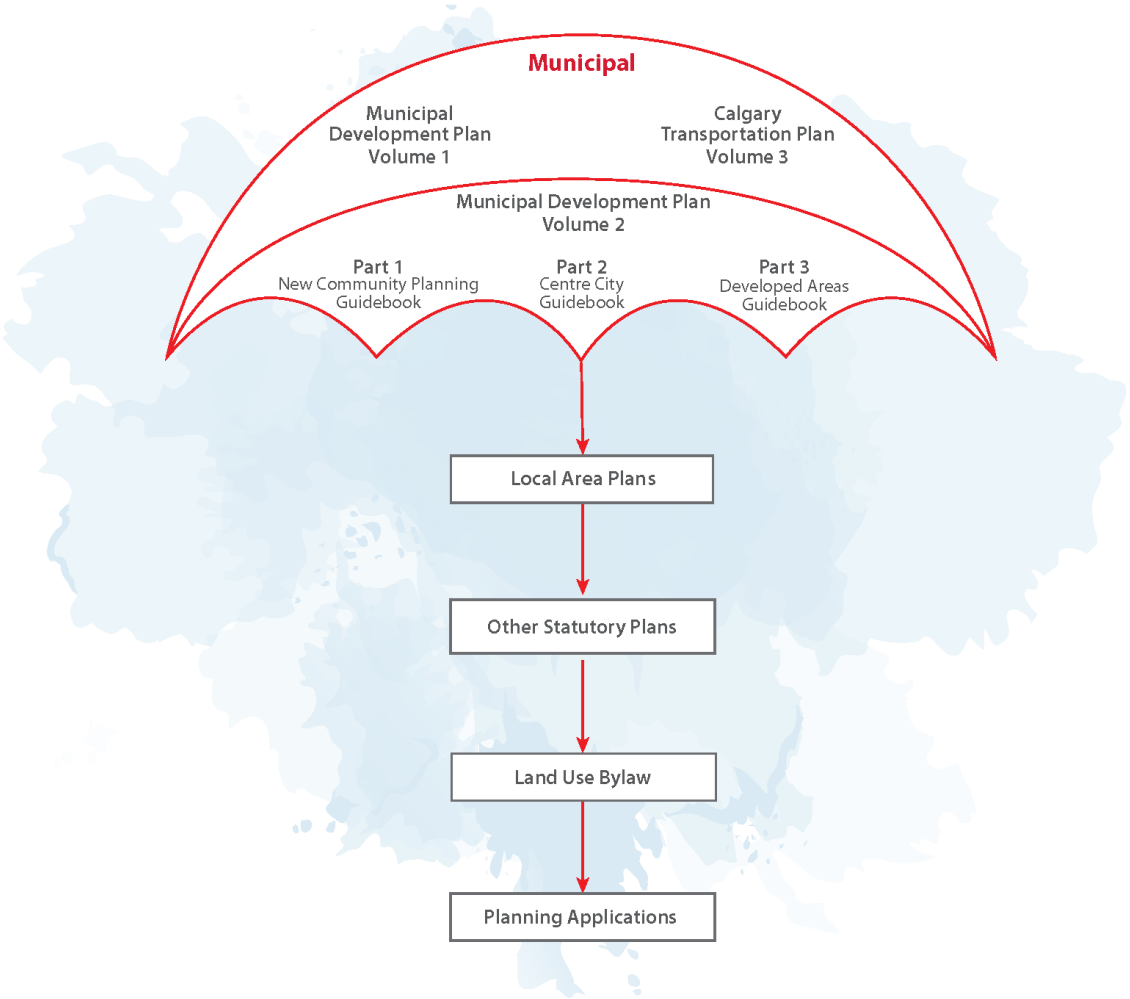


Figure 1-3: Calgary's Policy Planning Hierarchy

1.4.6 LOCAL AREA PLANS

The City provides a range of policy plans for local geographic areas, communities and neighbourhoods. The policies in Volume 1 of the MDP inform these local area plans by providing a city-wide level of direction on land use, urban form and transportation that is interpreted and applied within a local planning context. The policies in Volume 2 of the MDP provide implementation-level guidance that is to be applied in conjunction with local area plans. Local area plans include two categories: statutory and non-statutory. All local area plans must be consistent with the MDP. In the event of a conflict or inconsistency between the MDP and a local area plan, the MDP will prevail.

Statutory plans are those prepared in alignment with the regulations of the MGA. They are usually prepared at a community scale and include area redevelopment plans (ARP) and area structure plans (ASP). ARPs direct the redevelopment, preservation or rehabilitation of lands and buildings within developed communities. ASPs guide the future land use patterns, transportation and utility networks and sequence of development in new communities. The MGA requires that all ASPs and ARPs must be consistent with the MDP.

ARPs and ASPs in existence prior to approval of the MDP are recognized by the MDP as policies providing specific direction relative to the local context. Future reviews of, and amendments to, those ARPs and ASPs will be required to align with the policies of the MDP.

Non-statutory local area plans are also prepared for specific areas of the city, and include plans that apply to future growth corridors, watershed basins, areas of interest across multiple-communities or small redevelopment sites within one community. Such plans may include but are not limited to:

- Regional context studies.
- Community studies or community design briefs.
- Detailed site design plans for transit-oriented development.
- Corridor land use studies – Comprehensive redevelopment plans for major streets.
- Open space and park plans.

These non-statutory local area plans form an important part of The City's overall planning policy direction and will also be consistent with the MDP and with relevant ASPs and ARPs.

Where local area plans do not exist for a community, or where the local area plan does not provide significant policy direction to inform decision-makers, the MDP, CTP and other policies should be considered when making planning decisions.

1.4.7 OUTLINE PLAN AND LAND USE AMENDMENT APPLICATIONS

The City undertakes detailed planning and design of new communities, or the redevelopment of large areas of existing communities, through the outline plan and subdivision process. This involves design details such as the preservation of environmental areas, open space locations and reserve dedications, development patterns, land use mixes and local street networks.

The outline plan is a non-statutory site plan, with associated conditions, that is usually processed together with land use amendments, to ensure a workable distribution of land uses, open space and road network (e.g., land use districts, the location and classification of streets, the distribution and size of the parks and school sites in the neighbourhood).

Outline plans must be consistent with statutory provincial, regional, and municipal plans and policies.

A land use amendment (or land use redesignation) changes the allowable uses and development rules of an area. It may be processed concurrently with an outline plan or as a standalone application.

Not all areas experiencing development pressures have the benefit of a local area plan to provide guidance to a local community or specific application. In such cases, the MDP should be used to provide guidance on the application of an appropriate land use district or identify appropriate land uses.

In areas where an approved ASP or ARP is in effect, when making land use decisions, the specific policies and design guidelines of that plan will continue to provide direction. In cases where the ASP or ARP is silent, or does not provide sufficient detail on land use, development or design issues, the MDP should be used to provide guidance on the appropriate land use districts, as deemed appropriate by the Development Authority.

1.4.8 SUBDIVISION

Subdivision is a legal process of dividing land into smaller parcels. This involves design details such as the preservation of environmental areas, open space locations and reserve dedications, lot patterns, development patterns, land use mixes and local street networks. Decisions made by the Subdivision Authorities must comply with the provincial, regional, and municipal plans and policies.

1.4.9 DEVELOPMENT PERMIT APPLICATIONS

A Development Permit is a document authorizing a development, issued by a Development Authority pursuant to the Land Use Bylaw and includes plans and conditions of approval.

The MDP provides direction to the Development Authority when making decisions on development permit applications. The MDP also provides guidance within areas identified for long term urban intensification and the appropriateness of interim uses.

1.4.10 URBAN DESIGN

The urban design policies in Part 2 set out the overall urban design vision for Calgary. The policies and guidelines are intended to inform local area planning, outline plans, land use amendments and development permits. They are also relevant to city-initiated design projects for public realm improvements, street corridors, open space plans, and transit station area planning.

1.5 MDP Review, Updates and Amending the Plan

The City is resourced to provide on-going implementation support regarding interpretation and application of the policies, thresholds and targets of the MDP.

The MDP is a living document that The City will keep current by reviewing it regularly, updating and amending it. Administration will also monitor implementation of the MDP and bring forward amendments from time to time to clarify interpretation issues, policy gaps, implementation processes and corporate decisions. Parts 2, 3 and 4 of the MDP are organized such that future policies can be incorporated into the MDP. The policies of Volume 2 Implementation Guidebooks will be reviewed on an ongoing basis and amendments may be made as necessary for consistency with any policy changes made to Volume 1. Amendments to the MDP will be undertaken in accordance with the requirements of the MGA.

Proposed changes to the MDP require a bylaw amendment, as required by the MGA. Opportunities for broader public and stakeholder engagement may be desirable, depending upon the nature of the proposed MDP amendment, potential impacts or anticipated level of public interest generated by the change. Administration will assess and develop appropriate engagement processes for each future MDP amendment.

Since the Calgary Transportation Plan is linked to the MDP, if an amendment to the MDP is proposed, a complementary amendment to the CTP may be required.

A major review of Volume 1 of the MDP should be undertaken every 10 years to ensure that the goals, policy directions, processes, actions and Core Indicators for Land Use and Mobility consider such factors as current growth forecasts, market trends, overall city and community values and The City's financial capacity. The policies of Volume 2 will be reviewed on an on-going basis and amendments may be made as necessary.

1.6 Using and Interpreting the MDP

The policies in Volume 1 of the MDP are written to provide direction to Calgary's land use planning, development and growth management framework. The policies in Volume 2 of the MDP are written to provide implementation-level guidance for specific areas within Calgary.

Within the MDP, "The City" is used to describe The City of Calgary as a municipal government, or corporation, whereas, "the city" and "Calgary" are used to describe the physical area of the municipality.

Most policies are written in the active tense, as deliberate statements or plans indicative of the direction that The City is proposing for future development or desired outcomes. In some of these policies, the word "should" is explicitly used to further clarify the directional nature of the statement (e.g., policies regarding threshold densities of people and/or jobs in Part 3 – Typologies). The use of the active tense or word "should" does not imply that the policy is optional. Rather, policies that use active tense or "should" are to be applied in all situations, unless it can be clearly demonstrated to the satisfaction of The City that the policy is not reasonable, practical or feasible in a given situation. Proposed alternatives must be to the satisfaction of The City with regards to design and performance standards.

In some cases, policies are written to apply to all situations, without exception, usually in relation to a statement of action, legislative direction or situations where a desired result is required. The words "require", "must, "will" or "shall" are used within these policy statements.

The MDP provides a long-term strategy for the future growth of the city. It puts into place a plan and policies that will work towards achieving that strategy over time. No representation is made herein that any particular site is suitable for a particular purpose as shown on maps or implied through policies of the MDP. Site conditions must be assessed on a case by case basis as part of subsequent development application reviews.

Implementation, actions and programs identified within the MDP will need to be reviewed within the priorities and municipal financial capacities of current and future City Councils.

The MDP also contains several indicators and associated targets. These indicators and targets, as identified in Sections 5.2.2 and 5.3, are intended to track overall city-wide progress towards achieving the goals and objectives of the MDP and CTP.

PROPOSED

BYLAW NUMBER 49P2020

Part 2
City-wide Policies

The city-wide policies presented in this section are the integrated land use and mobility policies of the MDP. They are the policies that guide growth and change across the whole city and speak to the kind of city Calgarians want for the future. The policies also have relevance and provide direction across many specific scales of planning in the city (e.g., implementation guidebooks, local area plans, outline plans, land use amendments and development permits).

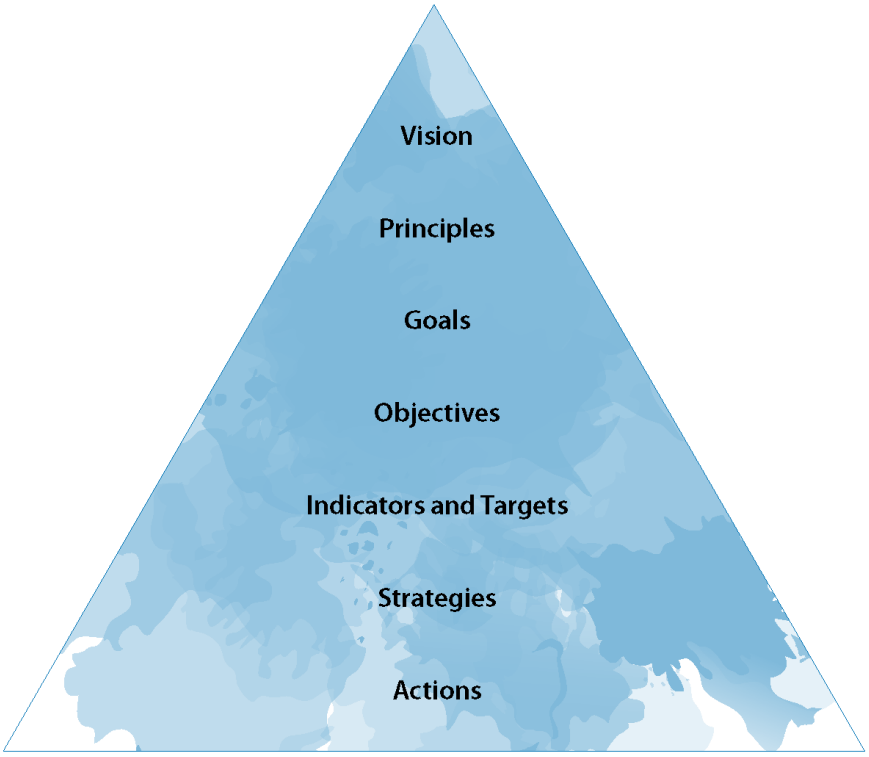


Figure 2-1: Decision-making framework

The section is organized to align the MDP goals, objectives and policies within the overall context of the decision-making framework (Figure 2-1) that links the vision of imagineCALGARY through to actions that will be required to implement the plan. This framework ensures that the MDP is aligned with the long-term community vision for the city, as well as the actions and indicators. Each serves a purpose within the MDP and provides different degrees of direction to implementers and decision makers.

2.1 A Prosperous and Diverse Economy

Goal Build a globally competitive city that supports a vibrant, diverse and adaptable local economy, maintains a sustainable municipal financial system and improves the quality of life for current and future Calgarians.

Supports

Key Direction 1: Achieve a balance of growth between established and greenfield communities.

Key Direction 2: Provide more choice within complete communities.

Key Direction 4: Link land use decisions to transit.

Key Direction 5: Increase mobility choices.

Key Direction 8: Optimize infrastructure.

Calgary is a major player in the global marketplace. The City enjoys a robust economy with jobs across many industry sectors and plans to build upon the economic diversity already realized. As a city, Calgary is committed to creating an economy for future generations, maintaining financial success and the benefits it brings: new businesses, job opportunities, global connections and a culture of innovation.

The New Economy

The 2018 economic strategy for The City, "Calgary in the New Economy" focuses on four drivers of growth: talent, innovation, place and a business-friendly environment. Under the areas of focus, the strategy identifies 13 initiatives to support growing the new economy.

Talent

1. Create Canada's largest talent accelerator.
2. Emphasize creativity and innovation from Kindergarten to University.
3. Establish Calgary as a magnet for students.
4. Address immediate needs through attraction efforts.

Innovation

5. Create the Calgary Innovation Corridor.
6. Develop relationships within the innovation ecosystem.
7. Build funding to support generational growth.
8. Accelerate growth through attraction, advocacy and trade.

Place

9. Accelerate urbanization and connectivity in the core.
10. Intentionally support diversity and inclusion.
11. Expand and enhance tourism (including authentic indigenous tourism), culture and recreation assets.

Business Environment

12. Deploy initiatives to facilitate business development and growth.
13. Develop Calgary as a Living Lab.

Growth of Clusters

To assist in realizing the strategy's goals, growth in established and emerging clusters are strongly encouraged. These include:

- Energy
- Transportation & Logistics
- Agribusiness
- Tourism
- Creative Industries
- Life Sciences
- Financial Services
- Technology

These areas of focus, initiatives and clusters, are the key elements to support business investment and job creation in Calgary over the long-term and attract international in-migration, population growth and demand for housing, services and mobility. In the shorter term, Calgary's population is expected to experience a significant demographic shift with the labour force comprising of more older persons and relatively fewer young people. This will impact businesses' ability to attract and retain employees. It will also impact local housing needs, travel patterns and service delivery to the community, all of which may result in rising costs incurred by The City.

A Prosperous City and Sustainable Urban Growth

Responsible governments plan for long-term sustainability of the local economy. They serve current and future generations within the constraints of limited resources. Creating a competitive and enduring city means ensuring that the urban economy and urban form:

- Are resilient and adaptable to future economic cycles and unanticipated shocks.
- Support the financial strengths of the municipality.
- Preserve a high quality of life for citizens.
- Respect the region's natural environment.

Planning for the future growth, maintenance and the type of built environment of the city have significant long term implications for public spending. Therefore, the urban form and how and where, Calgary grows become significant components of The City's overall economic policy.

Economic principles that will inform the future framework for growth and change in the city are:

1. People are the greatest asset of a city. Calgary needs to:
   - Maintain an educated and diverse labour force.
   - Keep the labour force healthy and safe.
   - Provide a high quality of life for citizens.
   - Attract new people and businesses.
2. A vibrant economy attracts business investment. Calgary needs to create:
   - An environment where the local economy can be resilient and adaptable to economic cycles and emerging global trends.
   - An environment where the local economy's global competitiveness is enhanced.
   - Efficient and cost-effective mobility linkages between business centres.
   - High-quality business locations.
3. The dynamics of the three orders of government (municipal, provincial and federal) impact The City, its cash flow and the quality of life of Calgarians. Calgary needs to:
   - Influence regional, provincial and National economic policy decisions that impact cities.
   - Enhance and promote its competitive advantages in environmental protection and sustainability regionally, nationally and globally.
4. A municipal government provides services efficiently and equitably in a way that improves the quality of life for future generations. The City needs to:
   - Maintain sustainable finances and reduce timing between public infrastructure investment and resulting revenues.
   - Provide and maintain affordable, efficient and environmentally balanced infrastructure, services and facilities.

2.1.1 CREATING A CITY ATTRACTIVE TO PEOPLE

Objective

Create a city that provides a good quality of life for its citizens; attracts and retains an educated, creative, skilled and diversified workforce; and has the financial capacity to support existing and future generations.

Calgary is recognized and awarded as being one of the most livable cities in the world. The long-term economic health of the city is vital when creating communities where residents and newcomers want to live and work. Equally important is ensuring that existing and future citizens have a good quality of life and will want to remain in the city and that we are attracting new and innovative talent. Attractors of migration include career and job opportunities and housing affordability. The design of a community is also essential to delivering additional attractors including convenient transportation to jobs and amenities. Chief among those amenities is proximity to schools, open spaces and education facilities.

Policies

a. Provide safe and healthy communities with a variety of housing choices, employment opportunities, local retail and services and mobility options.

b. Ensure impacts on overall housing affordability are considered as part of planning decisions.

c. Provide greater housing choices in locations close to job markets and in areas well served by the Primary Transit Network.

d. Provide mobility networks to connect citizens with major employment areas, places of learning and cultural and recreational destinations.

e. Ensure opportunities for life-long learning by supporting institutions offering post-secondary education, job training and skill development.

f. Design community and urban infrastructure that incorporates new technologies to allow home and community-based learning.

g. Facilitate the availability of competitively priced, easily serviceable and developable land for residential purposes, including opportunities for brownfield development.

h. Encourage community led initiatives and develop flexible adaptive tools to support them.

2.1.2 CREATING A CITY ATTRACTIVE TO BUSINESS

Objective

Create a globally competitive city that protects and enhances the key drivers of the local economy and supports on-going business investment and expansion while attracting a growing workforce.

It is beyond the ability of The City to mandate when and how businesses in the sectors outlined above locate or expand. However, The City can enact public policy to ensure that adequate locations for office, institutional, retail and industrial development are protected in strategic and accessible areas that will meet the future needs of these businesses.

Policies

Supporting business and investment

a. Attract and retain business and industry in Calgary by fostering economic diversification and providing a climate that competitively attracts and enhances economic activity.

b. Protect the integrity of viable employment and retail areas by supporting the retention and growth of existing businesses.

c. Promote the Downtown Core of Calgary as the location of choice for corporate head offices and supporting businesses.

d. Provide locations for office growth outside of the Downtown Core in areas well connected by public transit.

e. Remain open to innovation and provide flexibility to accommodate the changing needs of business.

f. Create and maintain clear policy direction, application procedures and development standards to reduce uncertainties and risks to the economy.

Supporting healthcare and learning institutions

g. Incorporate the long-term growth needs of existing healthcare and learning institutions within the land use framework and transportation networks of the city.

h. Provide a land use framework that helps attract highly specialized businesses in the areas of healthcare, education and research and development.

i. Link existing healthcare and learning institutions to the Primary Transit Network.

j. Support and promote the location of new healthcare and learning institutions in areas served by the existing Primary Transit Network.

Supporting the transportation and logistics industry

k. Recognize the role of the Calgary International Airport as a global logistics centre while ensuring city-wide access is retained for public transit, passenger vehicles and goods movement.

l. Identify railroad inter-modal sites as strategic destinations within the regional logistics network and plan for supporting land uses that benefit from proximity to these facilities.

m. Recognize the access needs of the logistics industry by locating warehouses and local distribution centres in areas that provide direct roadway connections to the goods movement corridors.

Supporting manufacturing and industrial businesses

n. Ensure the availability of competitively priced, easily serviceable and developable land for industrial purposes: including providing opportunities for brownfield redevelopment.

o. Protect appropriately located industrial areas from undue encroachment by residential development in cases where the nature of that industrial activity requires separation from residential uses.

2.1.3 ENSURING A SUSTAINABLE ECONOMY

Objective

Support the sustainable growth and environmental integrity of Calgary and the Calgary Region.

Co-ordinating efforts between senior governments and municipalities is necessary to ensure efficient and aligned service delivery and to preserve the economic and environmental integrity of the Calgary Region.

As the environment and economy are inextricably linked, land use and mobility choices that affect the economy and growth of the city must take into account the impacts on the natural environment. Climate (greenhouse gas, water, etc.), land (natural areas, biodiversity) and energy issues are linked to the economy and cannot be addressed by one municipality alone. In the case of greenhouse gas (GHG) emission reductions, Calgary may need financial assistance to implement a full set of successful initiatives, or attract the necessary investments to realize the required efficiencies and improvements. Co-operation among all orders of government will be needed to protect the environment and mitigate climate-induced impacts to our urban landscape; thus the economic well-being of the Calgary Region.

Policies

a. Work with federal and provincial governments and external partners, to ensure environmental and economic sustainability are considered in decisions affecting the region.

2.1.4 ENSURING SUSTAINABLE MUNICIPAL FINANCES – FOCUSING AND PRIORITIZING INVESTMENTS

Objective

The City will ensure that it has the long-term financial capability to support the city being created.

Sustainable municipal finances depend upon the ability of the local economy to support a healthy population and the quality of life in the local area. The ability to continue to meet citizen and business demand for services is, in turn, dependent on a municipality's financial ability to provide and maintain that infrastructure. Prudent planning and use of municipal infrastructure can help the growth cycle continue while minimizing the financial costs. As the level of government that delivers day-to-day services to citizens and businesses, municipalities are strategically placed to provide the majority of public services in the most efficient manner possible. Alignment in service delivery is achieved through co-ordination with federal and provincial governments and neighbouring municipalities. Co-ordination with other organizations providing health, education and social services through their own infrastructure will also assist in maintaining the growth cycle at minimum costs.

Policies

a. Optimize the use of existing infrastructure and services.

b. Manage assets wisely and provide infrastructure that is affordable and cost-effective over the long-term life cycle of the asset.

c. Make planning and capital investment decisions considering a triple bottom line within a corporate strategic framework that supports financial sustainability for The City (see also Part 5).

d. Accommodate growth while avoiding premature investment in municipal infrastructure.

e. Work with other levels of government to secure sustainable sources of municipal funding for both the capital and operational needs of The City.

2.2 Shaping a More Compact Urban Form

Goal Direct future growth of the city in a way that fosters a more compact efficient use of land, creates complete communities, allows for greater mobility choices and enhances vitality and character in local neighbourhoods.

Supports

Key Direction 1: Achieve a balance of growth between established and greenfield communities.

Key Direction 2: Provide more choice within complete communities.

Key Direction 3: Direct land use change within a framework of nodes and corridors.

Key Direction 4: Link land use decisions to transit.

Key Direction 5: Increase mobility choices.

Key Direction 7: Create Complete Streets.

Key Direction 8: Optimize infrastructure.

This section describes the vision for a long-term pattern of growth and development in Calgary over the next 60 years (as shown on Map 1, Urban Structure) and provides policies that will start to create that form of city over the next 30 years. The critical issues of creating a more compact urban form and reducing the rate of outward growth are addressed in this section. These include:

- Developing a future land use framework for Greenfield Areas that will support transit.
- Creating a vibrant Greater Downtown.
- Providing complete communities.
- Directing growth to strategic areas that can support neighbourhood and economic vitality.
- Reinforcing the character, quality and stability of neighbourhoods.
- Balancing growth between Developed and Developing areas of the city.

The objectives and policies below represent the citywide land use framework for creating an urban structure for the city that is livable, healthy and prosperous and will remain so for future generations.

Greenfield Areas

Areas of the city that are still under development, or being planned for future development. They include new residential communities, commercial areas and industrial subdivisions.

Developed Areas

Areas of the city that have already been built out. They include residential communities, commercial areas and industrial/business parks.

2.2.1 VIBRANT AND TRANSIT-SUPPORTIVE MIXED-USE, ACTIVITY CENTRES AND MAIN STREETS

Objective

Build and diversify urban activities in Activity Centres and Main Streets.

The MDP proposes a more compact urban form for Calgary by locating a portion of new housing and jobs within higher intensity, mixed-use areas that are well connected to the Primary Transit Network. Such areas define the strategic locations where high-quality transit and a diversity of commercial, residential and service uses currently exist, or where they could be developed over the long term. These locations have the capacity to support future residential and employment intensification in concert with the provision of high-quality urban environments and cohesive community development. Focusing most intensification to defined areas provides more certainty to the development and building industries and makes redevelopment more predictable for existing communities by lessening the impact on stable, low-density areas. Activity Centres and Main Streets will increasingly act as priority locations for:

- Accessible, safe and convenient public transit hubs along the Primary Transit Network.
- A greater variety of housing choices within or near existing residential communities.
- Higher density residential and employment concentrations.
- Local opportunities for employment and daily retail and service needs.
- Walkable destinations and local gathering places for adjacent communities.

What is the Primary Transit Network?

It is a permanent network of high-frequency transit services, regardless of mode, that operates every 10 minutes or better, 15 hours a day, seven days a week.

Activity Centres

Greater Downtown – is Calgary's primary activity centre with the highest concentration of employment and population growth. It is the heart of Calgary and comprised of the Downtown Core and several higher-density neighbourhoods. It is where the transportation system has the highest levels of interconnectivity.

Areas identified as the following future Activity Centres generally have a low-density built form today and an existing employment character to build upon. Their parcel size, location and built form provide the potential for comprehensive, higher-intensity development that can be integrated with the Primary Transit Network as well as with adjacent communities.

Major Activity Centres (MAC) – Major Activity Centres are areas of high job and population growth, located in strategic areas central to larger residential catchment areas and linked city-wide by the Primary Transit Network.

Community Activity Centres (CAC) – Community Activity Centres are areas of moderate job and population growth, neart one or more communities and supported by the Primary Transit Network.

Neighbourhood Activity Centres (NAC) – Neighbourhood Activity Centres are smaller mixed-use areas within neighbourhood districts that are appropriate locations for local job and population intensification, in scale with neighbourhood context.

This hierarchy recognizes that all local contexts are different and that varying scales of development opportunity, mix of uses and levels of transit service will be needed to achieve city-wide objectives in a manner sensitive to local communities. Specific land use, transportation and urban design policies and implementation strategies for each Activity Centre are provided in Part 3 of the MDP.

Main Streets

Development opportunities within Main Street areas relate to their existing role as retail streets and their potential to become places for urban intensification near the Primary Transit Network. The existing block layouts, business types and varied ownership patterns mean planning and development may transform incrementally. Main Streets are classified into two types:

- Urban Main Streets
- Neighbourhood Main Streets

The Main Street hierarchy recognizes that all local contexts are not the same and that varying scales of development, the classification of road type, existing uses and levels of transit service will be needed to achieve city-wide objectives in a manner sensitive to local communities. Specific land use, transportation and urban design policies and implementation strategies for Main Streets are provided in Part 3 of the MDP.

Policies

Activity Centres and Main Streets

a. Direct a greater share of new growth to the Activity Centres and Main Streets, identified on Map 1, in a manner that:
   i. Provides compact and high-quality urban development, with a mix of uses across the area.
   ii. Concentrates jobs and people in areas well served by primary transit stations and stops.
   iii. Achieves the residential and employment intensity thresholds of the applicable Activity Centre and Main Street contained in Part 3 of the MDP.
   iv. Concentrates urban development in a built form that helps to optimize existing public investment, municipal infrastructure and facilities.
   v. Provides a mix of employment, residential, retail and service uses that support the needs of adjacent communities.
   vi. Supports a range of housing opportunities in terms of type, tenure, unit size and affordability.
   vii. Creates a built form that reinforces their role as vibrant centres of activity by promoting walkability and local connectivity.

b. Plan the development of Activity Centres and Main Streets appropriate to the local context by:
   i. Maintaining compatibility, avoiding dramatic contrast in height and scale through limits on allowable heights and bulk of new development particularly when low density residential areas are adjacent.
   ii. Creating transitions in development intensity between low density residential areas and more intensive multi-unit residential or commercial areas.
   iii. Locating the tallest buildings and highest densities closest to transit stops and stations and at strategic sites, identified through local area planning processes, and transitioning heights and densities away from these areas.
   iv. Massing new development to frame adjacent streets in a way that respects the existing scale of the street.
   v. Limiting the impacts of shadowing on streets, parks and properties.
   vi. Providing public systems, including connecting pathways, that facilitate direct, convenient, comfortable and safe pedestrian movement to transit, recreational uses and other services.

c. Co-ordinate planning and public investment decisions to support the development of a greater variety of medium and higher density housing forms in Activity Centres and Main Streets.

d. Support Activity Centres and Main Streets as locations for the growth and intensification of major employment uses (including post-secondary and medical institutions) by linking them to the Primary Transit Network.

e. Identify the appropriate jobs and population ratio and planning area boundaries of Activity Centres and Main Streets in the implementation guidebooks and/or the local area planning process.

f. Identify appropriate locations and scales of Activity Centres and Main Streets required to support urbanization of the Future Greenfield areas through future regional context study (RCS) processes or, in absence of an RCS, the Area Structure Plan (ASP) process may be considered.

g. Direct development to Activity Centres, Main Streets, and TODs with pro-active City-led initiatives.

2.2.2 A TRANSIT-SUPPORTIVE LAND USE FRAMEWORK

Objective

Establish a land use framework that optimizes population and job growth within walking distance of transit.

Transit service is an integral component of The City's transportation network and provides mobility options for people of all ages. The type and quality of transit service that can be economically supported in a community is determined almost exclusively from the land use characteristics of the area. There are four key land use elements that are critical to supporting quality transit service. These elements are:

Density: The intensity of people living or working in the area

Diversity: Mixing land uses

Design: Creating a quality pedestrian environment (see also Section 2.4 Urban design)

Distance: Locating the right uses close to transit

The successful integration of these elements within a local planning context will determine the ultimate success of encouraging transit ridership.

Transit-oriented development (TOD)

TOD is a strategy that promotes higher density, mixed use development within walking distance of public transit stations.

Density

To be cost-effective, transit must reach enough potential riders. In turn, density located near transit encourages additional transit use. Development of population and jobs above minimum density levels is essential, as this affects the quality (frequency of service), range (service choices) and span (hours of operation) of transit service that can be provided in an area. Minimum thresholds of 100 people or jobs per gross developable hectare are needed within walking distance of a transit station or stop (approximately 400 metres) to support service levels of 10 minutes or less over extended periods of the day.

Where higher orders of employment or residential intensification are desired in MACs or Urban Main Streets to support numerous routes of the Primary Transit Network, minimum thresholds of 200 people or jobs per gross developable hectare should be achieved within walking distance of transit stations and stops. These densities can be accommodated through a variety of different building scales as the station area develops over time.

Diversity

A diversity of land uses within transit areas is needed to create local destinations that attract transit riders as well as provide walkable destinations for residents and employees. Generally, a broad variety of residential and employment uses should be provided, supported by local retail, service, recreation and amenity uses. Diversity can also include a mix of uses and intensities between different transit areas, to promote counter-flow transit travel during peak commuter periods as well as support off-peak ridership. This also means providing more employment uses within Activity Centres outside of the Greater Downtown and a broader mix of residential, cultural and entertainment uses in the Greater Downtown and at larger transit hubs within more established areas of the city.

Design

All transit trips begin and end with a pedestrian. Creating a strong pedestrian environment within transit areas is essential to promote walkability. Design should include features that create a direct, convenient and safe pedestrian system that is integrated with transit service. Design must also recognize local context and create urban environments that support and integrate new development with existing communities.

Distance

People are most likely to use public transit if it is accessible and convenient for their travel needs. Higher-density development should be focused closest to transit, within a distance that a rider is most likely to walk. This is typically a five minute walk, focused within a 400-metre distance. A compact urban form focused around transit promotes greater mobility choices. Local area plans will determine areas appropriate for intensification.

What does an intensity threshold look like?

What might the minimum target of 200 jobs and population per hectare (pph and uph), look like on the ground? To illustrate this, three different options are provided: one where there is a balance (50/50 split) between jobs and population; one where there are more jobs than population (75/25 split); and one where there are fewer jobs than population (25/75 split). The appropriate split for each Major Activity Centre (MAC) or Urban Main Street will be determined through a local area plan. Assumptions have been made on residential occupancy rate (two people per unit) and floor space per employee (30 sq. m).

Jobs		Possible Job Form	Population	Possible Housing Form
Balanced	100 (3000 sq.m. of office)	Low and Mid-rise office	100 pph 50 uph	Townhouses, stacked townhouses
Job-Focused	150 (4500 sq.m. of office)	Mid-rise office	50 pph 25 uph	Semi-detached Townhouse
Population-Focused	50 (1500 sq.m. of office)	Low rise office, retail	150 pph 75 uph	Stacked townhouse, low-rise to high-rise apartments

How do minimum intensity thresholds compare to density?

Population Intensity (Population/Ha)	Dwellings per Ha		Dwellings per Ac	
	Assuming 2.5 persons per unit	Assuming 1.5 persons per unit	Assumin g 2.5 persons per unit	Assuming 1.5 persons per unit
50	20	33	8	13
100	40	67	16	27
200	80	133	32	54

Table 2-1: Comparison of population intensity to housing density

Policies

Transit-supportive density and uses

a. Locate transit-supportive land uses, including higher density residential and employment developments, within Activity Centres and Main Streets supported by the Primary Transit Network.

b. Increase development densities near the Primary Transit Network by targeting residential and employment intensities within 400 metres of transit stations and stops, in areas deemed appropriate through the local area planning process and in accordance with the typology thresholds identified in Part 3.

c. Locate land uses that generate counter-flow transit ridership during peak-hour commuting times and support non-peak hour ridership.

d. Underutilized commercial and brownfield sites near the Primary Transit Network should be redeveloped over time, where feasible, as mixed-use and/or employment intensive sites.

Design to encourage transit use

e. Ensure that the design and mix of land uses surrounding transit stops and stations support transit and emphasize a pedestrian oriented environment.

f. Manage vehicle traffic within transit station areas and reduce conflicts between active modes and vehicles.

g. Develop new mobility management strategies that will reduce the demand for vehicle access and parking.

2.2.3 A VIBRANT GREATER DOWNTOWN

Objective

Create a vibrant and resilient Greater Downtown for everyone.

Greater Downtown

The City's central Activity Centre, the Greater Downtown plays a central role in the city's overall urban structure . The Greater Downtown will continue to reflect Calgary as a centre for business and innovation and serve as a focal point for residents and visitors. This image of the Greater Downtown will be reinforced through ongoing enhancements of the Greater Downtown to support a vibrant and resilient destination for everyone, with interactive neighbourhoods, riverfronts, streets and buildings. The Greater Downtown is expected to undergo significant residential and employment growth and will serve as a model of how high-density urban growth is achieved while ensuring an attractive environment and high quality of life. The Greater Downtownis comprised of six distinct, mixed-use neighbourhoods, full of great places connected by great streets and transit. The vision for the Greater Downtown includes meeting the needs of each unique neighbourhood while continuing to retain and enhance the vital role that the Greater Downtown plays for the entire city.

The MDP provides high-level supporting policy to recognize the Greater Downtown's role within the overall urban structure of the city.

Policies

Greater Downtown

a. Reinforce the Downtown Core's position as Calgary's principal Activity Centre, business centre, premier urban living environment and centre for the arts, culture, recreation, tourism and entertainment.

b. Support the development of distinct, vibrant, mixed-use neighbourhoods in the Greater Downtown that are well connected and easily accessible to the Downtown Core, to one another and their surroundings.

2.2.4 COMPLETE COMMUNITIES

Objective

Foster distinctive, complete communities with a strong sense of place.

The overarching concept of complete communities is interwoven through the goals and policies of the MDP, CTP and city wide plans and strategies approved by City Council.

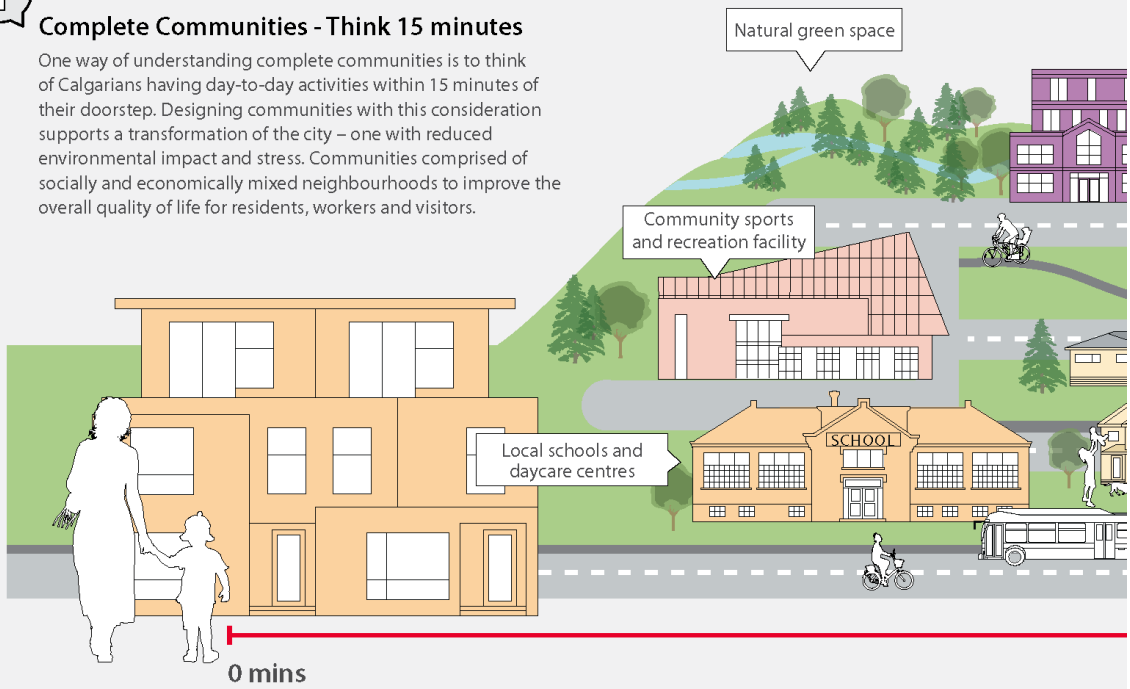
Complete communities are vibrant, green and safe places, where people of all ages, incomes, interests and lifestyles feel comfortable and can choose between a variety of housing types and locations in which to live.

The MDP promotes a city where change is leveraged to augment existing communities through the addition of housing types, services and amenities. Complete communities are achieved over time by accommodating future growth existing and future residents and businesses within communities of varied intensities at appropriate locations throughout the city. New communities should be designed to support the objective of complete communities.

Communities are a collection of neighbourhoods that provide a fuller set of amenities for residents. They are a key component of communities. Within neighbourhoods, daily needs can be met usually within walking distance. At this scale, the diversity within complete communities generates more choice, so that residents have the opportunity to live

Complete Communities - Think 15 minutes

One way of understanding complete communities is to think of Calgarians having day-to-day activities within 15 minutes of their doorstep. Designing communities with this consideration supports a transformation of the city – one with reduced environmental impact and stress. Communities comprised of socially and economically mixed neighbourhoods to improve the overall quality of life for residents, workers and visitors.

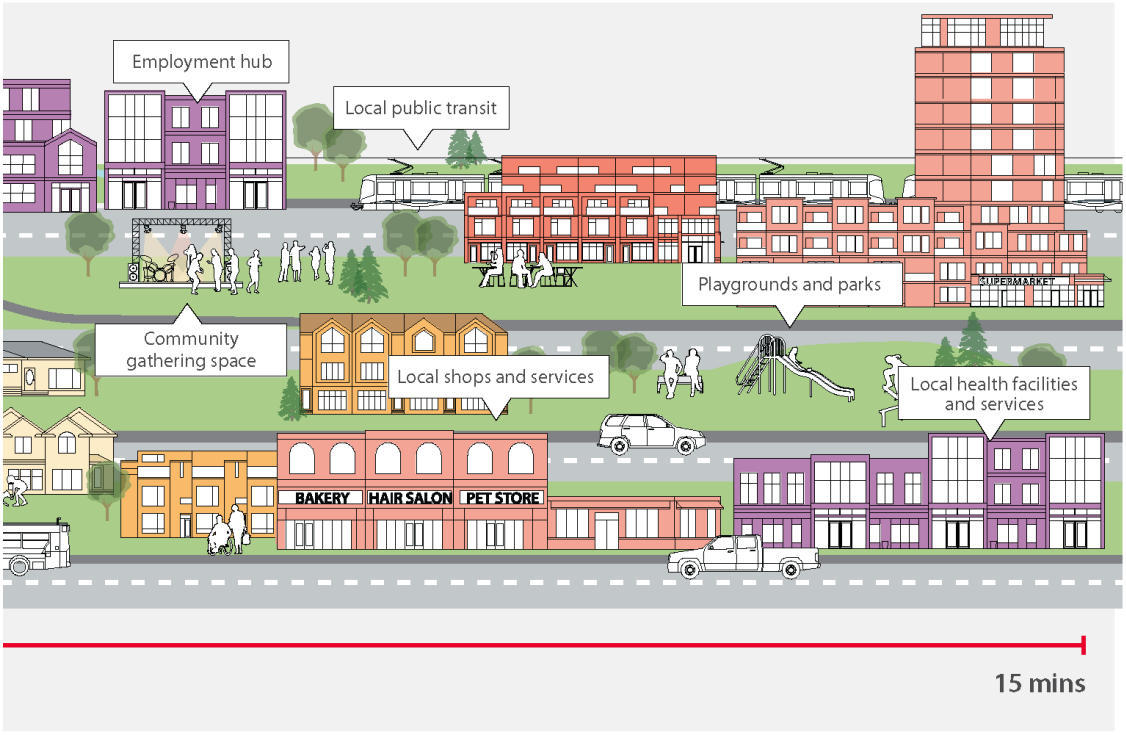


and remain in their own community as their needs change over their lifetime. It provides viable choices and markets for businesses to locate across the city in communities or in a variety of employment areas accessible to local residential concentrations and quality transit service. Directing future urban growth in a way that fosters more compact and complete communities has benefits for individual neighbourhoods and for Calgary as a whole. Complete communities are often less affected by community demographic lifecycles and can better support business and a vibrant, safe public realm. Directing future urban growth in a way that fosters more compact and complete communities has benefits for individual neighbourhoods and for Calgary as a whole. Complete communities are often less affected by community demographic lifecycles and support meeting the needs of community members at all stages of their lives. They can also better support business and a vibrant, safe public realm. This leads to an ongoing resiliency for communities. At a city wide level, a more compact urban form reduces the cost of service provision.

Policies

Complete communities

a. Support the development of complete communities to ensure a compact and well-designed urban form that efficiently utilizes land and infrastructure, provides housing choices at transit-supportive densities, local services and employment and promotes mobility options.



b. Communities should be planned according to the following criteria for complete communities and provide:

   i. A range of housing choices, covering a mix of built forms and ownership tenures, at densities that support transit viability, local commercial and other services.

   ii. Diverse employment opportunities that are integrated into the community or serviced by a number of modes of travel.

   iii. Neighbourhood stores, services and public facilities that meet day-to-day needs within walking distance for most residents by providing access to healthy food, care and recreation.

   iv. Public transit that is supported by good service and ease of access.

   v. Distinctive, resilient and attractive neighbourhoods that feature architectural and natural elements that contribute to a local identity, a strong sense of place and in community pride.

   vi. Public spaces, parks and recreation facilities that provide access to nature, cultural events and social gathering areas and support sports, relaxation and outdoor activities.

   vii. Spaces for community gardens and local food production, processing, sales and programming.

   viii. Local schools, social infrastructure, places of worship and community services.

   ix. A connected street and mobility network that promotes comfortable, safe and universally accessible travel.

   x. A healthy, sustainable and resilient environment with street trees and greenery, connections to the city's open space system and an integration of local natural systems with an urban development pattern that respects the natural function of the landscape.

   xi. Public infrastructure and services that are provided in a timely fashion and sustained over the long term by stable community populations.

   xii. Natural infrastructure and sustainable, energy-efficient community design and site planning (see Section 2.6).

Jobs/housing balance

c. Promote a greater balance of residential and employment within communities and across the city by:

   i. Increasing residential housing opportunities in areas close to existing employment concentrations.

   ii. Increasing employment opportunities in areas close to existing residential concentrations.

   iii. Creating better mobility linkages between existing concentrations of residential and employment populations.

d. Locate and plan new communities to ensure adequate access to employment opportunities within the hierarchy of Activity Centre and/or Main Street areas located to serve the new growth areas.

Community

The terms "Community" and "Neighbourhood" are both used within the MDP. The term "Community" is typically used to describe a geographic area of between 5,000 and 20,000 residents, that was planned comprehensively and developed over a period of time. The boundaries of a community are usually used to delineate community associations and statistical data collection boundaries. This term also emphasizes the bonds that link residents to each other and to the neighbourhood they call home, or to a group with which they share a common interest.

Neighbourhood

The term "Neighbourhood" is used to describe a distinct part of a larger community, containing up to 5,000 people. A neighbourhood is typically considered as an area within walking distance of a local commercial area, school, park, transit station, etc. As compact, pedestrian friendly and mixed use areas, the neighbourhood becomes the building block from which enduring settlements are formed.

2.2.5 STRONG RESIDENTIAL NEIGHBOURHOODS

Objective

Reinforce the stability of Calgary's neighbourhoods and ensure housing quality and vitality of its residential areas.

Residential communities are not static. They evolve over time as demographics shift and buildings age, offering an opportunity to review and accommodate changing community needs. Understanding this community dynamic can help develop plans and strategies to stabilize local population fluctuations, support predictability for the market, guide public reinvestment and ensure long-term viability of local services and facilities.

Outside of the Greater Downtown, Activity Centre and Main Street areas, low to moderate density infill development can be accommodated to support the efficient use of land, infrastructure and services as well as enhance housing choice and affordability. In many cases, public infrastructure and transit service are already in place to support redevelopment. Calgary's older residential areas present some of the best opportunities to accommodate infill development, increasing the range of housing for families and individuals within areas that take advantage of existing infrastructure, transit and existing amenities such as local retail, schools, parks and community services.

Intensification should be accommodated within existing communities in a sensitive manner. In commercial areas, infill and redevelopment can create more cohesive and vibrant neighbourhoods. Integrating new development with existing buildings can enhance or fill in gaps in the street wall to improve the vitality, appearance and security of streets and public spaces.

The City promotes infilling that is sensitive, compatible and complementary to the existing physical patterns and character of neighbourhoods.

Policies

Neighbourhood infill and redevelopment

a. Encourage growth and change in low-density neighbourhoods through development and redevelopment that is similar in scale and built form and increases the mix of housing types such as accessory suites, semi-detached, townhouses, cottage housing, rowhousing and other ground-oriented housing.

b. Support development and redevelopment that provides a broader range of housing choice in local communities to help stabilize population declines and support the demographic needs of communities

c. Encourage higher residential densities in areas of the community that are more extensively served by existing infrastructure, public facilities and transit, appropriate to the specific conditions and character of the neighbourhood.

d. Encourage redevelopment that incorporates natural infrastructure solutions and shared energy efficiencies (See Section 2.6).

2.3 Creating Great Communities

Goal Create great communities by maintaining high-quality living and working environments, improving housing diversity and choice, enhancing community character and distinctiveness and providing vibrant public places.

Supports

Key Direction 2: Provide more choice within complete communities.

Key Direction 3: Direct land use change within a framework of activity centres and main streets.

Key Direction 4: Link land use decisions to transit.

Key Direction 5: Increase mobility choices.

Key Direction 7: Create Complete Streets.

Key Direction 8: Optimize infrastructure.

This section 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.

Forecasts indicate that there will be large changes in the coming decades, not only in the total numbers but also in the make-up of Calgary's population profile. Older residents will make up an increasingly larger proportion of the population and Calgary will become more ethnically diverse. Citizens will need different housing types, in different locations and configurations. Future growth will also bring clear challenges to providing affordable and quality housing, community services and wider mobility choices for an increasingly diverse population.

The City will strive to maintain strong communities. This means that future growth is accommodated in a way that respects and enhances what Calgarians value in their neighbourhoods, communities and city as a whole. This includes the built and natural heritage, access to safe and attractive parks and public spaces and overall liveability. Strong communities evolve to support the lives of the people who live there today and welcome new residents as the city grows. Adding to the best qualities in Calgary's neighbourhoods and supplementing them with new, sustainable developments that contribute to new choices and opportunities is a key to Calgary's future growth strategy.

Local context, a diversity of land uses and variation in building densities and scales all have significant implications for neighbourhood liveability and investment in public infrastructure and programs. The concept of "great communities" emphasizes these elements and the bonds that link Calgarians to their communities.

Policies in this section are aimed at promoting individual and community health and promoting a good quality of life by:

- Nurturing vibrant, active, healthy, safe and caring communities.
- Pursuing economic and housing diversification in order to make Calgary a city of variety and choice.
- Recognizing and building upon existing neighbourhood character, heritage and cultural identity.
- Providing quality public spaces, parks and other local amenities and leisure, cultural and recreation activities to all Calgarians.
- Designing communities to encourage increased social capital and health and wellness.
- Providing citizens with opportunities to become involved in decision-making processes and effectively engaged in shaping their local communities.

Policies are also provided on a number of social issues that can have direct links to the built form of a city, including public safety, affordable housing and social inclusion.

2.3.1 HOUSING

Objective

Ensure a choice of housing forms, tenures and affordability to accommodate the needs of current and future Calgarians and create sustainable local communities.

Access to adequate and affordable housing is a fundamental component of the quality of life in a city. Factors influencing access include price, supply and the distribution of a variety of housing types. The housing market and different levels of government play vital roles in ensuring that housing choice exists for a range of needs and income levels. The City will ensure that the residential planning framework supports the delivery of housing supply in a range of types and tenures to meet current and future community needs, preferences and financial capabilities.

Through setting public land use and transportation policy, The City exercises influence over how and where future housing is provided. Housing policy is addressed on four levels:

- Increasing housing choice across the city.
- Accommodating a mix of dwelling types to meet a full range of housing needs in all communities.
- Facilitating conditions to enable citizens from a wide economic and demographic spectrum to live within a community.
- Minimizing the impact of public decisions on the cost of housing and household mobility.

Neighbourhoods that accommodate a broad range of housing types can be less vulnerable to the consequences of community life cycling (e.g., population gain, peaking, population decline, levelling off). A population base that is relatively stable over the long term helps to ensure that community facilities (e.g., schools, retail and recreational facilities, community associations, public services (e.g., personal and community services, medical services) and businesses are maintained and fully utilized. A limited range of housing choices can result in some residents leaving their community if their housing needs can no longer be met. Given Calgary's projected demographic changes, this becomes increasingly likely as people age or household composition changes and residents are no longer able, or wish to maintain a single-detached home. Existing communities that have the capability to add new housing units and compensate for declining populations tend to retain or regain their vitality, as evidenced in Calgary's inner-city communities. As well, new communities that are planned and built from the outset to include a wider variety of housing choices may avoid future population swings and ensure long term stability.

Policies

Housing diversity and choice

a. Provide for a wide range of housing types, tenures (rental and ownership) and densities to create diverse neighbourhoods that include:
   i. A mix of housing types and tenures, including single detached, ground-oriented (e.g., duplexes, row houses, attached housing, accessory dwelling units and secondary suites), medium- and higher-density and mixed-use residential developments.
   ii. A range of housing choices for all stages of life, in terms of the mix of housing sizes and types to meet affordability, accessibility and lifestyle needs of different people and family types.

b. Promote a broader range of housing choice for all ages, income groups, family types and lifestyles by:
   i. Encouraging housing opportunities for low- and moderate-income households in all communities.
   ii. Promoting innovative housing types, such as co-housing, live/work and cottage and carriage housing and accessory dwelling units, as alternative means of accommodating residential growth and providing affordable housing options.

iii. Encouraging adaptation of existing housing and the development of new housing to create physically-accessible housing to meet the needs of seniors and people with mobility challenges, especially within walking distance to services and the Primary Transit Network.

iv. Including supportive land use policies and development strategies in the implementation guidebooks and/or in local area plans that encourage the provision of a broader range of housing affordable to all income levels.

c. Ensure a sufficient land supply for residential development in Developed and Developing Areas to accommodate Calgary's share of regional household growth (see Part 5 of the MDP).

d. Promote methods to efficiently use or adapt the city's existing housing stock to enable changing households to remain in the same home or neighbourhood for many years. Strategies may include allowing accessory units in low-density areas and other methods determined through community planning processes.

Increased opportunities for affordable housing

e. Recognize and encourage affordable housing as an integral part of complete communities.

f. Create affordable housing by encouraging:

i. A varied community composition by providing opportunities for affordable housing to locate in all areas of the city with a built-form contextually appropriate to the area.

ii. Affordable housing to locate in all areas of the city, with a focus on locations served by the Primary Transit Network and appropriate services, while avoiding an over-concentration of affordable housing in any one area.

iii. Affordable housing serving families to locate in areas close to parks, schools, recreation facilities and commercial nodes.

iv. New development and redevelopment to incorporate affordable housing that is visually indistinguishable from market housing.

v. Affordable housing units of different sizes and types within market residential developments.

vi. The provision of an adequate supply of rental accommodation across the city that is affordable to low-and moderate-income households.

vii. Partnerships with developers, other orders of government and non-governmental agencies to pursue measures to ensure construction of affordable housing in multi-unit development projects, in new communities and within redevelopment areas.

Special care facilities

g. Accommodate special care facilities within residential and mixed-use communities to provide for a broad range of specialized accommodation and care in order to meet a diverse array of city-wide and community needs, including nursing homes, adult group homes, youth care facilities, rehabilitative homes and transitional facilities.

h. Special care facilities should be small scale in nature and dispersed throughout the city, in a form that fits with local neighbourhood character.

i. Discourage an over-concentration of facilities serving one type of need in any community.

Child care services

j. Encourage child care services in residential and mixed-use communities, commercial areas, Activity Centres and Main Streets.

2.3.2 RESPECTING AND ENHANCING NEIGHBOURHOOD CHARACTER

Objective

Respect and enhance neighbourhood character and vitality.

The identity and character of a neighbourhood is a function of how people interact with the history, built form, landscape, and visual qualities. This interaction defines how people feel about a neighbourhood as a place. An area's identity and character may include, but does not specifically refer to, heritage resources, which are separately recognized for heritage values and qualities.

The prospect of a more significant portion of future growth being directed to the Developed Areas of the city requires a focus on high-quality urban design and construction that builds upon and adds value to the existing character of communities.

Greater Downtown, Activity Centres, Main Streets and comprehensive redevelopments provide some of the greatest opportunity for positive change. Attention must be paid to ensuring that appropriate local context is considered when planning for intensification and redevelopment.

Respecting neighbourhood character does not mean preventing change. A neighbourhood is not static; it evolves over time as the area ages and redevelops. Some neighbourhoods experience significant changes as a result of demographic, economic conditions, changing preferences in housing and design innovations.

Policies

a. Respect the existing character of low-density residential areas, while still allowing for innovative and creative designs that foster distinctiveness.

b. Ensure an appropriate transition of development intensity, uses and built form between areas of higher and lower intensity, such as low-density residential areas and more intensive multi-residential or commercial areas.

c. Ensure infill development complements the established character of the area and does not create dramatic contrasts in the physical development pattern.

d. Ensure that the preparation of local area plans includes community engagement early in the decision making process that identifies and addresses local character, community needs and appropriate development transitions with existing neighbourhoods.

2.3.3 HERITAGE AND PUBLIC ART

Objective

Conserve Calgary's heritage resources and promote public art.

Heritage conservation is part of good city building and community identity. Heritage resources serve to enhance perspective, understanding and awareness of our past and help to build a sense of identity and pride in our local communities. Some heritage resources also provide an avenue for Truth and Reconciliation by increasing the visibility of Indigenous communities and heritage in Calgary. These heritage resources allow us to understand the pre-colonial history of Indigenous stewardship and collective responsibility to the land that Calgary sits upon.

Heritage sites provide a rich range of detail and texture and a diverse and attractive pedestrian environment. Heritage conservation also provides demonstrated economic and environmental benefits. The reuse of existing structures has significant energy savings. Furthermore, historic structures and districts can stimulate commercial activity and increase tourism activity and spending.

The following key principles inform Calgary's overall heritage conservation approach:

Values: We conserve heritage resources because they have value to our community – aesthetic, historic, scientific, economic, cultural, social, natural and/or spiritual qualities that make a place important or significant for past, present and future generations.

Alignment: To be most effective, heritage conservation efforts must be integrated and aligned with overall community and City goals, planning principles, practices and process across all stakeholder groups.

Heritage Resource

Features including historic buildings, bridges, engineering works and other structures; cultural landscapes such as historic parks, gardens or streetscapes, culturally significant areas, indigenous traditional use areas, and sites with archaeological or palaeological resources. These can be managed by municipal, provincial or federal authorities.

Policies

a. Identify and help to protect and manage Calgary's heritage resources.

b. Ensure that conservation of heritage resources in Calgary is based on an understanding of their value and heritage conservation is integrated into the wider approach to planning and city-shaping.

c. Identify heritage resources and concentrated areas of heritage resources with integrity and value and adopt policies for their conservation and enhancement including financial incentives where appropriate.

d. Encourage property owners to conserve and enhance Calgary's heritage resources.

e. The City will be a leader in conserving and enhancing heritage resources using all tools and mechanisms currently enabled for use by The City.

f. The City will be a role model for the creative use and adaptive reuse of City-owned heritage buildings, including excellence in maintenance and restoration.

g. Incorporate relevant interpretive elements in public realm improvements to assist in the recognition and appreciation of Calgary's heritage resources.

Public art

h. Integrate works of art within the public realm, particularly when designing new public buildings infrastructure and public spaces.

i. Encourage private developments to incorporate public art.

Public art

Public art is an important component of a healthy and interesting place, contributes to the economy and inspires individual creativity. The City of Calgary Public Art Policy ensures that our visual environment and identity is as intentional, deliberate and carefully considered as other infrastructure systems.

2.3.4 PARKS, OPEN SPACES AND OUTDOOR RECREATION

Objective

Create quality public parks, open spaces and other community amenities and make leisure and recreation activities available to all Calgarians.

Parks and open spaces are special places within the urban environment. These spaces enrich the fabric of our city and provide a unifying framework across neighbourhoods and communities, a means of orientation and special places for gathering, relaxing or active recreation.

Calgary's park system covers over 8,400 hectares of green, natural and open spaces and 1,000 kilometres of pathways and trails. The overall provision of green space demonstrates that all residential areas are well servicved.

Calgary is a city recognized for its vast network of open spaces, consisting of parks, natural corridors, pathways and trail systems that serve many functions. The City will strengthen the connection between its natural areas, public parks and communities to enhance opportunities for outdoor recreation, retain Calgary's natural and cultural heritage and conserve biodiversity and important environmental systems. Together, these promote overall community health and quality of life for all Calgarians.

Parks and open spaces are an essential part of the complex interactions between growth, our day-to-day life and conserving nature. They are places recognized for supporting biodiversity and increasing our climate resilience by reducing vulnerabilities and risk to severe weather events and long-term climate effects.

Calgary's most prominent natural open spaces are on its ridges and hilltops and along its creeks and riverfronts within the river valley system. The City is committed to protecting the value and quality of these assets and will strive to sustain them while ensuring they remain accessible for the enjoyment and outdoor pursuits of all.

In addition to these natural areas, The City provides high-quality public parks, open spaces and other community amenities by:

- Protecting, conserving and restoring environmentally significant areas and providing a sustainable, connected and diverse open space system that represents the natural ecosystem of Calgary and the region.
- Protecting, conserving and enhancing urban parks and opens spaces.
- Providing a healthy, well-managed urban forest and natural environment areas.
- Maintaining and improving the quality and distribution of and public access to, recreation and cultural facilities, open space, parks and natural areas.
- Providing a safe, attractive and comfortable environment through quality landscaping.
- Protecting and promoting an integrated, open space network to better connect communities.
- Providing high-quality open space and neighbourhood, community, regional and city-wide recreation opportunities to service new development or redeveloped areas.
- Fully serving Calgarians with a comprehensive range of community services and programs.

Creating and sustaining healthy communities requires promoting active living through the provision of a wide range of accessible recreational programs, services, facilities and amenities. Many types of recreation are provided to serve all age groups and interests. The need for new types of parks may be more critical in some areas of the city due to denser development patterns. The important role that community associations, social recreation groups and civic partners play in providing is also acknowledged.

"The Sport for Life Policy will make life better for Calgarians everyday by acknowledging sport as a fundamental human desire. It will create opportunities for all Calgarians to participate, experience and enjoy sport to the fullest extent of their abilities and interest."
- Sport for Life Policy

Policies

A high-quality public park system

a. Provide a high-quality park and open-space system to meet the varied needs of Calgarians.

b. Create a comprehensive and connected park, pathway and open-space system that links neighbourhoods, public parks, natural areas, athletic parks, plazas, squares and the river valleys.

c. Maintain and enhance the riverfront as an active, liveable and pedestrian/bicycle-oriented amenity.

d. Protect and improve scenic landscapes that enhance the amenity and character of Calgary's river valley park system, other waterways and wetlands, natural tree stands and prominent escarpments.

e. Protect and promote large-scale landscaped and open-space areas that define neighbourhoods and local topography and enhance Calgary's river valley park system.

f. Protect the basic social and environmental functions of City parks and public open spaces and prevent parkland conversion to other uses.

Open Space

Open space in its broadest sense includes all land and water areas, either publicly or offering public access, that are not covered by structures. Open space includes current and potential future parks, pathways, roadway greens, land for parks and recreation facilities, golf courses, cemeteries and other alternative use of green space.

Park

A specific-use open space that is managed to provide opportunities for recreation, education, cultural and/or aesthetic use (Open Space Plan).

Natural area

Open space containing unusual or representative biological, physical or historical components. It either retained or has had re-established a natural character, although it need not to be completely undisturbed (Natural Areas Management Plan).

Land use, location and design

g. Provide neighbourhood parks within a five-minute walk of all residents.

h. Ensure sufficient community open space in Inner City and Established Areas using 2.0 hectares of open space per 1,000 residents. Calculations should be applied to logical community clusters where parks and recreation amenities are accessible and shared between communities. Community open space includes areas dedicated for schools; community centres; playfields; outdoor performance spaces; community gardens; and habitat areas that offer public amenity.

i. Plans for new communities should include a hierarchy of parks and public spaces interconnected to adjacent neighbourhoods by pathways and Complete Streets.

j. Plan land uses adjacent to public parks that are supportive and enhance the vitality of both existing and new open spaces.

k. New development adjacent to the public pathway system should maintain existing connections to pathways and/or provide new linkages.

l. Encourage high-quality parks near high-density residential buildings to act as a local amenity and places for community gathering, with greater focus on site design qualities than the quantity of park space.

m. Design parks, facilities and recreational centres in a way that is compatible with nearby residential and commercial uses.

n. Locate and design public gathering areas within parks and public open spaces to optimize sun exposure during midday hours.

Inclusive, accessible, safe parks

o. Maintain and improve access to water bodies, including rivers, creeks, and reservoirs.

p. Design parks, open spaces, and amenities to the highest accessibility standards feasible.

q. Support the design and redesign of parks, recreation and cultural facilities to reflect changing user needs and preferences.

r. Design parks and open spaces to provide opportunities for cultural enjoyment and artistic pursuits.

Outdoor recreation

s. Develop and maintain open spaces, parks, recreational, sport and cultural facilities to provide for active recreation and passive recreational needs that are appropriate for all age groups and abilities.

t. Support linear parks and linkages to promote connectivity and facilitate walking and cycling.

u. Recognize the role of Complete Streets and the sidewalk system as a means to provide amenity and recreation opportunities, particularly in dense neighbourhoods such as Greater Downtown, Activity Centres and Main Streets, where additional land for traditional park space is more difficult to assemble.

v. Encourage the provision of outdoor recreational space in private developments, including private schools, institutions, campuses and business parks.

2.3.5 MUNICIPAL, SCHOOL, ENVIRONMENTAL AND CONSERVATION RESERVES

The MGA requires a Municipal Developmen Plan to include policies respecting the provision for reserve lands, including municipal reserves (MR), school reserves (SR) or municipal and school reserves (MSR).

These policies include, but are not limited to, the need for, amount of and allocation of those reserves and the identification of school requirements in consultation with affected school authorities.

The subdivision authority may require certain lands, such as natural drainage courses, lands that are prone to flooding, unstable lands, and strips of land adjacent lakes, streams or other water bodies to be provided as environmental reserves (ER), subject to the provisions of the MGA.

In order to protect environmentally significant features, the Subdivision Authority may require certain lands to be provided as conservation reserve (CR) if the land has environmentally significant features, subject to the provisions of the MGA.

Policies

Municipal and school reserves

a. Require that 10 per cent of lands that are the subject of a proposed subdivision be dedicated for the purpose of providing MR, SR, and/or MSR, in accordance with the provisions of the MGA.

b. Notwithstanding Policy 2.3.5(a) above, in the case of a strata (volumetric) subdivision of a portion of a building, the Subdivision Authority may consider reducing or eliminating the dedication of reserves or reducing or eliminating the payment of reserve cash-in-lieu, where the following condition is met to the satisfaction of the Subdivision Authority: the redevelopment site consists of a number of small parcels created on a prior subdivision that are required to be consolidated into a single parcel to meet the Alberta Building Code requirements for the building which is to be subsequently subdivided into strata lots. Where the Subdivision Authority does not require reserve to be dedicated as land or provided as money-in place of land, a deferred caveat should be registered against the Certificate of Title of the parcel(s) to the satisfaction of the Subdivision Authority.

c. Enable dedication of reserves to occur in the form of reserve land, money in lieu or, if warranted, filing a deferred reserve caveat against the title of the lands being subdivided. The means of reserve dedication will be determined by the Subdivision Authority upon the advice of the Joint Use Co-ordinating Committee.

d. Prioritize the location and allocation of MR, SR, and/or MSR land as follows:

   i. Neighbourhood needs: elementary schools, elementary/junior high schools and neighbourhood parks.

   ii. Community needs: junior high schools, community associations, open space linkages and priority environmentally significant lands.

   iii. Regional needs: high schools, pools, arenas, athletic parks and other recreational facilities.

e. Support the dedication of additional municipal reserves where the density of land being subdivided is at least 30 units per hectare.

f. Additional reserve land purchased by The City or the school authorities through the use of the Joint Use Reserve Fund should not be considered to comprise part of the landowner's dedication at the time of subdivision.

Environmental and conservation reserves

g. At the time of subdivision, Environmental Reserves (ER) should be provided in accordance with the MGA.

h. At the time of subdivision, Conservation Reserves (CR) may be provided in accordance with the MGA when environmentally significant features are identified through the local area planning process and cannot be protected through alternative methods.

2.3.6 COMMUNITY SERVICES AND FACILITIES

Objective

Provide for a full range of community services and facilities.

Community services and facilities include community and recreation centres, arenas, community health clinics, community gardens and publicly funded schools and libraries. They are located across the city within both communities and neighbourhoods. Providing opportunities for a full range of community services and facilities is the shared responsibility of The City and public agencies, with the participation of the development industry.

The presence of local schools is vital to neighbourhood life and an essential component of complete communities. Recreation, which includes sport, arts and culture, physical and leisure activities also plays a key role in fostering active and vibrant neighbourhoods. The principles below represent characteristics of recreation services and community facilities used by The City to achieve active and vibrant neighbourhoods:

Integrated and proactive: Plan for the integration of new facilities and balance development with redevelopment while satisfying future recreation and facility trends.

Multi-purpose: New, redeveloped and repuposed will be designed with components that respond to diverse needs, interests, levels of ability and skill level.

Grouping: Group recreation facilities with other community services as appropriate.

Flexible: Ensure, to the degree possible, that facilities are flexible in design, with opportunities to accommodate as wide a range of uses as possible and to be able to convert them to other uses in the future.

Adaptable: Strive to build and re-purpose facilities that will accommodate a range of sporting activities and artistic skills.

Policies

Community services and facilities

a. Maintain sites with existing public facilities and promote their reuse for new or expanded community services and recreational and educational facilities to meet changing community needs.

b. Ensure that recreation services and facilities are located conveniently within catchment areas of the users connected to the Primary Transit Network and are designed to the highest accessibility standards feasible.

c. Optimize the availability, accessibility and affordability of community facilities, including areas for public engagement, personal growth, health and learning.

d. Promote the optimum location of community services and facilities, including emergency services/protective services, recreational and educational facilities to meet community needs.

e. Locate community services and facilities in a manner that integrates with the open space system.

f. Locate local food production, processing, sales and programming on-site or within community facilities.

2.3.7 FOSTER COMMUNITY DIALOGUE AND PARTICIPATION IN COMMUNITY PLANNING

Objective

Promote community education and engagement.

All Calgarians should be provided with opportunities to participate in shaping the future of their community. This means encouraging on-going education, engagement strategies and collaborative neighbourhood planning processes that consider MDP strategies and local community-based aspirations. Community planning is a way to engage, in a meaningful way, local residents and businesses in the future of their community and to provide a local interpretation and implementation of the MDP policies. Community planning initiatives should be purposeful in dialogue between The City and stakeholders to gather information to inform decision-making, guided by Council approved public engagement policy.

City projects involving Indigenous people will seek knowledge from indigenous communities and Elders. Fostering good relations is a must for Indigenous history and knowledge to be meaningfully incorporated into City projects. The engagement should facilitate relationship building and be guided by best practice.

Policies

Community participation

a. Recognize that community planning processes are critical implementation tools for refining and realizing the vision of the MDP.

b. Work with the broad public and local community groups in planning for the future of local neighbourhoods.

c. Provide for effective community consultation and participation in projects of significance to The City and local communities.

d. Ensure that engagement on planning processes is responsible, thorough and transparent.

e. City projects will determine when to involve Indigenous communities and Elders in the projects engagement and should facilitate relationship building and be guided by best practice.

2.3.8 BUILDING AN EQUITABLE AND INCLUSIVE CALGARY

Objective

Advance the Social Wellbeing principles of Equity, Truth and Reconciliation, Culture and Prevention.

The City of Calgary aims to make life better every day for Calgarians by delivering citizen centric services. Calgary's demographics are changing along with society's awareness of social inequalities. The City of Calgary approaches planning, and managing change, to make life better every day for all Calgarians. Using an equity lens for planning and growth decisions considers an approach which is responsive to the diverse needs, strengths, and social realities of Calgarians. Planning for equity prioritizes addressing systemic and intersecting barriers to Calgary being a great place to make a living and a great place to make a life for everyone. Equity focuses decision-making on addressing the needs of all Calgarians, both now and as their needs change and evolve over time.

The neighbourhood in which a person lives contains many factors that drive quality of life, including access to community amenities; city services; grocery stores; cultural experiences; housing and transportation options; and more. It is therefore essential The City understand any potential disparities between our neighbourhoods and seek to identify and eliminate systematic barriers with the goal of equitable opportunity for all.

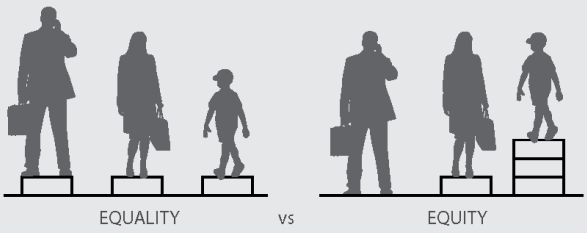
Planning to provide equitable services should be responsive to Calgary's changing and increasingly diverse population. Planning for equity must account for the multiple and intersecting identities of Calgarians (e.g., age, disability, family status, gender, gender identity/expression, marital status, Indigenous heritage/identity, level of income, place of origin, place of residence, race, religious beliefs, and sexual orientation, etc.) in the design of policies, plans, services and infrastructure. Planning for equity is also conscious of the environmental, infrastructure, and amenity context in which planning occurs.

Policies

a. Social Wellbeing principles as outlined in the Social Wellbeing Policy (CP2019-01), as may be amended from time to time, should be considered in Implementation Guidebooks, city-wide growth-related decision-making and local area plan processes.

Equity

Conditions are adjusted to meet people's diverse needs, strengths and social realities. It requires recognition that different barriers (often systemic) exist for diverse individuals or groups. The result of equity is all people have the opportunity to benefit equally from City Services.



2.4 Urban Design

Goal Make Calgary a livable, attractive, memorable and functional city by recognizing its unique setting and dynamic urban character and creating a legacy of high-quality public and private developments for future generations.

Supports

Key Direction 2: Provide more choice within complete communities.

Key Direction 3: Direct land use change within a framework of Activity Centres and Main Streets.

Key Direction 5: Increase mobility choices.

Key Direction 7: Create Complete Streets.

Urban design has a significant role to play in achieving economic vitality and a higher quality of life. To compete nationally and on an international level, cities are recognizing the importance of the combination of physical characteristics and public amenities, which contribute to their image as attractive urban places. As such, The City of Calgary is committed to fostering a culture of collaboration and innovation with citizens and the design and development industry industries in the goal of creating great streets, quality buildings and memorable places for people.

Section 2.4 provides the overarching guidance on urban design for City of Calgary statutory and non-statutory documents. Its intent is to establish a robust framework that is responsive at all scales of planning and development while setting clear expectations around the creation of planning and design outcomes.

Urban design involves:

- The art of making places that are attractive, memorable and functional for the people who use them.
- The arrangement, shaping, appearance and functionality of urban public space.
- The collaboration and co-ordination of all related disciplines, including land use planning, transportation planning, architecture, engineering and landscape design, to achieve striking and effective results.

The Urban Design Elements are 13 areas of focus which can be applied to all aspects of building, site, public space and community design. They serve to frame expectations around the outcomes, and provide the criteria for evaluating the quality of all development applications, plans and designs.

2.4.1 CREATING A BEAUTIFUL CITY

Objective

Make Calgary a more beautiful, memorable city with a commitment to excellence in urban design.

Cities are made up of collections of great buildings and memorable spaces within and/or between the buildings where people live, work, play and visit. It is this collection – the built environment and its architecture and public spaces – that influences each individual's image of the city. The city can be planned and designed in a way that promotes the creation of civic beauty through a potent combination of architectural interest, material and spatial richness and visual variety. It is the resulting beauty of this combination, together with the legibility and complexity of the pattern, arrangement and scale of the streets spaces and buildings, that has a direct and daily impact on the quality of people's lives.

Memorable places are the special spaces that have a major role in defining and enhancing the image of the city, the legibility of the physical structure and the enjoyment of residents and visitors. Calgary has a unique natural setting. Its location, proximity to the Canadian Rockies, riverfronts, escarpments, ridgelines and other natural features are memorable, act as landmarks and are special for the value they add to the passive and recreational open space system. Calgary also has certain buildings, public places, artworks and structures such as bridges that act as landmarks. These natural and cultural landmarks provide reference points in the city that contribute to wayfinding, sense of place and city identity. Enhancing Calgary's unique natural and designed assets through the appropriate design of our built form and mobility networks can strengthen the prominence of these resources and contribute to making Calgary a more beautiful city.

Urban Design Elements

Thirteen Urban Design Elements are important to the creation of good urban design:

1. Creativity and innovation
2. Context and appropriateness
3. Connectivity and continuity
4. Functional and aesthetic integration
5. Legibility and accessibility
6. Enclosure and human scale
7. Comfort and safety
8. Quality and durability
9. Vitality and animation
10. Flexibility and adaptability
11. Diversity and variety
12. Sustainability and accountability
13. Wayfinding & orientation

Policies

Civic image

a. Locate and design significant sites and public buildings to promote their civic importance and integrate open space that is designed to enhance the quality of the setting and support a variety of public functions.

b. Preserve, enhance and feature important elements of significant architectural, topographical, landscape, scenic, ecological, recreational or cultural interest.

Views and vistas

c. Identify, preserve and enhance scenic routes and principal views of important natural or designed features.

Gateways

d. Celebrate entranceways and gateways at major entry points to the city, Greater Downtown and communities through the use of distinctive urban design features, lighting, enhanced vegetation and landscaping and public art features.

Urban design excellence

e. Promote excellence, creativity, innovation and sustainability in architecture, landscape, site and overall community design.

Landscaping

f. Encourage the use of landscaping approaches and design techniques to define public spaces, screen parking areas and adjacent building forms and direct pedestrian movement.

g. Promote and protect trees in street corridors as a means to support pedestrian and amenity areas in commercial districts, soften industrial developments and enhance the attractiveness of residential communities.

2.4.2 BUILT FORM

Objective

Promote site and building design that contributes to high-quality living environments and attractive, walkable and diverse neighbourhoods and communities.

The City recognizes the importance of excellent urban design in the creation of great communities and neighbourhoods. The built form plays a critical role in defining the character and visual qualities of an area. To promote well-designed buildings, high-quality streetscape and attractive public spaces that reinforce or build unique neighbourhood character, community planning must include a consistent, design-led approach which:

- Creates a sense of place with unique neighbourhood character.
- Promotes design solutions that contribute to high-quality living environments.
- Provides well-connected, pedestrian-friendly and transit-supportive networks.
- Conserves, protects and integrates existing natural, cultural and heritage resources.
- Promotes community safety.

Two issues of particular importance to community design are taller buildings and the redevelopment of large sites within existing communities. A taller building is defined as a building whose height is greater than the width of the right-of-way of the street that it fronts. Well-designed taller buildings can make a positive contribution to the city and create an interesting skyline. Taller buildings can also act as landmarks which, when appropriately located and designed, can contribute to orientation and way finding within urban areas. Taller buildings, by their nature, can have greater impacts on a larger area than small buildings and, thus, they have a larger civic responsibility and require additional built form principles to be applied to their design.

Policies

Site and building design

a. Promote high quality standards of urban design and construction that ensures that development builds upon and adds value to the existing character of communities.

b. The ground and lower levels of developments should demonstrate a strong relationship to the human scale and contribute positively to the public realm and street.

c. Encourage the development of low and midrise buildings to achieve the desired intensity of development.

d. Require detailed site design when large sites (greater than 1.0 hectare in size) become available for redevelopment. To the greatest extent possible, new development should be street-oriented, provide amenity space, where applicable, and be integrated into the fabric of the surrounding communities.

e. Taller buildings are appropriate in Greater Downtown, Major Activity Centres, or Community Activity Centres and Urban Main Streets where deemed appropriate through a local area plan.

f. Plans and designs for taller buildings should ensure that they are:

   i. Sited and architecturally designed to contribute positively to the skyline of the city.

   ii. Designed with pedestrian scale at the base and a prominent roofline.

   iii. Integrated with adjacent areas by stepping down to lower-scale buildings and compliment neighbourhoods.

   iv. Minimizing the shadow and wind impacts on adjacent residential areas and parks and open spaces.

2.4.3 ENHANCING THE PUBLIC REALM

Objective

Enhance the public realm and promote pedestrian use through the coherent and collaborative design of streets, building interfaces and public spaces.

The public realm is made up of publicly accessible space both between and within buildings. The public realm includes streets and squares, special places, linkages, interfaces and pedestrian zones which are fundamental to the creation of a functional, visually attractive and safe environment for people.

Pedestrians, bicycle, transit and cars all contribute to lively and interesting streets. Good urban design will encourage and facilitate their co-existence, with pedestrian use given strong emphasis and careful consideration.

Policies

a. Design streets and sidewalks to encourage pedestrian comfort, safety and linkages between neighbourhoods, open spaces and adjacent land uses.

b. Safe pedestrian connections, transit shelters, bicycle parking, benches and clear wayfinding signage should be provided to facilitate all travel modes.

c. Provide sufficient and uniform sidewalk width to allow for comfortable and safe pedestrian traffic, the planting of trees and additional landscaping and wayfinding elements. Sidewalks should enhance the visual character of streets, with landscaping and buffer planting used to reduce the impacts of vehicle traffic.

d. Promote a higher degree of attention to the architectural design and detailing of building edges in areas of interface with heavy pedestrian traffic, notably commercial streets.

e. Consider seasonal factors when designing the public realm.

f. The design of buildings, open spaces, pathways and parking areas should adhere to the principles of Crime Prevention Through Environmental Design (CPTED), while ensuring light spill into adjacent property or the surrounding environment is minimized. A reduction in light spill should be achieved by minimizing the intensity of light sources and directing light only to where it is needed.

g. Transit stations should be designed as vibrant, mixed-use areas incorporating public gathering areas and public art.

2.5 Connecting the City

Goal Develop an integrated, multi-modal transportation system that supports land use, provides increased mobility choices for citizens, promotes vibrant, connected communities, protects the natural environment and supports a prosperous and competitive economy.

Supports

Key Direction 3: Direct land use change within a framework of Activity Centres and Main Streets.

Key Direction 4: Link land use decisions to transit.

Key Direction 5: Increase mobility choices.

Key Direction 6: Develop a Primary Transit Network.

Key Direction 7: Create Complete Streets.

The design of the transportation system has a significant impact on the urban form of the city and determines how we move around. As a result, the transportation system must perform a wide variety of roles and consider the local context. It must provide more mobility choice for Calgarians through walking, wheeling, transit, high-occupancy vehicles, single-occupant vehicles, commercial vehicles and emergency services.

This section provides an overview of the strategic changes for transportation in Calgary that supports the development of more complete communities and a more compact city, including:

- Transportation choice
- Transit networks
- Complete Streets
- Local transportation connectivity

Comprehensive transportation policies for Calgary are provided in the CTP. The CTP provides transportation policies, design guidelines and operational procedures that are closely linked with the MDP policies. Specific mobility policies are included in Part 3 of the MDP for specific land use typologies.

2.5.1 TRANSPORTATION CHOICE

Objective

Maintain automobile, commercial goods and emergency vehicle mobility in Calgary while placing increased emphasis on more sustainable modes of transportation (walking, wheeling and transit).

A more sustainable city requires an integrated transportation system that supports a compact urban form. Bringing jobs, housing services and amenities closer together encourages non-automobile modes of travel, providing more choice to Calgarians. In most cases, it will not be practical to accommodate all modes of travel equally in every part of the Calgary. More sustainable modes of transportation should be emphasized where they can provide convenient and realistic travel choices. The Transportation Sustainability Triangle shows the relative sustainability of each transportation mode, with walking being the most sustainable.

Although walking, wheeling and transit are more sustainable modes of transportation, the majority of daily trips are expected to continue to be made by private vehicles. This will be particularly true in outlying areas of the city where most destinations are too far to reach by walking and wheeling and where transit service is not as frequent or efficient. Transportation networks will be designed to manage the demand for vehicle use and will be optimized using a wide range of tools and new technologies.

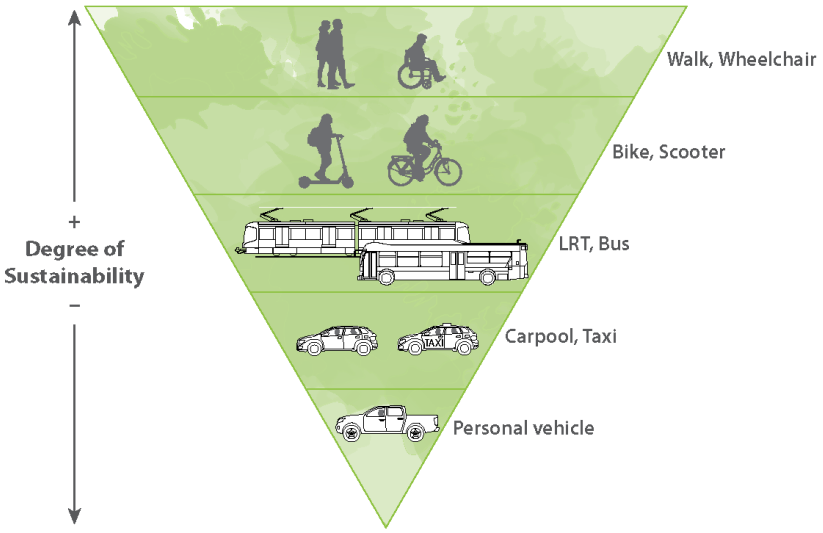


Figure 2-2: The Transportation Sustainability Triangle

Increased walking and wheeling activity will occur primarily in the Greater Downtown, Activity Centres and Main Streets. Homes, jobs, services and amenities will be located in close proximity to each other in these locations. Therefore, the needs of Calgarians who walk and wheel should be given the highest priority in the Greater Downtown, Activity Centres and Main Streets.

Transit service offers the most convenient choices to people travelling between the Greater Downtown, Activity Centres and along the Main Streets that connect them. Priority measures will enhance the reliability of transit services within and between these strategic locations, making transit competitive and an attractive option to private automobiles.

The city is a major hub for goods movement in western Canada and the movement of goods and services by air, rail and truck plays an important role in the Calgary economy. The City must consider the needs of goods and services movement with emphasis on access to industrial areas, the airport and intermodal rail facilities.

The needs of emergency services must also be considered carefully in all parts of the city.

Policies

a. Priorities for different transportation modes in each typology must be assessed in accordance with Council approved policies and plans, including the CTP.

b. Include more sustainable forms of transportation to support the needs of land use and development.

c. Respect the needs of businesses and the impact on local communities in the planning, design and maintenance of goods and service movement in the city.

2.5.2 TRANSIT

Objective

Provide a safe, accessible and customer focused public transit service that is capable of becoming the preferred mobility choice of Calgarians.

Base Transit Service will continue to provide good coverage and a basic level of service to all areas of the city. In addition, a well connected Primary Transit Network will link major city-wide destinations and connect the Greater Downtown, Activity Centres and Main Streets. Providing a Primary Transit Network, integrated with a high-quality urban environment and multi-modal transportation corridors, offers a high degree of mobility, with an attractive service offering reduced travel times, accessibility, comfort and safety.

Base Transit Service

Base Transit Service focuses on community level service with direct connections and convenient transfers to the Primary Transit Network. Areas served by Base Transit Service will have a sufficient intensity of population and employment to achieve the performance policies for transit service.

Primary Transit Network

Primary Transit Network, illustrated in Map 2, comprises a permanent network of high-frequency transit services that will include Light Rail Transit (LRT), Bus Rapid Transit (BRT), streetcars/trams and frequent bus service that will operate every ten minutes or less over an extended time period, seven days a week. Primary Transit will provide for direct travel and seamless connections between transit services and regional transit connections and incorporate the highest standards with regard to level of service, operating speed, connectivity and amenities.

The development of the Primary Transit Network is key to the success of the MDP and the CTP and continues to require prioritized operating and capital investments.

Regional transit

The City supports collaborating with regional partners to proactively plan regional transit services. These transit services may include the short term services such as regional Bus Rapid Transit as well as longer term services such as Transit Mobility Hubs and regional commuter rail service.

Linking transit and land use

Providing transit-supportive land uses in close proximity to transit service is critical to attracting ridership and making it a viable and efficient travel choice. Mixing jobs and housing and incorporating appropriate intensities within these transit hubs will be essential in meeting the required population and job thresholds, supported by 10 minute transit service levels.

Policies

a. Integrate land use planning with transit investments and service delivery to meet the objectives of both the CTP and MDP.

2.5.3 COMPLETE STREETS

Objective

Increase the attractiveness, convenience and safety of all modes of transportation by creating a selection of multi-modal streets that emphasize different modes of transportation, incorporate elements of natural infrastructure and function in the context of surrounding land uses.

Complete Streets allow people to move by foot, bike, bus or car, provide places to live, work, shop, play and support the natural environment and the economy. The main function of roads and streets is to provide a connection between the origin (where we are) and destination (where we want to go). Applying the Transportation Sustainability Triangle means the development of multi-modal corridors that focus on all modes of transportation. Complete Streets also accommodate the movement of emergency services vehicles. Not every street in Calgary will be able to meet the needs of all users. Different types of streets have different functions that should fit into the community context.

The road and street palette

A road and street palette has been developed to differentiate between more traditional "roads," which primarily serve long-distance vehicle trips and do not interact with adjacent land uses and "streets," which serve a broader range of transportation modes and do interact better with adjacent land uses.

Both streets and roads should provide mobility for a wide range of users, facilitate the movement for goods and services to support the economy and incorporate the elements of natural infrastructure to enhance the environment. However, unlike streets, roads do not contribute to place-making since their primary role is the movement of people and goods over long distances at higher speeds. The Complete Streets section of the CTP and Map 3 of the MDP provide more information on Complete Streets and their functions.

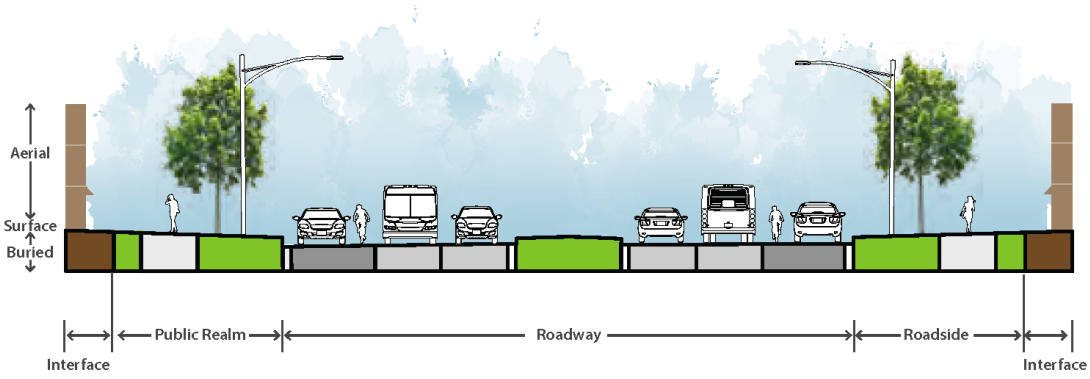


Figure 2-3: Complete Street zones

Traditionally, the elements within the right-of-ways (e.g., travel lanes, medians, sidewalks, underground utilities, streetlights) have been the main focus of transportation planning and design. However, the right-of-way is only part of the overall Complete Street. Complete Streets include not only transportation and utility components, but also natural infrastructure and public realm elements. How each of these elements is combined depends on the surrounding land use context and the transportation mode priorities. Adjacent land uses might range from parks and green space to intense corridor development with a mix of commercial and residential buildings.

The quality of the public realm in streets located in the Greater Downtown, Urban and Neighbourhood Main Streets is a very important design consideration. The urban design and public realm policies contained in Section 2.4 should be followed when designing Complete Streets to function in the context of the surrounding environment. The CTP also specifies several special street types to support these land uses. Additional information on Complete Streets, can be found in Part 3 of the CTP and the Complete Streets Policy and Guide.

Policies

a. Ensure that land use strategies complement the Complete Street policies contained in Part 3 of the CTP.

2.5.4 LOCAL TRANSPORTATION CONNECTIVITY

Objective

Create better connectivity in future communities, the Greater Downtown, Activity Centres and Main Streets for walking, wheeling and street networks, while also increasing access and reducing response times for emergency services.

Research shows that increased connectivity has a number of benefits, including:

- Enhancing public safety by reducing response times for emergency services.
- Improving the health of Calgarians by making walking and wheeling viable options for travelling to work or other daily needs.
- Improving accessibility to the regional street system and reducing delays for motorists entering or leaving developments.
- Reducing walking distances to transit stops and improving routing for City services such as Calgary Transit and Waste & Recycling Services.
- Building communities that have the ability to adapt over time.
- Increasing social interaction between residents.

Effective design of local transportation networks has shown that the land requirements for transportation infrastructure can be minimized using a variety of different street networks, while enhancing connectivity relative to recent curvilinear designs. Within residential communities, concerns about traffic on residential streets can also be mitigated through the proper design of streets to manage the flow of traffic and discourage undesirable driver behaviour.

Local transportation connectivity policies are included in Part 3 Typologies for Major Activity Centres, Community Activity Centres and New Community areas. Additional information on local transportation connectivity, along with policies and detailed guidelines to assess connectivity, can be found in Part 3 of the CTP.

Policies

a. Local transportation connectivity in the Greater Downtown, Major Activity Centres, Community Activity Centres and New Community areas developments must be assessed according to the connectivity policies contained in the CTP.

2.6 Greening the City

Goal Conserve, protect and restore the natural environment.

Supports

Key Direction 1: Achieve a balance of growth between established and greenfield communities.

Key Direction 2: Provide more choice within complete communities.

Key Direction 3: Direct land use change within a framework of Activity Centres and Main Streets.

Key Direction 4: Increase mobility choices.

Key Direction 7: Create Complete Streets.

Key Direction 8: Optimize infrastructure.

Calgary has developed within a prairie landscape rich with natural habitats that support biodiverse vegetation, wildlife species and beautiful river valleys. It is understood that conserving the natural environment results in personal, social, economic and environmental benefits. It is important to recognize the interconnectedness of air, land, water, climate, ecosystems, habitat and people. Connecting citizens to nature, through access to open space and through fostering ecological literacy can contribute to personal well-being.

Towards a Climate-Resilient City

Calgary's climate is changing, creating new risks and new opportunities. In order to meet these challenges, The City must integrate climate resilience across the organization, including long-range planning. How the city grows and develops has a significant impact on greenhouse gas emissions and the capacity to adapt to changing climatic conditions. The Climate Resilience Strategy was adopted in 2018 and aims to maximize the climate resilience of Calgary. The City of Calgary is committed to reducing GHG emissions to reduce the impacts of climate change and making Calgary more resiliant to climate related events.

The City recognizes the need to partner with adjacent municipalities and its regional neighbours to develop strategies for protecting watersheds, habitats and biodiversity and to establish ecological networks.

The MDP supports addressing climate change and creating a climate resilient community through the implementation of the Climate Resilience Strategy and its Climate Adaptation and Mitigation Action Plans in addition to:

- Protecting environmentally-sensitive areas and natural infrastructure to conserve biodiversity and contribute to people's quality of life, the quality of communities and the quality of ecological systems.
- Creating a more compact urban form that uses less land and, therefore, reduces habitat loss and fragmentation and adverse impacts on wildlife, vegetation and water quality and quantity.
- Reducing the number of impervious surfaces by incorporating site level and neighbourhood level stormwater source control practices.
- Supporting mixed-use developments that provide opportunities for more local travel choices by walking, wheeling and transit.
- Facilitating economic energy-efficient buildings and creating opportunities for renewable energy generation that reduces dependence on fossil fuels.

2.6.1 NATURAL INFRASTRUCTURE

Objective

Connect natural infrastructure throughout the urban fabric.

There is a need to establish an integrated approach to natural infrastructure management and decision making as part of The City's ongoing planning, investment and asset management processes. A shared understanding of the relationship between the value of services and the benefits of natural assets will help to inform these processes.

Natural infrastructure is an interconnected network of natural assets and engineered elements that provide ecological services (e.g., water filtration, air filtration and food production) in urban environments. Natural assets include trees, wetlands and riparian areas and natural open spaces. Engineered elements include hard infrastructure (e.g., roadways) and natural stormwater infrastructure (e.g., gardens). These are designed to replicate ecological functions or to reduce impacts on ecological systems. Figure 2-4 below shows the range of natural infrastructure.

Natural infrastructure requires a strategic approach to ensure conservation and support growth management. For natural infrastructure to be fully integrated throughout the city, it must become part of the underlying framework that is used to guide future development patterns. The location and design of parks and open spaces are often considered secondary to traditional utility and road infrastructure, which is planned strategically well in advance of development. Natural infrastructure elevates the ecological services that these green spaces provide to the same level as traditional forms of hard infrastructure.

Policies

Natural Infrastructure

a. Incorporate principles of natural infrastructure into land use, development and transportation decisions:
   i. Prioritize the protection of natural assets.
   ii. Where feasible restore degraded natural areas to achieve greater ecosystem and municipal services.

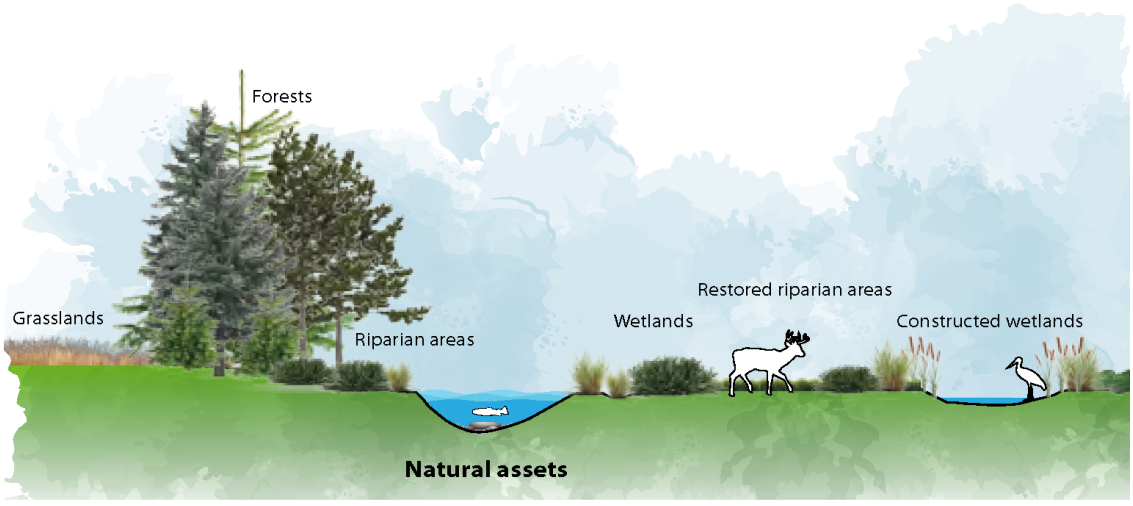


Figure 2-4: Spectrum of Natural and Engineered Elements

iii. Use resources efficiently.

iv. Build engineered elements that use ecological and hydrological processes to reduce the impact of development on the natural environment.

v. Improve the aesthetic quality and sense of place for all communities and landscapes.

b. Identify and protect strategic parcels, blocks and corridors that contribute to essential municipal ecosystem services.

c. Facilitate the development of eco-industrial business parks.

d. Prioritize ecological protection for natural areas, open spaces and parks.

e. Support landscape designs and developments that enable food production.

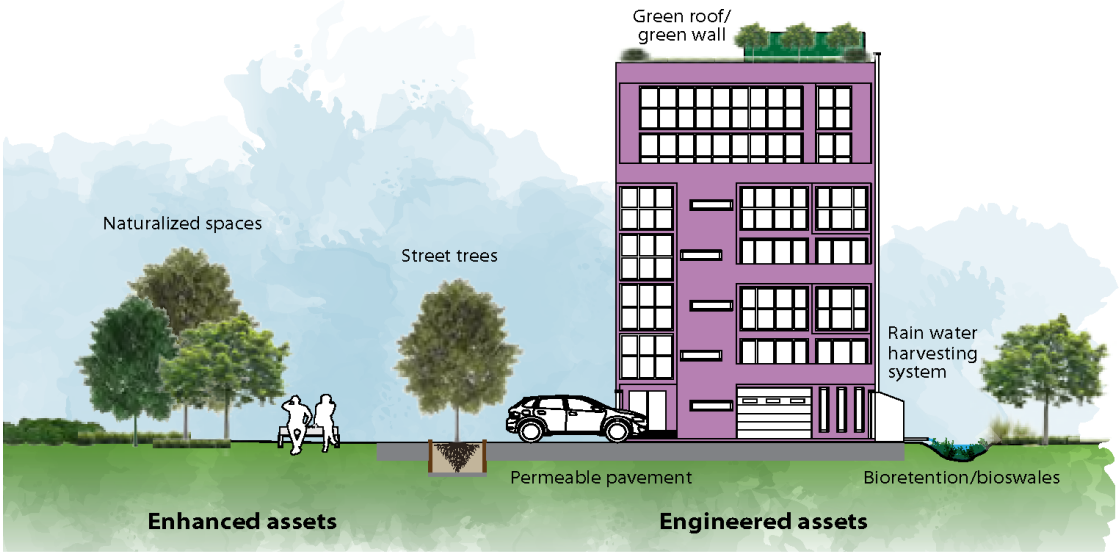
f. Establish an integrated approach to natural asset management and decision making as part of The City's ongoing planning, investment and asset management processes.

g. Reduce the cumulative impacts of development on ecosystems.

Natural Infrastructure includes a range of assets from natural through engineered elements which rely on ecological and hydrological processes to provide municipal, ecosystem and social services as well as resilience benefits.

Resilience of a city improves when integrated systems are in place to conserve, enhance and maintain our natural infrastructure as well as the social, economic and environmental benefits that they provide.

Natural Infrastructure is better able to self-adapt to the stresses and shocks associated with Calgary's changing climate than hard infrastructure. Protecting and using natural infrastructure appropriately can offset costly investments in new hard infrastructure, while providing additional social, economic and environmental co-benefits.



2.6.2 LAND

Objective

Minimize the amount of land that is taken up by the built environment and create opportunities to connect with nature.

Creating a more compact urban form has some of the most direct benefits to the natural environment, including:

- Minimizing land used for development by creating a more compact urban form.
- Reducing disruption and fragmentation of habitat.
- Minimizing impervious surfaces to reduce stormwater runoff.
- Remediating contaminated soil and water through brownfield redevelopment.

Compact development minimizes the conversion of open land to urbanized uses and maximizes retained natural habitat and allowing for connected ecological connectivity.

Ecological literacy:

"The City of Calgary supports the conservation and appreciation of biodiversity cultivating knowledge and understanding about ecological processes, personal stewardship actions and Calgary's natural heritage."
Biodiversity Policy – Policy Number: CSPS037, 2015

Policies

Design with nature

a. Conserve natural habitats by reducing disturbance and fragmentation.

b. Designs of new communities should retain undisturbed land to support ecological connectivity, promote biodiversity and improve water quality.

c. Encourage the remediation and redevelopment of brownfield sites.

d. Address critical ecological characteristics such as steep slopes and pervious soils as part of optimal site design.

Connecting with nature

e. Enhance Calgary's livability by improving urban and natural ecosystems.

f. Provide low impact access and amenities for people to interact with nature.

g. Foster appreciation and stewardship of our natural environment by enhancing ecological literacy of Calgarians.

h. Protect and expand the integrated open space network to support community well-being and for ecological connectivity.

i. Establish service standards that address type, proximity, quality and quantity of park space serving citywide and neighbourhood needs.

j. Include parks and natural assets as part of Calgary's heritage, natural history and identity.

k. Provide educational and interpretive elements in parks and open spaces to increase knowlege about natural conservation and cultural and archeological points of interest.

Soils

l. Conserve soil and reduce erosion:

   i. Encourage the retention of natural vegetation and topography on a development site.

   ii. Address sedimentation of rivers and streams by implementing stormwater management measures.

   iii. Preserve nutrients and protect soils.

2.6.3 WATER

Objective

Protect, conserve and enhance water quality and quantity by creating a land use and transportation framework that protects the watershed.

Our rivers and creeks are the most visible part of a complex hydrological system. The Bow and Elbow Rivers have drawn people to their banks and sculpted the landscape for thousands of years. However, rivers are far more than the waters within their banks, they are the hearts of freshwater systems called watersheds that include all lands that drain to the rivers, as well as groundwater, springs, wetlands, ponds, streams and lakes within those lands. Watersheds reflect both the natural characteristics of their geography and the impacts of human activities within them.

Calgary contains six sub-watersheds (see Figure 2-5) and each sub-watershed is influenced by its surrounding topography and impacted by human settlements and activities.

Watersheds require management to limit the impact of human settlements and activities and to maintain their health and capability in providing clean, reliable water. Managing a watershed requires close collaboration between The City of Calgary, Calgary's regional partners and the Province. This collaboration helps to safeguard the water supply, promote sustainable water use and keep rivers healthy.

Watershed management cannot occur in isolation and must tie closely with land development and urban growth. Population and economic growth require a secure water supply and The City must consider the quantity, quality and movement of water alongside other planning outcomes. This requires direction guiding water conservation, improving flood and drought resilience, protecting source water, planning for infrastructure upgrades and managing increased stormwater runoff in communities that are growing and changing. Water is an important component of city-building and must be integrated into land use plans, policies and decisions.

To integrate watershed management with land use planning it requires a multi-faceted policy approach that includes direction to service development, mitigate impacts to watershed health, shape communities and protect public health and safety. To do this effectively, The City needs to consider water from multiple perspectives: the service lines (potable water, wastewater and stormwater), severe weather patterns (flooding, droughts and storms) and water security (source water protection, water supply etc.). In addition to these different perspectives, climate change and community resiliency provide important lenses to ensure water and its role in city-building is evaluated comprehensively and thoroughly to meet the needs of Calgarians today and into the future.

With an increase in severe weather patterns, including floods and droughts, decreasing freshwater resources and increasing land use changes, Calgary is becoming increasingly vulnerable to climatic changes.

Water security

For thousands of years, people have met at the confluence of the Bow and Elbow rivers. These rivers are the lifeblood of Calgary – they provide safe drinking water, clean water for the natural environment and a reliable water supply to support Calgary's economy. Calgary has grown to be a big city on a small river. Limited water availability, declining water quality and flood resiliency are important considerations in maintaining Calgary as a healthy and green city.

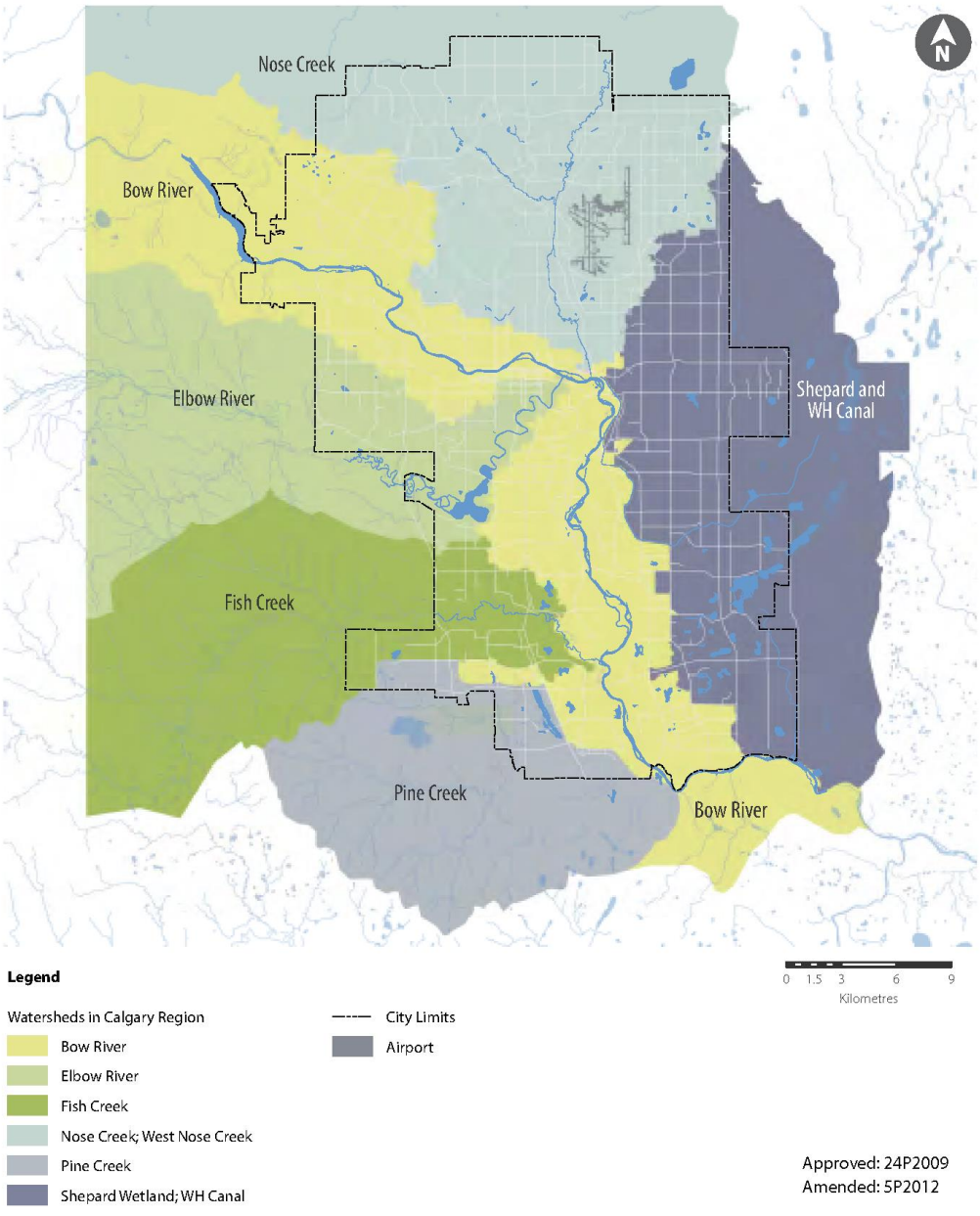


Figure 2-5: Watershed Management

Watershed management

The Government of Alberta and other authorities have taken action to protect and improve the quality and quantity of water in Alberta through the development of watershed management plans. The City of Calgary has been instrumental in working with its regional partners to create watershed management plans that will ensure the protection of our water resources. A watershed management plan considers water quantity, water quality, aquatic ecosystems and riparian areas, as well as a variety of land use issues that impact water. Watershed management plans require water and land use managers to work together to ensure healthy watersheds.

Policies

Natural waterbodies

a. Protect ground and surface water to support life and prosperity for Calgarians' and those living in downstream municipalities.

b. Protect and integrate critical ecological areas such as wetlands, floodplains, riparian corridors, into development areas.

Water conservation and efficiency

c. Promote water conservation initiatives.

d. Reduce water use by supporting stormwater harvesting, investing in water supply infrastructure and water demand management programs.

e. Improve alignment between water management and planning by adopting an integrated water management approach.

f. Encourage water conservation measures in site and building design and public and private landscaping.

g. Promote water reuse where the water source meets provincial environment and public health legislation.

Stormwater management

h. Implement stormwater regulations and practices to capture stormwater on-site and reduce flood damage.

i. Promote the use of green stormwater infrastructure, pervious surfaces, vegetation and infiltration to manage stormwater.

j. Support a citywide network of natural infrastructure.

k. Support initiatives for green stormwater infrastructure on public and private lands.

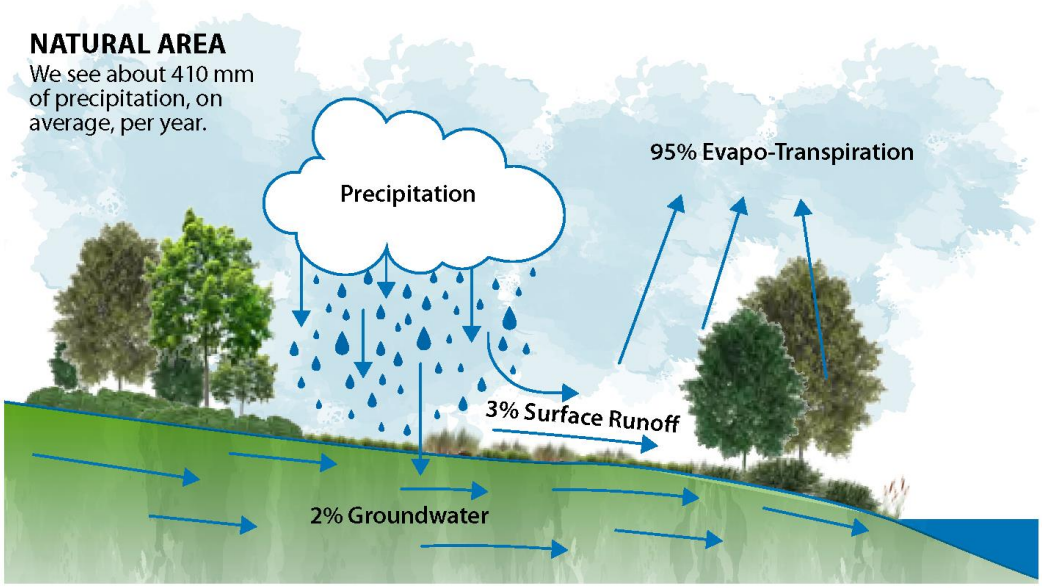
l. Encourage sustainable building practices for private and public buildings and sites that promote stormwater management and reuse.

m. Increase the amount of pervious surface by minimizing development on undisturbed open space and agricultural lands and by reducing hardscape surfaces and maximizing the use of pervious paving.

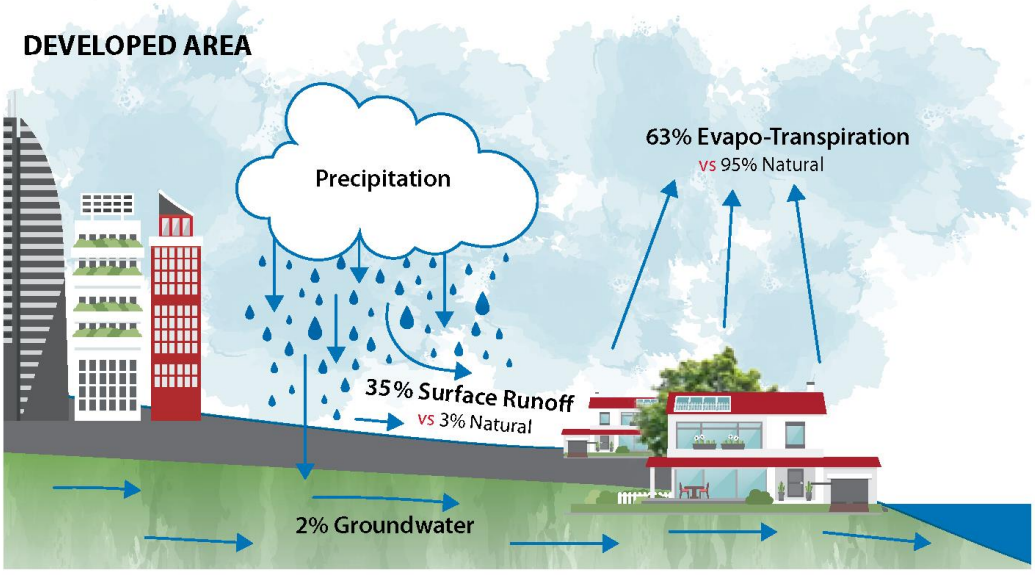
n. Develop sub-watershed plans to ensure integration of principles and policies of relevant watershed management plans into local area plans and development decisions.

o. Ensure approval standards are consistent with objectives of water management plans.

p. Design new communities to manage stormwater at the pre-development state to ensure the continued health of nearby waterways, ravines, wetlands and other sensitive areas.



Typical pre-development hydrology



Typical post-development hydrology

Figure 2-6: Impacts of Impervious Surfaces on Runoff Water Quantity

Water security and quality

q. Protect and enhance waterway catchment boundaries to safeguard fresh water resources.

r. Protect water quality and supply by:

  i. Increasing natural infrastructure.

  ii. Reducing water consumption per capita.

  iii. Preserving and expanding lands critical to watershed protection.

  iv. Sustaining groundwater sources.

  v. Safeguarding sourcewater catchments.

s. Improve the quality of city and regional water supply though sourcewater protection:

  i. Promote and foster continued inter-municipal partnerships for land use regulations.

  ii. Incorporate source watershed overlays in land use planning decisions through inter-municipal partnerships and the Calgary Metropolitan Board on matters related to water security and quality and land use regulations.

  iii. Support active and public transportation modes (walking, wheeling, transit) to reduce polluted run-off from streets.

Hydrology

t. Seek opportunities to preserve and/or improve natural watershed hydrology during planning and development processes.

Sub-watershed planning

u. Integrate sub-watershed planning objectives within land use planning and development processes.

v. Consider sub-watershed management objectives as a foundational tool for regional open space planning.

2.6.4 ECOLOGICAL NETWORKS

Objective

Maintain biodiversity and landscape diversity, integrate and connect ecological networks throughout the city.

An ecological network is a network of natural areas and open space that provides the conditions necessary for ecosystems and species populations to survive in a human-dominated landscape. This network is one of the defining features that establish Calgary's character, sense of place and quality of life. The components of the network include the river valley system, natural environment parks, regional and neighbourhood parks, streetscapes, pathways, linear parks, school sites, community gardens and urban plazas. These provide habitats for many tree, plant and animal species. Figure 2-7 depicts Calgary's ecological network, delineated through spatial network theory. The distribution and health of both habitats and corridors influence how well ecological networks function to support biodiversity and foster network resilience.

A functioning ecosystem conserves biodiversity and contributes to the cleaning of air, land and water. These benefits can be obtained by systematically acquiring land for the primary purpose of protecting beneficial ecosystem functions. Map 4 presents the Parks and Open Space System in Calgary. This map is supported by a range of City policies, principles and strategies including the Wetlands Policy, Urban Forestry Strategic Plan, Urban Parks Master Plan and Open Space Plan.

The power of natural areas and open spaces and their ability to significantly improve the quality of life in communities lies in viewing and applying them as a system, rather than in individual components that responds to the social and recreational needs of the city's population. Open spaces can be viewed as a structural pattern of landscape elements. These elements, patches and corridors, join together to form a matrix. The overall pattern determines flows and movements of species in and through the landscape.

The open space typology categorizes open spaces based upon physical similarities. These categories combined serve as an evaluation framework to determine the value of the ecological network and the associated sensitivities that should be considered prior to any development/activities occurring.

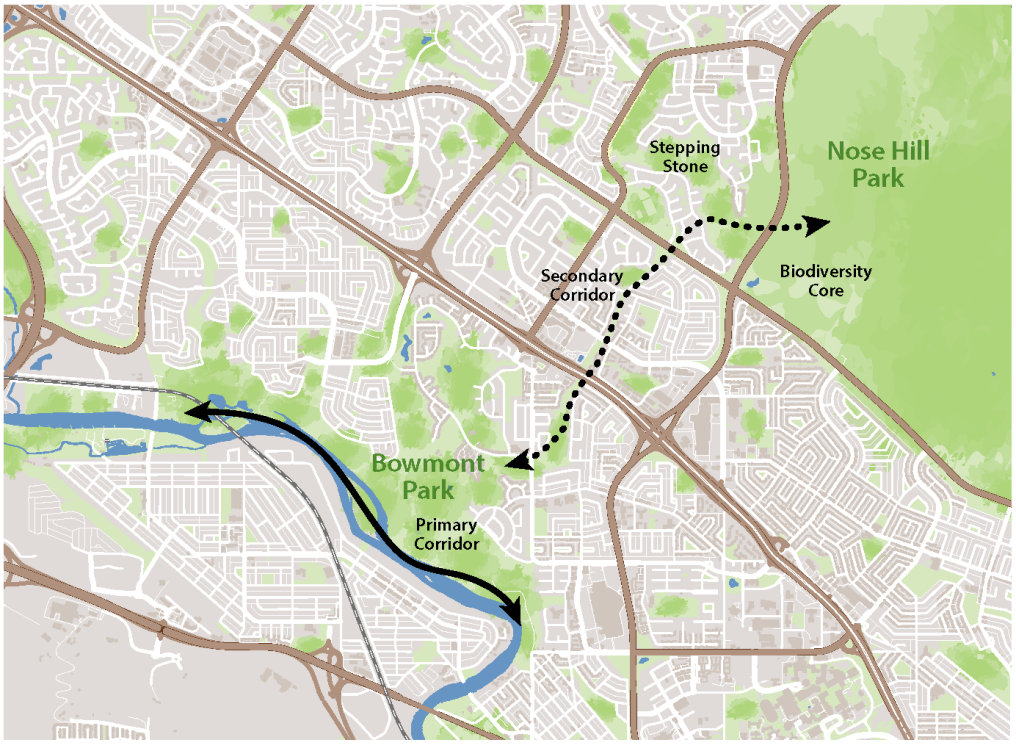


Figure 2-7: Urban Ecological networks consist of connected natural areas and open spaces.

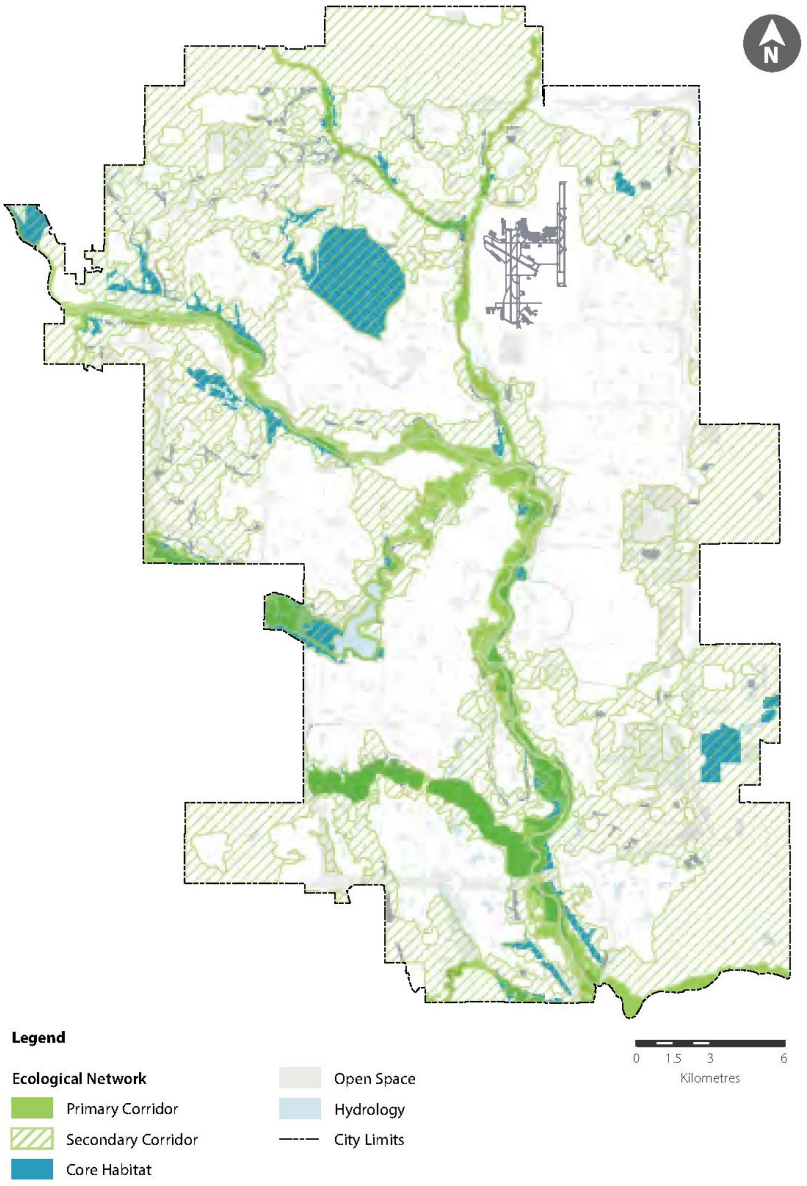


Figure 2-8: Ecological Network Map

Open space typology definitions

Habitat

There are two types of environmentally significant areas and natural environment parks that form the framework of Calgary's open space system:

- Habitat cores: areas greater than 30 hectares
- Stepping stones habitats: areas between five and 29 hectare

Corridor

Corridors are natural and semi-natural open spaces that link habitats. There are two types of corridors:

- Primary corridors connect Calgary to the region and consist of linear riparian zones along Calgary's major waterways including the Bow and Elbow Rivers, Fish Creek, Nose Creek and West Nose Creek.
- Secondary corridors connect other ecological network elements to a primary corridor, through a configuration of stepping stone habitats.

Policies

Protection of natural ecosystems

a. Protect and enhance the quality and function of significant natural assets and features.

b. Land use, development and transportation planning should seek to conserve and protect natural asset features, parks and open spaces and the buffers and connections between them to:

   i. Protect environmentally-significant areas in the allocation of land use.

   ii. Ensure the protection of sensitive ecological areas and unique environmental features within the city's parks and open space system takes precedence over other uses.

   iii. Encourage the integration of trees, vegetation and natural infrastructure to reduce the impacts of development.

   iv. Integrate sensitive design and construction management practices to optimize the protection of natural assets and the services they provide.

   v. Incorporate trails and pathways that link local and regional open space into the planning and review processes.

c. Provide an 18 metre building setback from the tops of escarpments.

Ecosystems: the interaction between organisms, including humans and their environment. Ecosystem health and integrity refers to the adequate structure and functioning of an ecosystem, as described by scientific information and societal priorities.

Establish and Maintain Ecological Networks

d. Ensure parks and natural assets are valued pieces of Calgary's heritage, natural history and identity.

e. Create a network of land uses, landscape elements, natural areas and open spaces that support ecosystem connectivity, biodiversity, wildlife and habitat conservation.

f. Plan and support natural areas and parks to help shape the urban form and buffer incompatible uses by:

   i. Integrating natural features of the surrounding landscape into the site design to maintain a high degree of interconnectivity.

   ii. Strategically protecting areas adjacent to waterways to safeguard freshwater resources.

   iii. Allowing for the modification of natural areas, to increase their capacity to incorporate a buffer for more sensitive ecological areas.

iv. Locating and designing parks and open spaces to connect with green streets, green alleys and lane initiatives (see CTP for details regarding the inclusion of green stormwater infrastructure in Complete Streets).

v. Developing partnerships between The City and Calgary's school boards to facilitate the greening of school yards and the proper design and redevelopment of recreational and athletic fields for all levels of play.

Ecosystem Services

Ecosystem services are the benefits people obtain from ecosystems. These include provisioning services such as food and water; regulating services such as regulation of floods, drought, land degradation and disease; supporting services such as soil formation and nutrient cycling; and cultural services such as recreational, spiritual, religious and other nonmaterial benefits. Recognize the interconnectedness of air, land, water, climate, ecosystems habitat and people.

Regional partnerships

g. Partner with neighbouring municipalities to create an integrated regional open space network and source watershed protection strategy. Consider watershed management plans as a foundational tool for regional open space planning.

"**Riparian areas** are among the most biologically diverse and productive places in Alberta. Networks of riparian open spaces provide critical habitat and corridors for plant, animal and fish populations."

THE RIPARIAN ACTION PROGRAM:
A Blueprint For Resilience.

Biodiversity

h. Preserve natural open space in environmentally significant areas for biodiversity and ecosystem functions, while supporting complete communities and naturalization of open space, through:

i. Designs for new communities that retain greater amounts of undisturbed lands.

ii. Management and rehabilitation of natural areas and critical habitat.

iii. Protection of aquatic and riparian corridors and habitats through preservation, restoration and creation of wetland bank sites, environmental reserve dedications and design alternatives.

iv. Reduction in habitat fragmentation and increase connectivity, where feasible, within the city and region.

v. Efforts to monitor and manage invasive species.

vi. Support stewardship of City-owned natural open space.

vii. Implementation and promotion of education and best practices in management and stewardship of natural lands.

viii. Considering the needs of pollinator species in the design of new communities and developments.

Bioswales (bio-infiltration areas) promote absorption and infiltration of stormwater runoff in urban areas.
Source: Design Centre for Sustainability, SALA, UBC

Protecting aquatic and riparian habitats.

i. Ensure no net loss principles of significant wetland habitat and preserve existing wetlands as a priority over reconstruction.

j. Preserve and restore wetland bank sites to protect aqautic habitats.

k. Protect riparian areas to meet habitat, water quality and public access through environmental reserve dedications and design alternatives.

l. Encourage and enable protection of source water and groundwater recharge areas.

City's riparian management categories: conservation, restoration, recreation, flood and erosion control, develop. Management categories should be used to guide The City's land use decisions within and adjacent to riparian areas and inform restoration and bank stabilization efforts. Protect and enhance escarpments for open space, public views and setbacks to private property.

River valleys and crossings

m. Mitigate the impacts of urban development on Calgary's rivers systems by preserving and restoring the City's riparian areas.

n. Transportation infrastructure crossings should consider environmental impacts on river valleys and waterways. Factors to be consider when planning, designing and constructing these crossings includes:

   i. City-wide street connectivity that connects stream corridors into the community.

   ii. Waterway constraints (stream corridor considerations and riparian areas).

   iii. Location and design of stream channel crossings.

   iv. Minimizing impacts on adjacent communities and parks.

   v. Incorporating river crossing design principles (See CTP Appendix B).

Urban Tree Canopy

As a priority consideration during development design of new communities, it is important to provide a suitable environment for sustainable trees and promote the growth of a future urban tree canopy. It is equally important in development to preserve existing trees. The following policies should direct local area plans to protect existing tree canopy, maintain planted trees to grow to maturity and provide the required growing conditions for sustainable trees in Calgary.

o. Protect and expand parks, green spaces and connections between these areas, where possible, as shown in Map 4.

p. Protect, restore and expand Calgary's urban forests. Provide adequate space and environmental conditions for forests to thrive.

Environmental benefits of a healthy urban forest:

- Reducing particulate and gaseous air pollution.
- Providing fresh air through CO2 consumption and O2 production.
- Cooling the air through a natural air conditioning effect.
- Intercepting rainfall by reducing stormwater runoff and improving water quality.
- Reducing soil erosion by trapping and slowing stormwater runoff.
- Providing wildlife habitat.
- Reducing noise pollution by acting as a sound barrier.
- Changing the scale of a street corridor to a more human dimension.
- Add to the street's sense of place.
- Create physical barriers, directing foot traffic or screening views.

q. Identify the urban tree canopy target in local area plans.

r. Plant a variety of native deciduous and coniferous trees that are drought tolerant and adapted to Calgary's climate.

s. Foster partnerships with organizations that help protect forests, plant trees and provide education.

t. Support incentives that encourage tree planting and care by private property owners.

u. Reduce the urban heat island effect through planting trees and other vegetation, to provide shade and cool air temperatures.

v. Ensure natural infrastructure is sustainable by following Arboriculture standards and specifications.

w. Encourage natural infrastructure and enhanced landscaping in the built environment.

x. Ensure tree sustainability to create the greatest benefit for the site and the community.

y. Further develop tree protection and planting measures to:

   i. Ensure maximum conservation of existing healthy, mature trees and incorporation of native and adapted vegetation in the site design and layout of new buildings.

   ii. Protect trees and root systems during street/boulevard work and during site development.

   iii. Protect healthy trees on private lands.

Trees provide many ecosystem services, including improving air quality, reducing erosion and creating wildlife habitats. The amount of services provided by trees increases exponentially with tree size. Trees also contribute to an improved quality of life, health and community well-being. Maintaining and preserving existing trees is critical to a sustainable, healthy urban forest and expanding urban tree canopy. The policies to the left support increasing Calgary's urban forest and vegetation. Trees and natural vegetation are an integral component of planning for landscape connectivity, climate resilience and carbon sequestration. Trees are planted for the enjoyment of future generations, the benefits from trees currently within the city are a gift from past Calgarians and new trees will support wellbeing of future Calgarians.

2.6.5 CLIMATE CHANGE AND ENERGY

Objective

Adapt to current and anticipated changes in climate and contribute to mitigation efforts for long-term resilience and reduce the dependency on non-renewable energy resources.

The changing climate poses evolving risks to the city and to Calgarians. The Calgary Climate Resilience Strategy aims to maximize the resilience of Calgary in the context of a changing climate. The strategy is guided by local, provincial and federal climate policies and provides mitigation and adaption actions. As a city, we recognize our responsibility to adapt to the impacts of climate change on our community. Our city seeks to achieve emission reduction targets which align with federal climate change commitments.

The Principles of the Climate Resilience Strategy approved by Council on March 21, 2018 (C2018-0340) will guide the mainstreaming of climate-specific decision-making into policies, programs and projects. The Climate Goals stipulate the key aspects to achieve over time to reach the 2050 Target of 80 per cent reduction in GHG emissions.

In 2009, the Calgary Climate Change Accord established The City's commitment to pursue reductions in community green-house gas (GHG) emissions. Nonetheless, between 2005 and 2019 Calgary's GHG emissions increased (see Figure 2-10).

Calgary's Climate Resilience Strategy: Mitigation & Adaptation Action Plans, approved by City Council in 2018, establishes principles that will guide the mainstreaming of climate-specific decision-making into policies, programs and projects, and establishes three main goals stipulating the key aspects to achieve over time to reach The City's GHG emissions reduction target of 80 per cent below 2005 levels by 2050:

- Reduce vulnerabilities and risks to severe weather and long-term climate effects.
- Improve energy efficiency and reduce GHG emissions.
- Support the low-carbon economy.

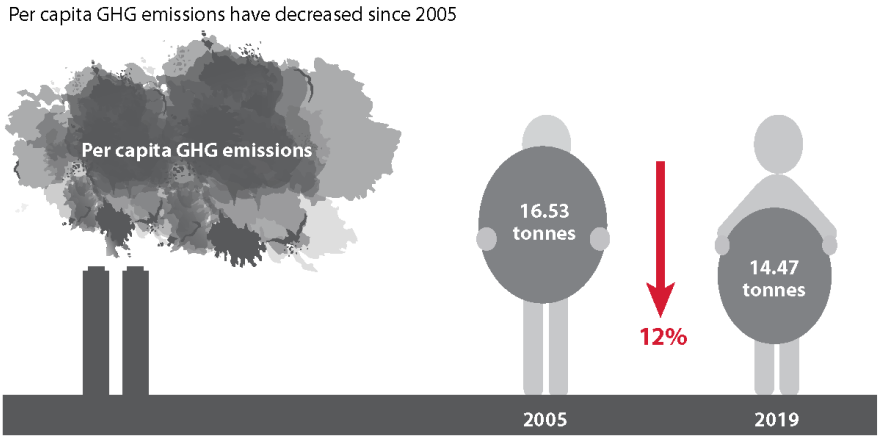


Figure 2-9: Calgary per capita GHG Emissions – 2005 and 2019

Figure 2-10: Historical Calgary Community-wide GHG Emissions by Sector (2005-2019)

Adopted corporate energy principles

- Responsible Energy Management
- Collaboration
- Integration
- Relevance; and targets for GHG emissions reduction, energy consumption and renewable energy and multi-modal transportation.

While climate change is a global problem, at the local level, it is possible to reduce GHG emissions by improving energy-efficiency in buildings, renewable energy generation, electric vehicle adoption and alternative fuel use and fostering compact development of complete communities. The Energy Intensity Map (Figure 2-11) demonstrates the projected citywide annual energy consumption if ultra high-efficiency improvements are adopted by 2036.

Targeted actions can generate substantial impacts on future carbon emissions. Urban form plays a fundamental role in shaping urban processes and can affect future emissions. How we design our city and neighbourhoods impacts the need for energy. Achieving the targets outlined in MDP is the most cost effective action that can be undertaken with respect to climate action. Energy efficient buildings and low-carbon energy will contribute to achieving Calgary's 2050 emission reduction targets for built form.

Where people live, work and access amenities impacts how they choose to get around the city. Currently, emissions associated with transporting people and goods account for one third of Calgary's emissions. Moving towards zero-emission vehicles as outlined in the CTP section 3.12 supports additional cumulative GHG reductions. Failure to fully achieve the plans' outcomes will diminish the ability to achieve the targets.

The policies below support achieving the 2050 emission reduction targets and must be exceeded to achieve the 2050 emission targets. Climate resilience policies are also needed to adapt to the risks and impacts of climate change and to manage disruptions in Calgary.

Policies

Climate Resilience

a. Reduce exposure and vulnerabilities to climate related hazards.
   i. Encourage infrastructure design that can withstand climate change impacts.
   ii. Encourage development and land use patterns that reduce exposure and vulnerabilities to climate change impacts.
   iii. Discourage development in areas known to be vulnerable to the impacts of severe weather and natural hazards, such as steep slopes and floodplains, to minimize long-term risk to Calgarians and the community.

b. Minimize disruption from extreme weather events by encouraging on-site backup power systems and emergency shelters within new buildings and development of disaster management plans for buildings and communities.

Action	Total potential GHG reductions to 2050 (Mt)
Implement existing MDP	12
Implement existing CTP	15
Improve energy performance in new and existing buildings	215
Neighbourhood renewable and low-carbon energy systems	17
Shift to low-emissions vehicles	60
Exceed core indicator targets in CTP	3
Exceed core indicator targets in MDP	7

Table 2-3: Components of Climate Change Mitigation

Energy efficient transportation and land use planning

c. Co-ordinate sustainable energy planning at all scales of development by:
   i. Promoting urban forms and infrastructure that support alternative and renewable energy production and reduced energy consumption.
   ii. Ensuring that energy efficiency is part of the design considerations for local area plans and subdivisions.
   iii. Minimizing building setbacks to encourage efficient use of land and/or support district energy where appropriate to reduce energy loss or create opportunities for energy exchange.
   iv. Maximizing passive solar gain through street design and building orientation.
   v. Reducing the consumption of carbon-based fuels and increase renewable energy systems.
   vi. Minimizing energy use through innovative site design and building orientation or stacking that addresses factors such as prevailing winds, landscape, sun-screens and sun-shade patterns.

d. Remove barriers to the development of district energy low-carbon heating and cooling systems, solar and other renewable sources that serve buildings or a broader district.

e. Develop and adopt new and amended regulations, programs and incentives to implement the MDP and CTP goals and policies to:
   i. Create a compact urban form and complete communities to encourage active transportation, reduce vehicular trips and preserve open space.
   ii. Plan for and support infill development.
   iii. Improve public transit, walking and wheeling infrastructure and encouraging active modes of transportation.
   iv. Support the preservation, restoration and utilization of natural infrastructure for its many benefits, including reducing the urban heat island effect, stormwater management and carbon sequestration.

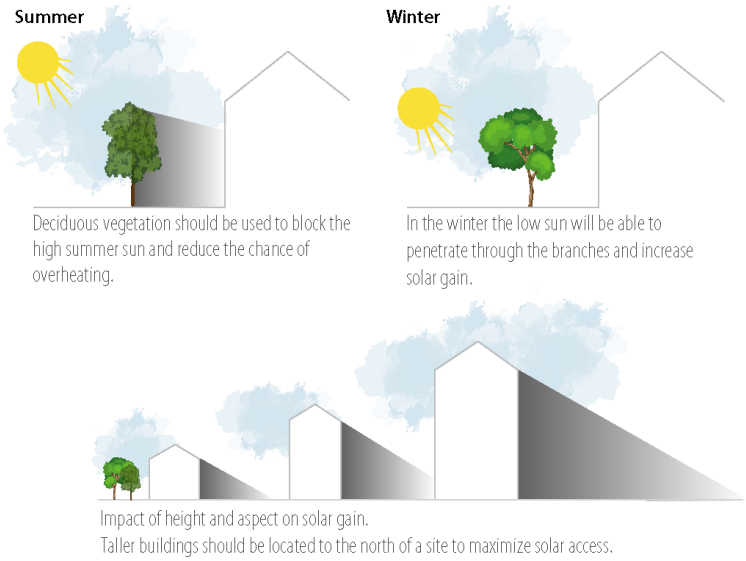


Figure 2-11: Solar gain is affected by vegetation and building height

Air quality

f. Integrate air quality considerations in planning and transportation decisions:
   i. Employ strategies to improve air quality related to transportation, buildings and industry including construction and waste management to reduce overall contributions to air pollution.

g. Consider methodologies to integrate GHG reduction potential into growth management decisions and transportation assessments.
   i. Update the Corporate Energy Plan to fully integrate corporate GHG management and consider the establishment of a Community Energy and Emissions Plan.

Energy efficient buildings

h. Promote energy-efficient, "green" building design, techniques and practices for the construction and operation of buildings.

i. Eliminate barriers to energy efficient design practices.

j. Encourage the conversion, retrofit and adaptive reuse of existing buildings.

k. Promote mixed-use buildings to reduce heat and power demand and increase the viability of on-site energy supply.

l. Collaborate with partners and agencies in the transportation, energy and development and building sectors to develop a comprehensive green building strategy that incorporates National Energy Code and sets higher efficiency standards for new and existing buildings.

m. Encourage development that respects natural topography.

n. Promote energy performance standards in new and existing buildings.

o. Support businesses that contribute to a low carbon economy.

p. Support learning platforms and educational tools that encourage responsible energy use, reduced GHG emissions and promote a low carbon economy.

Climate resilient economy

q. Create a system where businesses that employ sustainable practices are rewarded, recognized and/or prioritized.

r. Support a learning platform for sustainable production and consumption solutions to create green capital growth.

Food assets

s. Support the implementation of a food action plan for the City of Calgary.

The Energy Intensity Map (Figure 2-12) demonstrates the projected citywide annual energy consumption per hectare if ultra high-efficiency improvements are adopted by 2036. Research and collaboration with key stakeholders is underway to update the Energy Intensity Map. The Energy Intensity Map will be used as a tool to visualize pathways to The City's 2050 emissions reduction goal and support the implementation of the MDP's energy efficiency policies and the 2018 Climate Resilience Strategy.

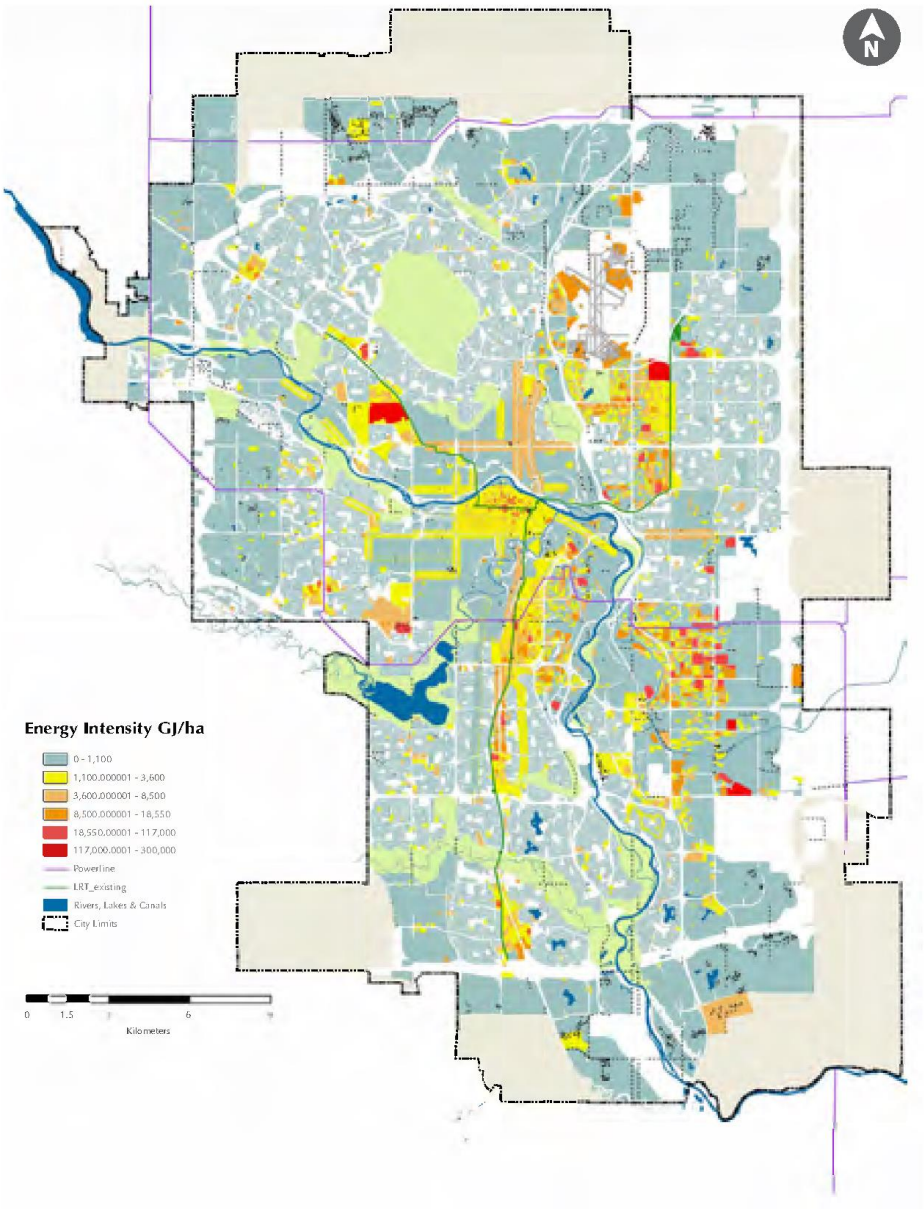


Figure 2-12: Energy Intensity Map

2.6.6 WASTE

Objective

Reduce waste and improve waste management and resource recovery.

The City of Calgary aims to lead the community towards zero waste through a focus on reduction, reuse and diversion (recycling and composting).

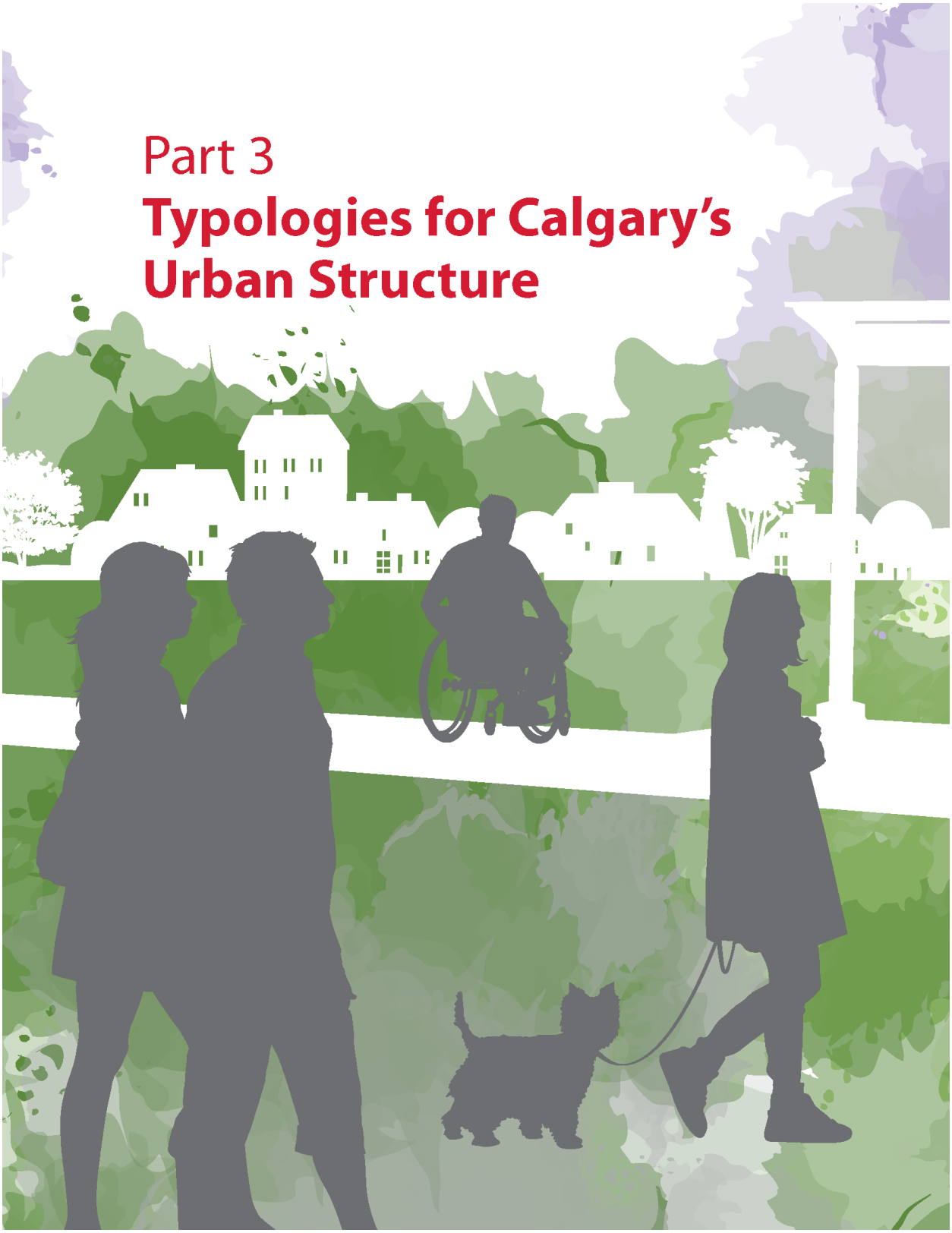
Waste generated by construction and demolition of buildings accounts for a significant portion of waste disposed in landfills. However, many of the materials in this waste can be recycled, including untreated wood, concrete, asphalt, drywall, metal and cardboard. Diversion of construction and demolition waste is a collaborative effort between The City of Calgary and the private sector. In addition, sustainable design, building and landscaping practices can help to reduce the waste generated in the first place and make use of reclaimed or reused materials.

Land use planning and development can support waste diversion by designing communities and buildings to incorporate sustainable building materials and facilitate waste collection services and community diversion programs.

Policies

a. Encourage development that incorporates sustainable design, building and landscaping practices to reduce waste and reuse materials and lead the way with City buildings and facilities. This includes:
   i. Deconstruction practices that emphasize reusing or recycling materials.
   ii. Innovative approaches to reduce waste, such as adapting older buildings to avoid demolition waste.
   iii. Repurposing existing buildings and infrastructure and designing new buildings for future repurposing.
b. Protect the operational needs and manage the long-term liability associated with landfills and recycling facilities by reducing conflicts with incompatible uses and managing residential/commercial/industrial interfaces.
c. Encourage design practices that reduce waste construction including pre-fabrication and modular construction.
d. Provide safe and adequate space for waste collection and diversion bins, appropriate to the type of waste generated on site, at residences, businesses and organizations and in public spaces.
e. Provide safe and adequate access points and clearance for waste collection vehicles on City property and private parcels, including consideration for operational conditions (e.g., parked cars, snow), connectivity and route design.
f. Require responsible diversion of recyclable waste from construction and demolition activities.

Part 3
Typologies for Calgary's Urban Structure



3.1 Introduction

Calgary consists of distinct geographic and functional areas that share common attributes with other areas across the city. Similar land use patterns, road layout, age of the building and the stage within a community life cycle help to define an area in terms of its development form and how it functions. They also provide determinants of how the area might change and transform in the future. These broad geographic areas, defined as "Typologies" are shown on the Urban Structure Map (Map 1) and form the organization of this section. Typology-based policies supplement other policies contained elsewhere in the MDP by providing interpretation of broad, city-wide policies within the context of a specific area to help provide guidance to planning and development processes.

The Typologies are:

Activity Centres
- Greater Downtown
- Major Activity Centre
- Community Activity Centre
- Neighbourhood Activity Centre

Main Streets
- Urban Main Street
- Neighbourhood Main Street

Developed Residential Areas
- Inner City
- Established

Developing Residential Areas
- Planned Greenfield
- Future Greenfield

Industrial Areas
- Standard Industrial
- Industrial–Employee Intensive
- Industrial Greenfield

3.1.1 IMPLEMENTATION GUIDEBOOKS AND LOCAL AREA PLANS

Some local area plans are intended to work in conjunction with the Implementation Guidebooks. Some Typologies require a level of detailed investigation to clearly understand the local opportunities, constraints and impacts of the respective policies. In those cases, supplemental policies should be established within the Implementation Guidebooks, or a local area plan.

Policies

a. An Implementation Guidebook and/or local area plan should include, but not be limited to the following:

   i. Definition of the study area.

   ii. Public engagement to identify local character and community needs.

   iii. Assessment of parks, public spaces, community facilities and service capacities.

   iv. Assessment of natural and built infrastructure conditions and capacities.

   v. Locations for intensification, transition and conservation.

   vi. Land use diversity and development densities.

   vii. Identification of the anticipated jobs and population for the total area and by typology.

   viii. Street types and locations, in accordance with the Complete Streets policies of the CTP.

   ix. Development phasing, staging and public investment.

   x. Other policies or context-specific guidelines as deemed appropriate.

   xi. Impacts of land uses and densities and the need for transition and interface with development in adjacent municipalities.

3.2 Greater Downtown

The Greater Downtown is made up of diverse and unique "neighbourhoods" focused around the Downtown Core and includes Stampede Park. The Greater Downtown is well connected with the rest of the city by multiple routes of the Primary Transit Network and high-quality pedestrian connections within and beyond its boundaries.

3.2.1 GREATER DOWNTOWN ACTIVITY CENTRE

Land Use Policies

a. Reinforce Greater Downtown as the primary hub for business, employment, living, culture, recreation, and entertainment within Calgary. This will be achieved by:

   i. Supporting the Downtown Core as the most concentrated employment centre in the city.

   ii. Developing high-density residential and support services.

   iii. Generating activity throughout the day and evening, 365 days a year.

   iv. Investing in the development of the Primary Transit Network and the implementation of transit priority measures.

   v. Providing high-quality walking and wheeling connections within the Greater Downtown and to communities, Activity Centres and Main Streets beyond its boundaries.

   vi. Supporting economic vitality by embracing innovation and technology, and continuing to diversify into high-growth sectors.

   vii. Putting pedestrians first and planning for the future of mobility.

   viii. Connecting amenity-rich Greater Downtown neighbourhoods with a vibrant public realm network.

   ix. Supporting the vitality of the rivers while protecting the built environment by adhering to a model of climate and infrastructure resilience which includes being future focused, innovative and prepared.

   x. Supporting and enhancing its status as Calgary's destination for arts, culture, celebration and information exchange.

   xi. Creating and maintaining a caring, safe and inclusive environment for all.

b. Plan to accommodate at least 232,000 jobs and 70,000 residents in Greater Downtown over the next 60 years. Local area plans in Greater Downtown should implement the framework as identified in Centre City Guidebook(s) and establish individual densities and approximate job and population distributions.

c. Preserve existing public lands in Greater Downtown for civic and cultural facilities such as parks, museums, libraries and any other creative venues that will enliven it as a destination for residents, employees and visitors.

d. Support the location of major educational institutions and related uses in areas of Greater Downtown well served by the Primary Transit Network.

e. The land use policies of section 3.3.1, General Activity Centre, shall apply to the Greater Downtown.

Mobility Policies

f. Transportation planning and investment decisions in Greater Downtown should align with the Centre City Mobility Plan.

Public Realm Policies

g. The public realm policies of section 3.3.1, General Activity Centre, shall apply to the Greater Downtown.

3.3 Activity Centres

Accommodating future urban growth within transit-supportive, mixed-use Activity Centres is a fundamental strategy for linking land use and transit. As per Section 3.2, Calgary's primary Activity Centre is the Greater Downtown, including the Downtown Core. Recognizing that the Downtown Core and the even larger Greater Downtown will reach their capacity over time, it is necessary to identify and plan for other strategic activity centres, including MACs, CACs and NACs that will support long-term employment and population growth in locations and at intensities that will support the Primary Transit Network.

Four scales of Activity Centres are identified based on the level and type of transit service, the expected level of intensity (density of jobs and population) and their citywide location and local context. The four Activity Centre types identified from largest to smallest are:

Greater Downtown
Greater Downtown is a vibrant and resilient destination for everyone. It is the business and cultural heart of the city and Calgary's historic mixed-use neighbourhoods and destinations. Greater Downtown fulfills many functions. It should have: the city's highest concentration of jobs and office space; the broadest variety of cultural activities; and, high-density, mixed-use residential communities.

Major Activity Centres
Major Activity Centres (MAC) are located strategically across the city to provide a major mixed-use destination central to larger residential or business catchment areas. They are located along one or more of the proposed Primary Transit Network routes, and contain one or more transit stations or stops, with a transit-oriented development pattern. The MAC builds upon existing concentrations of jobs and/or population and has a sufficient land area to provide a high number of jobs and population to support the highest levels of transit service. MACs will have the highest density and building heights outside of Greater Downtown, with the broadest range of land uses. MACs will have the highest density and building heights outside of Greater Downtown, with the broadest range of land uses.

Community Activity Centres
Community Activity Centres (CAC) are located central to a number of residential communities or business areas, on a moderately sized land base, often on current shopping centre sites or around a specific employment area. CACs may be located at transit stations or stops on the Primary Transit Network. CACs will accommodate a broad mix of uses but, generally, at lower intensity levels than the MACs.

Neighbourhood Activity Centres
Neighbourhood Activity Centres (NAC) exist primarily within the developed areas of the city (1950s to 1990s communities) in the form of smaller commercial sites, strip malls or redeveloping public facilities. They are located central to a small residential catchment area and provide walkable destinations for local communities. NACs are typically served by a base level of transit service,

though some may be located along the Primary Transit Network. NACs are appropriate sites to accommodate moderate intensification over time, with uses and development scales appropriate to the local context and community needs. NACs will also be an important part of new community designs. They will be locations for medium density housing (e.g., ground oriented to medium density apartments), local retail and services, community facilities and integrated transit stops.

Greater Downtown, MACs and CACs are identified on Map 1. However, others, especially in New Community areas, could be located and defined as part of a regional context study (RCS) process or in absence of an RCS, the Area Structure Plan (ASP) process may be considered. The intensity for each Activity Centre, level of transit service and typical land uses are shown in Table 3-1.

Activity Centre	Intensity (jobs and population per gross developable hectare)*	Transit Service	Typical Key Uses
Major	200 (minimum)	One or more Primary Transit stations	One or more major institutional uses, business and employment, high and medium density residential, retail and supporting services
Community	150 (minimum)	Primary Transit station	Institutional use (opt), retail centre, medium and high density residential, business and employment
Neighbourhood	100 (minimum)	Primary Transit station or Transit stop	Local retail and local services, medium density residential

* Intensities for each specific Activity Centre will be determined through local area plans and/or Implementation Guidebooks in consideration of land available for development, community context, and the opportunities to optimize infrastructure and public investment.

Table 3-1: Summary of Activity Centre Characteristics

3.3.1 GENERAL POLICIES FOR ACTIVITY CENTRES

The following policies apply to all scales of Activity Centres and are general in nature. Policies that are unique to specific activity centre types (Greater Downtown, MAC, CAC and NAC) are included below in this Section.

Land Use Policies

a. Activity Centres should be locations for a mix of medium and higher density employment and residential uses.

b. Uses such as retail, recreation facilities, sport, cultural facilities, open space and community and protective services that support concentrations of jobs and population are encouraged.

c. The scale of retail appropriate to each Activity Centre should be determined in consideration of the retail policies in Part 4 of the MDP.

d. Within mixed-use areas, encourage retail and service uses at grade, with residential and office uses on upper floors.

e. Where a site fronts more than one street, public entrances should be located on the street with the greatest pedestrian activity, on both street fronts, or, in the case of a corner site, the entrance may be placed on the corner.

f. Larger buildings should be designed to reduce their apparent size by the recession of upper floors to harmonize with the lower scale of the surrounding neighbourhood.

g. City-owned land within an Activity Centre should be developed to support the land use and development objectives of that Activity Centre.

h. Appropriate transition of building scale between the Activity Centre and adjacent areas should be provided. These transitions should be sensitive to the scale, form and character of surrounding areas.

Mobility Policies

i. Pedestrian environments should be the priority design element, focusing on pedestrian convenience, safety, comfort and enjoyment.

j. Create an internal street network that is interconnected, multi-modal and recognizes the needs of all users, in accordance with the Local Transportation Connectivity policies of the CTP.

k. Facilitate movement, loading and unloading of delivery vehicles throughout the Activity Centre.

l. Transit facility designs should accommodate efficient transit access, comfortable passenger waiting areas and safe, direct and unobstructed routes for pedestrians and cyclists.

m. When designing new streets or retrofitting existing streets, use the Complete Streets policies and guidelines of the CTP.

n. Establish connections between the Activity Centre and the surrounding communities to encourage pedestrian and cyclist movement.

o. Parking impacts on surrounding residential areas should be limited by providing a mix of short-stay and longer-stay parking for different users, bicycle parking and on-street parking.

p. Convenient and high quality parking locations should be provided for bicycles, carpool and car-sharing vehicles, and vehicles with environmental benefits.

Public Realm Policies

q. Design transit facilities as public "places" that are a focal point within the Activity Centre.

r. Urban design should be used to ensure that the intensification of land use occurs in a sensitive manner and that new buildings contribute to a pedestrian-friendly streetscape with the following characteristics:

   i. Reduced building setbacks from public sidewalks.

   ii. Where appropriate, existing setbacks should be used to enhance the pedestrian interface (e.g., street furniture, landscaping, street trees, pedestrian level street lighting, wide sidewalks, etc.).

s. In addition to the Urban Design policies contained in Part 2.4 of the MDP, apply the following design policies to the Activity Centre:

   i. Establish a local identity for each Activity Centre.

   ii. Provide social spaces that provide for a comfortable and interesting public realm.

3.3.2 MAJOR ACTIVITY CENTRES

Major Activity Centres (MACs) provide for the highest concentration of jobs and population outside of the Greater Downtown area. In addition to achieving higher concentrations of jobs and population, the design and character of the MACs must also create a high-quality environment that features amenities for a comfortable street environment.

Typical Major Activity Centre

Land Use Policies

a. The MACs are those shown on Map 1.

b. Local Area Plans for a MAC should provide a land use framework to achieve a minimum intensity threshold of 200 jobs and population per gross developable hectare. Individual MAC densities and the approximate jobs and population distributions will be established through a local area plan or within an Implementation Guidebook.

c. Future MACs in New Community areas will be identified through the regional context study (RCS) process or in absence of an RCS, the Area Structure Plan (ASP) process may be considered. Future MACs should be located to align with the Primary Transit Network and major road system. Specific land use and open space patterns, local mobility networks and urban design details should be developed through an ASP that includes the entire area of the future MAC.

d. MACs should be developed to function as an "urban centre" for a sub-region of the city and provide opportunities for people to work, live, shop, recreate, be entertained and meet their daily needs.

e. Each MAC should provide locations for high intensity jobs as part of institutional growth and/or mixed-use business centres.

f. Each MAC should contain a broad range of medium and high density housing opportunities and a mix of housing tenure and affordability levels to accommodate a diverse range and age of population.

g. Large format retail that provides services to residents and employees within the MAC and surrounding communities, should be located at the edge of a MAC and designed using Large Retail/Commercial Urban Design Guidelines.

h. Open spaces that provide for a wide variety of activities within a medium to high density environment are encouraged. This will include the creation of public plazas and key gathering areas. Large sports fields may be appropriate, although they should be located at the edges of the MAC.

Mobility Policies

i. Vehicle parking should be located, accessed and designed so as to minimize impacts on transit and pedestrian areas within the MAC. Smaller surface parking lots may be accommodated at peripheral locations away from the transit facility and pedestrian precincts, or located at the rear of buildings. Vehicle parking should ultimately be contained within structured facilities or underground.

j. Continue to support the development of MACs with timely investment in the Primary Transit Network.

k. Continue to facilitate the circulation of transit into the centre of each MAC, providing connections to the Primary Transit Network and surrounding communities.

3.3.3 COMMUNITY ACTIVITY CENTRES

Community Activity Centres (CACs) provide for a concentration of jobs and population in strategic locations throughout the city, and represent a local destination for multiple communities. They provide an opportunity to accommodate significant numbers of workers and residents in centres that are well served by public transit. The design and character of each CAC must ensure a high-quality environment that features amenities to create a comfortable environment that accommodates pedestrians and cyclists and makes the CAC a desirable place for workers, residents and businesses to locate. Because CACs are often located at existing retail sites, retail is an important element to be retained. CACs are also appropriate within new greenfield areas to provide convenient locations for a range of higher density housing types, local employment and retail services to new communities, in an area well served by the Primary Transit Network.

Possible Community Activity Centre Illustration
Source: Design Centre for Sustainability, SALA, UBC

Land Use Policies

a. The CACs are those shown on Map 1.

b. Local Area Plans for a CAC should provide a land use framework to achieve a minimum intensity threshold of 150 jobs and population per gross developable hectare. Individual CAC densities and the appropriate job and population distributions will be established through a local area plan or within an Implementation Guidebook.

c. Future CACs in New Community areas will be identified through the Area Structure Plan (ASP) process and/or regional context study process where required and located to align with the Primary Transit Network and major road system. Specific land use and open space patterns, local mobility networks and urban design details should be developed through an ASP that includes the entire area of the future CAC.

d. Recognize that most CACs are existing commercial developments and should continue to provide a significant level of retail service.

e. CACs should contain a broad range of ground oriented and medium to high density apartment housing and a mix of housing tenure and affordability levels to accommodate a diverse range of the population.

Mobility Policies

f. Support the development of CACs with timely investment in the Primary Transit Network.

g. Facilitate the circulation of transit into the centre of each CAC, providing connections to the Primary Transit Network and surrounding communities.

h. Vehicle parking should be located, accessed and designed so as to minimize impacts on transit and pedestrian areas within the CAC. Smaller surface parking lots may be accommodated at peripheral locations away from the transit facility and pedestrian precincts, or located at the rear of buildings. Vehicle parking should ultimately be contained within structured facilities or underground.

3.3.4 NEIGHBOURHOOD ACTIVITY CENTRES

The Neighbourhood Activity Centre (NAC) is a neighbourhood-scale centre providing opportunities for residential intensification and local jobs, retail, services and civic activities. NACs exist either in older residential communities or within new communities. Within the Developed Areas, a NAC typically would develop on those smaller commercial sites that are not identified as either MACs or CACs on Map 1. Smaller commercial sites located throughout established areas have the potential to provide a diverse mix of uses that fit with the scale and character of the surrounding neighbourhood. Because many residential communities where NACs exist do not have potential for significant intensification, smaller commercial sites provide a good opportunity for moderate mixed-use intensification and new housing forms not available within the community. In new communities, there would be similar opportunities for NACs, which should be planned at the outset through the ASP process.

Land Use Policies

a. Development of NACs should achieve a minimum intensity threshold of 100 jobs and population per gross developable hectare. Specific NAC intensities will be established based upon the local context, site size and available infrastructure, as determined through a local area plan, an Implementation Guidebook, land use amendment or comprehensive development permit process.

b. NACs should contain a broad range of ground oriented and low-density apartment housing and a mix of housing tenure and affordability to accommodate a diverse range of the population.

c. NACs should include a mix of uses and retain retail services for the local community.

d. Encourage the creation of a public gathering space within each NAC.

e. Auto-oriented uses and designs that generate high volumes of traffic, consume large amounts of land in a low density form, require extensive surface parking, and create negative impacts for pedestrian travel and access should be discouraged.

Mobility Policies

f. Where a NAC is in close proximity to a MAC or CAC and a street connection exists between them, ensure there is good pedestrian and cyclist infrastructure within that street.

g. To slow vehicular traffic and enhance the pedestrian environment, consider measures such as traffic calming and off-peak parking on the street.

3.4 Main Streets

Main Streets share many of the same attributes as Activity Centres, but are linear in nature, and oriented along a street served by the Primary Transit Network. Main Street development has historically formed along street car lines and then auto-oriented roadways.

That same right-of-way now provides the opportunity to re-integrate adjacent land uses within a transit oriented street framework. Since Main Streets provide for the mobility needs of local and regional automobile commuters and border multiple residential communities, the land use and transportation system should be designed to include many different travel modes. Two scales of Main Streets are identified, with specific policies to each:

- Urban Main Street
- Neighbourhood Main Street

Typical Main Street Cross Section

3.4.1 GENERAL POLICIES FOR MAIN STREETS

The following policies apply to all Main Streets and are general in nature. Policies that are unique to specific Main Street type (Urban or Neighbourhood Main Street) are provided below.

a. Main Streets should provide for a broad mix of residential, employment and retail uses.

b. The highest densities and tallest buildings on the Main Street should be concentrated into "nodes" that occur at the intersections of the Main Street with other major transit streets or any Future Comprehensive Plan Area identified through a local area planning process. Between the nodes and any Future Comprehensive Plan Area, lower scales of development are appropriate.

c. Commercial development along the Main Street should be oriented to the transit street and public sidewalk.

d. Develop an active street environment by encouraging retail and service uses at-grade with residential and office uses on upper floors along the Main Street core areas, with grade oriented residential uses in other areas.

e. Recognizing that the Main Street is pedestrian and transit oriented, large format retail should support a good pedestrian frontage along the transit street and public sidewalk by:

   i. Locating buildings close to the transit street and sidewalk.

   ii. Creating active building frontages by incorporating smaller retail units, public accesses and display areas visible to the sidewalk.

f. On corner sites, buildings should be placed adjacent to streets wherever possible to create defined street edges.

g. Retail buildings should provide front-door openings facing the transit street and principal public areas.

h. Appropriate transition of building scale between developments in the Main Street and adjacent areas should be provided. These transitions should be sensitive to the scale, form and character of the surrounding buildings and uses.

Main Street	Intensity (jobs and population per hectare)*	Transit Service	Typical Key Uses	Street Type (See CTP)
Urban	200 (minimum)	Located on Primary Transit Network	Retail, Office, Mixed-use buildings, medium and high density residential	Urban Boulevard support for multiple modes
Neighbourhood	100 (minimum)	Located on Primary Transit Network	Low to medium density residential, retail, mixed-use buildings	Neighbourhood Boulevard, support for multiple modes

* Intensities for each specific Main Street will be determined through local area plans and/or Implementation Guidebooks in consideration of land available for development, community context, and the opportunities to optimize infrastructure and public investment.

Table 3-2: Summary of Main Street Characteristics

Mobility Policies

i. When designing new streets or retrofitting existing streets within the Main Street, use the Complete Streets policies and guidelines in the CTP.

j. Make pedestrian connections to the Main Street from adjacent communities. These connections should occur primarily within streets that will facilitate good pedestrian and cyclist movement.

k. The impact on surrounding residential areas should be limited by providing a mix of short-stay and longer-stay parking for different users, bicycle parking and on-street parking.

l. Calgarians who walk and wheel should be given the highest priority in the planning, design, operation and maintenance of transportation infrastructure in Main Streets.

m. A strong pedestrian environment should be created along the transit corridor by discouraging on-site parking in front of the building and providing parking alternatives on street, and to the side and rear of buildings.

n. Priority and high-quality parking locations should be provided for bicycles, carpool and car-sharing vehicles, and vehicles with low environmental impacts.

o. Driveway access to parcels fronting onto Main Streets should be consolidated and new accesses minimized to provide a continuous building façade and safer pedestrian zone.

p. Site layout, vehicular circulation and loading zones should be planned to minimize the impact of vehicles on the pedestrian realm.

Public Realm Policies

q. Create a human-scale environment along the Main Street by generally encouraging a maximum of a 1:1 street wall height of the building to right-of-way width ratio. Additional height should be considered through a local area plan.

r. For Main Streets that run east-west, building heights should be designed to allow solar penetration through the block and reduce shadows cast onto public sidewalks on the north side of the street. Where practical, encourage taller buildings to locate on the north side of the Main Street.

s. For Main Streets that run east-west, south facing public open spaces and plazas should be incorporated in the buildings fronting the north side of the Main Street.

t. Public investment in key elements of the public realm should be provided to support intensification along Main Streets.

u. Urban design should be used to ensure that the intensification of land use occurs in a sensitive manner and that new buildings contribute to a pedestrian-friendly streetscape with the following characteristics:

   i. Reduced building setbacks from public sidewalks.

   ii. Where appropriate, existing setbacks should be used to enhance the pedestrian interface (e.g., street furniture, landscaping, street trees, pedestrian level street lighting, wider sidewalks, etc.).

3.4.2 URBAN MAIN STREETS

Urban Main Streets provide for a high level of residential and employment intensification along an Urban Boulevard street type, as defined in the CTP. The Urban Boulevard is a multi-modal street with a strong focus on walking, cycling and transit, though it continues to accommodate moderately high traffic volume. Urban Main Streets emphasize a walkable pedestrian environment fronted by a mix of higher intensity residential and business uses.

Land Use Policies

a. The Urban Main Streets are those shown on Map 1.

b. Additional Urban Main Streets may develop over time as the role and function of some streets change. New Urban Main Streets will be identified through an amendment to the MDP.

c. Local Area Plans for an Urban Main Street should provide a land use framework to achieve a minimum intensity threshold of 200 jobs and population per gross developable hectare. Individual Urban Main Street densities and appropriate job and population distributions will be established through a local area plan or within an Implementation Guidebook.

d. The local area plan study area for an Urban Main Street should include all land fronting directly onto the Urban Boulevard, and extend back at least one block on either side, potentially extending along intersecting streets. The highest development densities are to be located on lands directly fronting onto the Urban Boulevard and any Future Comprehensive Plan Area identified through a local area planning process, stepping down to provide transition with lower scale buildings, as defined in Part 3 - Typologies for Calgary's future urban structure.

e. The Urban Main Street should contain a broad range of employment, commercial and retail uses as well as housing (form, tenure, and affordability) to accommodate a diverse range of the population. Apartments, mixed-use developments and ground oriented housing are encouraged.

Mobility Policies

f. Provide transit service along the Urban Main Street via the Primary Transit Network. Development adjacent to transit stops should locate entrances and provide features that make it safe and convenient for transit users.

g. The Urban Main Street should generally coincide with the Urban Boulevard street type as defined in the CTP.

Typical Urban Main Street

3.4.3 NEIGHBOURHOOD MAIN STREETS

Neighbourhood Main Streets typically are located along Primary Transit Network within the Inner City and have a strong historical connection to the communities they abut. They are the "main streets" for one or more communities, providing a strong social function and typically support a mix of uses within a pedestrian-friendly environment. Some areas have a more city-wide draw because of the unique uses present or the quality of the environment, while others serve a more local population base. Neighbourhood Main Streets provide the opportunity for moderate levels of intensification of both jobs and population over time. To support this increased activity, the Neighbourhood Main Street should be served by the Primary Transit Network. Neighbourhood Main Streets are also appropriate in a New Community as places to focus different housing types and densities and create local destinations adjacent to transit streets.

Land Use Policies

a. The Neighbourhood Main Streets are those shown on Map 1.

b. Opportunities for additional Neighbourhood Main Streets will be identified through an amendment to Map 1.

c. Local Area Plans for a Neighbourhood Main Street should provide a land use framework to achieve a minimum intensity threshold of 100 jobs and population per gross developable hectare. Individual Neighbourhood Main Street densities and the appropriate job and population distributions will be established through a local area plan or within an Implementation Guidebook.

d. For Neighbourhood Main Streets that have no local area plans, areas for significant intensification should include those parcels that front directly onto the proposed Neighbourhood Boulevard (as defined in the CTP).

e. Encourage ground-oriented housing, low-scale apartments and mixed-use retail buildings within the Neighbourhood Main Street, with the highest densities occurring in close proximity to transit stops and in locations where they merge with Activity Centres, other Main Streets and any Future Comprehensive Plan Area identified through a local area planning process.

f. An appropriate transition between the Neighbourhood Main Street and the adjacent residential areas is required. Transition should generally occur at a rear lane or public street. These transitions should be sensitive to the scale, form and character of surrounding areas, while still creating opportunities to enhance the connectivity with the community.

g. Auto-oriented uses and designs that generate high volumes of traffic, consume large amounts of land in a low density form, require extensive surface parking, drive-thrus or create negative impacts for pedestrian travel and access should be discouraged.

Mobility Policies

h. The Neighbourhood Main Street should generally coincide with a Neighbourhood Boulevard street type.

Proposed Main Street redesign

3.5 Developed Residential Areas

Developed Residential Areas defined on Map 1 include those communities that have been built out and are at various stages of their life cycle, either as stable residential communities or those experiencing moderate redevelopment activity. Two types of Developed Residential Areas are identified – Inner City Area and Established Areas.

3.5.1 GENERAL POLICIES FOR DEVELOPED RESIDENTIAL AREA

Policies

The following policies apply to all Developed Residential Areas and are general in nature. Policies that are unique to the Inner City Area and the Established Area follow after this section.

Land Use Policies

a. Recognize the predominantly low density residential nature of Developed Residential Areas and support retention of housing stock, or moderate intensification in a form and nature that respects the scale and character of the neighbourhood. Local commercial development within residential areas, that is of a scale and intensity that supports residents' commercial needs is supported.

b. Redevelopment within predominantly multi-family areas should be compatible with the established pattern of development and will consider the following elements:

   i. Appropriate transitions between adjacent areas.

   ii. A variety of multi-family housing types to meet the diverse needs of present and future populations.

c. Redevelopment should support the revitalization of local communities by adding population and a mix of commercial and service uses.

Mobility Policies

d. For multi-family housing, encourage parking that is well integrated into the residential environment (e.g., consider landscape buffering, smaller lots).

e. When designing new streets or retrofitting existing streets, use the Complete Streets policies in the CTP.

f. Ensure that high-quality pedestrian and cyclist connections and facilities are provided from the Developed Residential Area and linked to adjacent areas of higher intensity development (i.e., Neighbourhood Main Streets and Neighbourhood Activity Centres).

g. Areas beyond the Primary Transit Network will be served with Base Transit Service, with opportunities for enhancing frequency of service as required.

3.5.2 INNER CITY AREA

The Inner City Area comprises residential communities that were primarily subdivided and developed prior to the 1950s. Key features of these areas are a grid road network, older housing stock in the form of low to moderate housing densities and a finer mix of land uses along many of the edge streets. The Inner City Area has undergone redevelopment in recent years. Much of this intensification has taken place along busier roads and as low density infilling within lower density areas. Intensification and change will continue to occur within the Inner City Area; however, it is important to maintain stable family neighbourhoods.

Typical Inner City Area Development Pattern

Land Use Policies

a. Sites within the Inner City Area may intensify, particularly in transition zones adjacent to areas designated for higher density (i.e., Neighbourhood Main Street), or if the intensification is consistent and compatible with the existing character of the neighbourhood. Transition zones should be identified through a subsequent planning study.

b. A range of intensification strategies should be employed to modestly intensify the Inner City Area, from parcel-by-parcel intensification to larger more comprehensive approaches at the block level or larger area.

c. Maintain and expand, where warranted by increased population, local commercial development that provides retail and service uses in close proximity to residents, especially in the highest density locations.

d. Buildings should maximize front door access to the street and principal public areas to encourage pedestrian activity.

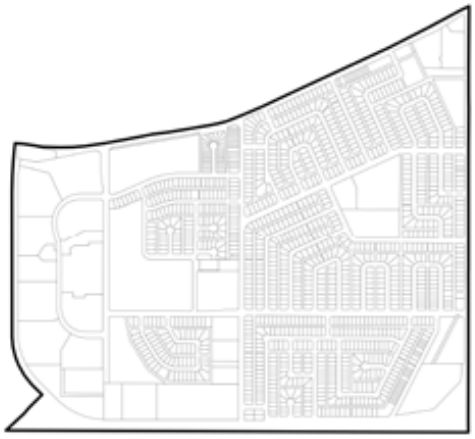
e. Encourage at-grade retail to provide continuous, active, transparent edges to all streets and public spaces.

Mobility Policies

f. Transit stops should be easily accessible and, where possible, integrated with adjacent multi-family residential or retail buildings.

3.5.3 ESTABLISHED AREAS

The Established Area comprises residential communities that were planned and developed between the 1950s and 1990s. They are primarily residential communities containing a mix of low- and medium-density housing with support retail in relatively close proximity. The road network is a blend of modified-grid and curvilinear. These are stable residential communities with limited redevelopment potential over the next 30 years. Populations have declined from their peak and housing stock is generally in good condition.



Typical Established Area Pattern

Land Use Policies

a. Encourage modest redevelopment of Established Areas.

b. Redevelopment opportunities should be focused on the Neighbourhood Activity Centres, though changes to other sites may provide opportunities for redevelopment over time.

c. New developments in Established Areas should incorporate appropriate densities, a mix of land uses and a pedestrian-friendly environment to support an enhanced Base or Primary Transit Network.

Mobility Policies

d. Provide opportunities to increase pedestrian, cycling and emergency services connectivity when redevelopment occurs where community support exists.

e. Transit stops should be easily accessible and, where possible, integrated with adjacent multi-family residential or retail buildings.

3.6 Developing Residential Communities

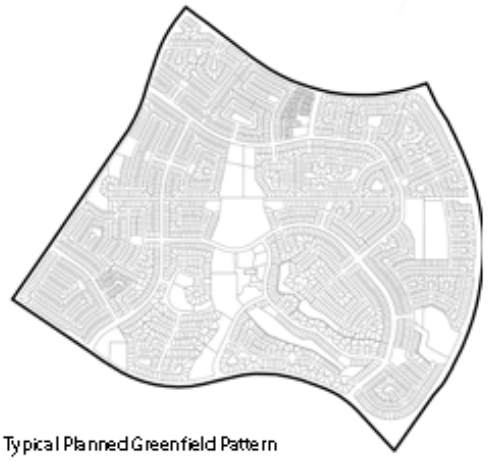
Greenfield Residential Areas include those communities that have an ASP completed and are in the process of Greenfield and future growth areas that have not had an ASP approved. Two types of Greenfield Residential Areas are identified – Planned Greenfield communities and Future Greenfield communities.

3.6.1 PLANNED GREENFIELD AREAS

Planned Greenfield areas comprise residential communities that have been planned and are still being developed. Many of these communities were subject to the Sustainable Suburbs Study that was created in the mid-1990s and proposed greater community densities and mix of residential and commercial uses than communities built in the 1970s and 1980s. Typically, they are characterized as relatively low-density residential neighbourhoods containing single-family housing, smaller pockets of multi-family and locally-oriented retail in the form of strip developments located at the edges of communities. The road network is curvilinear, with a hierarchical streets system, including major collectors that circulate through a community with local crescents, p-loops and culs-de-sac feeding off of it. Transit service to most areas is provided from the internal collector roadway.

Land Use Policies

a. The ASPs for Planned Greenfield areas, in existence prior to adoption of the MDP, are recognized as appropriate policies to provide specific direction for development of the local community. Future reviews of, and amendments to, ASPs will be required to align with the policies of the MDP.



Typical Planned Greenfield Pattern

3.6.2 FUTURE GREENFIELD AREA

Future Greenfield areas are those large land areas in the city identified for future urban development that do not have an approved ASP in place. Planning for these areas should identify Activity Centres and Main Streets that provide for a variety of housing types, opportunities for daily needs within walking distance to residential communities, and centres for transit access. Supporting the land use pattern is a street network that connects residents, jobs and commercial services through direct automobile, transit, bicycle, and pedestrian routes. The overall community design should integrate natural area protection within the open space and natural infrastructure systems.

Land Use Policies

a. Future Greenfield Areas should:
   i. Be protected for future urban development by restricting premature subdivision and development on parcels.
   ii. Retain environmentally significant natural areas, water courses and tree stands.
   iii. Allow for a limited range of uses that will not compromise the developability of the land for urban purposes.
   iv. Allow for local food production.

b. Plans for new communities in Future Greenfield areas will be established through an Area Structure Plan (ASP), and may require completion of a regional context study (RCS).

c. ASPs for new communities in Future Greenfield areas will achieve a minimum intensity threshold of 60 people and jobs per gross developable hectare. This community intensity level includes NACs, CACs, Urban Main Streets and Neighbourhood Main Streets, as identified in the ASP. ASPs must also demonstrate how a target density of 70 people and jobs per gross developable hectare can be achieved over the life of the plan.

In addition to the intensity threshold, other factors should be considered in the development of an ASP. These include:

   i. land use diversity
   ii. residential diversity
   iii. accessibility to the Primary Transit Network
   iv. street and walk/cycle connectivity
   v. ecological networks and natural infrastructure
   vi. mix of local and regional retail

d. New communities should be organized to include the following:
   i. A number of distinct neighbourhoods that are defined by a 400-metre or five-minute walking distance from a NAC or Neighbourhood Main Street.
   ii. A physical combination of public realm and related built form that establishes a "heart" or focus for the community.
   iii. A NAC or Neighbourhood Main Street to serve each neighbourhood that contains multi-family housing and an enhanced transit stop, and may contain local employment, retail services or a school.
   iv. A CAC may be provided to serve the needs of one or more communities. The location and scale of the CAC may be determined through the RCS and and/or ASP processes.
   v. Retail developments should be planned in accordance with the retail policies contained within Part 4.

e. NACs or Neighbourhood Main Streets should be identified through the ASP process and appropriately separated from higher order Activity Centres or Main Streets.

f. Encourage the concentration of residential density in areas adjacent to open space, parks, wetlands and sports fields, especially where the area is served by transit, services and other community amenities. These locations should be identified through the ASP process.

g. Create a hierarchy of recreation facilities and parks and open spaces that accommodate as many recreation functions as possible, appealing to a range of users, age groups and abilities (See Section 2.3).

h. New communities and neighbourhoods should be designed and have a built form that allows for adaptation, which can evolve and be reused over time.

Possible Future Greenfield Area (Residential)

Mobility Policies

i. Create a street network that is interconnected, multi-modal, and balances the needs of all users, in accordance with the Local Transportation Connectivity policies of the CTP.

j. When designing new streets or retrofitting existing streets, use the Complete Streets policies in the CTP.

k. Facilitate the movement of Calgarians that wheel by providing direct connections to the *Always Available for All Ages & Abilities* (5A) Network.

l. Existing rural road rights-of-way in Future Greenfield areas should be protected for potential incorporation into the future transportation network, as required.

Public Realm Policies

m. Activity Centres should contain locally-focused open spaces, which can include community and city-wide services and amenities such as schools, community association facilities, civic buildings, transit and recreation facilities.

n. Watercourses, significant wetlands and other key natural features shall be prioritized for protection and integrated into the public open space and natural infrastructure networks.

o. Parks and recreation facilities, sport and cultural facilities should be located throughout the community in walkable proximity to all residences and designed to provide for flexibility of recreation uses over the lifecycle of the community.

3.7 Industrial Areas

Industrial areas contribute to a strong and prosperous economy for Calgary,and should be maintained as a major economic driver for the City. Calgary is a transportation and logistics hub and is recognized as an inland port.

Industrial development and land supply in proximity to regional, National and international transportation networks, such as the Calgary International Airport, intermodal freight yards, distribution centres and National and provincial highways connect Calgary with regional, National and international markets. These links must be maintained and protected. Industrial areas should allow for a diverse and balanced mix of industrial uses and intensities and must offer flexibility to respond to the changing nature of industrial activities. Industrial areas should remain predominantly industrial and resist the encroachment of non-industrial uses into them, including residential, office and retail. Three types of industrial typologies are identified – Standard Industrial, Industrial – Employee Intensive and Greenfield Industrial. The Standard Industrial Area policies provide a base layer of policy that will apply to all industrial areas throughout Calgary whereas the Industrial – Employee Intensive typology provides specific policy for industrial areas designed to attract high labour concentrations. The Greenfield Industrial section outlines policies for future industrial areas.

3.7.1 STANDARD INDUSTRIAL AREA

The Standard Industrial Area consists of existing planned industrial areas that contain a mix of industrial uses at varying intensities. These areas are intended to allow for a broad variety of industrial uses and as the area redevelops, the industrial character should be maintained.

Land Use Policies

a. Industrial uses should be maintained as the primary use.

b. Allow for the development and retention of a broad range of industrial uses and a variety of industrial parcel sizes.

c. Only uses that support the industrial function of this area and cater to the day-to-day needs of area businesses and their employees may be supported.

d. Discourage uses such as stand-alone office use, regional retail developments, places of worship, public or private schools and residential uses in industrial areas.

e. Regional or city-wide recreation and sport facilities may be located in industrial areas to meet the extensive land needs of city-wide recreation and sport programs. Ensuring minimal conflict for goods movement, these facilities should be designed and located to be accessible to transit routes, cycling routes and pathways.

f. Not withstanding policy a above, portions of the Standard Industrial Areas may be appropriate for redevelopment as non-industrial or mixed-residential business area if they are within close proximity to an existing community(ies) and the Primary Transit Network. Any proposal for such a change will require an amendment to the relevant Local Area Plan(s) or, if there is no Local Area Plan, an amendment to the MDP to indicate the area is no longer required for Standard Industrial Area purposes.

g. Encourage the development of eco-industrial/ business parks, characterized by:

   i. Water flows designed to conserve resources and on-site stormwater management that cascades water through uses at different quality levels.

   ii. Businesses that utilize clean production methods.

   iii. Businesses that have reduced energy needs and consumption.

   iv. Maximum energy efficiency through facility design or rehabilitation, co-generation, energy cascading and other means.

   v. Encourage progressive environmental best practices for sustainable development and materials selection.

Mobility Policies

h. The road network should support the efficient movement of trucks, goods and services throughout the Standard Industrial Area.

i. Street networks should be designed to allow Base or Primary Transit Service and provide sufficient coverage to support the transportation access needs of area businesses and their employees.

j. Convenient connections and accessibility should be achieved within industrial areas, as per the Local Transportation Connectivity policies in the CTP.

k. Streets and sidewalks that provide safe and direct connections to transit services should provide amenities for pedestrians, cyclists and transit.

l. When designing new streets or retrofitting existing streets, use the Complete Streets policies in the CTP.

m. New intermodal sites and warehousing facilities should develop within 1600 metres of the Primary Goods Movement Network.

n. Protect the integrity of primary goods movement corridors by limiting direct access from truck routes to adjacent properties.

o. Sidewalks should be provided to ensure safe and friendly pedestrian connections to major businesses within the immediate industrial area and to the surrounding areas.

p. Transit waiting facilities should be provided in public rights-of-way or, where possible, integrated with adjacent industrial or commercial developments.

Public Realm Policies

q. In cases where the Standard Industrial Area interfaces with other types of land uses and public rights-of way, provide street trees, landscaping, fencing and architectural elements for sites that are highly visible to the public from skeletal roads, and along the city's major entranceways.

r. Development or redevelopment of industrial sites should provide for safe, attractive and connected walking environments within the site and to adjacent public sidewalks, open spaces and transit stops.

s. Public open space should be provided where possible throughout the Standard Industrial Areas to provide outdoor recreational opportunities and spaces for area employees.

3.7.2 INDUSTRIAL-EMPLOYEE INTENSIVE

The Industrial-Employee Intensive Area is intended for manufacturing, warehousing and mixed industrial/office developments that have high labour concentrations and require access to the Primary Transit Network. They can be new business parks locating in newly planned areas (i.e., Greenfield Industrial typology), or they could also occur as part of redevelopment and intensification of the Standard Industrial Areas, at transit stops and along corridors served by the Primary Transit Network.

Land Use Policies

a. Industrial-Employee Intensive Areas should achieve a minimum intensity threshold of 100 jobs per gross developable hectare.

b. Industrial-Employee Intensive Area should contain predominantly industrial uses.

c. Notwithstanding policy b above, other uses that support the industrial function may be allowed. Specific rules for the amount of support uses should be determined as part of the policy planning process and land use application process.

Mobility Policies

d. Ensure that the Industrial-Employee Intensive Area is served by the Primary Transit Network.

e. Streets that provide direct connections to higher order transit services should provide amenities for pedestrians, cyclists and transit.

f. Roads and streets within Industrial-Employee Intensive Areas should provide for the efficient movement of goods.

g. When designing new streets or retrofitting existing streets, use the Complete Streets policies in the CTP.

h. Sidewalks should be provided along all streets to connect businesses with the Primary Transit Network.

Public Realm Policies

i. Encourage forms of accessible public or private open space to create amenities and local destinations in conjunction with transit stations, higher intensity uses and the local retail/service areas.

3.7.3 GREENFIELD INDUSTRIAL AREA

Greenfield Industrial Areas are future industrial areas located at the edge of the city. These areas provide land for future industrial growth.

Land Use Policies

a. Plans for industrial development in Greenfield Industrial Areas will be established through an Area Structure Plan (ASP).

b. Ensure that the primary function of Greenfield Industrial Areas is for a broad range of standard industrial activities and industry-related commercial functions including:

   i. Value-added manufacturing, advanced technology industries, warehouse and distribution activities.

   ii. Employee intensive industrial uses in locations where the Primary Transit Network is provided within or adjacent to new industrial areas.

c. Greenfield Industrial Areas should be located to provide sufficient separation from adjacent non-industrial uses or include special conditions that reduce the potential for conflict.

Mobility Policies

d. The road network should support the efficient movement of trucks, goods and services throughout the Standard Industrial Area.

e. Street networks should be designed to allow Base or Primary Transit Service and that will provide sufficient coverage to support the transportation access needs of area businesses and their employees.

f. Convenient connections and accessibility should be achieved within industrial areas, as per the Local Transportation Connectivity policies in the CTP.

g. Streets that provide direct connections to transit services should provide facilities and amenities for pedestrians, cyclists and transit.

h. When designing new streets or retrofitting existing streets, use the Complete Streets policies in the CTP.

i. New intermodal sites and warehousing facilities should develop within 1600 metres of the Primary Goods Movement Network (see the CTP).

j. Protect the integrity of primary goods movement corridors by limiting direct access from truck routes to adjacent properties.

k. Sidewalks should be provided to connect transit stops to major businesses in the surrounding industrial areas.

l. Transit waiting facilities should be provided in public rights-of-way or, where possible, integrated with adjacent industrial or commercial developments.

Part 4
Specific Use Policies

PROPOSED

BYLAW NUMBER 49P2020

4.1 Retail

Retail development serves numerous purposes. It provides local and regional goods and services, supports employment areas, provides employment, contributes to the health and vitality of the local economy and provides opportunities to integrate transit into the design of concentrated centres of activity. Retail developments also play a special role in providing publicly accessible spaces and in shaping unique public gathering destinations across the city. These combined factors suggest there is a significant public interest in the location and urban design of retail development.

4.1.1 RETAIL STRUCTURE

The retail landscape in Calgary has evolved over the years to include a wide variety of locations and scales. There are older patterns of development that have formed over many decades, and there are patterns and retail formats that have emerged more recently. Providing direction for this diversity of retail requires an approach that respects the current retail landscape as well as the desire to ensure that future retail developments are better aligned with the overall integrated land use and transportation strategies of the MDP.

The retail structure emphasizes the role and function of the various retail scales and their importance in providing retail service at the local and city-wide level. This categorization places less emphasis on the built form, which is often subject to shorter term, trend based designs. By utilizing this approach, it is simpler to categorize and monitor changes in retail over time. It also provides a framework for planning future retail developments in Calgary.

Policies

a. Retail development is categorized into six groups that define its role and function within Calgary. The size of the retail centre should not be defined by an individual retail development, but rather by all retail developments within the immediate vicinity. The six retail categories are:
   i. Regional
      A. Super Regional Retail Centre
      B. Regional Retail Centre 1
      C. Regional Retail Centre 2
   ii. Local
      A. Community Retail Centre 1
      B. Community Retail Centre 2
      C. Neighbourhood Retail Centre

The nine retail sectors (see Figure 4-1) should be used to monitor the distribution of retail throughout the city.

Within each of the nine retail sectors, the distribution between Regional and Local retail should be approximately 45 per cent Regional and 55 per cent Local within each of the nine retail sectors (see Figure 4-1).

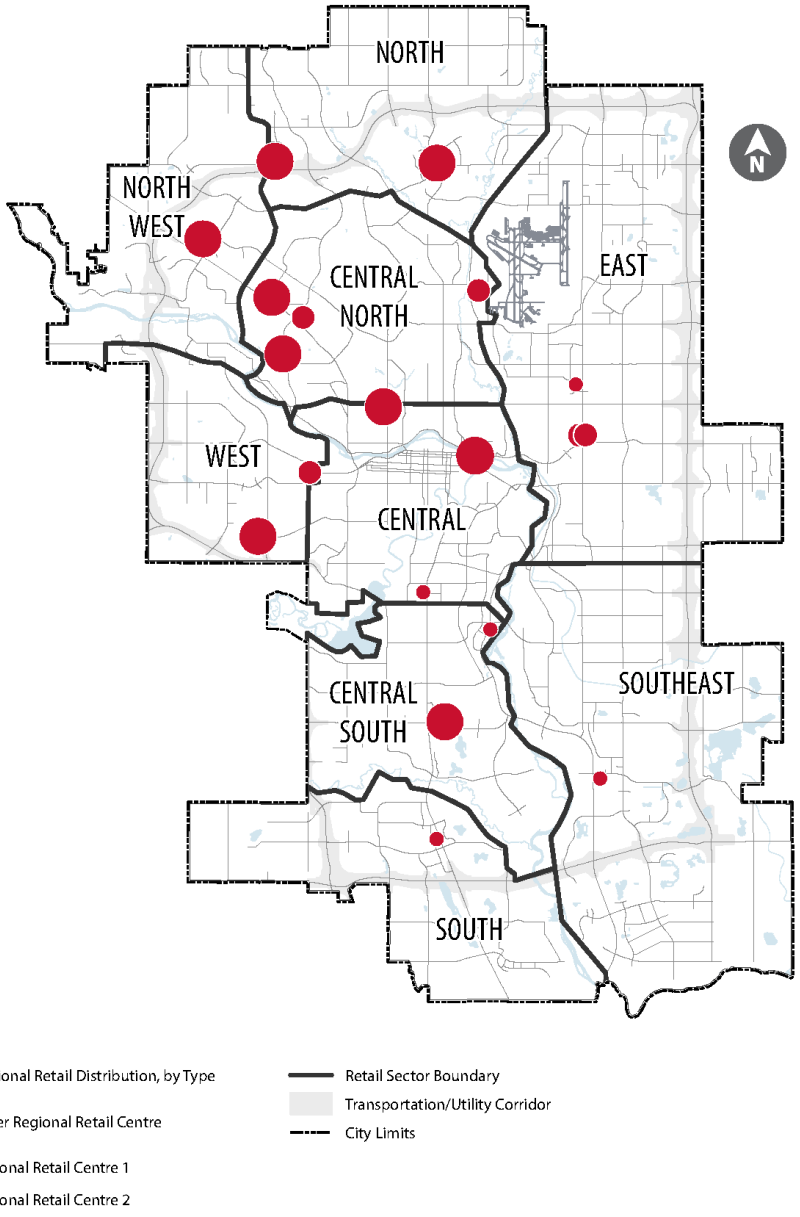


Figure 4-1: Calgary retail sectors and regional retail distribution, by type

4.1.2 RETAIL CATEGORIES

The following table provides the framework for retail categories to determine the appropriate type and distribution of retail:

Retail Centre Category	Approximate Size (sq. m.)	Location Criteria	Suggested Proportion of Retail in Sector (percent)
Super Regional Retail	Larger than 93,000	Key city gateway locations	20
Regional Retail 1	46,500 to 93,000	Serving a retail sector	20
Regional Retail 2	9,300 to 46,500	Serving a retail sector	5
Community Retail 1	Approx. 9,300	Serving multiple communities	20
Community Retail 2	Less than 9,300	Serving one or more communities	20
Neighbourhood Retail	Less than 1,900	Serving a sub-area of a community	15

Table 4-1: Framework for retail categories

Policies

City-wide retail

a. Redevelopment, improvements and expansion of existing retail areas should be a priority.

b. The creation of new or the redevelopment of existing community and neighbourhood retail centres to serve community needs should be a priority.

c. The city should strive to achieve an appropriate mix of retail types within each of the nine retail sectors (see Table 4-1: Framework for retail categories).

d. A retail area should conform to the policies of the relevant typology area, as defined in Part 3-Typologies for Calgary's future urban structure.

e. Create and retain viable local retail and mixed-use areas that encourage business creation, residential development and community services; while maintaining compatibility with the neighbourhood oriented character of the retail.

f. Support the development and maintenance of areas with a wide range of character and function that provide for the employment, service, retail and housing needs of Calgary's existing and future population.

g. Support comprehensively planned retail developments at all scales to provide for high quality public systems (e.g., sidewalks, pathways, open spaces) and designed to allow for intensification to accommodate residential uses.

h. Facilitate the development of retail areas within communities, by providing:

   i. A full mix of uses to be developed over time.

   ii. Active ground floor uses.

   iii. Conveniently located, safe and accessible pedestrian linkages that connect retail entrances with internal and public pedestrian networks and transit stops.

   iv. Enhanced public realm pedestrian linkages and gathering spaces on site.

Established retail areas

i. Retail should be included as part of the mixed-use at Activity Centres and along Main Streets.

j. Redevelopment of older shopping centres and commercial strips should include mixed use developments that create greater residential and employment variety while retaining a retail function.

Greenfield retail areas

k. Regional retail centres should be identified through a regional context study (RCS) process or in absence of an RCS, the Area Structure Plan (ASP) process may be considered. The location, scale and size of these sites will further be refined through a subsequent Area Structure Plan process.

l. Regional Retail centres should provide for:

   i. Direct on-site linkages and amenities for pedestrians.

   ii. Reduced visual and environmental impact of large parking lots.

m. New Regional Retail centres should be evaluated in terms of their impact on the city as a whole and their immediate surroundings, based on the following criteria:

   i. Consistency with the growth strategy of the MDP.

   ii. Compatibility with local area plans and the location relative to Activity Centres and Main Streets.

   iii. The physical impact of the centre with regard to:

      A. Integration with transit networks to serve retail centres.

      B. The ability of the street system to handle the associated traffic volumes.

      C. The need for other possible public expenditures.

      D. Integration with surrounding community development.

      E. The quality of the site development, including the landscaping, parking, access, pedestrian and vehicular circulation.

n. The location of community and neighbourhood retail centres should be identified through the Area Structure Plan process, and located and appropriately separated from other larger retail centres to support viability of the local retail. As a general guide, local retail developments should be:

   i. Located to support integrated residential development, or to serve adjacent higher density residential areas of the community.

   ii. Supported by a convenient pedestrian network that provides direct access to the retail site.

o. Retail sites should be planned around transit stops or stations and should provide good accessibility by a variety of modes to provide connections to surrounding neighbourhoods and developments.

4.2 Protection of Sand and Gravel Resources

The City recognizes the strategic importance of retaining local sources of building materials within a sustainable city to minimize the need to import resources into the city. The MDP provides policies respecting the protection of sand and gravel sources from premature urban development, as well as direction for protecting existing sand and gravel extraction operations and mitigating conflicts with adjacent urban uses.

Policies

a. Protect existing and future aggregate sources from premature use for urban development, and ensure appropriate mitigative measures to protect and facilitate aggregate extraction.

b. Allow the continuation of existing sand and gravel extraction operations in accordance with the conditions of the necessary permits.

c. Support the recycling of concrete, pavement and stone in locations that minimize nuisance impacts of dust, noise, odours and truck traffic on surrounding urban development.

d. Routes for truck access and egress to the site should be identified and located to minimize nuisance impacts.

4.3 MGA-Mandated Policies

This section provides policies for the land use and development adjacent to sour gas facilities, protection of agricultural operations, and development in the vicinity of the airport. Map 6 identifies areas of the city where some of these constraints apply.

4.3.1 SOUR GAS POLICIES

There are a number of issues pertaining to sour gas operations within Calgary's boundaries and adjacent municipalities that need to be considered within the MDP. One is ensuring that the minimum requirements of the MGA are included. Another is recognizing that parts of Calgary's long-term growth areas lie within, or adjacent to, active sour gas fields. These fields and the facilities may have decades of life left in them, and sour gas may not be extracted as quickly as desirable. Sour gas facilities could impact Calgary's future urban growth by leaving large areas of serviced land undevelopable, as well as the safety of the general public and emergency responders in the event of an accident.

The policies of the MDP provide municipal direction to guide the planning and development processes that deal with the locating of types of land uses in relation to sour gas facilities. The MDP also addresses compatibility issues between urban growth and sour gas facilities by minimizing nuisance impacts from dust, noise and truck traffic on residential communities. The MDP policies are intended to be applied in concert with other administrative policies and procedures for dealing with on-going issues around oil and gas activities and applications, including maintaining public safety and emergency response and working pro-actively with the industry to address public notification and information needs. Part 3 of the CTP also supports these policies and provides direction for emergency evacuation routes.

Policies

a. Support in principle the accelerated resource extraction in areas with little or no existing urban development to allow for orderly and safe city development; however, each situation will be evaluated on its merits.

b. The City will apply appropriate safety setbacks as determined by the Alberta Energy Regulator (AER).

c. Residential uses, permanent overnight accommodations and public facilities shall not be developed in the vicinity of sour gas operations, unless located outside setbacks established by the Energy Resources Conservation Board (ERCB).

d. Industrial, commercial or other non-residential uses may be developed adjacent to sour gas facilities, subject to any setbacks as determined by the AER.

e. Reserve the right to apply The City's own setback regarding nuisance factors for sour gas facilities.

f. In determining appropriate locations and timing of growth within Long-term Growth Areas, Regional Context Studies should identify the location of active and future sour gas operations and facilities, the projected life span of those operations and the impact of the facilities and safety setbacks on the cost effective design of future urban communities, as well as potential impacts on Emergency Planning Zones, evacuation route planning and Calgary's emergency responders.

4.3.2 AGRICULTURAL OPERATIONS

The MGA directs that a Municipal Developmen Plan must contain policies respecting the protection of agricultural operations within its boundaries. The City recognizes that agriculture is a viable use of land prior to urban development. It supports its continuation by allowing extensive agriculture as a Permitted Use in the Land Use Bylaw and restricts the fragmentation of agricultural land until needed for urban development. The City also supports the use of such lands for the long term food security of the city.

Policies

a. Protect existing agricultural operations by maintaining appropriate definitions and land use designations in the Land Use Bylaw.

b. Prevent the premature fragmentation of agricultural land.

c. Review proposals for subdivision or land use changes within the context of The City's growth management activities, ASPs, Implementation Guidebooks and development permit application processes.

4.3.3 CALGARY INTERNATIONAL AIRPORT VICINITY PROTECTION AREA (AVPA)

The Calgary International Airport Vicinity Protection Area (AVPA) Regulation defines lands within the city that are subject to the AVPA, as well as Noise Exposure Forecast (NEF) contour lines. These impose varying degrees of land use, development and building restrictions on affected parcels of land.

Policies

a. Enforce land use, development and building regulations within municipal areas impacted by airport operations.

b. Incorporate relevant land use, development and building regulations into local area plans for areas impacted by the airport operations.

c. Notify the Calgary International Airport at the outset of land use planning studies or development applications for lands within the AVPA.

4.4 Flood Hazard Areas

This section provides policies that give direction to guide the planning and regulations that govern the development within the floodplain), in concert with other administrative policies and the Land Use Bylaw.

In Canada, floods are the natural disasters that cause the most damage and expense to communities. Climate change models indicate flood events will likely occur more frequently and severely than in the past. Therefore it is imperative The City be proactive in its approach to increasing resiliency and be forward thinking with regard to regulating land uses and development within floodplain.

Throughout its history, Calgary has experienced flooding of varying degrees with recent major events occurring in 2005 and 2013. Though these floods caused minimal loss of life, they significantly impacted the city in causing social, environmental and economic damages. All citizens of Calgary are stakeholders, either directly or indirectly, in being impacted by flooding and in how The City responds to flood events. Therefore, the approach to flood risk reduction will place a priority on the public good over private interests. The City's top priorities in the approach to reducing impacts from flood events are to:

- Increase public safety through appropriate land use and development regulations in the floodplain.
- Minimize property damage by requiring all development and redevelopment in the floodplain to be designed to mitigate the potential impact or obstruction of floodwaters, high groundwater associated with river flooding and riverbank erosion..
- Enhance Calgary's flood resiliency by employing a comprehensive approach to flood risk reduction measures, that addresses and is adaptable to current and future flood risks.
- Align The City's policies and regulations to meet at least the minimum standards set by the Province.
- Integrate climate change projections into Calgary's flood risk calculations.

Flood hazard mapping is developed by the Province and identifies the floodway, flood fringe and overland flow areas, each with varying levels of flood risk. These maps are based on the 1-in-100 year flood event and are a crucial part of informing policy direction regulating development. The 1-in-100 year flood event has a 1% likelihood of occurring in any given year or a 40% chance of happening in a 50-year period, which is generally linked to a river water flow-rate. It does not mean that this size of flood event will only occur every 100 years.

The floodway is the area closest to rivers and has the highest risk for damage to buildings and development located there as the flood water is the deepest and fastest moving. Development in the floodway may potentially increase upstream water levels and therefore increase the risk of damage to those areas. Reducing the level of development within the floodway overtime will contribute to a reduction in risk exposure to people, property and the environment.

Flood fringe and overland flow areas have comparatively lower risk for flood damage, since flood water is shallower and slower moving than in the floodway. People can generally tolerate occasional flooding in these areas, and development does not cause higher upstream river water levels. Flood risk reduction measures can be incorporated into development to reduce the amount of damage that is likely to occur during a 1-in-100 year flood.

Due to this discrepancy in risk, a graduated approach to regulating land use and development in the floodplain is appropriate, with the floodway having higher strictness than the flood fringe and overland flow areas.

The City regulates land use and development; however, where development and redevelopment in the floodplain is allowed to occur, it is undertaken by choice of the land owner, and involves their acceptance of risk of potential flood damage.

Policies

a. Increase public safety, reduce private and public property damage, minimize municipal liability, and enhance the city's flood resiliency, through the following:

   i. Flood risk reduction work undertaken by, or on behalf, of The City of Calgary within the floodway, consisting of repairing river banks, erosion control, and land stability where the primary purpose is to enhance public safety, protect public infrastructure and ensure proper function of river morphology, be allowed without requiring a development permit.

   ii. All new development in the floodway should be refused by the Development Authority, with the exception of the following.

      - Uses related to agriculture, open space, outdoor recreation, parks, transportation **infrastructure** and utilities.
      - the redevelopment of low density residential buildings on the existing building footprint where sufficient risk reduction measures have been taken to the satisfaction of the Development Authority.

   iii. For redevelopment of existing buildings where the building footprint straddles both the floodway and flood fringe, the redeveloped building should be located exclusively in the flood fringe.

   iv. All redevelopment of existing residential buildings in the floodway must be done through a discretionary permit process.

   v. All buildings located in the floodway, flood fringe or overland flow area must be designed to prevent:

      - Damage by floodwaters.
      - Damage by elevated groundwater.
      - Incremental increase of upstream river water levels.

   vi. The Development Authority, when reviewing applications that propose flood risk reduction measures, ensure that public safety, minimizing property damage, and minimizing municipal liability take precedence in considering development relaxations that may alter the existing built form context and development pattern in a neighbourhood. Approved relaxations should be commensurate with the degree of proposed flood risk reduction measures.

   vii. Align The City's flood policy and development regulations to at least meet the minimum standards set by the Government of Alberta.

   viii. Recognize the importance of using up to date flood modelling information as the basis for informing policy and development regulations.

   ix. In areas with Community Scale Flood mitigation measures in place, relaxation of redundant mitigation in individual buildings should be considered.

   x. Include the impacts of climate change on river flood risk.

   xi. Promote long-term management of flood mitigation infrastructure and minimize the need for future flood mitigation infrastructure through land use planning.

   xii. Include flood protection measures for development in provincially identified flood fringe areas to mitigate risk at the1-in-100 flood event level.

4.5 Development Next to Freight Rail Corridors

Calgary is a major transportation and logistics hub and is connected via six corridors to the National rail network through the Canadian Pacific Railway (CP) and Canadian National Railway (CN). CP and CN play a critical role in the economic development and prosperity of Calgary. With increasing volumes and types of goods being transported via freight railways there is an increased awareness across the country for the potential risks of accidents and the physical impacts of train derailments.

As development interest along the freight rail corridors increases, it is important for a municipality to employ a risk management approach when considering development proposals in proximity to freight railways. In order to facilitate desired development along the freight rail corridors, it is essential to recognize that the probability of a derailment event will determine the level of mitigation required. For sites with higher probability risks, the potential impact of a train derailment will need to be mitigated.

To achieve an appropriate level of livability, and to reduce the potential for complaints due to noise, buildings in proximity to railway operations will need to be designed and constructed to achieve defined interior sound level limits.

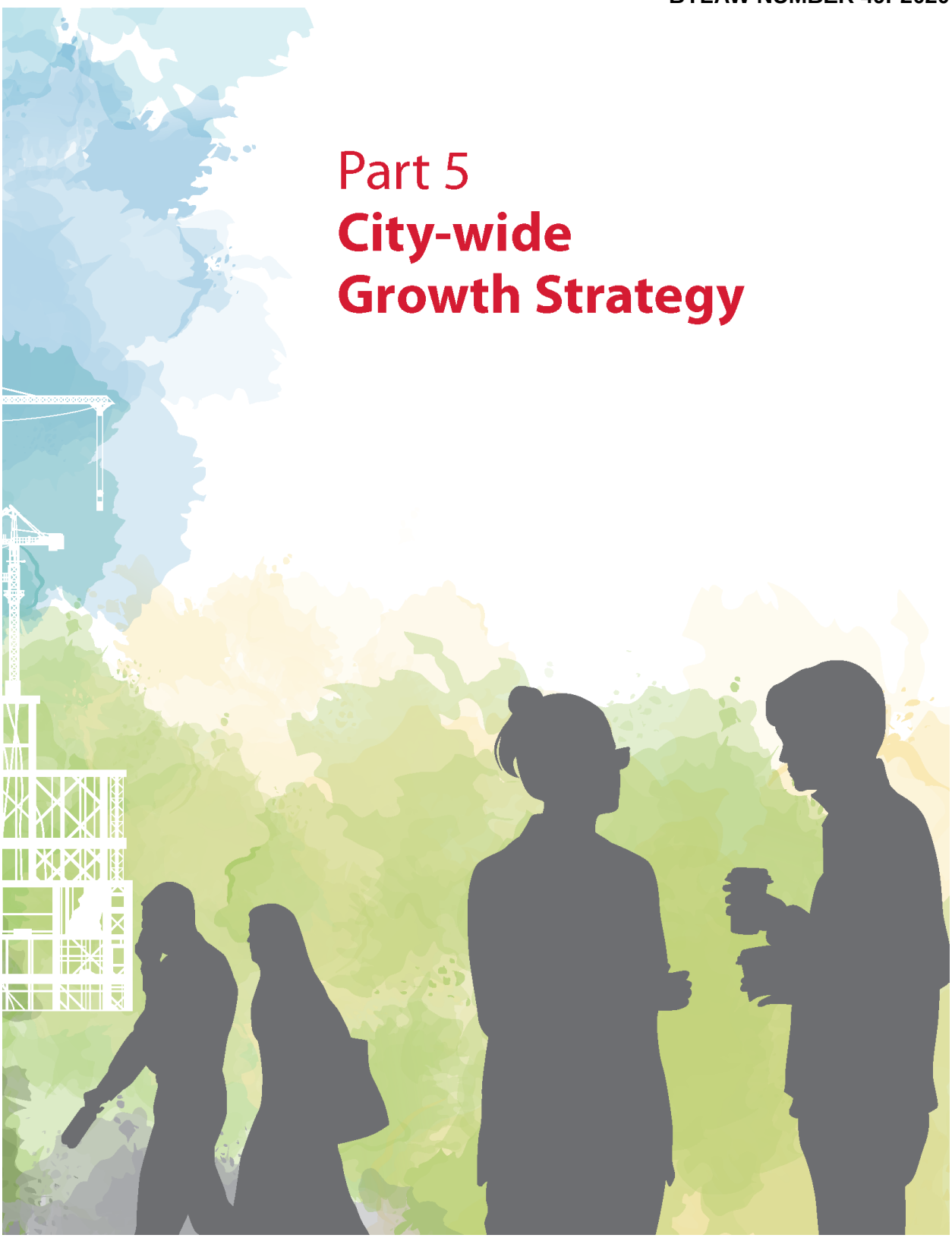
Policies

a. All development next to freight rail corridors must comply with the requirements of the Development Next to Freight Rail Corridors Policy.

PROPOSED

BYLAW NUMBER 49P2020

Part 5
City-wide Growth Strategy



5.1 Introduction

Goal As stewards of the land within its jurisdiction, the City of Calgary will guide growth and change within a strategic framework that achieves the best possible social, environmental and economic outcomes while operating within The City's financial capacity. The City will work with key stakeholders to achieve this goal.

The framework for growth and change outlines a strategic process for The City's major planning and transportation decisions to advance the objectives of the MDP's eight key directions, and in particular facilitating the balanced growth objectives of a more compact urban form.

The strategic framework for growth and change is intended to support where new jobs and homes should be located, improved integration of transportation systems, the evolution of complete communities, while doing so in an economically sustainable manner. The City must also ensure that growth pays for growth. Growth and change should occur within its financial capacity as the cost of supplying and maintaining infrastructure and services is a considerable demand on the budget of the Corporation. Realizing a more compact city form will result in considerable cost savings, and therefore reducing the tax burden placed on Calgarians.

Section 5.2 presents a Strategic Framework for Growth and Change designed to facilitate Calgary's urban structure (map 1) and development in a way that meets these challenges. It guides where growth and change should occur to ensure the best possible social, environmental and economic outcomes for the citizens of the city both now and in the future.

5.2 A Strategic Framework for Growth and Change

In order to strengthen The City's approach to growth, the Strategic Framework for Growth and Change has been created. This framework will ensure policy, strategy and resources for growth are better aligned to facilitate Calgary's supply of planned and serviced lands and achieve the objectives of the Calgary Metropolitan Region Board (CMRB) Growth Plan, the Municipal Development Plan and the Calgary Transportation Plan. The objectives and alignment of the Strategic Framework for Growth and Change is illustrated in Figure 5-1.

The Strategic Framework indicates the role of the:

- Provincial Government which provides legislative direction for land use and transportation planning through the Municipal Government Act, the City Transportation Act, the SSRP and the Alberta Land Use Framework.
- The City of Calgary which provides policy direction through the MDP and CTP, for comprehensive city-wide growth strategies. Planning and Investment Priorities for growth will be decided through internal Committee processes.

Policies

a. Related to growth, The City's strategies shall apply the policies of Section 5.2, A Strategic Framework for Growth and Change.

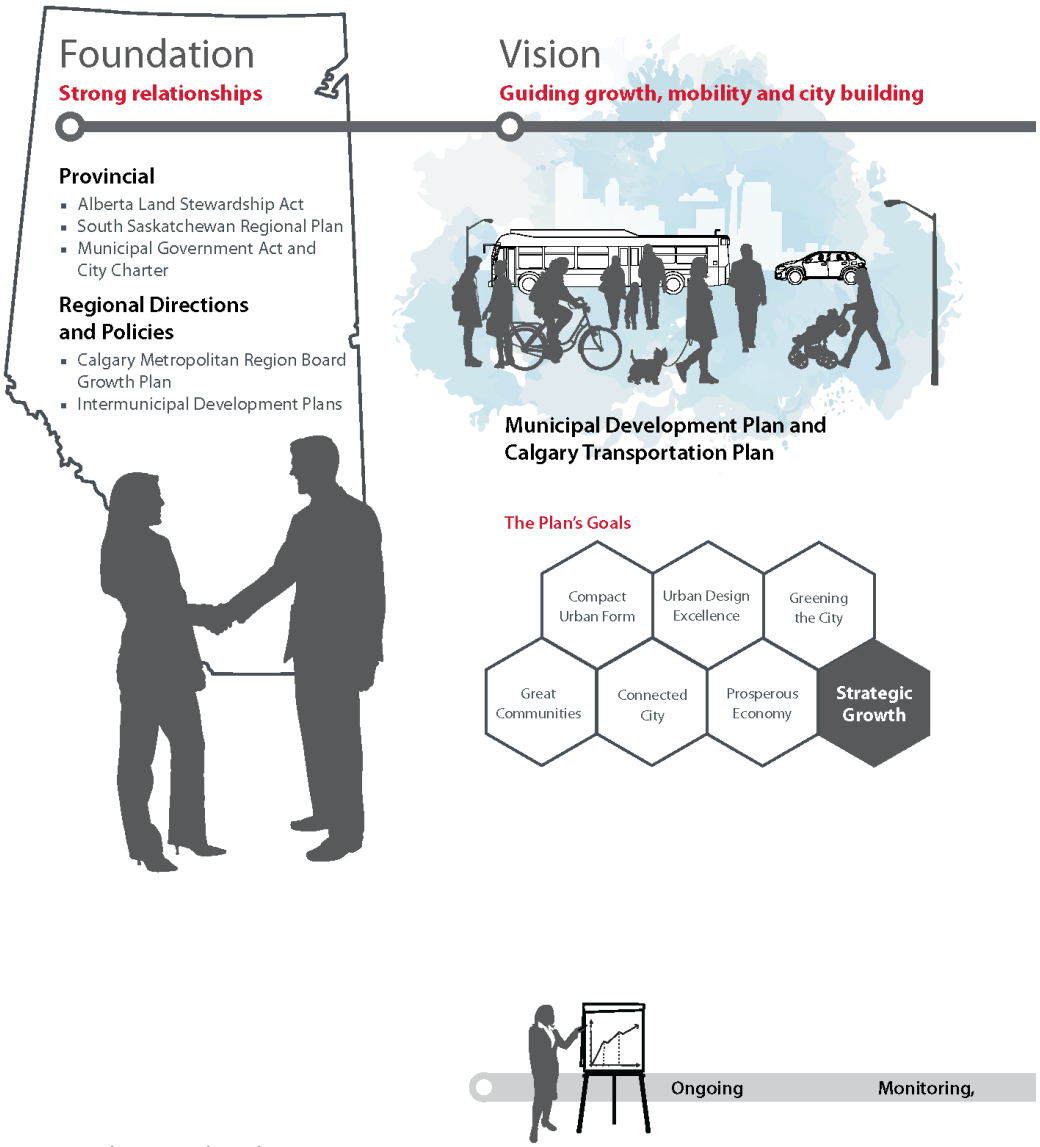


Figure 5-1: Growth Stategy Infographic

Implementation

Strategic direction

Where we grow

Identify Opportunity Areas - ensuring growth and change decisions align with the goals, policies and key directions of the above plans, including Established Areas, Greater Downtown, New Communities, and Industrial Areas.

Why we grow

To support of the goals of balanced growth, a more compact urban form and great communities.

How we grow

Growth, the type of built environment and infrastructure maintenance have significant long-term implications for public spending. Recommendations and decisions on growth and change incorporates: The City's financial and infrastructure capacities; integrated decision-making; and a variety of tools, processes and investment strategies.

Examples

- Guidebooks
- Regional context studies
- Local area plans
- Service plans and budgets
- Asset management plans

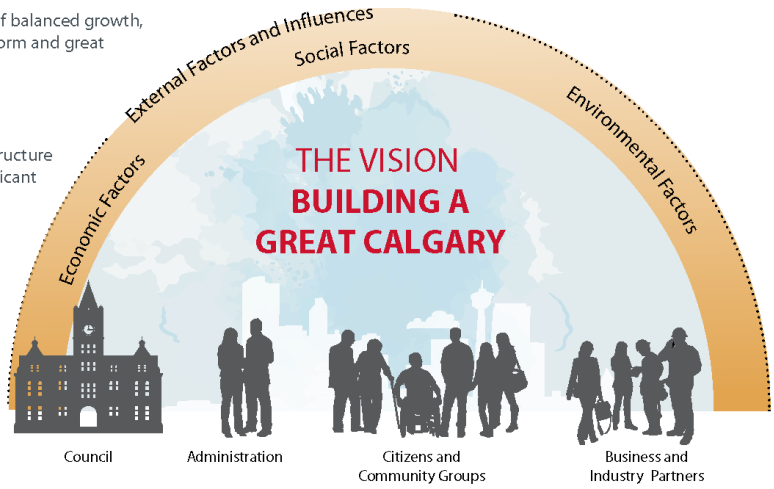
Execution

Growth and change actions

Building a sustainable future

Leveraging growth and change to benefit Calgarians by maintaining a high-quality life and realizing tangible outcomes:

- Investments in growth and change



Reporting, **Core Indicators**

5.2.1 ALIGNMENT AND STRONG RELATIONSHIPS

Objective

Maintain strong relationships with municipal neighbours, regional partners and key stakeholders within Calgary, to ensure that growth and change decisions reflect provincial and regional policies and the direction of the MDP and CTP.

The City must ensure that growth is aligned with and occurs within the legislative and regulatory framework of other orders of government. In particular, the South Saskatchewan Regional Plan, Alberta Land Use Framework and the Calgary Metropolitan Region Board (CMRB) Growth Plan will provide direction on how the city grows and interacts within a regional and provincial context.

In order to achieve a good quality of life for all people in the Calgary region, and to support the long-term health of our regional communities, The City of Calgary is committed to maintaining strong relationships with our municipal neighbours and regional partners. The City also supports strong relationships with key stakeholders within Calgary to ensure that the growth and change of our city benefits all citizens, now and into the future.

Policies

a. Continue to engage with inter-municipal and regional partners to ensure the best possible outcomes to issues of mutual interest within the framework of the CMRB Growth Plan.

b. Continue to consult and work with the development and building industries and other stakeholders (including citizens, organized business, community groups and community associations) regarding matters of municipal process and policy to ensure mutual understanding and to support shared goals and objectives.

c. Acknowledge and enhance Calgary's role as the centre of regional growth and demonstrate the benefits of compact and connected development for the region.

5.2.2 STRATEGIC DECISIONS ON WHERE WE GROW

Objective

Maintain Calgary's ability to grow over the long term by ensuring that growth and change decisions facilitate a land supply that aligns with the direction, goals, policies and key directions of the CMRB Growth Plan, South Saskatchewan Regional Plan, MDP and CTP.

The MDP and CTP are aligned with the policy directions of the Alberta Land Use Framework and the CMRB Growth Plan . The MDP and CTP contain a 60 year perspective that provides policies for Calgary that:

- Guide where growth occurs.
- Reflect the desired urban structure (Map 1).
- Define the city's transportation networks.

The policies of the MDP provide the primary source of direction for strategic growth and change decisions and should remain the primary source. Since 1985, Calgary's population and land area roughly doubled, with almost all growth occurring in new communities. Each new community requires investments in new schools, roads, fire stations, and other city services.

In 2009 the MDP encouraged balancing growth within the city to make the best use of our existing land, reduce the cost of City services, locate residents closer to where they work, shop and play, and support increased mobility options. Between 2009-2019, Calgary's population increased by nearly a quarter of a million people, with 10% of growth being accommodated in built-out neighbourhoods, and 90 per cent in new communities on the outer edges of the city.

To meet our long range target of 50 percent and interim 2039 target of 33 percent of cumulative growth to the Developed Areas, a much greater percentage of new homes will need to be accommodated in the Developed Areas. For progress to move forward, it will be essential to continue to add population in the Activity Centres and Main Streets and remain committed to balancing future growth.

Policies

a. Continue to protect and manage Calgary's long-term growth requirements through the policies of the CMRB Growth Plan and through Intermunicipal Development Plans with adjacent neighbours.

b. Maintain within The City's jurisdiction a 30-year supply of developable land for all uses.

c. To realize the efficiencies and objectives of achieving a more compact city form, The City will balance future growth between and endeavor to:

   i. Accommodate 33 per cent of Calgary's future population growth within the Balanced Growth Boundary (map 1) Residential Areas of the city by 2039.

   ii. Accommodate 50 per cent of Calgary's future population growth over the next 60 to 70 years, starting in 2009, within the Balanced Growth Boundary (map 1).

d. City planning and investment decisions must support the policy and growth directions of the CMRB Growth Plan, the Municipal Development Plan and the Calgary Transportation Plan.

5.2.3 BALANCED COMPACT GROWTH AND PLANNED LAND SUPPLY

Objective

Support strategic intensification with a variety of processes and investments and broaden The City's practice for determining planned land supply and maintain The City's practice for serviced land supply.

To attain the vision and considerable cost savings in realizing a more compact urban form, The City must take an active role in supporting strategic intensification. Intensification can be facilitated through The City's planning processes and investment decisions. This will require:

- Continued attention to process improvements for development applications.
- A pro-active approach to community outreach and engagement.
- The implementation of a wide array of planning and urban design initiatives in order to support intensification of residential and non-residential development.

The City will provide leadership by sequencing and coordinating its infrastructure investment priorities to support intensification. It will also provide leadership through demonstration projects that will serve as models for the changes in urban form required to achieve the goals of the MDP. The City will work with the development and building industries and community groups to facilitate intensification initiatives that support the direction of the MDP and CTP.

Achieving balanced future growth and offering a variety of housing choice in an economically sustainable manner requires comprehensive information regarding Calgary's planned land supply. To facilitate better decisions regarding city-wide growth and change The City will produce and maintain information on land supply and demand including consideration of uses.

Future Greenfield designation in the Urban Structure Map (Map 1) identifies lands situated outside the planned Greenfield Area and are where future growth may be provided. The City's practice will be to undertake a local area plan in a Future Greenfield area when required is to maintain up to a 15-year planned land supply. Further, in Greenfield Areas with approved policy plans in place, The City should maintain three to five years of serviced land (i.e., land with infrastructure in place). Both of these practices will support an adequate supply of land is in place to provide for growth in Greenfield Areas over the MDP's long-term horizon.

Policies

a. Prioritize and facilitate efficient growth and redevelopment in the Developed Areas, especially in Activity Centres, Main Streets and residential areas connected by LRT service and the Primary Transit Network.

b. The City will provide leadership on intensification through its investment in infrastructure and the public realm and through demonstration projects that model the changes required in housing and development forms.

c. The City will consult with community groups, community associations and the development and building industry to facilitate intensification initiatives.

d. Support achieving the population growth targets in policy 5.2.2 (c) and facilitate planned strategic growth by:

   i. Updating local area plans periodically in Developed and Greenfield areas.

   ii. Initiating local area plans in Future Greenfield areas:

      A. When monitoring of population and housing forecasts indicate undertaking the local area plan will facilitate the objective of maintaining up to a 15 year city-wide planned land supply within the Greenfield Area.

      B. The planned area is adjacent to an approved Area Structure Plan.

5.2.5 LINKING GROWTH DECISIONS TO MUNICIPAL FINANCIAL AND INFRASTRUCTURE CAPACITY

Objective

Ensure decision-making on growth and change incorporates The City's financial and infrastructure capacities, long-term fiscal sustainability and lifecycle costs.

The City will face significant capital and operating shortfalls if it continues to provide the same services, in the same way, with the same revenue. Much of this shortfall is driven by the choices on when, where and how we grow. To achieve sustainable costs, it will be necessary to improve decision making by integrating evaluations of capital and operating expenditures into growth decisions, including Regional Context Studies and all local area plans.

As the land use Development Authority, The City has an obligation to provide essential infrastructure, including core services, such as water, wastewater, stormwater, roads and fire and police services. The City is also responsible to its current and future citizens for ensuring the provision of complete community infrastructure including transit, libraries, parks and recreation facilities. Provision of infrastructure and the associated operating and maintenance costs require substantial ongoing investment.

In order to incorporate financial and infrastructure capacity into decision-making on growth and change, the information inputs will have to be enhanced.

Policies

a. The City's fiscal sustainability, shall be based on an understanding of the strategic goals of The City including the overall fiscal environment impacted by growth and change decisions, and shall:
   i. Align with MDP, CTP vision and goals and CTP Council approved transportation plans and guides (reference figure 1 of the CTP).
   ii. Consider supporting plans and studies including Regional Context Studies, local area plans, industrial area plans and major land use applications.

b. Municipal capital investment in infrastructure (including new and maintenance/refurbished) should be prioritized in the following order:
   i. Investments that support intensification of Developed Areas of the city.
   ii. Investments that expedite the completion of communities in planned Greenfield Areas of the city (as defined on the MDP Urban Structure Map).
   iii. Investments that support the development of Future Greenfield areas.

c. Limits on the funding available to the City to support growth and change require that potential qualitative and quantitative cost/benefit implications for The City including life cycle costs are identified, and communicated comprehensively as part of budget deliberations by City Council.

d. In the Greenfield Area, The City should endeavor to maintain 3 to 5 years of serviced land when it:
   i. Supports a healthy, competitive land market.
   ii. Considers fiscal sustainability and The City's capacity to meet financial commitments both immediate and long-term.
   iii. Maximizes cost efficiencies, such as leveraging existing transportation and infrastructure networks.

5.2.6 INTEGRATED DECISION-MAKING

Objective

Make decisions regarding growth and change in an interdepartmental and integrated manner.

Decisions on land supply must take into consideration the financial and infrastructure implications for The City. The MDP proposes a strategic decision-making process with a mandate to integrate corporate information and rely on an inter-departmental management structure.

Policies

a. Make growth-related land use planning decisions and investment decisions within a strategic, inter-departmental process.

b. Align the growth-related priorities and resource allocations of City departments, portfolio management plans and capital planning programs to the MDP and CTP vision and goals.

c. Collaborate between City departments to prioritize and combine growth-related projects that advance common goals.

d. Improve the integration of regulations across multiple disciplines and City departments.

e. Analyze the cumulative impact of proposed growth-related funding or financing tools and identify opportunities to advance multiple goals through one tool or approach.

5.2.7 PUBLIC ACCOUNTABILITY – LEVERAGING GROWTH AND CHANGE TO BENEFIT CALGARIANS

Objective

Provide a public accountability structure for making growth and change decisions and for communicating progress toward the direction of the MDP and CTP.

City Council is accountable for growth and change decision making. In order to enhance that accountability, the objective of section 5.2.7 is achieved through the implementation of a range of policies that ensure that growth decisions are based on thorough assessment of the environmental, economic and social factors of any proposal. The public are given opportunities to be involved in and shape the future growth of Calgary through engagement and public hearings of Council. Communication with the public regarding progress towards the direction of the MDP ad CTP will also be achieved by monitoring the Core Indicators (Figure 5-2b) and reporting to City Council and Calgarians.

Policies

a. Recommendations to City Council to proceed with the preparation of a local area plan shall be based on, but not limited to, the following criteria:
   i. The contribution of growth in the local area plan towards advancing the overall objectives of the MDP and CTP.
   ii. An assessment of The City's financial capacity and tools to support growth.
   iii. For Greenfield and/or Future Greenfield areas, a demonstrated need for planned land.
   iv. For Developed Areas, to help articulate a vision and plan for areas that are experiencing growth and change pressures, or for areas that require a vision and plan to help realize growth potential.
   v. Opportunities for land use that supports Primary Transit Network.
   vi. Landowner interest.
   vii. Community interest.
   viii. The advancement of goals of the Social Wellbeing Policy, adopted by Calgary Council in 2019, as may be amended from time to time.

b. Upon adoption of a new local area plan, all relevant maps in both the MDP and CTP must be updated.

c. Recommendations to City Council to make growth investment decisions in strategic areas shall be based on, but not limited to, the following criteria:
   i. The contribution of growth in the strategic area towards advancing the overall objectives of the MDP and CTP.
   ii. The contribution of growth investments in the strategic area towards advancing other corporate strategic initiatives, including resilience and climate change.
   iii. As assessment of economic activity and contributions to City revenues brought about by growth in the strategic area, in the context of growth citywide.
   iv. A comprehensive accounting of City capital and operating costs in the strategic area, and an assessment of The City's financial capacity for funding capital and operating costs (including available tools).
   v. An assessment of The City's overall existing and planned capital infrastructure; in relation to the strategic area.
   vi. The contribution of the strategic area towards maximizing the efficient use of existing and approved City infrastructure and services lines, with the intent of reducing operating and life-cycle costs, thereby reducing future liabilities requiring tax support.
   vii. For strategic areas in Greenfield and/or Future Greenfield areas, demonstrated market demand for growth in the context of the existing serviced land supply.
   viii. Opportunities for development that supports the Primary Transit Network.
   ix. Landowner interest.Community interest.
   x. Respecting Section 2.3.5 and the advancement of goals of the Social Wellbeing Policy, adopted by Calgary Council in 2019, as may be amended from time to time.

5.3 Monitoring and Reporting

Objective

Provide a basis for effective strategic decision making by monitoring and reporting on the progress made towards achieving the goals and objectives of the MDP.

The MDP and CTP are dynamic documents. They establish strategic policy directions, and periodic progress checks must be undertaken to review to what extent progress is being made.

To evaluate progress toward the policy direction of the MDP and CTP, a broad spectrum of indicators and targets has been developed. The Core Indicators for Land Use and Mobility can be found in Figure 5-2. These indicators are proxy measures for the social, environmental and economic performance of the MDP and CTP. They are intended to track the overall progress towards achieving the goals and objectives of the MDP and CTP. However, these indicators and targets are not intended to be applied to individual local area plans and land use applications. It is important to note that no one or two measures in isolation indicate progress. The full set of indicators should be measured and reported in order to provide a comprehensive picture.

Each of the indicators is accompanied by a target. The targets provide a desired performance outcome for an indicator over a specified period of time. The targets were based on benchmarking of other cities and through engagement with stakeholders. The targets represent a direction that The City wishes to achieve through its planning and investment processes and through collaborative work with other orders of government, the public and stakeholders.

A monitoring and reporting program is in place for the Core Indicators for Land Use and Mobility as part of the MDP/CTP implementation program. A regular cycle of reporting on the Core Indicators provides performance information to Council, Administration and the public.

Reporting is conducted in advance of each City business planning cycle and will assist in Greenfield investment strategies and strategic growth decisions. The reporting process will also help ensure that implementation strategies and corporate processes are aligned with the long term goals of the MDP and CTP. In addition to evaluating progress towards the targets contained in this section, additional reports will look at current growth forecasts, market trends and The City's financial capacity.

A major review of the Core Indicators for Land Use and Mobility should occur on a ten year basis as part of the MDP policy review process (which will assess whether the policy direction remains appropriate or requires adjusting). Each metric and target will be evaluated to ensure that they align with the updated vision and policies of the MDP and CTP.

Policies

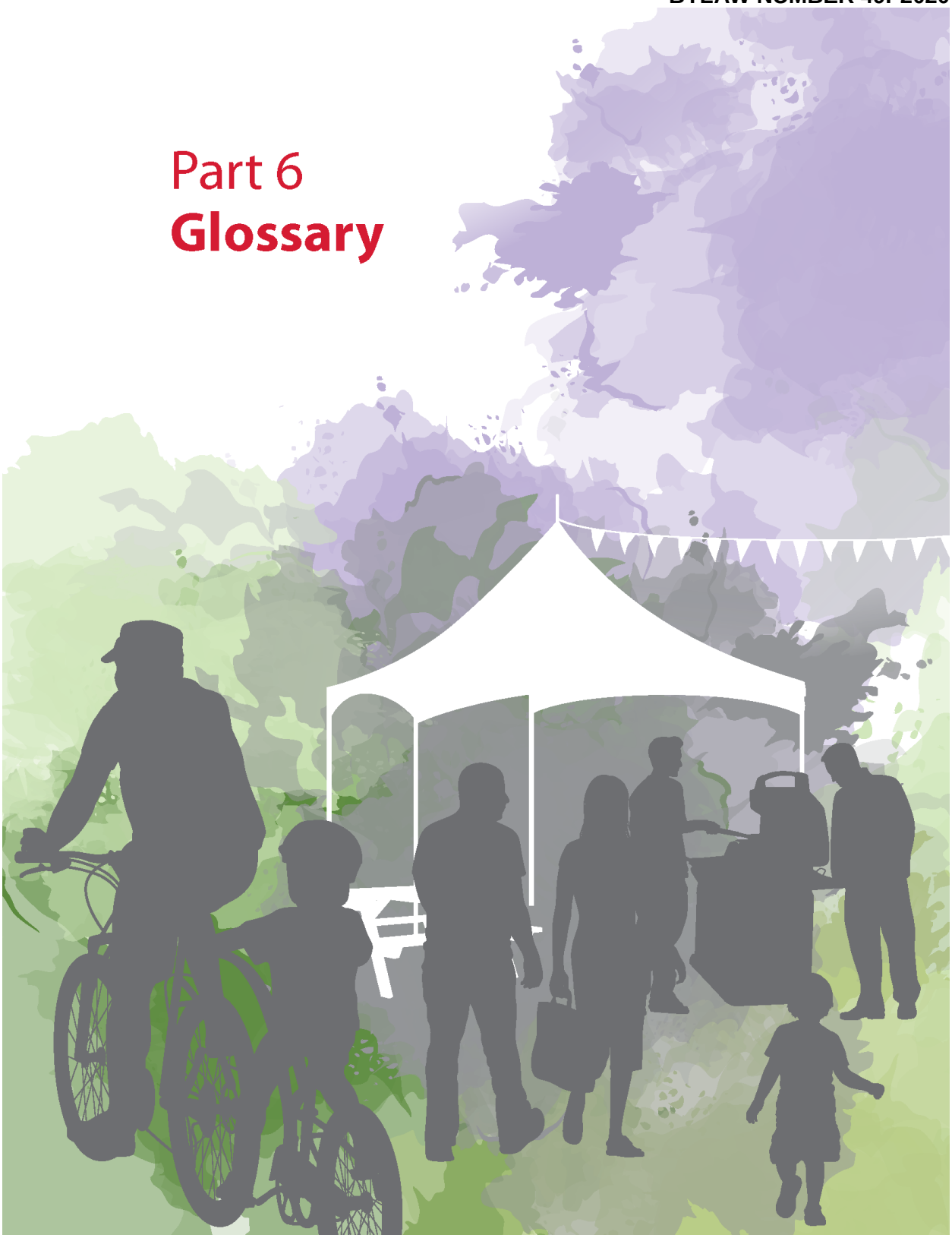
a. The City will monitor the Core Indicators for Land Use and Mobility on a continuous basis and report to Council, Administration and the public on the progress towards the targets prior to each business planning cycle.

b. Based on monitoring, The City may decide to update indicators or supporting strategies through plan amendments to keep the plan current and relevant.

Core indicators for Land Use and Mobility (MDP)					
#	Core Indicators	Metric	Baseline	2018	60 Year target
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 South east 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 400 m of Primary Transit Network	0%	37%	45%
		Per cent of jobs within 400 m 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 1600 m (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 600 m 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%

Figure: 5-2: Core Indicators for Land Use and Mobility

Part 6
Glossary



PROPOSED

BYLAW NUMBER 49P2020

A

accessibility

Ease of access and egress to any location by walking, wheeling, transit and private vehicles, or for commercial vehicles.

accessible housing

The construction or modification (such as through renovation or home modification) of housing to enable independent living for persons with disabilities.

action

A specific task to help achieve an objective or implement a policy.

active modes

Non-motorized travel, primarily walking, wheeling and movements with mobility devices.

active uses

Types of commercial uses on the main or ground floor of buildings adjacent to the sidewalk or street, which generate frequent activity in and out of a building or business entrance.

affordable housing

Housing that meets the needs of households earning 65 per cent or less of the median household income in Calgary that are spending 30 per cent or more of their gross annual household income on shelter.

Alternative Use Open Space

Part of the Open Space Network; lands that are acquired or dedicated for purposes other than those of Recreational or Environmental Open Space such as, but not limited to, plazas, utility corridors, stormwater management facilities (e.g., dry or wet ponds) and special event facilities.

amenity space

Common or private, indoor or outdoor space provided on-site and designed for active or passive recreational use.

application stage

The appropriate or applicable stage when applications for Building Permits, Development Permits, Land use or Subdivision are reviewed.

Area Redevelopment Plan (ARP)

A statutory plan as defined by the Municipal Government Act, that directs the redevelopment, preservations or rehabilitation of existing lands and buildings, generally within existing areas of the city.

Area Structure Plan (ASP)

A statutory plan as defined by the Municipal Government Act, that directs the future land use patterns, transportation and utility networks and sequence of development in new communities.

Arterial street

Arterial streets provide a high-quality environment for all modes of transportation. These streets are not destinations themselves, but provide reasonably direct connections between multiple communities and major destinations. They have varying degrees of interaction with adjacent land uses but, on average, allow for greater connectivity than through roads.

B

Balanced Growth Boundary

The boundary between Developed and Developing Areas of the city in 2006, used to measure the balance of growth being achieved by way of the urban expansion core indicator.

Base Transit Service

A range of feeder, crosstown, circulator and shuttle services whose primary function is to provide comprehensive community coverage to complement the Primary Transit Network.

benchmarking

A standardized method for collecting and reporting critical operational data in a way that enables relevant comparisons among the performances of different organizations or programmes, usually with a view to establishing good practice, diagnosing problems in performance and identifying areas of strength. Benchmarking gives the organization (or the programme) the external references and best practices on which to base its evaluation and to design its working processes.

brownfield site

A brownfield site is an abandoned, vacant, derelict or underutilized property where past actions have resulted in real or perceived contamination and where there is an active potential for redevelopment. Brownfield sites include parcels of all sizes from corner gas stations to large areas encompassing many properties.

built form

The engineered surroundings that provide the setting for human activity and includes buildings, streets and structures (including infrastructure).

Bus Rapid Transit (BRT)

A type of limited stop bus service that relies on technology to speed up the service. It can operate on exclusive transit ways, high occupancy vehicle lanes and any type of road or street. A BRT line combines intelligent transportation systems technology, priority for transit, rapid and convenient fare collection and integration with land use policy, in order to upgrade bus system performance substantially.

C

Calgary Region

The geographic area encompassing Calgary and other municipal jurisdictions within the boundary of the Calgary Metropolitan Region Board.

Calgary Metropolitan Region Board

The provincially mandated Growth Board for the Calgary Region, as described in section 1.3.

Calgary Metropolitan Region Board Growth Plan

Refers to the current approved Growth Plan of the Calgary Metropolitan Region Board.

canopy cover

The area within the boundaries of Calgary covered by tree and forest foliage.

capacity

The volume of people or vehicles a transportation facility was designed to carry in a unit of time, such as an hour. Can also be applied to transit or walking/wheeling facilities (e.g., pathways).

cascading energy

Energy cascading is using residual heat in liquids or steam from a primary process to provide heating or cooling to a later process. For example, excess steam from a power plant or refinery may be used in a food processing plant or greenhouse.

Climate

Weather conditions prevailing in an area in general or over a long period. Taken from Climate Resilience Strategy.

Climate Change

A change in the state of the climate that can be identified using statistical tests by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. It refers to any change in climate over time, whether due to natural variability or as a result of human activity.

Climate Change Adaptation

The process and actions to manage the actual and projected climate impacts and risk to reduce the effects on built systems, the natural environment and people. Taken from Climate Resilience Strategy.

Climate Change Mitigation

The process and actions that stabilize or reduce the greenhouse gas concentration in the atmosphere. Taken from Climate Resilience Strategy.

co-generation

The capturing and using of otherwise "wasted" heat from the electrical generating process.

community group

Any mobilized body of citizens that operates under a common name and mandate, comprises a formal governance structure, and supports the expression of a collective voice and/or perspective. This includes, but is not limited to: community associations, resident associations, social recreation groups, business improvement areas, etc.

compact urban form

A land-use pattern that encourages efficient use of land, walkable neighbourhoods, mixed land uses (residential, retail, workplace and institutional all within one neighbourhood), proximity to transit and reduced need for infrastructure.

complete community

A community that is fully developed and meets the needs of local residents through an entire lifetime. Complete communities include a full range of housing, commerce, recreational, institutional and public spaces. A complete community provides a physical and social environment where residents and visitors can live, learn, work and play.

Complete Street

A street designed and operated to enable safe, attractive and comfortable access and travel for all users, including pedestrians, cyclists and public transit and private vehicle users. A Complete Street incorporates natural infrastructure and optimizes public space and aesthetics wherever possible. The degree to which any one street supports different modes of transportation, natural infrastructure or public space varies depending on surrounding context and role of the street.

Concept Plan

A plan that may be required, at the discretion of the Development Authority, to be submitted at the time of Outline Plan / Land Use Amendment application, showing the relationship of the design of the subject site with adjoining parcels, the possible development of adjoining parcels, and/or the next phases of development.

congestion

A condition lasting 15 minutes or longer where travel demand exceeds the design capacity of a transportation facility.

connectivity

The directness of links and the density of connections in a path or road network. A connected transportation system allows for more direct travel between destinations, offers more route options and makes active transportation more feasible.

core indicators

The most significant measures to provide an overall picture of our progress toward achievement of the key directions for land use and mobility.

Crime Prevention Through Environmental Design (CPTED)

The proper design and effective use of the built environment, which may lead to a reduction in the fear and incidence of crime and an improvement in quality of life.

cycle-track

Dedicated space for bicycles built into street right-of ways. They are separated physically from both vehicle travel lanes and sidewalks to improve safety and efficiency for all modes of transportation.

D

density

A measure of the number of dwelling units on a parcel of land, expressed in units per hectare or in units per parcel.

design indicators

Design indicators are criteria for measuring progress towards sustainability, with a focus on the issues relating to the interaction and design of land use and transportation systems (e.g., proximity of population and jobs to convenient transit). Effective design issues should be measured easily and reliably, be simple and easy to understand, and can be used to drive future decision-making processes related to land use and transportation.

Development Authority

The Subdivision Authority, Development Authority or Subdivision and Development Appeal Board of The City of Calgary, as the context implies.

Development Permit

A Development Permit indicates permission from the Development Authority for construction or changes of use in accordance with The City of Calgary Land Use Bylaw.

diversity

An environment that offers a variety of experiences to patrons. Mix of land uses, architecture, street design and landscaping can all contribute to providing variety.

Downtown Core

One of the mixed-use neighborhoods that make up the Greater Downtown. This area is a prominent destination for business, entertainment, culture, and events in the city. It is an area of intensive high-rise, high-density developments with a high-quality public realm.

E

ecological integrity

A condition where the structure and function of an ecosystem are unimpaired by stresses induced by human activity and that condition is likely to persist.

ecological network

A network of ecological components (core areas, corridors and buffer zones) which provides the physical conditions necessary for ecosystems and species populations to survive in a human-dominated landscape.

ecosystem

The interaction between organisms, including humans and their environment. Ecosystem health/integrity refers to the adequate structure and functioning of an ecosystem, as described by scientific information and societal priorities.

Ecosystem Services

Ecosystem services are the benefits people obtain from ecosystems. These include provisioning services such as food and water; regulating services such as regulation of floods, drought, land degradation, and disease; supporting services such as soil formation and nutrient cycling; and cultural services such as recreational, spiritual, religious and other nonmaterial benefits.

Engineered Elements (purpose built)

Are those assets that have been designed to function like natural assets but are new designs not found in nature. They are a subsection of Natural Infrastructure and include pervious pavement, green and brown roofs, rain barrels, green walls, and cisterns.

Engineered Stormwater Wetland

A constructed and/or modified water body that fluctuates with water drainage peaks but holds water at all times. The wetland is used to improve stormwater runoff quality through nutrient and sediment removal using vegetation, detention, settlement and other best management practices. The wetland is also used to manage the volume of runoff through storage and restricted pipe outlets. Engineered Stormwater Wetlands have a habitat function with existing or constructed riparian and upland vegetation communities. The wetland boundary may be dedicated as Environmental Reserve in accordance with the Municipal Government Act, and the adjacent buffer or riparian and upland vegetation may be dedicated as MR, and all forebays should be dedicated as Public Utility Lots.

Enhanced Assets

Are those assets that have been designed to function like natural assets. They are a subsection of Natural Infrastructure and include rain gardens, bioswales, urban forests, urban parks, biomimicry, stormwater ponds, and reed beds.

entranceways or gateways

Important transportation connections either to enter the city or to signify entrance into a specific part of the city. Well-designed entrances welcome people and provide a sense of arrival to an important place.

Environmental Open Space

Part of the Open Space Network; lands that are acquired or dedicated to preserve Environmentally Significant Areas such as, but not limited to, forests, shrublands, grasslands, streams and wetlands

Environmentally Significant Area (ESA)

A natural area site that has been inventoried prior to potential development and which,because of its features or characteristics, is significant to Calgary from an environmental perspective and has the potential to remain viable in an urban environment. A site is listed as an Environmentally Significant Area on the basis of meeting one or all of the criteria listed in Appendix C of The City of Calgary Parks' Open Space Plan.

equitable

Fair, just, and reasonable treatment of people, giving all members of society the opportunity to fully participate, regardless of ability.

escarpment

A steep slope formed by the erosive action of water, and normally adjacent to a watercourse.

F

Floor Area Ratio (FAR)

The quotient of the total gross floor area of a building on a parcel divided by the gross site area of the parcel. FAR is one of the measures to direct the size and massing of a building in relation to the area of the parcel of land it occupies.

Future Greenfield

Future Greenfield are those large land areas in the city identified for future urban development that do not have an approved ASP in place.

G

goal

A desirable condition to be achieved – a sought-after end state that is not quantifiable or time-dependent. Provides context for corresponding objectives and policies.

goods movement

The transportation of goods, usually freight, by road, rail and/or air. Lighter service vehicles may also be included.

Greater Downtown

Refers to an area comprised of the Eau Claire, Chinatown, Downtown West, East Village, Downtown Core, and Beltline communities. Greater Downtown is located on the south bank of the Bow River and bounded to the east by the Elbow River, to the south by 17 Avenue S.W. and to the west by 14 Street S.W. The direction within this Plan will also apply to properties west of 14 Street SW and south of 17 Avenue S. This area can also referred to as Centre City.

Green Corridor

The recreational component of Environmental Open Space, providing pathways and linking ecological networks.

green stormwater infrastructure

Green Stormwater Infrastructure (GSI) incorporates natural features and processes into stormwater management. Measures such as infiltration, evapotranspiration, harvesting, filtration and retention are used to reduce stormwater rates and volumes and remove contaminants at or close to the source of runoff. GSI aims to mimic the natural water cycle and provides multiple ecosystem and community benefits.

greyfield

An outdated, vacant or failing commercial or institutional site. The term "grey" refers to the large area of concrete and asphalt that typically accompanies retail sites.

Gross Developable Hectare / Acre

Gross developable acre/hectare is calculated by starting with the gross area of land and deducting nondevelopable lands.

Gross Developable Residential Area

Gross Developable Residential Area is the total developable area available for general residential development. It is also used as the base measurement for density. GDRA is calculated by starting with the gross area of land and deducting non-developable land and land required for regional uses.

H

habitat fragmentation

Fragmentation occurs when a large region of habitat has been broken down, or fragmented, into a collection of smaller patches of habitat. Fragmentation typically occurs when land is converted from one type of habitat to another.

Heritage Resource

Features including historic buildings, bridges, engineering works and other structures; cultural landscapes such as historic parks, gardens or streetscapes, culturally significant areas, indigenous traditional use areas, and sites with archaeological or palaeological resources. These can be managed by municipal, provincial or federal authorities.

High Occupancy Vehicle (HOV) lane

A roadway lane designated for use by transit vehicles and carpools with at least two to three people. The highest service HOV lane is a reserved transit lane.

Housing Affordability

Providing a range of housing opportunities to meet the diverse housing needs of all Calgarians by allowing access to a range of housing types and tenures in all areas of the City of Calgary.

hydrology

The study of the movement, distribution and quality of water throughout the Earth; hydrology thus addresses both the hydrologic cycle and water resources.

I

impervious surfaces

Mainly artificial structures, such as building roofs, road pavements, sidewalks and parking lots that cannot be easily penetrated by water, thereby resulting in runoff.

indicator

A variable that is representative of progress towards the achievement of an objective, policy or action.

Industrial Arterial

Streets located in industrial areas. Their first priority is the efficient movement of heavy trucks but, as streets, they still accommodate all modes of transportation.

infrastructure

The technical structures that support a society, including roads, transit, water supply, sewers, power grid, telecommunications, etc.

intensification

The development of a property, site or area at a higher density than currently exists. Intensification can be achieved through redevelopment, development of vacant/underutilized lots, the conversion of existing buildings, or through infill development in previously developed areas.

intensity

A measure of the concentration of people and jobs within a given area calculated by totaling the number of people either living or working in a given area.

intermodal facilities

Places that accommodate connections between transportation modes. Typically refers to break of bulk locations between rail and air and truck

J

jobs/housing (population/jobs) balance

A measure of the relationship between the number of residents and the number of jobs in a specific area. The commonly used metric of this balance is simply the number of residents divided by the number of jobs in that community.

Joint Use Site

Lands set aside for or including a school building, a location for a school building or a school playing field and community playing fields with facilities and grounds which are accessible to both school and non-school users.

L

Land Use Bylaw

Legislative document that regulates development and land use in Calgary and informs decisions regarding planning applications

land use diversity

An indicator used to describe the mix of different land uses within a given community or planning area, expressed in terms of the mix of land use districts.

legibility

The degree to which users of a space are able to perceive and understand its layout and function readily.

life cycle cost

The sum of all recurring and one-time (non-recurring) costs over the full life span or a specified period of a good, service, structure or system. It includes purchase price, installation cost, operating costs, maintenance and upgrade costs and remaining (residual or salvage) value at the end of ownership or of its useful life.

Light Rail Transit (LRT)

Electrically-powered rail cars, operating in sets of three to five cars per train on protected rights-of-way, adjacent to or in the medians of roadways or rail rights-of-way. Generally at grade, with some sections operating in mixed traffic and/or tunnels or on elevated bridge structures.

linkages

Linear systems that connect places and built form. Linkages allow for the movement of people and goods within the urban fabric.

local area plan

Plans that align with the Municipal Government Act regulations and are usually prepared at a community level. Examples include Area Redevelopment Plans and Area Structure Plans.

logistics

The management of the flow of goods, information and other resources, including energy and people, between the point of origin and the point of consumption in order to meet the requirements of consumers.

low impact development (LID)

An approach to land development that uses various land planning and design practices and technologies to simultaneously conserve and protect natural resource systems and reduce infrastructure costs.

M

Master Drainage Plan

A stormwater drainage plan prepared for a large drainage area, usually serviced by one or more outfalls.

metric

A standard measure to assess performance in a particular area.

mixed-use development

The development of land, a building or a structure with two or more different uses, such as residential, office and retail. Mixed-use can occur vertically within a building, or horizontally on a site.

mode split or modal split

The proportion of total person trips using each of the various modes of transportation. The proportion using any one mode is its modal share.

N

native biodiversity

Species of flora and fauna that are indigenous to a specific area.

Natural area

Open space containing unusual or representative biological, physical or historical components. It either retained or has had re-established a natural character, although it need not to be completely undisturbed. (Natural Areas Management Plan)

Natural Assets

Are components of the environment that provide useful services, such as biological assets (produced or wild), and land and water areas and their ecosystems. They are a subsection of Natural Infrastructure and include wetlands, forests, parks, lakes, rivers, creeks, fields, soil, trees and river banks.

Natural Environment Park

A City-owned park where the primary role is the protection of an undisturbed or relatively undisturbed area of land or water, or both, and which has existing characteristics of a natural/native plant or animal community and/or portions of a natural ecological and geographic system. Examples include wetlands, escarpments, riparian corridors, natural grasslands and woodlots. A relatively undisturbed Natural Environment Park would either retain or have re-established a natural character, although it need not be completely undisturbed.

natural infrastructure

An interconnected network of natural green and engineered green elements applicable at multiple scales in the land use and mobility framework. Natural green elements include the conservation and integration of traditional green elements such as trees, wetlands, riparian areas and parks. Engineered green elements include systems and technologies designed to mimic ecological functions or to reduce impacts on ecological systems. Examples include green alleys, green buildings and green roadways and bridges."

Neighbourhood Boulevard

These streets form the backbone of Neighbourhood Main Streets and Activity Centres. Pedestrians are given the highest priority on these streets, which are fully integrated with adjacent land uses and provide the highest level of connectivity of all street types. Similar to Urban Boulevards, high quality urban design and natural infrastructure strategies are incorporated into Neighbourhood Boulevards.

O

objective

An expression of a desired outcome or more specific way to achieve a goal.

Open Space

Open space in its broadest sense includes all land and water areas, either publicly or offering public access, that are not covered by structures. Open space includes current and potential future parks, pathways, roadway greens, land for parks and recreation facilities, golf courses, cemeteries, and other alternative use of green space.

Open space network

Comprises current and future land and water areas offering public access. These areas may include features such as wetlands, sports fields, grasslands, plazas, cemeteries, neighbourhood parks, utility corridors and stormwater management facilities. The network is composed of three open space categories: Recreational Open Space (ROS), Environmental Open Space (EOS) and Alternative Use Open Space (AUOS).

Outline Plan / Land Use Amendment Application

Detailed planning and design of new communities, or the redevelopment of large areas of existing communities, is done through the outline plan and subdivision process. This involves design details such as the preservation of environmental areas, open space locations and reserve dedications, development patterns, land use mixes and local street networks.

P

Park

A specific – use open space that is managed to provide opportunities for recreation, education, cultural or aesthetic use. (Open Space Plan)park and ride lots

park and ride lots

Parking lots located at LRT stations or bus stops that allow automobile users to park their private vehicles, access and transfer to and from public transportation service in a convenient manner.

parkway

A street that focuses on integration with natural areas. Natural vegetation and new forms of stormwater management would be integrated with the street. Adjacent land uses would include large natural parks, waterways or special public institutions.

pedestrian-oriented or pedestrian-friendly

An environment designed to make travel on foot and/or by assisted mobility device, safe, convenient, attractive and accessible for all ages and abilities. Considerations include directness of the route, interest along the route, safety, street activity, separation of pedestrians and traffic, street furniture, surface material, sidewalk width, prevailing wind direction, intersection treatment, curb cuts, ramps and landscaping.

pedestrian-scale/human-scale

Refers to the scale (height/proportions) and comfort level that the street level and lower stories of a building provide for pedestrians as they walk alongside a building or buildings.

performance indicator

See "indicator".

performance measurement

See "metric".

Planned Greenfield

Lands subject to an approved Area Structure Plan and located in the Developing Area.

policy

A deliberate statement or plan to achieve an objective. Policies are instructive, directional and positive, but not limited to a single course of action when some other course could achieve the same result.

Primary Cycling Network

A network of on-street cycling facilities, pathways and cycle tracks that connects major destinations such as Activity Centres, mixed-use Main Streets and major institutions.

Primary Transit Network

A permanent network of high-frequency transit services, regardless of mode, that operates every 10 minutes or better, 15 hours a day, seven days a week.

primary transit threshold

A minimum intensity of people or jobs per gross developable hectare that is required within walking distance of a transit station or stop to support service levels of the Primary Transit Network.

prominent sites

Sites which by their location and relationship to the urban and geographical form have a strong visual impact. Prominent sites include those that terminate a street, are on a street corner, frame or adjoin a public park or open space or are located on a ridgeline or other highly visible location.

Public Plaza

A Community amenity that serves a variety of users, including building tenants and visitors and members of the public. This space type may function as a pedestrian site arrival point, home for public art, setting for recreation and relaxation and an inconspicuous security feature for high-profile buildings. Plazas are a beneficial feature of any lively streetscape.

public realm

The space between and within buildings that are publicly accessible, including streets, squares, parks and open spaces. These areas and settings support or facilitate public life and social interaction.

public utility

Areas that provide space for large scale public utilities such as landfills and water treatment facilities.

R

Recreational Open Space

Part of the Open Space Network; lands that are acquired or dedicated to provide areas for public recreation, such as but not limited to, sports fields, neighbourhood parks and cemeteries.

Regional Pathway

A city-wide linear network that facilitates non-motorized movements for recreation and transportation purposes. The spine of the system parallels the major physical features of the river valleys park system, including waterways, escarpments and ravines. It connects communities by linking major parks, recreation facilities and natural features. The regional pathway system may also link other major community facilities such as schools, community centres and commercial areas. The regional pathway is hard-surfaced, typically asphalt and located off-street. It is a multi-use facility and no one user or type of user is to be given elevated status.

redevelopment

The creation of new units, uses or lots on previously developed land in existing communities.

residential diversity

An indicator used to describe the mix of residential types in an area, expressed in terms of the mix by residential land use district area, or by mix of housing unit types.

resilience

The capacity of individuals, communities, institutions, businesses, and systems to adapt and thrive despite chronic stresses (e.g., water shortages) and acute shocks they experience (e.g., floods).

retail ready

Retail ready buildings have appropriate floor heights, mechanical systems and other needs to accommodate retail uses in the future, while still allowing for non-retail uses at the time of application.

right-of-way (ROW)

Publicly-owned land containing roads and streets and/ or utilities.

riparian areas

Riparian areas are those areas where the plants and soils are strongly influenced by the presence of water. They are transitional lands between aquatic ecosystems (wetlands, rivers, streams or lakes) and terrestrial ecosystems.

riparian corridor

A riparian corridor is the interface between land and a stream.

road

Roadways that are designed to move large volumes of vehicular traffic (private vehicles, commercial vehicles and occasionally transit) at higher speeds over long distances.

roadway

A generic term that encompasses all types of roads and streets.

Road and Street Palette

A functional classification system that differentiates between traditional Skeletal Roads, which primarily serve long-distance trips and do not interact with adjacent land uses, and Streets, which serve a broader range of transportation modes and do interact with adjacent land uses.

S

secondary indicator

A potentially more detailed or finely focused indicator, several of which, when combined, may support a core indicator.

sense of place

A strong identity and character that is felt by local inhabitants and visitors. Factors that help to create a "strong sense of place" include natural and cultural features, built form and architecture, mobility to and within the place and the people who frequent that place. Areas with a good sense of place often have elements that are appealing to the five senses (sight, smell, touch, taste, sound) and generally encourage people to linger longer and enjoy the atmosphere.

Skeletal Road

Skeletal Roads have an emphasis on moving vehicular traffic over long distances. They typically operate at high speeds and have little direct interaction with adjacent land uses. Ideally, they should form a skeletal grid across the city with approximately three to five kilometer spacing.

social inclusion

Actions to assist all individuals to participate in community and society and to encourage the contribution of all persons to social and cultural life.

stream corridor

Generally consists of the stream channel, floodplain, and transitional upland fringe

street

Roadways that are designed to accommodate all modes of transportation (to varying degrees depending on the specific type of street). They also contribute to sense of place, and typically provide more streetscape elements than roads.

streetcars

Urban rail vehicles operating a low speeds (e.g., 10 to 25 kph) in mixed traffic, with closely spaced stops (e.g., every 200 metres).

Street-Oriented

Design that supports orienting building frontages and primary entranceways towards the street rather than internal to a site.

streetscape

All the elements that make up the physical environment of a street and define its character. This includes paving, trees and vegetation, lighting, building type, style setback, walking, wheeling and transit amenities, street furniture, etc.

sustainability

Meeting the needs of the present without compromising the ability of future generations to meet their own needs. It includes environmental, economic and social sustainability. Sustainability is defined by the 11 Sustainability Principles for Land Use and Mobility, approved by Calgary City Council on Jan. 8, 2007.

T

target

A desired performance outcome for an indicator over a specified time period.

Transit Hub

A place of connectivity where different modes of transportation (walking, cycling, bus and rail transit) come together seamlessly and where there is an attractive, intense and diverse concentration of housing, employment, shopping and other amenities around a major transit station.

Transit-Oriented Development (TOD)

A compact, mixed-use community within walking distance of a transit stop, that mixes residential, retail, office, open space and public uses in a way that makes it convenient to travel on foot or by public transportation instead of by car.

transit-oriented, transit-friendly or transit-supportive

The elements of urban form and design that make transit more accessible and efficient. These range from land use elements, (e.g., locating higher intensity housing and commercial uses along transit routes) to design (e.g., street layout that allows efficient bus routing). It also encompasses pedestrian-friendly features, as most transit riders begin and end their rides as pedestrians.

transit priority measures

Strategies that improve transit operating speeds and transit travel time reliability in mixed traffic, such as traffic signal priority or queue jumps.

Transit Plaza

An area developed to serve as a public transportation centre, including onsite driveways, walkways, benches, bus shelters, and landscape areas.

U

universal design

Universal design is the design of products, building features and environments to be usable by all people, to the greatest extent possible, without the need for adaption or specialized design. It is the integration of usability and accessibility methods that enable public interaction.

Urban Boulevard

A street type that forms the backbone of Urban Main Streets and Activity Centres. It gives the highest priority to walking, cycling and transit but accommodates reasonably high volumes of vehicular traffic. Urban Boulevards are fully integrated with adjacent land uses and provide high levels of connectivity to surrounding communities and destinations. High quality urban design and natural infrastructure are also critical components of Urban Boulevards.

urban forest

All the trees and associated vegetative understory in the city, including trees and shrubs intentionally planted, naturally occurring or accidentally seeded within the city limits.

W

walkable

See "pedestrian-oriented."

Water Body

Any location where water flows or is present, whether the flow or the presence of water is continuous, intermittent or occurs only during a flood, and includes but is not limited to wetlands and aquifers.

watershed

Watersheds include groundwater, springs, wetlands, ponds, streams and lakes as well as all land that drains into these linked aquatic systems. Watersheds reflect both the natural characteristics of their geography and the impacts of human activities within them.

wayfinding

A term used to describe how people respond to the built environment to orient themselves. Elements that contribute to wayfinding include reference points such as signage, natural areas or parks, landmark buildings, bridges, distinctive lighting, public art, etc.

wetlands

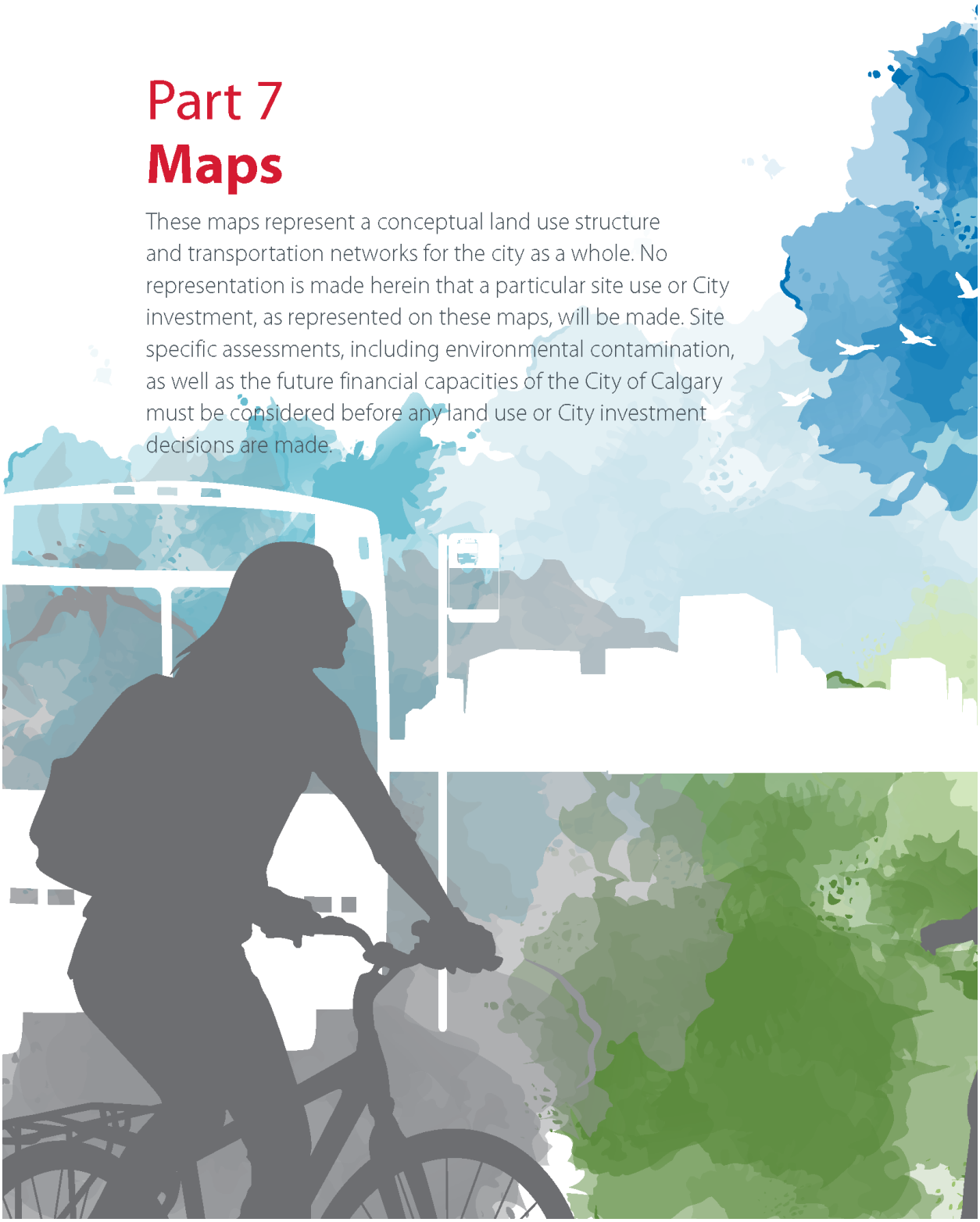
A (Calgary) wetland is a waterbody and its bed and shores, that is naturally occurring or disturbed and is located within the Foothills Fescue and Foothills Parkland Natural Regions within the city of Calgary (as per the Wetland Conservation Plan).

wheeling

A person travelling by bike, skateboard, in-line skates, kick-scooter, e-scooter, or other similar form of mobility device.

Part 7
Maps

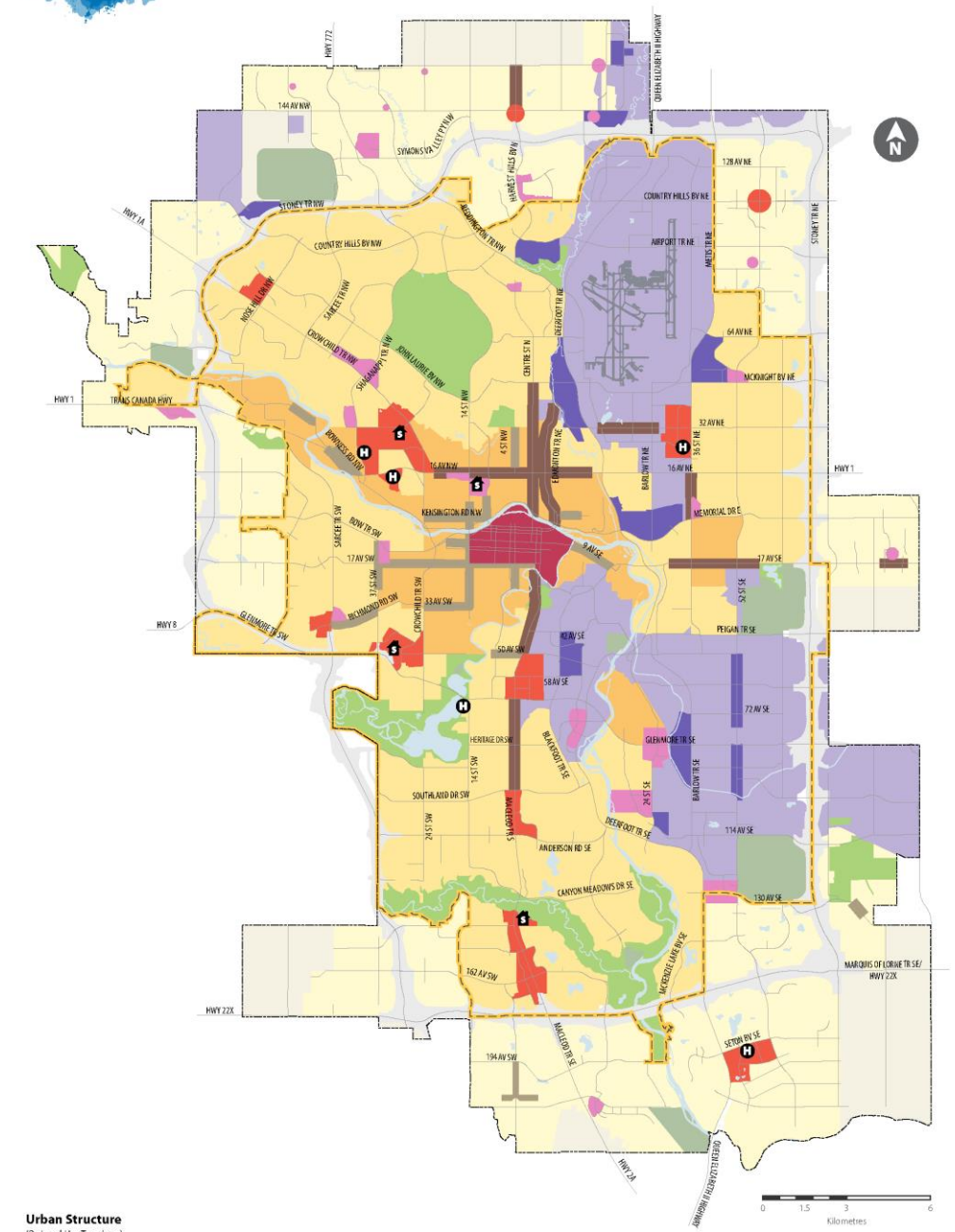
These maps represent a conceptual land use structure and transportation networks for the city as a whole. No representation is made herein that a particular site use or City investment, as represented on these maps, will be made. Site specific assessments, including environmental contamination, as well as the future financial capacities of the City of Calgary must be considered before any land use or City investment decisions are made.



PROPOSED

BYLAW NUMBER 49P2020

1 Urban Structure



Urban Structure
(By Land Use Typology)

Activity Centres
- Greater Downtown
- Major Activity Centre
- Community Activity Centre

Main Streets
- Urban Main Street
- Neighbourhood Main Street

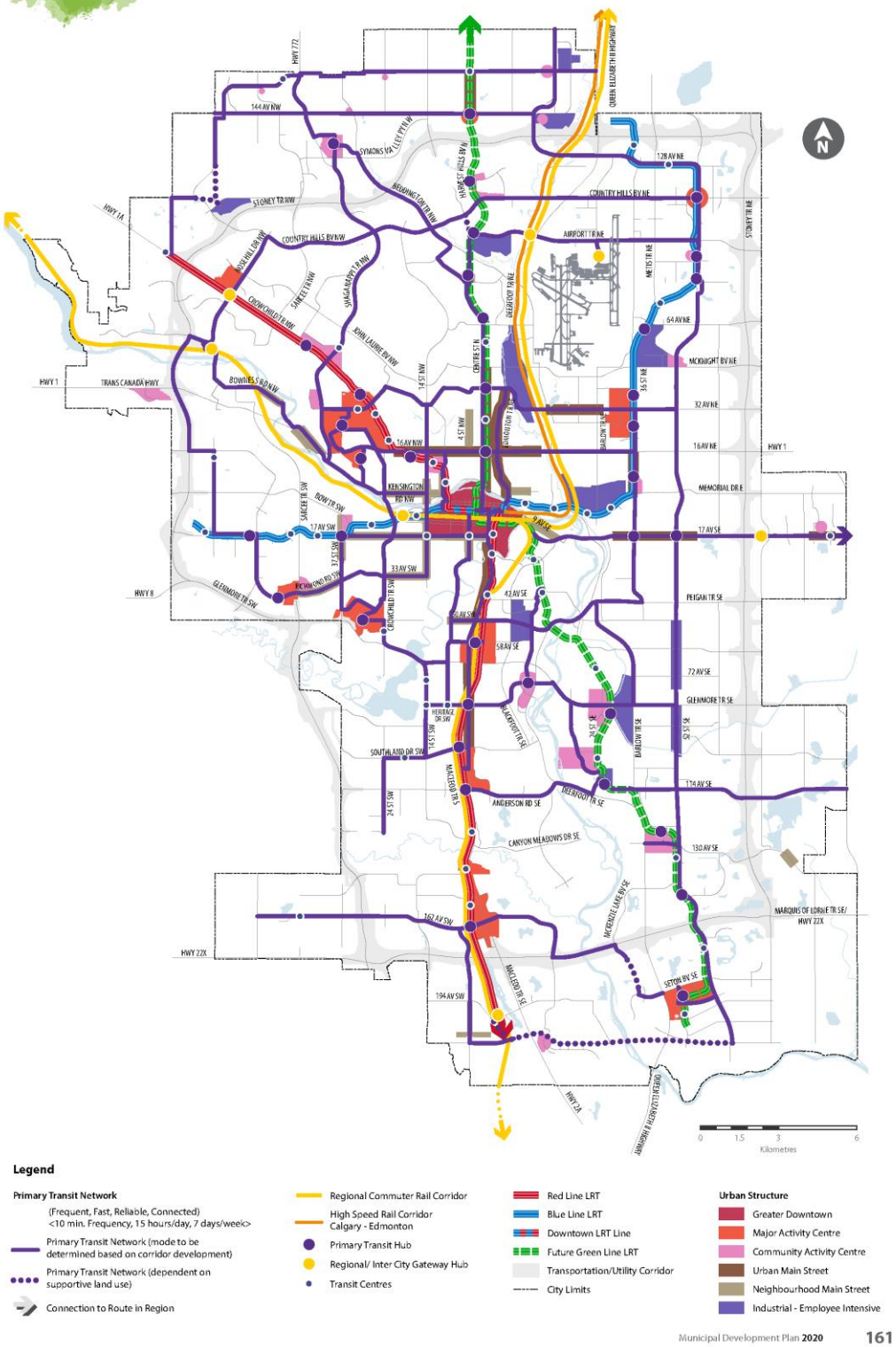
Developed Residential
- Inner City
- Established

Developing Residential
- Planned Greenfield with Area Structure Plan (ASP)
- Future Greenfield

Industrial
- Industrial - Employee Intensive
- Standard Industrial

- Major Public Open Space
- Public Utility
- Balanced Growth Boundary
- Hospital
- University
- Transportation/Utility Corridor
- City Limits

2 Primary Transit Network



Legend

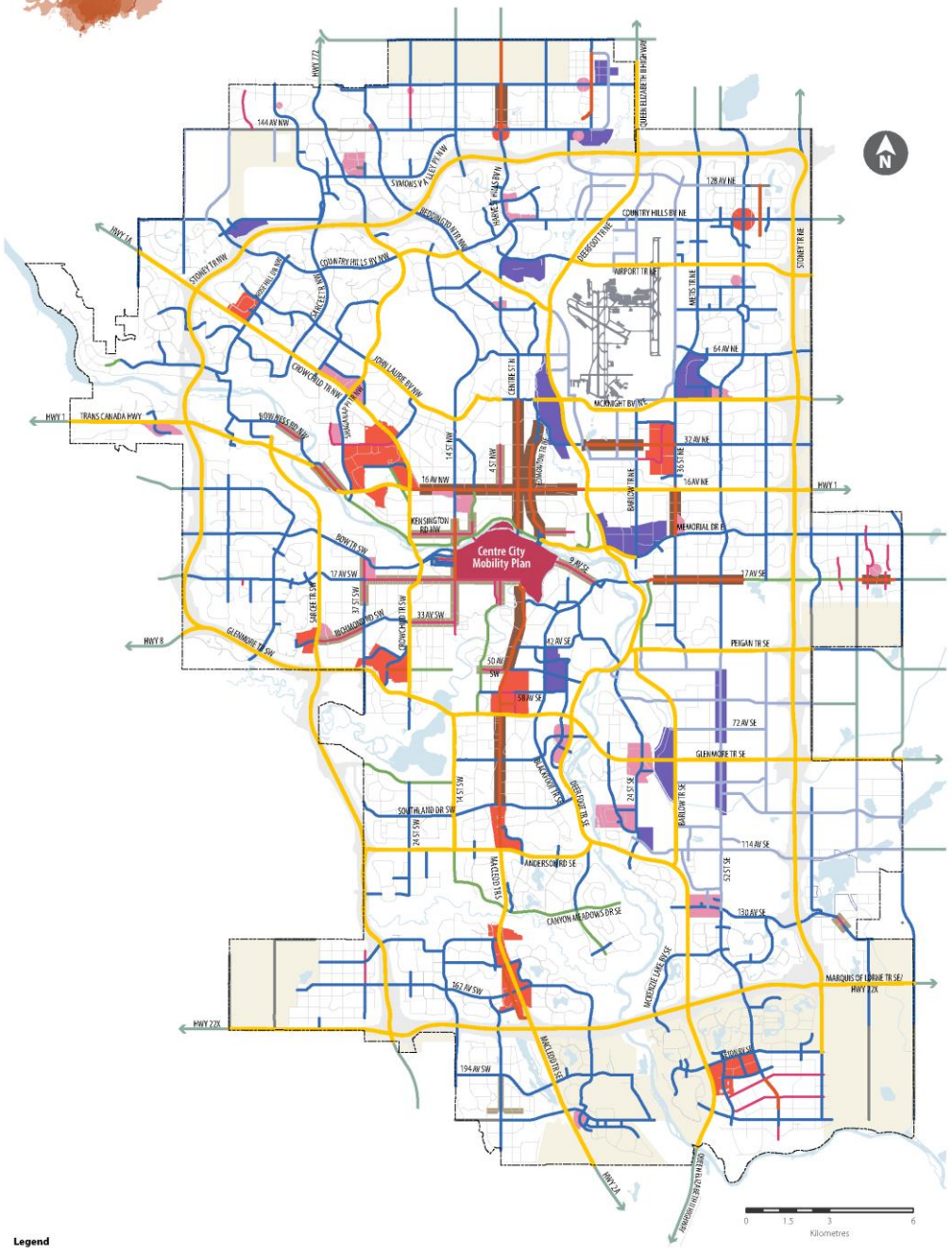
Primary Transit Network
- (Frequent, Fast, Reliable, Connected) <10 min. Frequency, 15 hours/day, 7 days/week>
- Primary Transit Network (mode to be determined based on corridor development)
- Primary Transit Network (dependent on supportive land use)
- Connection to Route in Region

- Regional Commuter Rail Corridor
- High Speed Rail Corridor Calgary - Edmonton
- Primary Transit Hub
- Regional/ Inter City Gateway Hub
- Transit Centres

- Red Line LRT
- Blue Line LRT
- Downtown LRT Line
- Future Green Line LRT
- Transportation/Utility Corridor
- City Limits

Urban Structure
- Greater Downtown
- Major Activity Centre
- Community Activity Centre
- Urban Main Street
- Neighbourhood Main Street
- Industrial - Employee Intensive

3 Road and Street Network



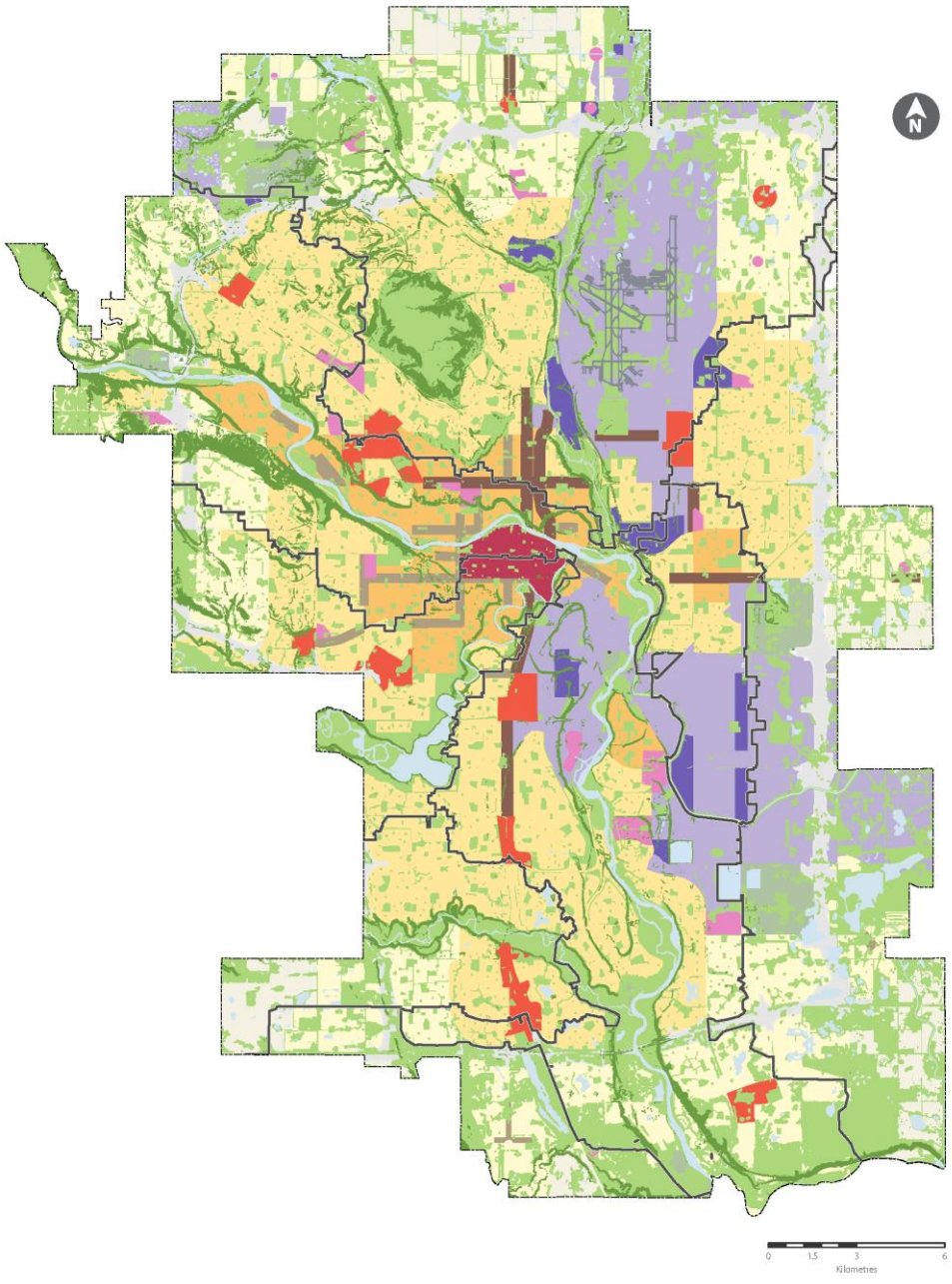
Legend

Roads and Street Network
- Skeletal Road
- Arterial Street
- Urban Boulevard
- Industrial Arterial
- Neighbourhood Boulevard
- Parkway

- Roadway within City limits (To be classified through future local area plans)
- Roadway outside City limits
- Connection to Route in Region
- Collector Roads
- Transportation/Utility Corridor
- City Limits

Urban Structure
- Greater Downtown
- Major Activity Centre
- Community Activity Centre
- Urban Main Street
- Neighbourhood Main Street
- Future Greenfield
- Industrial - Employee Intensive

4 Natural Areas and Open Spaces

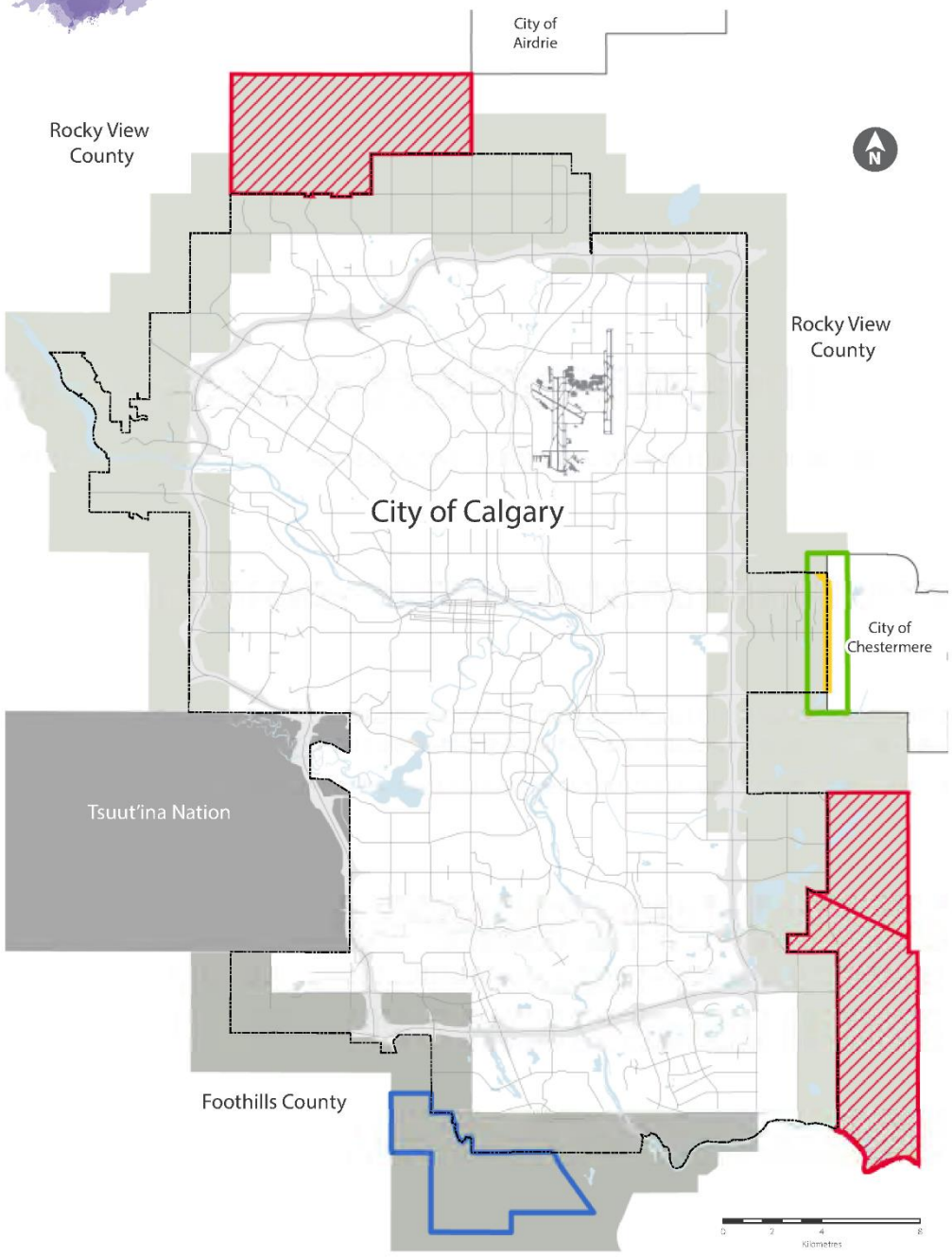


Legend

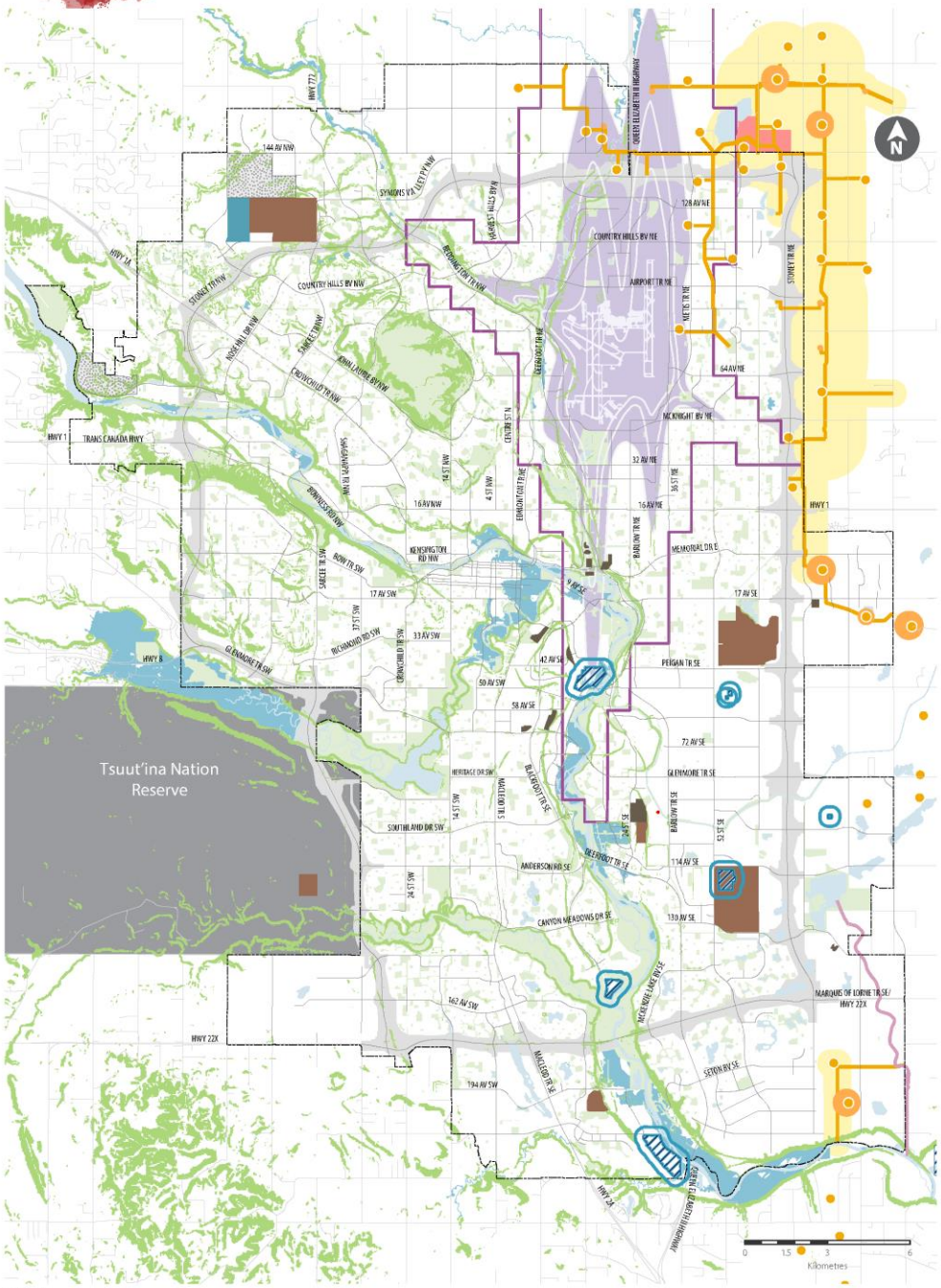
- Natural Areas and Open Spaces
- Slopes > = 15%
- Watersheds
- Transportation/Utility Corridor
- City Limits

Underlying tones refer to Typologies (Urban Structure map)

5 Jurisdictional Areas



6 Major Development Influences



PROPOSED

BYLAW NUMBER 49P2020

SCHEDULE “B”

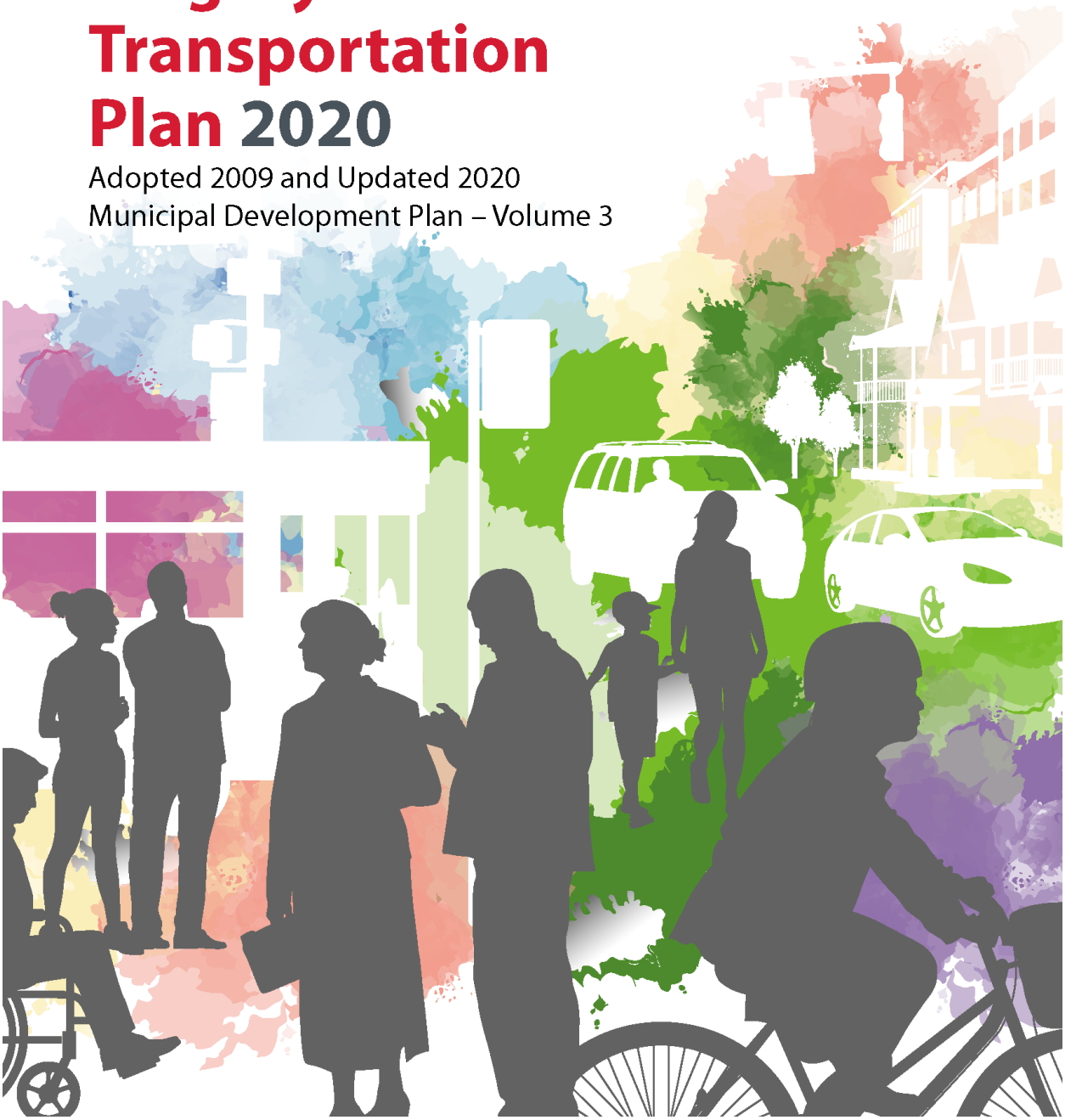
Municipal Development Plan, Volume 3 (Calgary Transportation Plan)

PROPOSED

BYLAW NUMBER 49P2020

Calgary Transportation Plan 2020

Adopted 2009 and Updated 2020
Municipal Development Plan – Volume 3



Publishing Information

Title
Calgary Transportation Plan

Author
The City of Calgary

Status
PROPOSED – 2020, October

Additional Copies
The City of Calgary
Records & Information Management
Calgary Building Services
P.O. Box 2100, Station M, Mail Code: 8115
Calgary, AB T2P 2M5

Phone
311 or outside of Calgary 403-268-2489

Fax
403-268-4615

calgary.ca

19-0003288/ADV-3488

Contents

The Calgary Transportation Plan

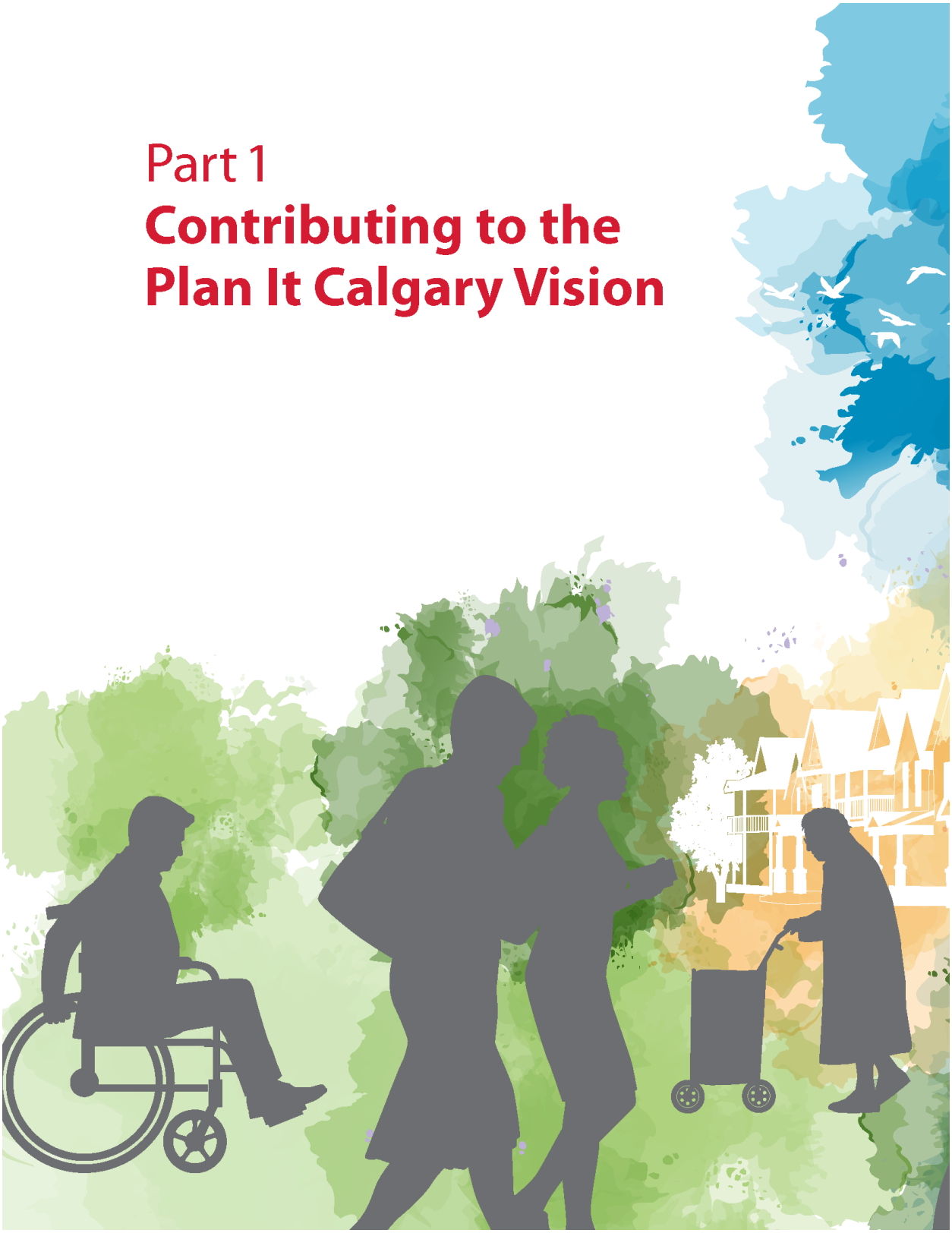
The design of the transportation system has a significant impact on the urban form of the city. It contributes to the shape of communities and employment centres, and it determines how people move within and among these places. It supports the economy by facilitating the timely movement of goods, services and people within the city and to regional or international destinations. It can either enhance or degrade the environment depending on how well it is integrated with its surroundings and the degree to which people depend on fossil fuels to reach their destinations. The decisions made today about where and what to build will affect Calgarians for 100 years or more – just as decisions made in the past affect us today.

Going forward, the transportation system must perform a wide variety of roles and consider the context of surrounding land uses, be they natural or manufactured. It must provide more choice for Calgarians – realistic choices that are convenient, affordable and attractive. These choices include walking, wheeling (e.g., scooting, skateboarding and cycling), transit, high-occupancy vehicles (HOV or carpooling) and single-occupant vehicles (SOV). The needs of commercial vehicles (goods and services) and emergency services (police, fire, EMS and emergency management) must be considered in context.

Successful application of the Calgary Transportation Plan policies will move Calgary towards a more sustainable future – for the economy, the environment and for citizens.

The decisions made today about where and what to build will affect Calgarians for 100 years or more – just as decisions made in the past affect us today.

Part 1
Contributing to the Plan It Calgary Vision



PROPOSED

BYLAW NUMBER 49P2020

1.1 Purpose of the Calgary Transportation Plan

The Calgary Transportation Plan (CTP) provides policy direction on multiple aspects of Calgary's transportation system.

To make the application of these policies as clear as possible, they are broken down into two categories:

Requirements

- contain the word "must".
- these policies apply in all situations, without exception.

Recommendations

- contain the word "should".
- these policies are to be applied in all situations, unless it can be clearly demonstrated to the satisfaction of The City that the policy is not reasonable, practical or feasible in a given situation.
- proposed alternatives must be to the satisfaction of The City with regards to design and performance standards.
- "should" does not mean "optional".

In each section, words shown in bold (with the exception of sub-section titles) are defined in the glossary located in Part 7.

1.2 Linking to the Municipal Development Plan

The policies contained in the CTP are linked directly to the Municipal Development Plan (MDP Volume 1). In order to provide additional context for the land use policies, the MDP contains a summary of the transportation objectives from Part 3 of the CTP. It also contains the Primary Transit Network and **Road** and **Street** Network maps. Some of the policy sections in the CTP also contain references to sections in the MDP Volume 1 that need to be considered when planning transportation infrastructure in Calgary.

The MDP provides detailed policies for multiple land use areas known as typologies. The **Typology** section of the MDP contains detailed descriptions of each typology, along with land use, urban design and mobility policies. While the CTP provides a comprehensive policy framework for transportation in Calgary, transportation professionals should also familiarize themselves with each of the typology areas in the MDP to understand fully the differences in transportation priorities. The maps contained in the CTP show the key typologies, such as the **Greater Downtown** and other **Activity Centres**, **Main Streets** and industrial areas, related to each transportation network.

The CTP has been included directly in the MDP as Volume 3. This enables the CTP to provide statutory requirements in conjunction with MDP Volume 1. As per section 1.4.4 in MDP Volume 1, if there is a conflict between Volume 1 and Volume 3 of the MDP, Volume 1 shall prevail.

1.3 Aligning with Calgary Metropolitan Region Growth and Servicing Plans

Policy plans approved by The City of Calgary, including the CTP, must be consistent with the CMRB Growth Plan. The transportation networks identified in the CTP accommodate connections for multiple modes of transportation to adjacent municipalities (Rocky View County, Foothills County, City of Chestermere) and the Tsuut'ina Nation that will enhance the region's competitive advantage regionally, nationally and globally.

Investment decisions for Calgary's transportation infrastructure will consider the needs and impact on adjacent municipalities, and support long-range plans for regional transportation systems. Calgary will also participate in regional transit planning to provide effective transportation options that support long-range land use objectives in Calgary and the region

.

1.4 The Sustainability Principles and Key Directions for Land Use and Mobility

In January of 2007, City Council adopted the **Sustainability** Principles for Land Use and Mobility. The Principles were derived from current City of Calgary policy direction, well recognized Smart Growth principles, and the direction of the Long Range Urban **Sustainability** Plan for Calgary (imagineCALGARY). The **Sustainability** Principles for Land Use and Mobility are:

1. Create a range of housing opportunities and choices.
2. Create walkable environments.
3. Foster distinctive, attractive communities with a strong sense of place.
4. Provide a variety of transportation options.
5. Preserve open space, agricultural land, natural beauty and critical environmental areas.
6. Mix land uses.
7. Strategically direct and manage redevelopment opportunities within existing areas.
8. Support compact development.
9. Connect people, goods and services locally, regionally and globally.
10. Provide transportation services in a safe, effective, affordable and efficient manner that ensures reasonable accessibility to all areas of the city for all citizens.
11. Utilize green infrastructure and buildings.

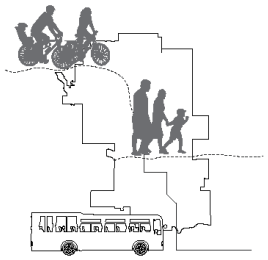
In November of 2008, City Council also approved the Key Directions for Land Use and Mobility for use in the development of the MDP and CTP. The Key Directions represent the strategic moves that need to be accomplished in order to guide Calgary towards the imagineCALGARY vision and the **Sustainability** Principles for Land Use and Mobility. The Key Directions for Land Use and Mobility are:

1. Achieve a balance of growth between established and greenfield communities.
2. Provide more choice within complete communities.
3. Direct land use change within a framework of nodes and corridors.
4. Link land use decisions to transit.
5. Increase mobility choices.
6. Develop a Primary Transit Network.
7. Create Complete Streets.
8. Optimize infrastructure.

1.5 Transportation Goals

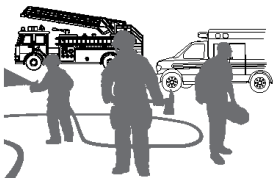
Each section in the CTP indicates support for a combination of Council-approved Key Directions for Land Use and Mobility and the following transportation goals. The seven transportation goals give additional direction to all aspects of transportation in Calgary and provide more detail to the overall transportation goal contained in the MDP, which is:

To develop an integrated, multi-modal transportation system that supports land use, provides increased mobility choices for citizens, promotes vibrant, connected communities, protects the natural environment, and supports a prosperous and competitive economy.



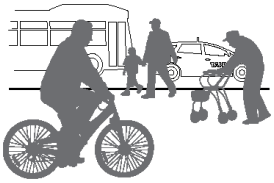
Transportation Goal 1:
Align transportation planning and infrastructure investment with city and regional land use directions and implementation strategies.

City and regional land use directions are designed to reduce our ecological footprint and promote the conservation and responsible consumption of natural resources including land, energy and water. Commitment to these directions will achieve greater use of more sustainable travel modes such as walking, wheeling and public transit, while also reducing the average distance travelled by vehicles.



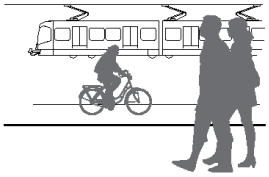
Transportation Goal 2:
Promote safety for all transportation system users.

The City should ensure that all aspects of the transportation system are safe and secure, and enable prompt and effective emergency response. These objectives will be achieved through ongoing operations, maintenance and public education programs, as well as mobility management and land use strategies that will reduce vehicular travel and improve public safety and health.



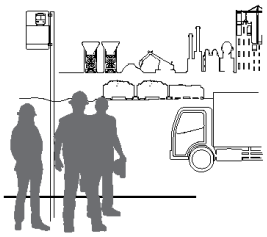
Transportation Goal 3:
Provide affordable mobility and universal access for all.

Citizens must be provided with a range of affordable travel options regardless of income or ability, including walking, wheeling, public transit, and taxis. The built environment and transportation infrastructure should incorporate principles of universal access.



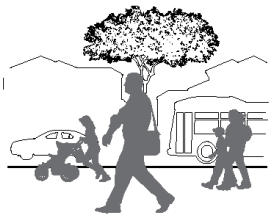
Transportation Goal 4:
Enable public transit, walking and wheeling as the preferred mobility choices for more people.

An integrated strategy is required that includes substantial transit expansion, investment in new walking and wheeling infrastructure, transit-oriented land use and supportive street and parking policies. These strategies will reduce demands on the transportation system by reducing vehicle trip distances and making public transit, walking and wheeling more appealing mobility choices for more people.



Transportation Goal 5:
Promote economic development by ensuring the efficient movement of workers and goods.

The transportation system must foster economic development by facilitating the efficient movement of workers and goods by roadway, rail and air. Transportation facilities must provide access to major industrial and employment locations.



Transportation Goal 6:
Advance environmental sustainability.

The transportation system should be planned, designed, operated and maintained to reduce the impact of travel on the environment by curbing land consumption, protecting air and water quality and reducing energy consumption and greenhouse gas emissions.

Transportation Goal 7:
Ensure transportation infrastructure is well managed.

Sound management of all transportation infrastructure will promote efficiency, infrastructure preservation and value, safety and a healthy environment.

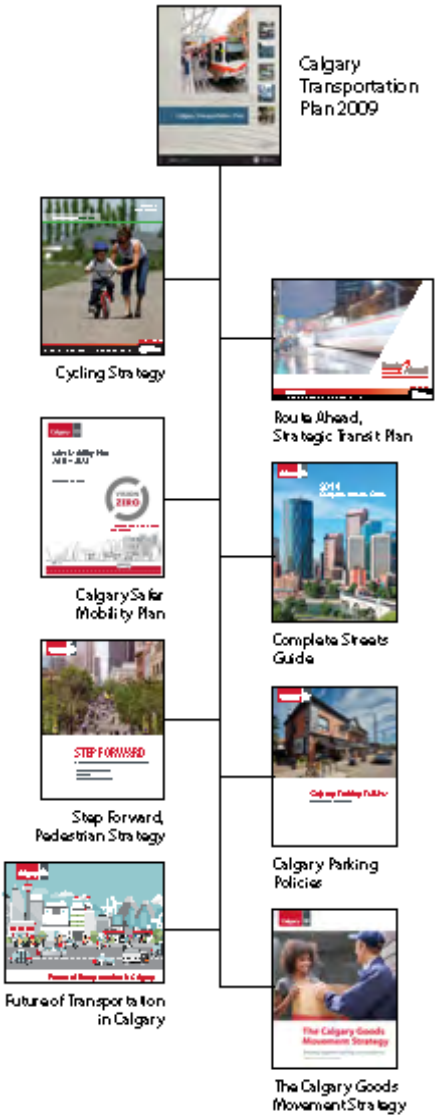
1.6 Public and Community Engagement

The increasing complexity of issues faced by "city builders" requires that all disciplines work together to achieve outcomes that would not be possible for any one discipline acting alone. Involvement of broad stakeholder groups will also be important in the planning, design and operation of the transportation system.

Collaborative processes should be undertaken when planning new transportation infrastructure, upgrading existing infrastructure, or evaluating the impacts of new developments. Impacted stakeholder groups, including but not limited to community residents and associations, local businesses and the development industry should be engaged early in planning processes to build understanding of transportation issues, and ensure that infrastructure meets the needs of all users and adjacent properties.

Fully understanding the perspectives and expectations of users is fundamental to any efforts to improve and enhance Calgary's transportation system. In order to better support The City's service-based business-planning and budgeting model, the Transportation Department should take steps to engage in an ongoing and meaningful way with the users of the services it provides. Through more meaningful engagement comes a better understanding of users' needs and expectations, ensuring that their voices are part of every service planning and management decision.

Figure 1: Council-Approved Transportation Plans And Guides 2009-2018



1.7 Amending the CTP

Like the MDP, the CTP is a living document and will be kept current by reviewing, updating and amending it as required. Amendments to the CTP will be undertaken in accordance with Section 1.5 of the MDP.

1.8 Implementation

As a volume of the MDP, the CTP becomes effective following Third Reading by Council on the date set by Council in the bylaw. Over time, updates to existing transportation plans and guidelines will align to the contents of the CTP (such as **Street** classifications and nomenclature).

Implementation of the plan is a continual process that does not live within one location or team. Success will be achieved through a number of paths, including:

- Development, maintenance and implementation of supportive strategic plans.
- Strategic infrastructure investment that complements MDP priorities and is developed collaboratively.
- Alignment of operational budgets to support plan outcomes.
- Principles for considering new opportunities for the transportation system.
- Ongoing dialogue and discussion on how to best achieve the plan outcomes.

The content and policies of the CTP establish the high-level structure and principles that enable more-focused planning and service implementation. Since the approval of the CTP by City Council in 2009, a number of supporting strategic plans and guides have been developed; Figure 1 illustrates the Council-approved plans and guides in place as of December 2019. This collection of plans may change over time, depending on service implementation requirements.

Aligned decision-making

The resources available to The City with which to implement the CTP will be limited due to funding constraints. In order to maximize the benefits that result from associated with achieving CTP outcomes, investment decisions must be thoughtfully considered as to how they advance achievement of the transportation goals of the CTP and Triple Bottom Line outcomes, and how they support the goals of the MDP. Decisions that advance multiple goals should be favoured over decisions that only advance a single goal. As part of business case development, candidate projects should be presented in the context of which goals they are advancing, and which goals may be compromised by the decision.

Where and when investments are made in transportation infrastructure is a critical component of the overall CTP implementation strategy. Part 2 of the CTP contains implementation policies to align infrastructure investment with the goals and objectives of the CTP and MDP.

Policy plans approved by The City of Calgary, including the CTP, must be consistent with any IDP covering the same land area. In the case of any inconsistency, the provisions of the IDP would prevail.

Part 2
Implementation Through Strategic Investment

PROPOSED

BYLAW NUMBER 49P2020

Objective

Align transportation planning and investment decisions with strategic corporate growth policies in order to increase municipal fiscal **sustainability**.

Discussion

The MDP contains a process and policies to guide growth decisions in Calgary, called the Strategic Framework for Growth and Change (referred to as the MDP Framework for Growth and Change in this document). The MDP Framework for Growth and Change contains a variety of policies to address key growth challenges in Calgary, and ensures the best possible social, environmental and economic (a.k.a. "Triple Bottom Line") outcomes for citizens both now and in the future.

The decision making process described in the MDP Framework for Growth and Change contains criteria for selecting growth areas in both developed and greenfield areas of the city. It also more clearly links land use planning and infrastructure investment decisions back to the long-range plan contained in the MDP, and consequently the CTP as well.

The MDP Framework for Growth and Change has several policy implications for the provision of infrastructure in Calgary:

- Infrastructure Calgary, established by The City in 2016, has a corporate mandate to coordinate city-wide infrastructure investment for the purpose of achieving the most value for citizens. Infrastructure Calgary is responsible for the stewardship of The City's Capital Infrastructure Investment Principles and Capital Investment Plan (CIP). Accordingly, the Principles, CIP, and associated infrastructure decision and management processes must be designed to support achievement of the long-term goals and objectives of the MDP and the CTP.
- The MDP Framework for Growth and Change must inform Infrastructure Calgary's decisions regarding the capital budget timing of growth-related infrastructure investments. In providing strategic support to Infrastructure Calgary's infrastructure prioritization and budgeting processes, Calgary Growth Strategies should apply the MDP Framework for Growth and Change policies.
- Limits on the capital funding available to The City for infrastructure investment should be addressed through Infrastructure Calgary's city-wide infrastructure investment planning process, ensuring that the potential cost/benefit implications for The City of alternative infrastructure funding scenarios are identified and communicated comprehensively as part of budget deliberations by City Council.
- Municipal capital investment in infrastructure (including new and maintenance/refurbished) should be prioritized in the following order:
  i. Investments that support intensification of Developed Areas of the city.
  ii. Investments that expedite the completion of communities in Planned Greenfield Areas of the city (as defined on the MDP Urban Structure Map).
  iii. Investments that support the development of Future Greenfield Areas.
- Upon adoption of a new local area plan (as defined in the MDP), all relevant maps in the MDP and CTP must be updated.

Transportation planning priorities and investment recommendations need to align with the MDP Framework for Growth and Change in order to achieve the goals of the MDP and CTP. However, they must also take into account the ongoing infrastructure management needs of existing facilities and additional priorities in the CTP that are beyond the scope of the MDP Framework for Growth and Change (such as improvements to the Primary Goods Movement Network described in section 3.4). The following transportation policies address these issues.

Policies

a. Transportation planning priorities and investment decisions must be based on an understanding of the strategic priorities of The City and overall fiscal limitations, requiring alignment and coordination with the MDP Framework for Growth and Change, and the CTP transportation goals.

b. The highest priority for transportation capital and operating investment should be the Primary Transit Network and supporting infrastructure (including walking and wheeling infrastructure and **Complete Streets**) in **Activity Centres** and **Main Streets**.

c. Transportation capital and operating investments that will enhance the reliability and safety of goods movement should be given increasing priority.

d. Ongoing operating and maintenance costs must be considered in the approval process for transportation infrastructure projects.

e. New sources of stable and predictable funding should be identified and pursued to fund both transportation capital and operating costs.

f. The capacity and life-cycle of existing transportation infrastructure should be optimized before investing in new infrastructure in existing areas.

g. The infrastructure and implementation strategies identified in the CTP and transportation strategic plans such as RouteAhead, Step Forward, Goods Movement Strategy, etc. should be reviewed and prioritized within the context of The City's current and future financial capacities.

h. The City's capital management and investment planning processes must be designed to support achievement of the long-term goals and objectives of the MDP and the CTP.

i. Through its management of The City's capital portfolio, Infrastructure Calgary should ensure that the matching of available funds from external sources (e.g., other levels of government, industry) is optimized relative to the impacts or trade-offs resulting from non-investment in high priority projects/programs in other areas of the portfolio.

Part 3
Transportation Policies

The following sections outline the transportation policies that work in conjunction with the land use policies of the MDP. The CTP policy areas that contribute most to achieving the Key Directions for Land Use and Mobility and the transportation goals are:

- Transit
- Complete Streets

Given their importance, these two sections contain more extensive background information and policies to aid implementers in achieving the desired outcomes.

All maps referred to in the following sections are located in Part 8.

PROPOSED

BYLAW NUMBER 49P2020

3.1 Transportation Choice

Objective

Maintain automobile, commercial goods and emergency vehicle mobility in Calgary while placing increased emphasis on more sustainable modes of transportation (including but not limited to walking, cycling and transit).

Supports

- **Key Direction 5:** Increase mobility choices.
- **Key Direction 7:** Create **Complete Streets**.
- **Transportation Goal 3:** Provide affordable mobility and universal access for all.
- **Transportation Goal 4:** Enable public transit, walking and wheeling as the preferred mobility choices for more people.
- **Transportation Goal 5:** Promote economic development by ensuring efficient goods movement and labour force mobility.

Discussion

Calgary's current transportation system is focused primarily on **roadways** and the efficient movement of motorized vehicles. With the exception of transit service to the Downtown Core, other modes of transportation (such as walking and wheeling) have historically been given less priority. Over the last 50 years, land uses have been increasingly segregated, with homes located further and further away from jobs and amenities. Population growth has gone almost entirely to the edges of the city, while employment continues to cluster in the **Greater Downtown** and east industrial areas.

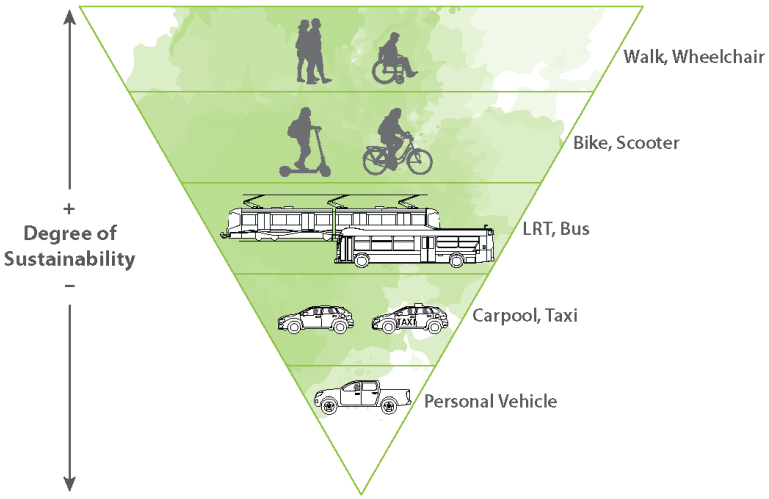
The CTP and MDP represent a new direction for transportation in Calgary. The more compact form of development envisioned in the MDP will bring homes, jobs, services and amenities closer together. This will make non-automobile modes of travel more convenient, and therefore give Calgarians choices when travelling around the city. More choice means that Calgary's transportation system will:

- Improve overall mobility.
- Better withstand rising energy costs or other economic shocks.
- Reduce energy use and emissions.
- Provide travel options for all Calgarians, regardless of age or income.
- Increase Calgary's competitive advantage in the global marketplace.

In some cases, it may not be practical to accommodate all modes of travel equally in every part of Calgary. Decisions may need to be made on which modes should be emphasized in different parts of the city. Increasingly, travel will consist of using combinations of modes, making the integration of modes and user experience critical. Sustainable modes of transportation should be emphasized where they can provide convenient and realistic travel choices. The Transportation **Sustainability** Triangle in Figure 2 shows the relative sustainability of each transportation mode, with walking being the most sustainable. Walking, wheeling and transit are all more sustainable modes because:

- They require less energy.
- Need less infrastructure and typically cost less to build.
- Are available to almost all Calgarians.

Figure 2 - The Transportation Sustainability Triangle



Commercial vehicles are also a critical element of Calgary's economy, and must be accommodated in most parts of the city, with emphasis on key areas such as the airport, industrial areas, intermodal rail terminals, and on heavily used goods movement corridors such as Deerfoot Trail and the Ring Road.

Emergency services (police, fire, ambulances) are not explicitly shown in Figure 2 because they are unique users of the transportation system and operate in all parts of the city. Access to emergency services must be considered in the planning, design and operation of the transportation system.

Although walking, wheeling and transit are more sustainable modes of transportation, the majority of daily trips are expected to continue to be made by private vehicles. Figure 3 shows the travel choices for all trips today compared to projected travel choices 50 years in the future based on the recommended land use patterns and transportation systems contained in the MDP and CTP. The expected increase in trips will need to consist of a greater share of walking, wheeling and transit trips for the transportation system to function adequately. The recommended direction will need to be reviewed should future technologies, such as self-driving cars, become prevalent (i.e. once there is a fuller understanding of their role and use in travel).

It is clear that private vehicles will continue to be the most common travel choice, particularly in outlying areas of the city where most destinations are too far to reach by walking and wheeling, and where transit service is not as frequent or efficient as a vehicle. Transportation networks will be designed to manage the demand for vehicle use, and will be optimized using a wide range of tools and technologies.

Increased walking and wheeling activity will occur primarily in the **Greater Downtown** and other **Activity Centres** and **Main Streets** located across the city. Homes, jobs, services and amenities will be located in close proximity to each other in these locations. The needs of Calgarians who walk and wheel should therefore be given the highest priority in the **Greater Downtown** and other **Activity Centres** and **Main Streets**. Well designed infrastructure and direct connections between destinations will allow walking and wheeling to be the most convenient way to travel in these locations.

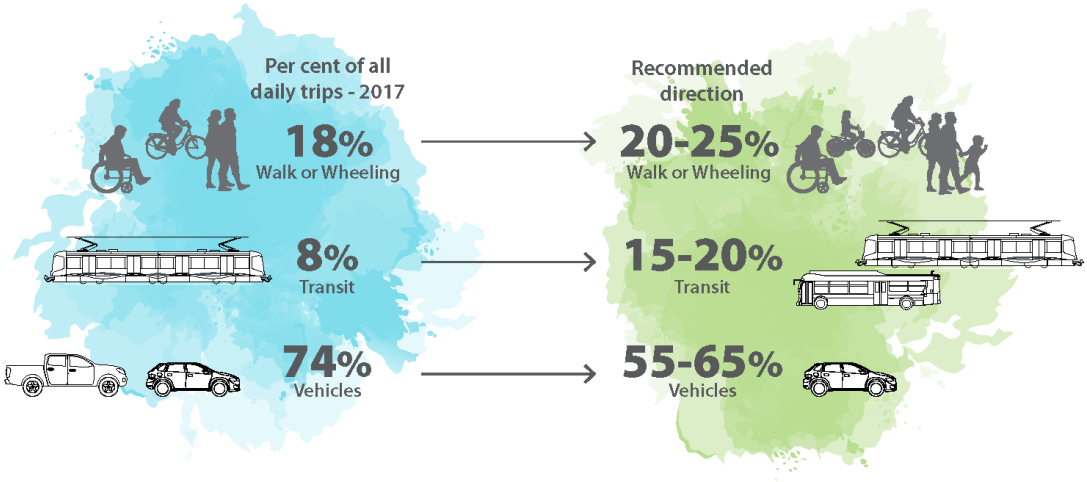
Transit service will offer the most convenient choices to people travelling between **Activity Centres** and along the **Main Streets** that connect them. Priority measures will enhance the reliability of transit services within and between these strategic locations, making transit competitive and an attractive option to private automobiles.

The increasing variety of transportation choices made by Calgarians in the future can be effectively accommodated by putting the right type of infrastructure in the right place. Figure 4 in section 3.7 of the CTP shows how the **Road** and **Street** Palette provides a range of **road** and **street** types that emphasize different transportation modes. The CTP recommends that the majority of the **roads** and **streets** built in Calgary be types that emphasize private vehicles and goods movement. This reflects both the existing infrastructure that has been built in Calgary, and the transportation needs for much of the city in the future.

Specialty **streets** that emphasize walking, cycling and transit will comprise a lesser amount of the **Road** and **Street** Network. However, these **streets** will be strategically located in the **Greater Downtown Activity Centres** and **Main Streets** where the majority of walking, cycling and transit activity is expected to occur.

In conjunction with other transit and wheeling infrastructure, this combination of **road** and **street** designs will make it possible to meet the increasingly diverse travel needs of Calgarians now and in the future.

Figure 3 - Current and future travel choices



Policies

a. The needs of sustainable modes of transportation (walking, wheeling and transit) must be considered in all transportation planning projects.

b. Pedestrians and cyclists should be given the highest priority in the planning, design, operation and maintenance of transportation infrastructure in the **Greater Downtown** and other **Activity Centres** and **Main Streets**.

c. Along the Primary Transit Network, priority should be given to transit in the planning, design, operation and maintenance of the transportation system, with the goal of minimizing person delay rather than vehicle delay.

d. Emphasis should be placed on the efficient movement of commercial vehicles in industrial areas, along corridors defined as part of the Primary Goods Movement Network, and to access the airport or intermodal rail facilities.

e. In areas where walking, wheeling and transit cannot provide convenient and reliable travel choices, emphasis should be placed on mitigating the negative effects of congestion and on the efficient movement of private vehicles and goods.

f. The needs of emergency vehicles and large-scale evacuation equipment must be considered in the planning and design of all transportation infrastructure.

g. The needs of emerging modes of transportation (e.g., urban-mobility devices such as electric-powered scooters) should continue to be monitored, planned for, and supported operationally as necessary to advance CTP goals and objectives.

h. On facilities where multiple users compete for priority, a balanced approach should be used to address the trade-offs and risks of various design decisions.

3.2 Walking and Wheeling

Objective

To make walking and wheeling (e.g., scooting, skateboarding and cycling) attractive and convenient through the provision of additional or enhanced infrastructure, and through land use planning that brings homes, jobs, services and amenities closer together.

Supports

- **Key Directions 2:** Provide more choice within complete communities.
- **Key Directions 5:** Increase mobility choices.
- **Key Directions 7:** Create **Complete Streets**.
- **Key Directions 8:** Optimize infrastructure.
- **Transportation Goal 2:** Promote safety for all transportation system users.
- **Transportation Goal 3:** Provide affordable mobility and universal access for all.
- **Transportation Goal 4:** Enable public transit, walking and wheeling as the preferred mobility choices for more people.
- **Transportation Goal 5:** Promote economic development by ensuring efficient goods movement and labour force mobility.
- **Transportation Goal 7:** Ensure transportation infrastructure is well managed.

Discussion

Walking

Walking is the simplest type of transportation; it offers health and wellness benefits, costs very little and is available to almost everyone, regardless of age, gender, ability or income. It is quiet, doesn't pollute and fosters social interaction. Cities that have invested heavily in walkability and the public realm have been found to attract and retain new residents that choose the city first, then their career. In general, the following key principles can be applied to projects of any scale to ensure that Calgarians who walk are well served:

- Create direct, simple connections to nearby destinations.
- Create well-designed, interesting spaces to walk in.
- Consider scale and make sure spaces, **street** blocks, etc. are the right size for people to use (not too big or too small).
- Start with people and where they want to walk and put parking, loading and storage out of people's way.
- Manage conflict between users rather than blocking off pedestrians.
- Match feelings of safety to actual safety.

Public places such as **streets** and plazas should have high-quality urban design elements wherever possible. Pedestrians should be provided with different views, a positive ambiance, public art and spaces for rest and play. Section 3.7 on **Complete Streets** provides additional information regarding urban design and other pedestrian requirements in relation to surrounding land uses.

Since virtually all people walk for at least a short distance to take transit, there must also be continuous, consistently maintained pedestrian routes to transit stops. The design of transit stops and stations must place high priority on pedestrian movement, waiting and comfort, as well as convenient access for transit vehicles arriving at those stops.

Physical Activity, Urban Form and Obesity

Between 2004 and 2015, the prevalence of obesity amongst Alberta's population aged two years and up increased by 24 per cent. Amongst adults 18+, the most extreme forms of obesity (where body mass index exceeds 40 or more) increased by 31 per cent.

Statistics Canada: Canadian Community Health Survey - Nutrition (2004, 2015)

In 2019, 68 per cent of Calgarians reported participating in enough physical activity to achieve health benefits.

Centre for Active Living, 2019 Alberta Survey on Physical Activity

Walkable, transit-supportive built environment patterns have been associated with higher amounts of active transport and more physical activity overall. Less walkable, vehicle-dependent built environments have been correlated with higher body weights, obesity, and their associated chronic diseases.

Dr. Larry Frank, The Built Environment and Health: A Review

The needs of pedestrians, including those who use mobility aids, are considered throughout the CTP. Access to transit, the design of pedestrian-friendly **streets** and providing more direct connections between destinations in communities and **Activity Centres** (including the **Greater Downtown**) are key pedestrian-oriented initiatives in the CTP.

Wheeling

Wheeled mobility devices like scooters, skateboards and bicycles are more than recreational tools. They are efficient human-powered machines that improve health and enable travel faster than walking. Due to their relatively low cost, wheeled devices are also available to almost everyone. The Traffic Bylaw allows a variety of mobility devices on pathways and bikeways. Pathways have been inclusive of a variety of users for years. People using kick scooters, inline skates, skateboards and shared e-scooters are now allowed to use dedicated bike lanes.

Making wheeling a convenient, year-round option for Calgarians requires:

- Smooth travelling surfaces free of obstacles.
- Well-maintained, clear routes.
- Connected and continuous routes that give people the ability to maintain speed.
- Wheeled device parking and amenities at destinations.
- Routes with character that offer safety and a feeling of security.
- Education and enforcement for all transportation system users.

Connecting walking and wheeling trips to transit service enables longer or cross-city trips, enlarges transit catchment areas, helps people navigate challenging hills and busy **roadways** and increases transit ridership. Examples of integration measures include:

- Safe and secure bicycle parking at transit stations.
- Allowing bicycles and other wheeled mobility devices on trains and buses.
- Enabling bike and e-scooter share for first and last kilometre trips.
- Ensuring pathway and bikeway connections to transit stops and stations are provided.

The Always Available for All Ages & Abilities (5A) Network

The existing pathway and bikeway network creates a skeletal network across Calgary, serving recreational users and confident and dedicated cyclists. In updating the 2000/2001 Calgary and Area Pathway and Bikeway Plan, The City heard from Calgarians that they are looking for something different for the network of the future, with connections to local destinations like schools, shops, recreation centres and workplaces. They want accessible pathways and bikeways that are well lit, easy to navigate and have few barriers.

The 5A Network will be a city-wide mobility network consisting of off-street pathways and on-street bikeways. It will provide accessible, affordable, year-round options for transportation and recreation and will be accessible by people of all physical abilities due to:

- Fewer barriers like off-set gates
- Smoother surface materials
- Fewer routes on steep hills

The following 5A Network principles shift the focus of the pathway and bikeway network to create more community connections and welcome a variety of users.

- Separate people by their speed
- Improve visibility
- Make it reliable
- Be accessible for everyone
- Make it easy to use

The 5A Network principles will improve safety and create a reliable experience for Calgarians. Children, seniors and people with mobility challenges will be able to walk and wheel on a safe, accessible and connected network. Low-income individuals and vulnerable populations will have affordable and reliable options for year-round transportation and recreation.

In order to make this a year-round alternative to travel in Calgary, the 5A Network must have high priority for maintenance and be kept clear of debris, snow and ice. Where the 5A Network incorporates pathways, the needs of both recreational users and commuters should be considered carefully in the design and operation of those facilities.

The 5A Network is shown in Map 1 in Part 8.

Policies

a. Walking and wheeling routes must be provided throughout the city.

b. The type of pathway and bikeway facilities implemented on the 5A Network should be based on the surrounding land uses and right-of-way restrictions. Facilities should also be enhanced as redevelopment of corridors along the 5A Network occurs.

c. The amount, directness, connectivity, accessibility, comfort, character and safety of walking and wheeling routes should be increased.

d. The quality of walking and wheeling environments should be emphasized in all transportation studies and must be emphasized in all future development or redevelopment plans for the **Greater Downtown** and other **Activity Centres**, **Main Streets**, **Transit-oriented Development** (TOD) sites and residential communities.

e. Walking and wheeling must be integrated with transit services and improve intermodal opportunities at the community, city and regional scales.

f. Design of facilities, public education and law enforcement should be used to increase acceptance, understanding and decrease conflicts among all users of the **roadway**, walking and wheeling networks.

g. Safe, barrier-free walkways pathways and bikeways should be provided in community designs to reduce walking and wheeling distance to transit service and community amenities.

h. Bicycle parking should be provided at destinations in the **Greater Downtown** and other **Activity Centres**, **Main Streets**, TOD sites, employment centres and parks and open spaces.

i. A full range of strategies such as traffic signal optimization, pedestrian signal priority measures and pedestrian countdown timers should be used to improve convenience for pedestrians and cyclists at locations where high volumes of pedestrians and cyclists already exist or are expected in the future.

j. Disruptions to walking and wheeling travel must be minimized during construction.

k. The Transportation Department and Parks Business Unit must co-ordinate the design, operation and maintenance of all pathways (including snow clearing) that form part of the 5A Network to accommodate the needs of both recreational users and commuters.

3.3 Transit

Objective

To provide a safe, accessible, customer-focused public transit service that is capable of becoming the preferred mobility choice of Calgarians.

Supports

- **Key Direction 2:** Provide more choice within complete communities.
- **Key Direction 3:** Direct land use change within a framework of nodes and corridors.
- **Key Direction 4:** Link land use decisions to transit.
- **Key Direction 5:** Increase mobility choices.
- **Key Direction 6:** Develop a Primary Transit Network.
- **Key Direction 8:** Optimize infrastructure.
- **Transportation Goal 1:** Align transportation planning and infrastructure investment with city and regional land use directions and implementation strategies.
- **Transportation Goal 2:** Promote safety for all transportation system users.
- **Transportation Goal 3:** Provide affordable mobility and universal access for all.
- **Transportation Goal 4:** Enable public transit, walking and wheeling as the preferred mobility choices for more people.
- **Transportation Goal 5:** Promote economic development by ensuring efficient goods movement and labour force mobility.
- **Transportation Goal 6:** Advance environmental sustainability.

Discussion

High-quality public transit service is an essential requirement for the creation of attractive, vibrant and economically competitive cities. Investment in transit improvements significantly improves the social, economic and environmental health of communities by:

- Enabling citizens to participate in the social and economic life of the community.
- Providing lower-cost mobility options for transportation users and society by reducing the need for and expense of new **roadway** and parking infrastructure and operation of private vehicles.
- Improving air quality and reducing energy demands and greenhouse gas (GHG) emissions that are contributing to global climate change.
- Helping to shape and create more intense, mixed-use development within walking distance of public transit stops and stations which, in turn, will generate increased transit use.
- Ensuring labour force mobility to support economic development.

A Transit Vision for Calgary and Region

People will choose to use transit if it satisfies their mobility needs. Substantial improvements in the frequency, speed, comfort, reliability, convenience and safety of transit service are necessary to make transit an appealing mobility option. These actions must be supported by complementary **Complete Street** and parking strategies. In order to substantially increase transit ridership and enable transit to shape land use changes, all of the following success factors for transit must be achieved:

Make transit a convenient and comfortable travel alternative through the development of a Primary Transit Network

Continued development of the Primary Transit Network makes transit appealing by connecting major travel destinations more directly, making these connections faster and more reliable by expanding the use of transit priority measures and increasing the frequency of service so that customers can "show up and go" without having to consult a transit schedule. The Primary Transit Network will also be integrated with other city, regional and inter-city transit services.

Link land use decisions to transit

Compact, mixed-use development and pedestrian-friendly designs are required along the existing and future Primary Transit Network. Increased development densities in proximity of the Primary Transit Network will be supported by timely investment in new transit lines and improved transit service levels to support land use intensification.

Integrate transit with civic life

It is essential that transit service is centrally located and effectively integrated with surrounding land uses. Transit infrastructure must also be designed and maintained to a high standard to provide a safe, clean and comfortable environment where transit riders feel welcome and valued.

Incorporate new transit technologies and innovations

Opportunities exist to incorporate advancements in transit vehicle technology, traffic engineering and customer information systems (e.g., real-time schedule information) to improve customer experience and enhance transit efficiency. For example, the Primary Transit Network provides for integration with multi-transit modes including on-demand, shuttle and specialized services.

Sustain fleet and infrastructure

Supporting essential lifecycle maintenance activities preserves transit service levels by ensuring that vehicle, stations, tracks and other facilities remain in good repair. This ensures that transit services remain safe, reliable and comfortable. Investment in new maintenance infrastructure to support transit system expansion remains essential.

Expanding the Calgary Transit Network

The CTP identifies an integrated service delivery model, including (1) a Base Transit Service, to provide good coverage and a basic level of service to all areas of the city, and (2) a Primary Transit Network, which will provide a high frequency route network to support the framework of **Activity Centres** (including the **Greater Downtown**) and **Main Streets**.

The CTP transit strategy represents a transit service commitment to Calgarians that will guide the allocation of financial resources for service expansion in future years.

Base Transit Service

Base Transit Service includes a comprehensive range of transit services (e.g., feeder routes, mainline and cross-town transit services) that will support the Primary Transit Network by providing comprehensive community coverage. Base Transit Service may also augment the Primary Transit Network by meeting additional needs (e.g., cross-town travel, local circulator services within the **Greater Downtown** and **Activity Centres**) that involve high ridership but not necessarily full Primary Transit levels of service.

Base Transit Service will provide a comfortable and safe environment and be integrated with the Primary Transit Network to enable convenient transfers. It will extend far enough to ensure that at least 95 per cent of development is within a five-minute walk from transit service (i.e., 400 metres). Development served by the Base Transit Service should also have a sufficient intensity of population and employment to achieve the performance policies for transit service.

Primary Transit Network

The Primary Transit Network is defined by level of service - not by mode. It comprises a permanent network of high-frequency transit services that will operate every 10 minutes or less at least 15 hours a day, seven days a week. The Primary Transit Network will form the foundation of the transit system and incorporate the highest standards with regard to level of service, operating speed, connectivity and amenities to attract new customers.

The proposed Primary Transit Network concept plan is shown in Map 2 in Part 8. Proposed transit service for the **Greater Downtown** is shown in Map 3. For ease of understanding, two types of Primary Transit service have been identified:

1. A skeletal network of existing and proposed Light Rail Transit (LRT) lines which form the backbone of the Primary Transit Network and which operate in dedicated or semi-exclusive rights-of-way, separate from auto traffic.
2. A network of other radial and cross-town transit services that will operate in dedicated rights-of-way, high-occupancy vehicle (HOV) lanes and mixed traffic, with priority over automobiles at signalized intersections. Transit service in these corridors will begin with bus service and may eventually evolve into higher-order rail service based on future corridor development and travel demand.

The Primary Transit Network will be developed in phases over the next 30 years and will be monitored closely based on five key measures of transit service quality. The measures are:

Frequency

During core operating periods, combined service frequency will be every 10 minutes or better for all modes of Primary Transit. This level of service will enable seamless connections between transit services and make it possible for people living near these services to make spontaneous trips along the transit corridors without consulting a transit schedule.

Span of service

Core operating periods on the Primary Transit will be at least 15 hours a day, seven days a week. Less frequent service will continue to be provided outside the core operating period. This is important in ensuring that all types of trips can be accommodated on the Primary Transit Network – not just work and school commuting.

Speed and directness

Route directness and operating speed are critical to the success of the Primary Transit Network since most travellers will choose the fastest mode when planning their trips. A range of transit priority measures will be implemented, with a "transit first" philosophy along the Primary Transit Network.

Service reliability

Service reliability is one of the critical measures of transit service quality. Users can expect the Primary Transit Network to operate on a reliable schedule to minimize customer wait times. All Primary Transit services should operate within three minutes of scheduled arrival times.

Increased transit capacity

The Primary Transit Network will be closely monitored to ensure that sufficient capacity is available to accommodate ridership demand. Improved frequencies and selection of appropriate transit vehicles will be necessary to provide adequate capacity for a comfortable ride. Strategically located **Activity Centres** and **Main Streets** will also support more efficient use of transit by supporting more balanced, two-way passenger flows on the Primary Transit Network.

The development of the Primary Transit Network is key to the success of the MDP and the CTP, and continues to require prioritized operating and capital investments.

Regional Transit

The City of Calgary supports collaborating with regional partners on the development of an integrated, high capacity regional transit service. This may include the development of a network of Transit Mobility Hubs. Transit Mobility Hubs are places of connectivity where different modes of transportation (i.e., walking, wheeling, bus and rail transit) come together seamlessly, and where there is an attractive, intensive and diverse concentration of housing, employment, shopping and other amenities around a major transit station. Regional transit hubs should be located to support other medium- and longer-term transit investments such as inter-city commuter rail and LRT services.

Effective regional collaboration has the potential to minimize costs and duplication among partners, with a goal of a seamless transit system where users are largely unaware of jurisdictional boundaries (enhancing the user experience).

New Transit River Crossings

To improve transit connectivity, speed and service reliability, new river crossings of the Bow River and the Elbow River for Primary Transit Service may be required in the future, on the west side of the city, to respond to increased traffic volumes in major transportation corridors such as Glenmore Trail, Sarcee Trail, Crowchild Trail and Bow Trail. These connections would enable the creation of priority transit connections linking proposed **Activity Centres** at the University of Calgary, Mount Royal College, Chinook Centre and the southeast industrial area and prevent transit vehicles from getting 'stuck in traffic'. If feasible, the new transit river crossings could also incorporate provision for walking, wheeling and emergency services to improve police, fire and emergency medical services (EMS) response times and provide new walking and wheeling connections.

Before planning any new river crossings, other strategies should be implemented to optimize the operation of existing transportation corridors for Primary Transit and emergency services operation. See sections 3.5 and 3.6 for further information on tools and techniques that can be used to optimize existing transportation infrastructure.

Detailed technical analysis and community engagement will be required to establish the location, design and cost of any new river crossings. Some key stakeholders have indicated that new river crossings may be acceptable for transit, walking, wheeling and emergency services if there is a persuasive and demonstrable need, and if they are located and designed to successfully mitigate environmental and community impacts. Principles and design considerations for crossings of watercourses are outlined in Part 6.

Linking Transit and Land Use

In 2016, about 15 per cent of all population and about one-third of jobs were located within 400 metres walking distance of LRT service, which is the only transit mode that currently operates near Primary Transit service levels. The strategic location of **Activity Centres** and **Main Streets** along existing and future Primary Transit corridors will significantly increase the people and jobs within walking distance of the Primary Transit Network.

Policies

Regional transit service

a. The City should take a leadership role in the planning and co-ordination of an integrated regional transit system that supports and informs long-range plans for regional transportation networks.

b. **Right-of-way** requirements for future regional and Primary Transit services must be identified and opportunities to acquire additional right-of-way should be investigated if necessary.

c. In collaboration with the Calgary Metropolitan Region Board and other stakeholders, The City should participate in the coordinated planning and development of a system of Transit Mobility Hubs for interconnection of Primary Transit services and regional and inter-city passenger transport modes.

Expanding the Calgary Transit network

d. Base Transit Service should be provided to facilitate convenient access to developments that have a sufficient intensity of population and employment, in order to achieve minimum performance standards for transit service.

e. A Primary Transit Network of high-frequency transit routes should be developed to improve transit access to the **Greater Downtown** and support **Activity Centres** and **Main Streets**.

f. Urban design principles that respect existing communities and utilize environmental best practices should be used in the design and construction of the Primary Transit Network.

g. Timely investment in new transit lines and improved transit service levels, focusing on the Primary Transit Network, should be provided to support existing higher-intensity areas and encourage intensification of new, priority-growth areas.

h. Community design should minimize pedestrian **street** walking distance to transit service (i.e., a bus zone or LRT station) to 400 metres or less in all areas of the city. In recognition of unusual circumstances, up to five per cent of the area population (i.e., dwelling units) may be located beyond 400 metres **street** walking distance from transit service.

Improving transit speed and reliability

i. A full range of strategies such as transit signal priority, intelligent priority and information systems, high-occupancy vehicle (HOV) lanes, queue-jump lanes and bus stop consolidation should be utilized to optimize transit travel times with an emphasis along Primary Transit Network corridors.

Passenger comfort and convenience

j. All transit infrastructure should be designed, operated and maintained to provide a safe, clean and comfortable environment and ensure ease of transfer between transit services and with other modes of transportation.

k. Advancements in transit vehicle technology and Intelligent Transportation Systems (ITS) should be used where appropriate, along with best operating practices to improve passenger information, amenities, transit capacity and operating efficiency.

Integration with other modes

l. Other modes of transportation, specifically walking, wheeling, private vehicles, rail and air, should be integrated with transit services.

m. Transit Mobility Hubs should accommodate efficient transit access, comfortable passenger waiting areas and safe, direct, unobstructed routes for pedestrians and cyclists.

Social considerations

n. A range of affordable, accessible, fixed-route and specialized door-to-door transit services should be provided to address the mobility needs of persons with disabilities and low income Calgarians who depend on public transit for their mobility.

River crossings

o. Planning and design of any new river crossings must consider the principles and design considerations documented in Part 6 of the CTP.

3.4 Goods Movement

Objective

To recognize the important economic role of goods movement by providing a safe, efficient and connective goods movement network that supports the Calgary International Airport, the Canadian National (CN) and Canadian Pacific (CP) **intermodal facilities**, transportation and distribution districts and goods movement routes, while also minimizing impacts on surrounding communities.

Supports

- **Key Direction 5:** Increase mobility choices.
- **Key Direction 7:** Create Complete Streets.
- **Key Direction 8:** Optimize infrastructure.
- **Transportation Goal 1:** Align transportation planning and infrastructure investment with city and regional land use directions and implementation strategies.
- **Transportation Goal 2:** Promote safety for all transportation system users.
- **Transportation Goal 5:** Promote economic development by ensuring efficient goods movement and labour force mobility.
- **Transportation Goal 7:** Ensure transportation infrastructure is well managed.

Discussion

Calgary has proven itself to be a global economic leader by offering a full range of multi-modal services and solutions. The city is a major part of the east-west trade corridor in Western Canada and is a key distribution point for movement of Asia-Pacific-related imports and exports. The transportation, warehousing and wholesale trade sectors directly accounted for nearly eight per cent or $9 billion of the Calgary region's gross domestic product (GDP) in 2015. These sectors in turn support other economic activity, yielding a combined GDP impact of more than $14.5 billion in 2015. They also directly and indirectly supported up to 134,000 jobs in the Calgary region.

As import/export traffic grows, there will be direct benefits to Calgary in terms of employment and the local economy. However, as urban goods movements have grown, so has associated congestion, energy consumption and safety concerns. A proactive approach is required to develop strategies that will ensure the city remains competitive economically on the local, national and global stage. The City must also work in conjunction with the provincial and federal governments to create a sustainable goods transportation system that addresses local, regional, national and international needs.

An effective and reliable goods movement network will be required to support some of the key industrial areas and commercial vehicle traffic generators in the Calgary area, including:

- the northeast and southeast industrial areas
- the Shepard Industrial Area
- the northwest aggregate resources
- expansion plans for CN and CP intermodal facilities
- the Calgary International Airport (a.k.a. "YYC")

The Significance of Air and Rail Goods Movement

Cargo shipments of 155,820 tonnes passed through the Calgary International Airport via airplane in 2019, with continued growth expected. Through Canada's two major rail companies, CN and CP. 360,000 containers combined are transported annually. Both companies have plans to expand facility capacity.

Calgary is a significant distribution hub in Western Canada. Combined with the goods movement network utilizing trucks and other commercial vehicle modes, Calgary will continue to be a competitive centre in the distribution of goods to Canada and the U.S.

In order to sustain a vibrant economy in Calgary, it is important to consider all of the goods movement modes in any major planning process. The three primary modes responsible for goods movement in the Calgary region are air, rail and roadway. Each of these modes plays a distinct role in goods movement, and they must be capable of working together in order to drive the economy.

Air

Airports are a critical component of Calgary's transportation infrastructure. Air cargo demand is increasing, along with continued growth of passenger air transportation. Air cargo is one of the fastest growing modes of transportation for high-priority, time-sensitive shipments. Aircraft maintenance and manufacturing is also an important part of the aviation industry in the Calgary region. In addition, logistics and aviation training is provided at several post-secondary institutions in Calgary.

The Calgary International Airport has direct air cargo connections to Asia, the United Kingdom, Mexico and Europe, and cargo can be shipped from Calgary to anywhere else in the world within 48 hours. With no curfews or noise restrictions, the Calgary International Airport operates 24 hours a day, seven days a week. In addition, the Calgary International Airport has award-winning, first-class cargo facilities and services, a premier livestock handling facility, and on-site refrigeration facilities. The YYC Global Logistics Park occupies over 330 acres of land and connects commercial, airside and logistic businesses. Aviation logistics also provides support for energy management and banking industries in Calgary.

Rail

Rail transportation is a key component of the logistics and distribution sector in the Calgary Region, serving as a critical link in the supply chain for many businesses. CN and CP both have major rail intermodal facilities in the Calgary region.

Calgary is a major redistribution point for goods destined to Western Canada and the United States (U.S.) arriving by rail via Vancouver's seaports. In 2014, rail carried nearly 30 per cent of goods by

weight into and out of the Calgary region. In 2016, 220,000 containers transporting 2.8 million tonnes of cargo were moved to Calgary by rail, and 140,000 containers transporting 1.7 million tonnes were moved from Calgary.

Trains operating in urban areas sometimes cross **roadways**, and the need for safer infrastructure arises from the interaction between railway and **roadway** users. There are numerous level rail crossings within Calgary city limits. In order to mitigate the risks and traffic delays associated with level rail crossings, The City will continue to review the need for grade separation of rail from **roadways** in key corridors.

Road

Within Alberta, trucking is the primary mode for the movement of goods. Calgary plays an important role as a trucking hub with major highway connections passing through the city. Highway 2 (Deerfoot Trail) and Highway 201 (Stoney Trail) are major north/south routes as part of the CANAMEX highway system, helping move people and products across Alberta and enhancing access to markets in the United States and Mexico . The Trans-Canada Highway (16th Avenue North) is the major east/west route providing connectivity across Canada. The completed portions of the Calgary Ring **Road** also play an important role in facilitating goods movement to every quadrant of the city.

In 2014, about 70 per cent of all goods by weight entered and exited Calgary by truck. In 2015, approximately 120,000 truck trips were made within Calgary on a daily basis, according to City estimates.

The City is responsible for the design and review of the truck route network within Calgary, including high load and dangerous goods routes. In determining appropriate network connections, The City must balance the needs of goods and services movement with the needs of residential communities impacted by truck routes. Impacts on adjacent municipalities should also be considered. Ultimately, the truck routes within Calgary are reviewed through Council-approved goods movement transportation policies, and designated routes are provided in goods movement bylaws. As per City bylaw, trucks over a certain weight must stay on designated routes while travelling within Calgary city limits. Trucks may only deviate from assigned routes to access their destinations using the shortest path to and from designated truck routes.

The CTP includes a Primary Goods Movement Network that will facilitate the movement of goods and services in Calgary. The Primary Goods Movement Network does not outline all future truck routes, but defines high-priority goods movement routes where the most concentrated activity will occur and therefore where improvements are anticipated to be warranted on the basis of safety and economic benefits. The location of a candidate investment project on the Primary Goods Movement Network will be addressed during the evaluation and prioritization of transportation

Trucks Versus Commercial Vehicles

Commercial vehicles are responsible for goods and services movement and include heavy trucks, medium truck, and light vehicles that are used for commercial purposes. Heavy and medium trucks are covered by The City's bylaws, requiring them to use designated truck routes during transportation. Light commercial vehicles (e.g., small couriers, electricians, cable providers) provide small-scale goods and services movement, making up 50 per cent of the distance traveled for all commercial vehicles.

It is critical for businesses to have a reliable network of **roadways** where light commercial vehicles and larger trucks can all travel efficiently between stops.

infrastructure investment projects. Significant investments in **roadway** capacity and access control improvements (e.g., grade separated interchanges) may be approved for locations on Main Goods Movement Corridors. On Supporting Goods Movement Corridors a greater emphasis will be placed on operational improvements (i.e., efficiency) and compatibility with adjacent land uses. Emerging Goods Movement Corridors identify **road** segments of increased interest on the part of industry stakeholders. More detailed information can be found in the Goods Movement Strategy (GMS).

All existing and future truck routes, including high load and dangerous goods corridors, will be identified on an ongoing basis through regularly issued bylaw updates.

The Primary Goods Movement Network is shown in Map 5 in Part 8.

Increasing transportation options, and therefore reducing automobile use, will mitigate the impact of congestion on commercial vehicle movements. Additional transportation tools and techniques outlined in Section 3.6 will optimize the flow of traffic in Calgary and further increase reliability and capacity for goods movement.

Developments in the e-commerce and transportation technology sectors (e.g., drone delivery service testing, automated commercial vehicles) have the potential to disrupt traditional patterns of goods movement in Calgary in the next twenty years. However, there is a great deal of uncertainty associated with transportation technology at the current time. Additional policies outlined in Section 3.14 will ensure that The City will be prepared to respond as the implications of new technologies become clearer.

Policies

a. The importance of intermodal facilities and a connected goods movement network should be recognized to ensure reliable goods movement and land accessibility.

b. The City, regional partners and other stakeholders should co-ordinate the development of **roadway** connections in the city and region, with consideration for the location of industrial land uses.

c. The integrity of major goods movement routes should be protected by coordinating adjacent land use planning with the provision of adequate truck accessibility.

d. Intelligent Transportation Systems (ITS) should be used to improve traffic flow and travel time reliability on the Primary Goods Movement Network.

e. The retention and expansion of existing railway corridors within city limits should be supported.

f. The City should consider the impact of goods movement routes on **roadways** in adjacent municipalities.

g. The City should study ways to improve the operational efficiency of the existing Goods Movement Network for commercial vehicles, including the feasibility of implementing commercial vehicle priority measures along corridors (e.g., dedicated lanes) and at intersections (signal priority).

3.5 High-Occupancy Vehicles (HOV)

Objective

Optimize the person-moving **capacity** of the transportation system by increasing average vehicle occupancy and reducing reliance on single-occupant vehicles for commuting in Calgary, and improve operating speeds and reliability of transit service by creating priority along Primary Transit corridors.

Supports

- **Key Direction 4:** Increase mobility choices.
- **Key Direction 7:** Create **Complete Streets**.
- **Key Direction 8:** Optimize infrastructure.
- **Transportation Goal 4:** Enable public transit, walking and cycling as the preferred mobility choices for more people.
- **Transportation Goal 6:** Advance environmental sustainability.

Discussion

A high-occupancy vehicle (HOV) is currently defined in Calgary as a bus, any motor vehicle with two or more occupants, including taxis, or a bicycle. HOV lanes can take many forms, including lanes restricted for use by carpoolers, low or zero-emission vehicles, transit-only lanes, dedicated shoulder lanes and queue jumps. HOV lanes exist in Calgary in several locations, including segments of Centre **Street** North, 9th Avenue S.E., 17th Avenue S.E. and 14 **Street** S.W. HOV lanes are most successful when supported by complementary infrastructure, such as dedicated carpool parking stalls, as well as public awareness campaigns and regular enforcement.

Providing HOV lanes supports strategic goals to reduce reliance on single-occupant vehicles and helps make public transit more appealing by improving transit travel speeds and service reliability. HOV facilities can also help improve air quality, reduce energy demands and GHG emissions and support more land use intensification by linking the **Greater Downtown**, **Activity Centres** and **Main Streets**. A comprehensive and interconnected HOV network will help to manage transportation demand efficiently by optimizing the use and people-moving capacity of existing **roadway** infrastructure.

The CTP defines a Primary HOV Network that effectively connects major destinations throughout the city. Further evaluation of some HOV facilities is required to determine their configuration (e.g., transit only, carpool only) and implementation opportunities (e.g., widening, lane reversal, lane conversion).

The Primary HOV Network is shown in Map 6 in Part 8.

A variety of factors were considered to determine HOV corridors, including:

- alignment with the Primary Transit Network
- projected transit volumes and operations
- projected carpool volumes
- congestion
- corridor characteristics
- adjacent land uses
- strategic context

HOV Lanes in Calgary

Calgary's first HOV lane is located on Centre **Street** North between 20th Avenue North and 3rd Avenue South. During weekday rush hours, the curb lane in the peak direction is reserved for vehicles with two or more occupants, buses and cyclists. The HOV lane operates in conjunction with a lane reversal system that designates three of the four Centre **Street** traffic lanes for peak direction travel.

The Centre **Street** HOV lane is one of approximately two dozen arterial HOV facilities currently operating in Canada.

The proposed HOV network totals approximately 220 kilometres (440 lane-km), excluding potential provincial HOV corridors and will be implemented over the next 50 years. Other corridors may be identified in the future for inclusion in the Primary HOV Network.

Policies

a. A network of HOV lanes and supportive infrastructure should be implemented in order to support progress toward achievement of the goals and objectives of the MDP, CTP and (particularly) the Climate Resilience Strategy.

b. HOV priority measures should be implemented during new construction, improvement or widening projects on City-owned **roadways** shown on the Primary HOV Network, unless such measures are demonstrated to be inappropriate at that time or place.

c. The provincial government, The City and other municipal governments should work collaboratively to develop an inter-municipal network of HOV lanes and supportive infrastructure to serve regional transportation goals.

d. HOV lanes and supportive infrastructure such as designated carpool parking lots should be developed in tandem to move people more effectively.

3.6 Quality of Service and User Experience

Objective

To provide a high-quality service for all modes of transportation while addressing the travel experience for all users.

Supports

- **Key Direction 5:** Increase mobility choices.
- **Key Direction 6:** Develop a Primary Transit Network.
- **Key Direction 7:** Create **Complete Streets**.
- **Key Direction 8:** Optimize infrastructure.
- **Transportation Goal 1:** Align transportation planning and infrastructure investment with city and regional land use directions and implementation strategies.
- **Transportation Goal 2:** Promote safety for all transportation system users.
- **Transportation Goal 3:** Provide affordable mobility and universal access for all.
- **Transportation Goal 4:** Enable public transit, walking and wheeling as the preferred mobility choices for more people.
- **Transportation Goal 5:** Promote economic development by ensuring efficient goods movement and labour force mobility.
- **Transportation Goal 7:** Ensure transportation infrastructure is well managed.

Discussion

Calgary, like most North American cities, has placed the highest priority on accommodating private vehicle use over the last 50 years. Significant investments have been made to develop a **Road** and **Street** Network capable of moving high volumes of vehicular traffic over long distances. However, despite these investments in vehicle-oriented infrastructure, congestion and delays have continued to increase in Calgary and every growing major city in North America. In large part, this is because of the separation between residential communities, employment centres and services. This separation has increased the distances people are required to travel, making private vehicles the most convenient option.

Evaluation of transportation networks has focused traditionally on peak morning or afternoon rush hour and the associated traffic congestion. The anticipated traffic volume relative to the capacity of a **roadway** or intersection has, therefore, been the primary measure of service levels. The shift in emphasis to all modes of transportation requires us to broaden our definition of service to include walking, wheeling, transit, goods movement and carpooling. When levels of human activity increase in a growing city, it also becomes important to consider the entire day rather than just peak travel times. This means evaluating the overall quality of service for all modes of transportation, rather than just peak-hour traffic congestion. As well, the expectations of citizens in a city of 2.3 million people can be very different from those in a city of one million people, just as the expectations of the residents of a small town can differ significantly from those in a mid-sized city.

Assessing Quality of Service for Proposed Developments

The Transportation Impact Assessment (TIA), which has been used to determine the impact of large developments on Calgary's transportation network, has traditionally focused heavily on automobile use and mitigating additional traffic through **roadway** improvements. Assessment of mobility impacts in areas within walking distance of Primary Transit needs to focus on transit-oriented improvements, enhanced walking and wheeling environments, the optimization of more sustainable transportation modes and vehicle trip reduction programs.

An assessment of the transportation impacts of **Transit-oriented Developments** (**TODs**) will generally include:

- An assessment of the alignment of proposed development with the most important components of **Transit-oriented Development**.
- Analysis of **street** infrastructure layout and design that supports efficient transit service.
- Alignment with City plans for adjacent Primary Transit corridors and Base Transit Services.
- Analysis and plan to improve walking and wheeling routes.
- Analysis and plan for parking supply and demand, including park and ride facilities.
- Analysis and plan for vehicle and truck access and circulation.
- Community and stakeholder engagement, identification and assessment of mobility issues.
- Phasing of development for large projects.
- Identification of appropriate trip reduction programs.

Quality of Service

Evaluating quality of service also means that we must consider both quantitative and qualitative measures. Efficiency and reliability must be considered in conjunction with attractiveness and impacts on surrounding communities. For example, transit quality of service depends on reliability, frequency, speed, convenience, cleanliness and safety. The level of traffic congestion is only one of many factors influencing the quality of service perceived by transit customers.

Quality of service for pedestrians and cyclists can best be measured by evaluating how far people are willing to walk or wheel to reach different destinations. This means assessing how direct the connections are between homes, schools, community centres, leisure facilities, parks and jobs. Equally important, although difficult to measure, is the attractiveness and safety of the routes available for pedestrians and cyclists.

Vehicles will continue to be a popular mode of transportation in the future. Many businesses rely on light commercial vehicles to deliver goods and services throughout Calgary. However, by making other modes of transportation realistic choices for many of the trips in Calgary, automobile use per person will be reduced over time and mitigate the impact of congestion on those people or services that must drive.

There are a variety of tools and techniques that can be used to mitigate the effects of congestion for all modes of transportation and improve the flow of traffic. These include:

Travel Demand Management (TDM)

TDM uses policies, programs, services and products to encourage a shift in travel behaviour from single-occupant vehicles to more sustainable modes of travel, including walking, wheeling, transit and carpooling. Examples include car sharing, universal transit pass programs for post-secondary educational institutions, promoting working from home and changing the time of day people travel. TDM saves people time by helping them travel more efficiently, and it improves health by promoting both physical activity and more environment-friendly travel that reduces GHG emissions and other air pollutants. It benefits employers by increasing productivity, reducing parking costs and helping to attract and retain workers. It promotes economic development by reducing congestion and enhancing worker mobility.

Transportation System Management (TSM)

TSM involves cost-efficient measures that focus on improving the operational efficiency and effectiveness of transportation infrastructure to reduce overall delay for all users. Many TSM measures involve traffic control changes and small-scale **roadway** improvements, and they provide benefits for multiple modes of transportation. Reversible lanes are one example of how TSM measures have been used in Calgary. TSM projects, which may cost from a few thousand to several hundred thousand dollars, may delay or even eliminate the need for multi-million dollar capital construction projects. And while major infrastructure projects can take years to plan and build, most TSM projects can be implemented much more quickly.

Intelligent Transportation Systems (ITS)

ITS is the application of advanced technology to improve transportation operations, including the control and management of traffic flow and communication of relevant information to travellers and service providers so they can respond to changes in travel conditions or times as necessary. These technologies can enhance all forms of personal mobility, as well as goods movement, protective services and parking facilities.

Incident management

Incident management involves a set of actions to manage traffic during unplanned incidents such as motor vehicle collisions or planned events such as construction detours. Effective management of incidents increases the reliability of the transportation network, which provides direct economic benefits with regard to goods movement and worker mobility, and helps to maintain transit schedules. Increased reliability of travel time has even been found to be more important than total travel time for commuters.

Responding to Traffic Congestion

The CTP recognizes that actions which improve vehicle mobility will continue to be important to Calgarians. Land use changes that reduce our dependence on vehicles, thereby enabling more trips to be made by active modes or transit, will have the greatest impact on travel times in Calgary. Reduced vehicle use, over the long term, will minimize the impacts of congestion for those who choose to drive.

Every **street** in Calgary is designed to move vehicles. The **Road** and **Street** Palette described in section 3.7 provides a wider variety of **street** types; some put more emphasis on vehicles, while others place a high priority on other modes of transportation. Mobility for vehicles and all other modes of transportation will be facilitated by putting the right type of **street** in the right place.

Improving both traffic flow and the reliability of the transportation system, now and in the future, will provide direct benefits to motorists in Calgary. Some improvements will require the construction of new infrastructure such as **roadways** and interchanges. However, many traffic problems impacting cars can be mitigated through less costly and more efficient transportation management tools.

Transportation pricing

The use of pricing (i.e., charging a fee to use a transportation facility) as a transportation management tool can help optimize the use of the transportation system. This approach should be considered where new infrastructure construction is not possible or desirable. Revenues from pricing initiatives should be reinvested back into the transportation system.

Effectively combining these tools and techniques will have a variety of benefits for Calgarians, including:

- improving mobility options on existing infrastructure, reducing overall delay for all transportation modes.
- improving the speed and reliability on goods movement corridors.
- managing traffic more efficiently during planned events or unplanned incidents.
- reducing the need for costly infrastructure improvements.
- providing motorists and transit users with better information that helps them to make effective travel choices.

User Experience

Providing a positive user experience is essential to achieving the vision outlined in the CTP and the MDP. A user's travel experience includes all phases of a trip, from pre-planning to the walk up to the door at a final destination.

The Transportation Department is committed to addressing the travel experience for all of the users of Calgary's transportation system through actions to identify issues and opportunities related to safety, accessibility, information and reliability for all of the services it provides. This commitment has several policy implications:

- Transportation should develop and communicate a comprehensive vision and goals for the experience of users of Calgary's transportation system.
- Service teams should ensure that a comprehensive and meaningful customer engagement process is established to ensure that the "voice of the user" informs service planning and operational decision-making. To be "meaningful", Calgarians who use the service should be engaged and have the opportunity to influence plans and decisions before they are finalized.
- Informed by user feedback, The Transportation Department should produce a "user-experience action plan" identifying existing and new/potential initiatives to be undertaken within the next four-year budget cycle.
- Evaluating the impact to user experience resulting from the projects and plans identified through a "user-experience action plan" requires systems and processes to measure progress relative to objectives – where any gaps exist, service teams should develop the key performance indicators (KPIs) and metrics necessary to enable effective evaluation.

Policies

a. TDM strategies should be implemented first to reduce or eliminate the need for new links in the transportation system, and must be integrated into all municipal approval processes to promote more sustainable travel choices.

b. Incentives should be provided to developers to make sustainable travel options such as walking, wheeling, transit and carpooling integral to all TOD projects.

c. Appropriate TSM, ITS and incident management strategies should be used to mitigate congestion, improve safety, increase travel time reliability for all modes of transportation and to better manage competing demands for right-of-way space between different transportation users.

d. The reliability of the transportation system should be maintained by actively managing planned events or unplanned incidents.

e. Ongoing educational opportunities should be provided to the public regarding their role in minor traffic collisions, and first responders should be trained to manage traffic effectively during incidents.

f. Strategic improvements should be identified on the transportation network that would benefit response times for emergency services.

g. Transportation system maintenance, construction- related lane closures and detours should be managed to reduce congestion (all modes) and minimize rerouting of traffic, and restrictions on HOV/transit lanes should be adhered to during incidents to ensure reliable service for those modes.

h. Transportation pricing tools that take into account the economic, environmental and social costs of travel should be considered in order to achieve more efficient use of existing and future transportation infrastructure.

i. The unique travel characteristics of higher-density, mixed-use developments, such as the **Greater Downtown**, **Activity Centres**, **Main Streets** and **TODs**, must be recognized by adjusting mobility requirements to support and promote all modes of transportation.

3.7 Complete Streets

Objective

Increase the attractiveness, convenience and safety of all modes of transportation by creating a selection of multi-modal **streets** that emphasize different modes of transportation, incorporate elements of **natural infrastructure** and function in the context of surrounding land uses.

Supports

- **Key Direction 2:** Provide more choice within complete communities.
- **Key Direction 5:** Increase mobility choices.
- **Key Direction 6:** Develop a Primary Transit Network.
- **Key Direction 7:** Create **Complete Streets**.
- **Key Direction 8:** Optimize infrastructure.
- **Transportation Goal 2:** Promote safety for all transportation system users.
- **Transportation Goal 3:** Provide affordable mobility and universal access for all.
- **Transportation Goal 4:** Enable public transit, walking and wheeling as the preferred mobility choices for more people.
- **Transportation Goal 5:** Promote economic development by ensuring efficient goods movement and labour force mobility.
- **Transportation Goal 6:** Advance environmental sustainability.

Discussion

What is a **Complete Street**? It is a **street** that:

- Moves people, by foot, bike, bus and car.
- Is a place where people can live, work, shop and play.
- Supports the natural environment.
- Facilitates movement of trucks and service vehicles, and supports the local economy.

The main function of a **street** is to provide a connection between origins (i.e., where people are) and destinations (i.e., where people want to go). Building multi-modal **streets** that do not focus exclusively on vehicles creates options for people who want to walk, wheel or take transit. This, in turn, increases the capacity of the overall transportation system and mitigates traffic congestion by reducing the number of unnecessary automobile trips on the transportation system. Creating more mobility choices also maximizes accessibility and the ability to travel for all Calgarians.

Roads and **streets** also provide space for all of the various utilities that are necessary to support adjacent land uses. These include shallow utilities like gas and phone lines, and deeper utilities like water pipes and sewers.

Streets, along with the vehicles and people that use them, have a direct impact on the environment. They contribute to traffic noise, degradation of air and water quality and GHG emissions. In 2005, 30 per cent of GHG emissions in Calgary came from transportation sources; in 2018, 34 per cent of GHG emissions were from transportation sources. These sources also impact water quality through the deposition of air pollutants, oil spills and **roadway** de-icing. Many of these impacts can be mitigated and/or eliminated through sustainable design,

Creating a Complete Street

Mixed land use development with a pedestrian-friendly streetscape will support Primary Transit, and strong urban design elements will enhance the public realm to create a safe, vibrant, and attractive street.

The Road and Street Networks shown in Map 7 in Part 8 identifies a number of corridors that are envisioned to become Urban Boulevards.

Wide sidewalks allow for comfortable and unobstructed movement of pedestrians. Adjacent land use development will be integrated with the street, providing continuous building façades and windows onto the street that will improve pedestrian comfort. Inclusion of natural infrastructure (such as trees and additional buffer planting) will reduce the impacts of vehicle traffic on pedestrians.

Example corridor (before)

Example corridor (after, concept only)

Credit: Design Centre for Sustainability, SALA, UBC

Design Speed and Traffic Calming

Traffic calming measures are used to mitigate the conflict between mobility and placemaking, and lower operating speeds on **streets** in Calgary communities.

A traffic speed study was undertaken on the Collector **streets** in a newer residential community, and showed 85th percentile speeds in the range of 70 km/h. The posted speed limit on these **streets** is 50 km/h. Traffic calming measures have recently been approved to retrofit several **streets** in an effort to reduce these operating speeds.

Research shows that intersection and driveway density, pedestrian activity, onstreet parking, median design, roadside development, traffic signal density and adjacent land uses all have an effect on vehicle speed. Selecting appropriate elements in the initial design to achieve desired operating speed may preclude the eventual need for traffic calming measures.

particularly by implementing natural infrastructure design approaches.

Streets also have a major role in placemaking – creating places where people can meet, live, shop, work and play. Traditionally, **streets** were the centre of civic life, creating focal points for communities and businesses. In the past 50 years, more emphasis has been put on moving large numbers of vehicles at high speed over long distances. Greater emphasis on the public realm can create economic and social benefits for communities, business owners and the city as a whole.

Not every **street** in Calgary will be able to meet the needs of all users. Different types of **streets** have different functions, so their design should fit with the context. The CTP has established a **road** and **street** typology addressing context and the provision of mobility for a range of users. The role of the **Complete Streets** Policy and Guide, in conjunction with the updated Design Guidelines for Subdivision Servicing, is to provide comprehensive guidelines for the incorporation of **Complete Streets** concepts into the planning, design and construction of new **streets**, and the reconstruction of existing **streets**.

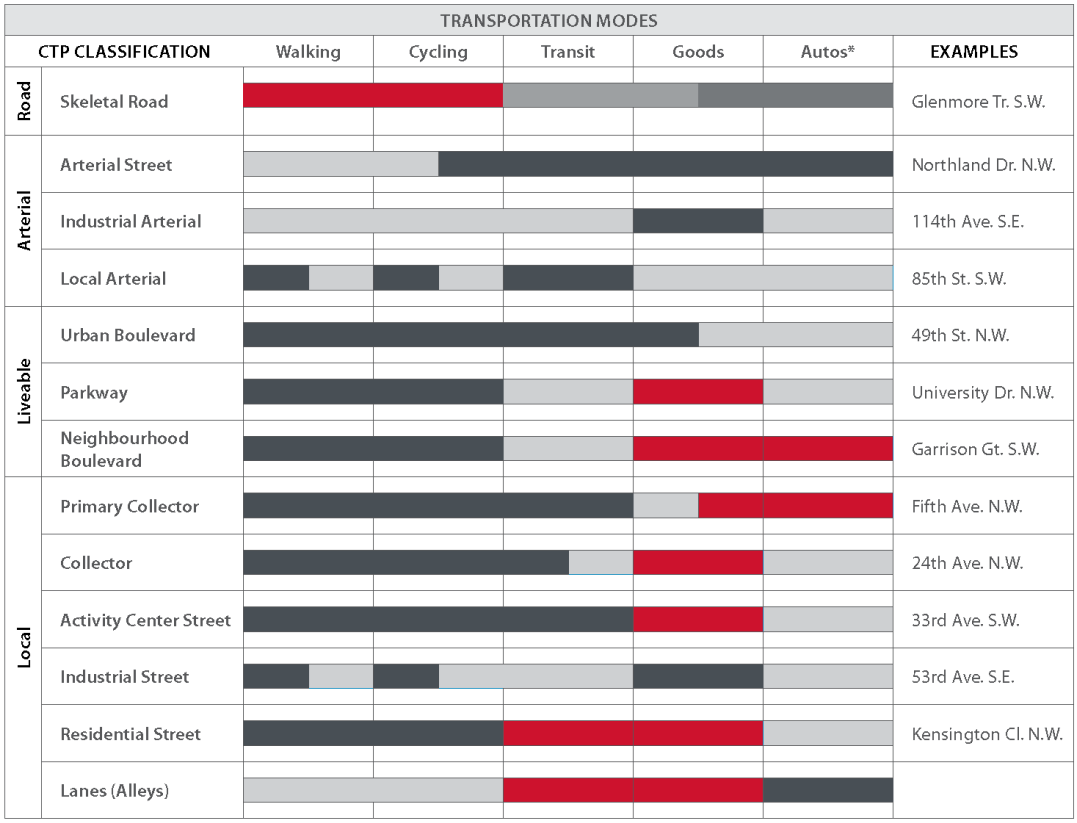
In the future, new river or creek crossings will be required to increase **roadway** capacity as strategies to optimize operation of the existing infrastructure are exhausted. Also, new river or creek crossings may be necessary to provide **roadway** connectivity either city-wide as part of the **road** and **street** network, or to connect locally by Residential **Streets** in the community. In those cases, the principles outlined in Part 6, must be applied during the planning and designing process of any **road**, **street** and Residential **Street**, respecting natural ecosystems and adjacent communities.

The Road and Street Palette

The **Road** and **Street** Palette has been developed to differentiate between more traditional "**roads**," which primarily serve long-distance vehicle trips and provide limited access to adjacent land uses, and "**streets**," which serve a broader range of transportation modes and interact directly with adjacent land uses.

Streets and **roads** should provide mobility for a

Figure 4 – The Road and Street Palette



> The street is the river of life of the city, the place where we come together, the pathway to the center.
>
> William H. Whyte, an American sociologist and journalist

wide range of users, facilitate the movement of goods and services to support the economy and incorporate elements of natural infrastructure to enhance the environment. However, **streets** also contribute to placemaking, while the primary role of **roads** is the movement of people and goods over long distances at higher speeds.

The priority level for each transportation mode (walking, wheeling, transit, goods movement and vehicles) is clearly defined for each type of **road** and **street** in Figure 4.

Each is strongly linked to the adjacent land use context within the applicable typologies, as described in the MDP. The examples provided in Figure 4 represent transportation facilities where land uses are expected to evolve over time to support the proposed **street** type (e.g., 49th **Street** N.W. as an Urban Boulevard). Actual design parameters and operational processes for each facility reflect the priorities assigned to each mode of transportation in Figure 4 (appropriate **Complete Streets** handbooks and guidelines will provide design information in detail).

Every **street** should create an environment that is comfortable for all transportation modes, but **streets** in Figure 4 that prioritize walking and wheeling require careful attention to design elements that support placemaking and the public realm. These **streets** are locations where large numbers of people will spend time walking, wheeling, shopping, and socializing. **Public realm** policies are contained in the MDP, and highlight important design considerations for these **streets**.

Roads and **streets** that focus on the movement of private vehicles and commercial vehicles will make up 78 per cent of the future network, while the remaining 22 per cent will be composed of **streets** that emphasize pedestrians, cyclists and transit.

The **Road** and **Street** Network is shown in Map 7 in Part 8.

The **Road** and **Street** Palette applies to all parts of the city, with the exception of the **Greater Downtown** (the downtown and Beltline), where a unique set of **street** classifications were developed through the Centre City Mobility Plan. The **streets** that connect into the **Greater Downtown** on the city-wide **Road** and **Street** Network map have been classified to align closely with the design and function of the **streets** within the **Greater Downtown**.

Natural Infrastructure

Natural infrastructure refers to an interconnected network of green spaces and natural corridors that perform numerous environmental services in urban environments. For natural infrastructure to be fully integrated throughout parks, open spaces, **streets** and other natural corridors, it must become part of the underlying framework that is used to guide future development patterns. A proactive approach enables natural infrastructure to be considered in advance of

development and in conjunction with growth and development planning. Consideration must also be given to protecting existing natural infrastructure.

Providing opportunities for more sustainable modes of transportation, and the associated infrastructure, is one way of protecting the environment. Another way is to apply natural infrastructure, which is targeted primarily toward reducing negative impacts on air, water and habitat, and also contributes to the aesthetic value of the **road** or **street**.

Additional information on natural infrastructure and environmental policies can be found in The City's Stormwater Management Strategy and the Parks **Urban Forestry** Strategic Plan. More detailed information of the natural infrastructure application to **roads** and **streets** design can be found in the **Complete Streets** Guide and the Design Guidelines for Subdivision Servicing (DGSS).

Public Realm

Public realm in **streets** is generally focused on the area between travel lanes and adjacent land uses. This space can contain a combination of privately-owned land and public domain. Improving the public realm design of **streets** improves compatibility with adjacent land uses, creates attractive pedestrian environments, provides public space for activities and art, provides space for trees, provides space for business activities (such as shop kiosks or patios) and **street** furniture (benches, garbage receptacles, bike racks, etc.), all of which enhance Calgarians' quality of life.

The MDP contains a set of urban design and public realm policies that should be followed when designing **streets** to function in the context of the surrounding environment. Maintenance and life-cycle considerations should also be addressed.

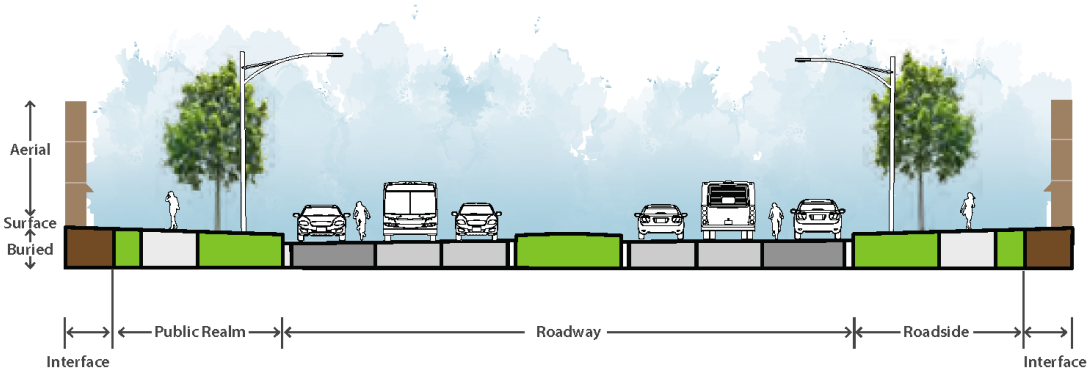
High Stormwater Flow Rates Impacts Local Rivers

In Calgary, **roads**, **streets** and parking areas represent over 24 per cent of all impervious land area. This contributes to higher storm flow volumes and pollutant loads to urban stormwater than any other source area in urban development.

Street design can have a powerful impact on stormwater quality, both by generating large areas of impervious land coverage and by collecting non-point source pollutants from automobiles and associated transportation infrastructure.

Streets are also almost always directly connected to an underground stormwater system.

Figure 5 – Complete Street zones



Complete Streets Zones

Complete Streets consist of horizontal and vertical zones, as shown in Figure 5.

Elements of each horizontal and vertical zone are shown in Figure 5.

Not all elements of the mobility corridor, natural infrastructure or public realm will be used in a design of a **Complete Street**, especially in a retrofit situation (i.e., available right-of-way could be a limiting factor). Ensuring the right balance between mobility, natural infrastructure and public realm will result in **roads** and **streets** that effectively meet the goals of CTP.

Street or Road Classification Review

Street and **road** classifications are initially established through local area plans, and are based on transportation network studies typically conducted in support of area planning initiatives (e.g., Area Structure Plans, Regional Context Studies). As the classification of an existing **street** or **road** is tied to the functionality and design elements required to achieve the objectives of a local area plan, any **street** or **road** classification review must be conducted as part of a transportation network study. **Street** and **road** classifications are subject to periodic review; classification changes that result require local area plan amendment.

Policies

Planning, design and maintenance of Complete Streets

a. The **road** and **street** design parameters and operational processes must adhere to the priorities set out in the **Road** and **Street** Palette for each mode of transportation, as shown in Figure 4 of the CTP.

b. **Roads** and **streets** must be designed with consideration for the context of surrounding land uses, and should incorporate universal access principles.

c. The **road** and **street** design must consider which elements are appropriate in each **Complete Street** zone based on the function of the transportation facility and adjacent land use context.

d. Design speed (and resulting operating speed) should be selected based on the function of the transportation facility and adjacent land use context. All other **road** and **street** design elements must be set to complement intended operating speed.

e. Note: Policy deleted.

f. Intersections should be designed to accommodate the needs of all users safely.

g. All new and retrofit bridges and interchanges on facilities Arterial **Streets** and lower must be designed and built to accommodate walking and wheeling.

h. Planning studies for Urban Boulevards and Neighbourhood Boulevards should seek to mitigate operational impacts on adjacent communities by including **streets** and connections at least one-and-a-half blocks to either side of the Boulevard.

i. Snow clearing should be planned and implemented in such a way that it does not interfere with walking and wheeling movement on Urban Boulevards, Neighbourhood Boulevards and Parkways, once these **streets** have been upgraded to meet the design guidelines for their classification. Clarification of, or adjustments to, maintenance responsibilities among City business units should be undertaken as warranted to optimize quality of service and user experience.

j. Appropriate transitions for **road** and **street** cross-sections should be developed where City infrastructure connects to infrastructure in surrounding municipalities.

Adaptability

k. Existing rights-of-way within **Activity Centres**, along **Main Streets** and for Parkways should be protected to allow for future upgrading of existing **streets** defined as Urban Boulevards, Neighbourhood Boulevards and Parkways, and opportunities to acquire any additional right-of-way required to achieve the requirements should be investigated where necessary.

l. Land that was previously acquired by The City or identified as part of a required setback for the purpose of future transportation facilities or improvements should not be effectively sterilized in the interim timeframe, particularly in the **Greater Downtown** and on **Main Streets**, where public realm integration is critical. Interim uses for the land that enhance public realm, support active modes or act as natural infrastructure elements should be encouraged, with recognition that any associated improvements are subject to potential removal when the right-of-way becomes required for its intended purpose.

Access

m. Driveway accesses on existing **streets** designated as Urban Boulevards, Neighbourhood Boulevards and Parkways should be consolidated as redevelopment occurs over time, in order to minimize impacts on walking and wheeling facilities, while respecting access needs.

n. All new and retrofit **roads** and **streets** should provide adequate access for emergency vehicles, waste and recycling, **street** maintenance and other city services to meet their legislative policy requirements.

Natural infrastructure

o. All new and retrofit **road** and **street** designs should incorporate natural infrastructure strategies to contribute to the environmental health and visual aesthetics of the urban fabric.

p. In all designs, natural processes should be maintained and re-established by conserving, protecting and restoring habitat quantity and quality. **Watersheds** should be protected by filtering **roadway** run-off.

q. Native vegetation and a layered tree canopy should be incorporated within corridors to reduce the urban heat island effect, to improve stormwater retention and improve air quality.

Public realm

r. The public realm design for **streets** should adhere to the public realm policies set in Volume 1 of the MDP.

Utilities and line assignments

s. The priority alignment and placement for shallow utilities infrastructure (trenches and above-ground equipment) should be as follows:

   i. in back alleys and lanes.

   ii. in shallow utility easements on private property.

   iii. within right-of-way, placed in the roadside zone.

   iv. within right-of-way under the roadway (i.e., parking, shared or bike lanes or paved shoulders).

t. Deep utilities should be located so that manholes and other related equipment do not interfere with the movement of pedestrians, cyclists and vehicles.

River and creek crossings

u. Planning and design of any new river or creek crossings must consider the principles and design consideration documented in Part 6 of the CTP.

Collaboration and public engagement

v. Residents, businesses and other stakeholders should be engaged and encouraged to actively participate in the development of **street** design and landscaping standards in order to foster a community's sense of place and the ownership of **Complete Streets** over time.

Residual right-of-way

w. Upon completion of the scope of a comprehensive improvement project in the **Greater Downtown** or in a **Main Streets** area, City land holdings in the project area that were previously acquired or identified as part of a required setback for the purpose of transportation right-of-way that have not been incorporated into the project should be reviewed for potential relinquishment/release.

x. A comprehensive review of land previously acquired, reserved or identified as required by The City for future right-of-way should be undertaken by the Transportation Department, in accordance with the Corporate Land Management Framework.

3.8 Local Transportation Connectivity

Objective

Create better **connectivity** in future communities, the **Greater Downtown** and **Activity Centres** for walking, wheeling and **street** networks, while also increasing access and reducing response times for emergency services.

Supports

- **Key Direction 2:** Provide more choice within complete communities.
- **Key Direction 5:** Increase mobility choices.
- **Transportation Goal 3:** Provide affordable mobility and universal access for all.
- **Transportation Goal 4:** Enable public transit, walking and wheeling as the preferred mobility choices for more people.

Discussion

Connectivity describes all the different ways we can get from one place to another, by walking, wheeling, transit or car. Within residential communities, the **Greater Downtown** or **Activity Centres**, all of this movement happens on the local transportation network. The elements of the network can be combined in a wide variety of patterns and have a significant impact on how people choose to travel.

Research completed by Plan It Calgary and many other cities shows that increased connectivity has a number of benefits, including:

- enhancing public safety by reducing response times for emergency services.
- improving the health of citizens by making walking and wheeling viable options for travelling to work or other daily needs.
- improving accessibility to the regional **street** system and reducing delays for motorists entering or leaving developments.
- reducing walking distances to transit stops and improving routing for City services such as Calgary Transit and Waste & Recycling Services.
- building communities that have the ability to adapt over time.
- increasing social interaction between residents.

Most Calgary communities built prior to the 1970s use 'modified grid' networks that allow people to move easily within their communities, and many provide the benefits listed above. However, most communities built in the last 40 years use 'curvilinear' networks which are more convoluted and therefore provide limited connectivity. This has resulted in increased emergency response times, reduced walking and wheeling opportunities, and increased congestion for residents entering or leaving their communities. More recent communities have been making improvements in connectivity. Future communities should continue to be designed in ways that achieve the higher levels of connectivity, and associated benefits, already present in many Calgary communities today.

Increasing opportunities for walking and wheeling, as well as improved transit circulation, is even more important in higher-density, mixed-use **Activity Centres** and in the **Greater Downtown**. The close proximity of homes, jobs, services and amenities will make walking and wheeling very convenient, as long as high levels of **street** and walkway connectivity are provided.

Effective design of local transportation networks, in Calgary and other North American cities, has shown that the land requirements for transportation infrastructure can be minimized using a variety of different **street** networks, while enhancing connectivity relative to recent curvilinear designs. Typical modified grid networks in Calgary use an average of 26% of the total land area for **streets**, and plans for proposed modified grid communities in Calgary require as little as 22%. Typical curvilinear communities require a similar amount of land at 23% to 25%. This clearly demonstrates that communities can be built without an excessive increase in land required for transportation infrastructure.

Within future communities, concerns about traffic on residential **streets** can also be mitigated through the proper design of **streets** to manage the flow of traffic and discourage undesirable driver behaviour.

Policies

a. **Connectivity** should be maximized for pedestrians, cyclists, emergency vehicles and private vehicles in all future communities, the **Greater Downtown** and **Activity Centres**. Limitations caused by natural topographic features, waterways and other obstructions (such as adjacent Skeletal **Roads**) must be taken into account when planning connected **street** and walkway networks.

b. Note: Policy deleted

c. **Street** and walkway configurations should be designed to maximize accessibility to major destinations and transit facilities within future communities, the **Greater Downtown** and **Activity Centres**, while also minimizing the impact of traffic on other users, adjacent businesses and residents.

d. Residential **street** block lengths should be minimized in order to facilitate the movement of pedestrians, cyclists and transit within future communities, the **Greater Downtown** and **Activity Centres**.

e. Access into and out of future communities, new major commercial developments and industrial developments should be maximized to improve emergency response times and reduce congestion.

f. Evacuation route plans should be established for all future developments and identify at least two evacuation routes connecting to at least two different **streets** that lead away from those developments.

g. A minimum of two access points (defined as intersections or roundabouts that provide direct access into or out of an area for vehicular traffic) must be provided to any new residential, commercial or industrial area once homes or businesses begin to be occupied. The second access point could be at a temporary location accessible to the public. It may be permitted for this second access point to be exclusive to emergency vehicles provided that access is maintained year round by the developer until permanent public access is provided. The minimum number of access points for an area may increase based upon the proposed land uses and anticipated build out. All temporary and permanent access points should also be designed to serve as emergency evacuation routes.

3.9 Parking

Objective

Manage parking in **Greater Downtown**, **Activity Centres**, **Main Streets** and **TODs** to support an affordable and diverse housing mix, promote development, consider business vitality, increase densities, encourage using all modes of transportation, improve air quality and reduce the environmental footprint of the city.

Supports

- **Key Direction 3:** Direct land use change within a framework of nodes and corridors.
- **Key Direction 4:** Link land use decisions to transit.
- **Key Direction 5:** Increase mobility choices.
- **Key Direction 7:** Create **Complete Streets**.
- **Key Direction 8:** Optimize infrastructure.
- **Transportation Goal 1:** Align transportation planning and infrastructure investment with city and regional land use directions and growth management strategies.
- **Transportation Goal 4:** Enable public transit, walking and wheeling as the preferred mobility choices for more people.
- **Transportation Goal 6:** Advance environmental sustainability.

Discussion

The availability of parking is an important factor in what modes of transportation people choose to use. Traditionally, cities have required ample amounts of parking to alleviate parking congestion. However, an abundance of free parking encourages vehicle use, consumes useful land and is expensive to construct and maintain. Solving this problem by providing additional parking further increases parking demand, perpetuating the cycle.

The move towards more **Complete Streets** that support walking, wheeling and transit requires complementary parking management strategies. The Downtown Parking Strategies have been highly successful at managing traffic flow into the core, increasing transit use, managing the total number of long-stay stalls and creating a dynamic Downtown Core. Continuing these strategies and expanding them to other key locations served by the Primary Transit Network throughout Calgary over time will continue to shift the focus from providing an abundance of free parking to a more managed approach to parking.

Downtown Parking

Calgary has taken an active role in the planning of Downtown Core parking since 1966. At that time, the Downtown Master Plan identified strategic locations for parking. In the 1970s the cash-in-lieu program was created to collect monies to build shared parking in these strategic locations. Current cash-in-lieu parking requirements are for only 50% of required parking to be provided on site. The combination of these initiatives helped foster a strong relationship with transit (7th Avenue) and the pedestrian (8th Avenue). The 1995 GoPlan also identified the relationship of parking and transit ridership. The GoPlan policies helped Calgary achieve a 45% transit mode split to the Downtown Core in 2006.

The policies identified in the CTP continue to respect the important relationship of parking and transit use.

Park and Ride

Historically, park and ride facilities have been developed in strategic locations, generally beyond a five kilometre distance from the **Greater Downtown**. These facilities intercept vehicles at the earliest opportunity and help to reduce congestion closer to **Greater Downtown**. This also helps to protect established inner city communities from undesirable traffic problems.

However park and ride facilities must be planned in concert with other transit access modes (e.g., feeder buses, walking, wheeling and passenger drop-off). Excessive parking detracts from the goal of maintaining an effective feeder bus service and may limit opportunities for **TOD**. For these reasons, the determination of park and ride requirements has been based on consistent application of Council-approved guidelines.

The park and ride strategy should consider current and future needs for park and ride, as well as the overall parking strategy for **TOD** nodes. Alternatives such as sharing parking with complementary developments (e.g., shopping centres, movie theatres, churches), structured parking and flexible guidelines for park and ride for **Activity Centres** and **Main Streets** should be considered in order to reduce the footprint of park and ride development in strategic locations.

Parking and Natural Infrastructure

Parking lots and urban water run-off are closely linked. **Streets** and parking areas represent over 24 per cent of the impervious land area in Calgary, contributing higher storm flow volumes and pollutant loads to urban stormwater than any other source area in urban development. Parking design can have a powerful impact on stormwater quality, both by generating large areas of impervious land coverage and by collecting non-point source pollutants from vehicles and **roadway** surfaces.

Three key methods to reduce impervious surfaces are:

- retaining natural landscape.
- minimizing pavement.
- promoting natural infiltration to the soil.
- pervious pavement.

Once these are accomplished, appropriate design solutions should be applied. Section 3.7 provides guidance to planners, engineers and other specialists to include natural infrastructure into the planning and design of **roads** and **streets**. The same strategies should be applied to parking lots.

Policies

a. The Downtown Parking Strategies contained in Calgary Parking Policies are key elements of The City's approach to management of traffic congestion, and they should continue to be used to encourage transit, walking and wheeling as other desirable travel options to the Downtown Core.

b. Funds collected from parking fees and levies should be reinvested to support community improvements, as well as transit, walking, and wheeling amenities, where possible.

c. Long-stay parking in the **Greater Downtown** and other **Activity Centres** and **Main Streets** should be limited where high-quality alternative modes of travel are in place, such as LRT or bus rapid transit (BRT).

d. Technology, time restrictions and pricing should be used for addressing parking demand issues instead of increasing supply in existing areas of the city.

e. **Parking facilities** should be encouraged to provide priority, high-quality parking locations and/or rates for "preferred parkers" (carpool parkers, car-sharing vehicles, cyclists, teleworkers, motorcycles, electric vehicles and scooters).

f. The design of **Parking facilities** should consider adaptability for future uses that may or may not be related to parking.

g. Shared parking should be used to optimize existing facilities and park and ride lots.

h. Park and ride development must be managed strategically to optimize the development of the transit market, minimize the land area used, and facilitate the transition of station-area lands to desired development.

i. **Natural infrastructure** principles should be integrated into the design of parking facilities.

3.10 Transportation Safety

Objective

Continue to enhance safety for all users of the transportation system, accommodate increased walking, wheeling and transit use by addressing the safety concerns of network users, and support emergency management processes.

Safety and Public Transit

Cities with higher transit ridership have fewer traffic fatalities per capita, including fatalities involving transit, automobiles and pedestrians. Increased transit ridership also improves transit user safety and security.

Todd Litman: Evaluating Public Transit Benefits and Costs, 2009

Supports

- **Key Direction 5:** Increase mobility choices.
- **Key Direction 7:** Create Complete Streets.
- **Transportation Goal 2:** Promote safety for all transportation system users.
- **Transportation Goal 4:** Enable public transit, walking and wheeling as the preferred mobility choices for more people.

Discussion

The transportation system in Calgary supports community safety, security and vitality. By providing connections between communities, safe routes to schools, accessible rapid transit and more, the transportation system is a catalyst for community health, safety and security. Safety in the system is critical, and safety is one of the overarching transportation goals in the CTP.

A user's perceived safety is important. People may spend a lot of time on the transportation network during the course of a day, so they need to feel comfortable when they use it. If users feel unsafe, they may not use elements of the transportation network even if they are physically able to. Calgary's transportation network must be safe and feel safe for all users, whether they are walking, wheeling, riding transit or driving.

Engagement, engineering, education, enforcement and evaluation all play a role in developing an integrated approach to safety for all users.

- **Engagement** Interacting with stakeholders and the public to build trust and achieve effective dialogue.
- **Engineering** Using elements of design to influence travellers' behaviour.
- **Education** Providing information to the public through a variety of media.
- **Enforcement** Ensuring adherence to laws, bylaws and regulations.
- **Evaluation** Undertaking evidence-based assessments of improvements and strategies.

Risk Management

Risk management is a critical consideration in all transportation planning, design and operational decisions. A significant improvement in transportation safety comes from changing travel behaviour to minimize exposure to traffic collisions. Shifts from private vehicle use to public transportation have been shown to reduce injuries and fatalities. To encourage this shift, the real and perceived safety of users of the public transportation system must be addressed.

As more people are encouraged through supportive land use to walk, bike and use public transportation, a proactive approach to safety on **roadways**, pathways and sidewalks is needed. Changes to the way **roads** and **streets** are used by drivers, pedestrians and cyclists involve risk. Individuals and communities often react by citing the risks as obstacles (e.g., increased pedestrian/ vehicle conflicts). The CTP includes policies that address these risks.

Vision Zero

Vision Zero is a traffic safety policy, developed in Sweden in the late 1990s and based on four elements: ethics, responsibility, a philosophy of safety, and creating mechanisms for change. The Swedish parliament voted in October 1997 to adopt this policy and since then several other countries have followed suit.

In the past, the approach to **road** safety was generally to put the onus on the **road** user. In Vision Zero, this is replaced by an outlook that has been used with success in other fields. Its two premises are that: human beings make errors; there is a critical limit beyond which survival and recovery from an injury are not possible.

- World Health Organization (2004)

Sweden has the lowest number of fatalities among children aged 0-17 per 100,000 compared to all countries that report to the International **Road** Traffic Accident Database (IRTAD) for 2004-2008. In the 1960s and 1970s, between 100 and 200 children died in traffic in Sweden every year. Now this figure is 2 to 3.

- Swedish Transport Administration

It could be said that the most radical aspect of Vision Zero is not its ambitious end goal – but the actual paradigm shift. Moving the responsibility for safety from the **road** users to those who actually build the systems.

- Hanna Lindberg, How dreams can become reality – Vision Zero 20 Years

Emergency Management

In addition to promoting and enhancing safety on the transportation system during normal operating conditions, The City must be prepared for unforeseen emergencies that require swift and coordinated responses. The Emergency Management Agency has responsibility for pre-planning and organizing City responses to emergency situations that require evacuation of large urban sectors in Calgary. They are supported by the Calgary Fire Department, Calgary Police Service, the Transportation Department, Disaster Social Services and many other support services. Transportation plays an important role in developing operational procedures that facilitate the efficient and orderly movement of people away from disaster locations (including traffic signal coordination and provision of transit services). Continued involvement by Transportation is crucial in the successful development of emergency response plans.

Dangerous goods movement

The movement of dangerous goods (materials that pose a risk to public health, property or the environment when transported in quantity) is necessary for some business functions in Calgary. The risk posed by the movement of these goods must therefore be mitigated, or prevented if possible. Through regular bylaw updates, the Transportation Department must evaluate and identify specific **roadways** that can be used to move dangerous goods while minimizing these risks.

Policies

a. Transportation safety issues should be identified and resolved on a priority basis through engagement, engineering, education, enforcement, and evaluation.

b. The transportation system should be planned and operated in a manner that promotes safety for all users and ensures The City is able to sustain that safety during unforeseen emergencies that require swift and coordinated responses.

c. Emergency management considerations, should be incorporated into the planning and design of all transportation infrastructure.

d. Statistics on community transportation safety must be kept and recorded to identify progress in reducing injuries and fatalities.

e. The Transportation Department should work with the Emergency Management Agency and its members to prepare emergency evacuation plans for individual sectors of the city (e.g., square-mile residential grids, the Downtown Core).

f. **Streets** in neighbourhoods must be designed to achieve reductions in operating speeds for the purpose of preventing collisions and improving the safety of all users, without a reliance on speed enforcement.

3.11 Universal Access

Objective

Ensure access and freedom of mobility for all Calgarians, providing all citizens with the opportunity to travel and participate in public life.

Supports

- **Key Direction 5:** Increase mobility choices.
- **Key Direction 6:** Develop a Primary Transit Network.
- **Key Direction 7:** Create **Complete Streets**.
- **Transportation Goal 3:** Provide affordable mobility and universal access for all.
- **Transportation Goal 4:** Enable public transit, walking and wheeling as the preferred mobility choices for more people.

Discussion

The transportation system should offer choices for all people, regardless of their income, age, literacy, mental and physical ability or cultural background. An accessible transportation system that incorporates walking, wheeling, transit, carpooling, private vehicle use and other options offers all citizens the opportunity to participate in the economic and social activities of the city.

Universal design makes the transportation system, and the places it connects, accessible to everyone. **Universal design** also benefits people without disabilities, such as older adults, people with temporary injuries, parents with strollers, individuals with wheeled grocery or luggage carts and delivery people with numerous boxes in hand.

Transportation infrastructure and services can be designed and operated in a way that meets the needs of all citizens. By reducing barriers that exclude individuals from participating in the community, all Calgarians will be able to move freely and engage in economic, social and cultural life.

Policies

a. Affordable mobility choices should be provided to Calgarians.

b. **Universal design** principles and The City's Access Design Standards should be applied in the planning, design, operation and maintenance of all transportation infrastructure and services.

c. The Primary Transit Network, including all vehicles and supporting infrastructure (such as sidewalks and buildings), should be designed and built to accommodate the needs of all citizens.

d. Directional wheel chair ramps with functional connections to active mode networks should be provided at the corners of all **roadway** intersections.

3.12 Environment and Transportation

Objective

Protect air, land, water and biodiversity in the planning, design, operation and maintenance of all transportation infrastructure.

Supports

- **Key Direction 7:** Create Complete Streets.
- **Key Direction 8:** Optimize infrastructure.
- **Transportation Goal 6:** Advance environmental sustainability.

Discussion

In 2017, Calgary's Ecological Footprint (a measure of resource consumption) was reported to be 7.5 gha per capita, well above a national average of 3.6 gha per capita. Transportation contributes to the city's Ecological Footprint through vehicle fuel consumption, land utilization and energy consumed during construction and maintenance activities; in 2008 this represented 11 per cent of the total overall.

The transportation system interacts with the environment in multiple areas, including pollution control, invasive weed control, waste material diversion, and biodiversity preservation and enhancement (see Figure 6).

Increasing emphasis on more sustainable modes of transportation can help reduce Calgary's impact on the environment, and mitigate consequences such as:

- degradation of air quality and increasing GHG emissions.
- impairment of water quality associated with deposition of air pollutants.
- increased traffic noise.
- impacts from oil spills, de-icing and other transportation activities.

Many of these impacts can be mitigated and/or eliminated through sustainable design and the application of best practices. Examples are Ride the Wind (public transit based on 100 per cent wind energy) and natural infrastructure (protecting water quality by greening **streets**capes and reducing impervious surfaces).

The application of an environmental sustainability lens to the design, development, operation and maintenance of the transportation system is key to minimizing adverse effects and identifying opportunities for resource conservation and enhancement. The appropriate application of environmental management systems, technologies and practices is instrumental to the protection of air, land, water and biodiversity.

Greenhouse Gas Emissions

In 2009, the Calgary Climate Change Accord established The City's commitment to pursue reductions in community GHG emissions. Nonetheless, between 2005 and 2019 Calgary's overall GHG emissions increased (see Figure 7).

Calgary's Climate Resilience Strategy: Mitigation & Adaptation Action Plans, approved by City Council in 2018, established three main goals stipulating the key aspects to achieve over time to reach The City's GHG emissions reduction target of 80 per cent below 2005 levels by 2050:

- Reduce vulnerabilities and risks to severe weather and long-term climate effects.
- Improve energy use and reduce GHG emissions.
- Support the low-carbon economy.

Figure 6 – Environmental Policy Implementation

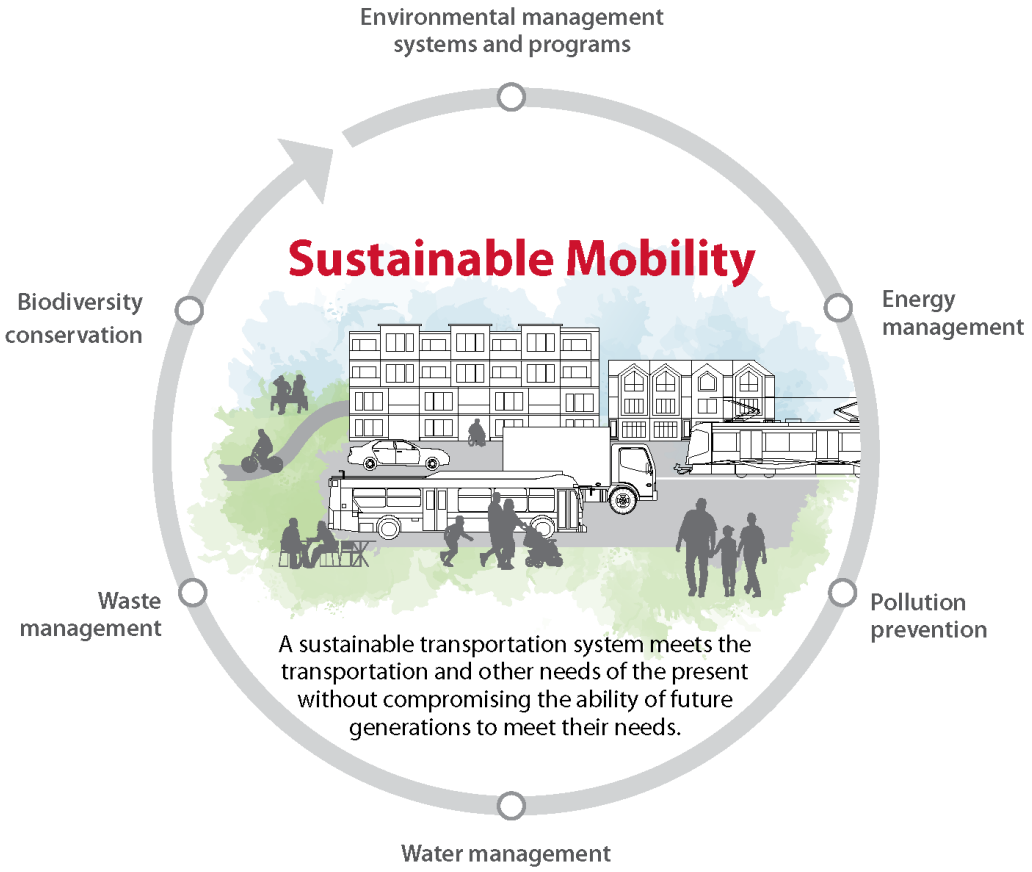


Figure 7 – Historical Calgary Community-wide GHG Emissions by Sector (2005-2019)

GHG emissions from transportation sources currently account for one-third of the city-wide total, primarily through the use of diesel and gasoline by motor vehicles.

Economics and emissions-modelling work completed by the University of Leeds, the University of Calgary, and The City has shown that an economically and technologically-feasible transition path to the 2050 GHG emissions reduction target exists.

Achievement of the goals and objectives established by the Calgary Transportation Plan in 2009 is estimated to represent 15 megatonnes of reduction in carbon dioxide equivalent emissions (CO_2e) by 2050. In addition to the CTP reduction (accounted for in the Baseline scenario above), The City's Climate Mitigation Action Plan identifies further transportation-sector reductions required to meet The City's 2050 target, estimated at between 63 and 70 megatonnes of CO_2e (cumulative total) and to be achieved through the following actions.

- A reduction of 60 megatonnes CO_2e resulting from the transition to zero or low-emission vehicles by private owners and commercial fleets (see section 3.14 for further information on vehicle electrification), incorporating an anticipated reduction in the GHG intensity of Alberta's electrical grid corresponding to the phase out of coal generation by 2030.
- A reduction of three megatonnes CO_2e resulting from a shift in travel behaviour to low or zero-emissions modes (i.e., a 25 per cent increase in transit service coverage), increased rates of walking, wheeling and car-pooling beyond Council approved actions in the CTP, RouteAhead and the strategic plans for active modes.
- A reduction of seven megatonnes CO_2e resulting from the integration of climate change considerations into land-use and transportation planning decisions, strategies, plans and processes (with a corresponding $9 Billion net savings in infrastructure) beyond Council approved targets in the MDP.

Vehicle Electrification

Electric vehicles reduce local air pollution, noise and GHG from transportation activities, making contributions today towards GHG reductions that will increase as Alberta's electric grid transitions away from coal-fueled generating facilities. Electric vehicles are already less expensive to operate and maintain today than a comparable gasoline-powered car, with a driving range of approximately

Figure 8 – 2018 City-wide Greenhouse Gas Emissions by Sector

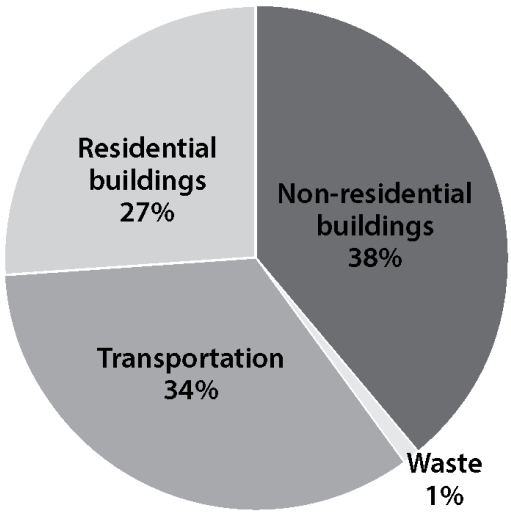
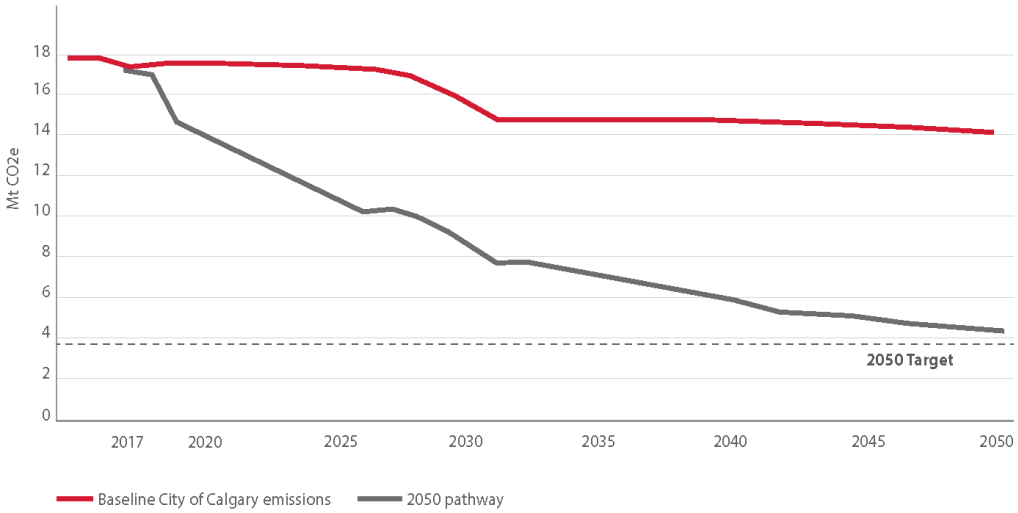


Figure 9 – Calgary's Potential Future Emissions under the Baseline and Carbon Reduction Scenarios



400 to 500 kilometres on a single charge. Average electric vehicle range is expected to increase significantly as new models become available in the early 2020s, and the initial purchase pricing for small- to mid-size electric passenger vehicles are expected to be directly competitive with gasoline-powered cars by the mid-2020s. In response, the adoption of electric vehicles is projected to increase exponentially.

One of the current barriers to electric vehicle adoption is "range anxiety", a fear of running low or out of power prior to reaching an intended destination. Many studies have shown that the strategic placement of public charging stations can reduce the range anxiety of electric vehicle drivers. Helping to provide citizens with an effective public EV charging network is a key role cities can play to support EV adoption. Municipal governments can link potential charging-station sponsors with organizations and venues that want to install charging infrastructure.

The following policies support integrated design strategies contained in the CTP that are aimed at eliminating, reducing or mitigating the environmental impact of the transportation system.

Policies

a. Protect the quality and quantity of water in urban environments by mimicking natural hydrology in the design and operation of transportation infrastructure.

b. Improve the air quality on and around mobility corridors by increasing vegetation, decreasing impervious surfaces, supporting the shift to zero-emission vehicles, and supporting the use of renewable energy and other techniques to mitigate climate change.

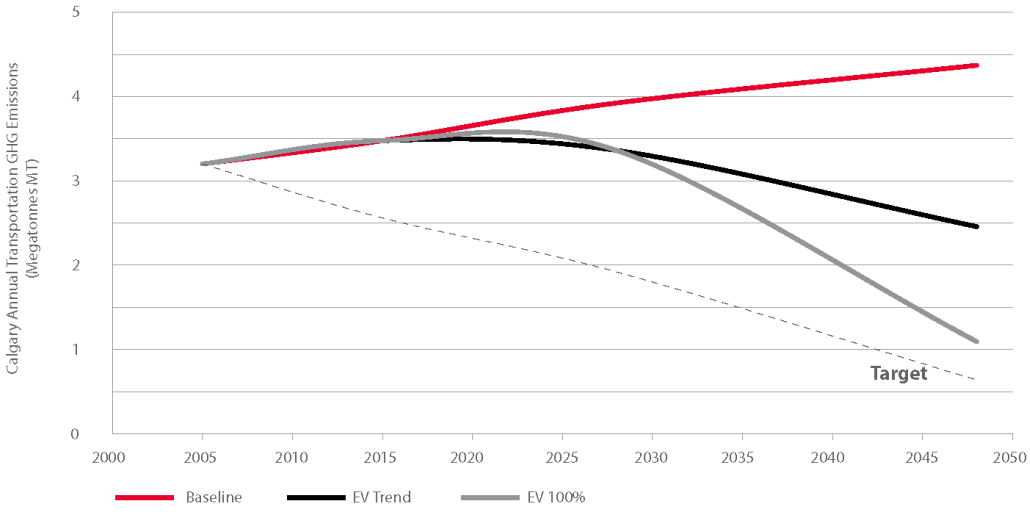
c. Preserve and enhance biodiversity to support the natural environment in and around mobility corridors.

d. The City should participate in and promote initiatives aimed at expanding the availability of publicly accessible electric vehicle charging stations.

e. The City should take steps to achieve a transition of the entire fleet of vehicles in Calgary to zero-emissions vehicles by 2050.

f. The City should develop methodologies to integrate GHG reduction potential into growth management decisions and transportation assessments.

Figure 10 – Change in Calgary Annual Transportation GHG Emissions (Megatonnes MT)



3.13 Infrastructure Management

Objective

Use best infrastructure management practices to keep Calgary's transportation infrastructure safe and reliable, and minimize future expenditures by optimizing the life-cycle of existing and future facilities.

Supports

- **Key Direction 8:** Optimize infrastructure.
- **Transportation Goal 7:** Ensure transportation infrastructure is well managed.

Discussion

Like other cities in North America, Calgary's transportation infrastructure is reaching a point where much of it will start to require additional maintenance, refurbishment or replacement as a result of its age. However, sufficient funding is unavailable to support all of the new infrastructure requirements of Calgary's current pattern of growth in addition to the increasing costs associated with managing Calgary's existing infrastructure. As a result, many transportation projects remain unfunded, resulting in an infrastructure gap. Additional priority will now also need to be given to the management of walking, wheeling and transit infrastructure.

In general, infrastructure management includes all work that preserves the integrity and value of transportation infrastructure. This includes all work associated with operating and maintaining the infrastructure in a reasonable condition so that it is able to deliver its intended duration and level of service to The City and to Calgarians. Along with operations and maintenance, timely rehabilitation and refurbishment of infrastructure has been shown to delay the need for more costly replacements of existing infrastructure, thus optimizing the use of limited available resources. In addition, proper infrastructure management can help to improve capacity and quality of service for all modes of transportation and enhance the **streets**capes that beautify our city by keeping The City's transportation infrastructure in safe and reliable condition.

It has become increasingly evident that The City cannot afford to continue expanding outwards and increasing linear infrastructure while supporting built infrastructure. The problems of rapid growth are compounded by the desire for increased service levels in the maintenance and replacement of existing infrastructure. The combination of these two issues results in considerable strain on available funding for infrastructure management.

The City has already initiated asset management programs aimed at addressing these issues.

Policies

a. Existing and future transportation infrastructure should be managed (through operations, maintenance, refurbishment and replacement) in a manner that ensures that infrastructure is safe, reliable and achieves its optimum life-cycle.

b. A life-cycle costing and management program should be used to optimize the recommendations for infrastructure investment, which should be aimed at improving the overall condition of the transportation infrastructure and minimizing the overall life-cycle cost.

c. New construction or redevelopment projects within transportation rights-of-way should be coordinated with planned maintenance projects to minimize the impact on the transportation infrastructure, the duplication of repair efforts, the premature shortening of infrastructure life and the impact on the natural environment.

d. Primary networks for the movement of cyclists, transit, and goods (as depicted in CTP Maps 1, 2 and 5) should be given high priority for clearing of snow, ice or gravel and debris.

e. Environmental best practices must be incorporated into all infrastructure management activities to minimize impact on the environment and integrated natural infrastructure.

f. Transportation infrastructure should be designed to ensure that assets can be operated and maintained as efficiently as possible, contributing in a positive manner to meeting quality of service and user-experience expectations.

3.14 New Transportation Technologies

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.

Supports

- **Key Direction 5:** Increase mobility choices.
- **Key Direction7:** Create Complete Streets.
- **Key Direction 8:** Optimize infrastructure.
- **Transportation Goal 3:** Provide affordable mobility and universal access for all.
- **Transportation Goal 4:** Enable public transit, walking and wheeling as the preferred mobility choices for more people.
- **Transportation Goal 6:** Advance environmental sustainability.
- **Transportation Goal 7:** Ensure transportation infrastructure is well managed.

Discussion

Rapid advances in transportation technology have demonstrated the potential to change the way that transportation and logistics services are provided to, and utilized by, the general public. The widespread adoption of internet-enabled smartphones and in-vehicle navigation systems, the mass-production of electric vehicles, and the rise of electronic commerce are just three examples of technological developments that are already impacting travel user behaviour and market demand for mobility options. Self-driving vehicles, drone-based delivery networks, and new forms of shared-use mobility are additional examples, each with the potential to influence future travel patterns and the long-term vision for Calgary.

The City of Calgary has been pro-active in its efforts to identify and prepare for the impacts of new technology through strategic planning and active participation in the field of Intelligent Transportation Systems (ITS). The City benefits from being prepared to respond to public adoption of new technology with an understanding of how/if it should be regulated, and how it fits into the long-term vision for Calgary as a sustainable city that is articulated in the MDP, CTP and other City policy documents (e.g., provision of more mobility choices, optimizing infrastructure).

Many of the transportation technologies currently under development may take years before becoming broadly available to the public. As a result, their implications to society and to Calgary's development may be uncertain for an extended period of time. For each technology, The City will have to assess the potential benefits resulting from early action (e.g., service innovation, a positive public perception, job creation) against the potential risks (e.g., ill-timed regulation, opportunity costs associated with premature investments in enabling infrastructure), as a result, ongoing monitoring will be necessary.

However, the direction and availability of a number of technological developments are sufficiently clear to inform a number of actions on the part of The City today:

- Increasing levels of automation and electrification in the vehicles available to the general public.
- The arrival and operation in Calgary of shared mobility services (e.g., dockless bikes/scooters, ride-sharing services).

- The continued spread of digitally-interconnected consumer items (i.e., the "Internet of Things") including smart phones, "wearables", and vehicles, with connectivity essentially enabling or supporting the other transportation technology developments.

Curb Space Management

Demand is increasing for the utilization of curb space by multiple modes and activities. Dedicated on-street facilities for active modes, street cafes, parking spaces for shared mobility services, and electric-vehicle charging stations are existing examples; the development of automated vehicles is expected to result in a significant future demand for curbside drop-off and pick-up locations. All of the activities have associated costs and benefits that should be evaluated alongside those associated with traditional uses: vehicular travel lanes, on-street parking, taxi stands, etc.

Road Pricing

The existing sources of funding available to The City of Calgary to support the capital costs of constructing, operating and maintaining Calgary's transportation system are very limited in number; of these, only fuel-tax revenue and property taxes have been relatively predictable. However, fuel tax is anticipated to decline over time as a result of improvement in vehicle fleet fuel-consumption performance and a new vehicle market shifts towards hybrid and electric drivetrains.

The rise of digital connectivity in vehicles has enabled the introduction of road pricing (i.e., vehicle kilometres travelled pricing) as a potential alternative source of funding for high-priority transportation network investments in the future. Road pricing would establish the "direct user pay" costs of travel, responding to time, location, type of vehicle and even the level of congestion present along the route. In addition to providing stability and reliability as a funding source, road pricing can improve safety, traffic congestion and environmental performance outcomes.

Data Management

The future of transportation will rely heavily on the use of information and technology, with data-driven networks becoming as important to the operation of the transportation system as the sidewalks, pathways, streets and light rail lines. The City should prepare for this development by ensuring that the specifications/guidelines and capacity for comprehensive transportation data management and sharing with public and private entities will be in place to meet public demand.

A data-sharing and system-integration model would realize the potential for mobility payment, pricing and trip planning to be integrated and centralized in various ways. Potential applications include:

- Improved management of infrastructure through the leverage of data.
- Support for integrated mobility solutions (i.e., "Mobility as a Service" or "MaaS").
- Implementation and licensing of new mobility methods.
- Improved planning and expansion of access.

Vehicle Electrification

See section 3.12 for more information on vehicle electrification

Shared-use Mobility Services

Shared-use mobility is the trend of people using services to travel on an "as-needed" basis instead of owning a personal vehicle. Shared mobility is enabled through digital connectivity, allowing for the sharing of transportation resources such as automobiles, "dockless" bicycles, electric scooters and ride-sharing capacity (e.g., Uber). Shared mobility services offer multiple benefits in the form of reduced user travel costs, fewer vehicle kilometres travelled (and therefore generally fewer emissions) and "first kilometre/last kilometre" service beyond the extent of public transit system operation.

A number of shared-mobility services currently operate in Calgary, with customers able to search their geographic area for a shared resource (i.e., bicycle, scooter, or vehicle) or to book a ride-sharing service on their smart-phone (tracking their ride in real time).

Policies

a. The City should continue to monitor developments in technologies that are expected to significantly change travel and land use patterns in the future.

b. A comprehensive curb-space management strategy should be developed to address current and future demands for shared use of the asset by different modes and activities.

c. In consultation with the Province of Alberta, The City should investigate the feasibility of road-pricing as a potential replacement for fuel tax with specific consideration given to conducting a trial.

d. Ensure that City of Calgary data management specifications and system capacity are sufficient to support the acquisition, use and protection of transportation trip and transaction data, including the protocols/ controls necessary to safely enable "Mobility as a Service" applications.

e. The City should support the operation within Calgary of shared-use mobility services, including involvement in pilot partnerships and parking incentive programs.

Part 4
Monitoring and Reporting

PART 4 Monitoring and Reporting

Objective

Provide a basis for effective strategic decision making by monitoring and reporting on the progress made towards achieving the goals and objectives of the MDP and CTP.

Discussion

The MDP and CTP are not static documents. They establish strategic policy directions, but periodic progress checks must be undertaken to review whether progress is being made.

To evaluate progress toward the policy direction of the MDP and CTP, a broad spectrum of indicators and targets has been developed. The Core Indicators for Land Use and Mobility can be found in Figure 11. These indicators are proxy measures for the social, environmental and economic performance of the MDP and CTP. They are intended to track the overall progress towards achieving the goals and objectives of the MDP and CTP. However, these indicators are not intended to be applied to individual local area plans and land use applications. It is important to note that no one or two measures in isolation can indicate progress. The full set of indicators should be measured and reported in order to provide a comprehensive picture.

Each of the indicators is accompanied by a target. The targets provide a desired performance outcome for an indicator over a specified period of time. The targets were based on benchmarking of other cities and engagement with stakeholders. The targets represent a direction that The City wishes to achieve through its planning and investment processes and through collaborative working with other orders of government, the public and stakeholders.

A monitoring and reporting program will be developed for the Core Indicators for Land Use and Mobility as part of the MDP/CTP implementation program. A regular cycle of reporting on the Core Indicators will provide performance information to Council, Administration and the public. Reporting will be conducted in advance of each City business planning cycle and will assist in developing investment strategies and strategic growth decisions. The reporting process will also help ensure that implementation strategies and corporate processes are aligned with the long term goals of the MDP and CTP. In addition to evaluating progress towards the targets contained in this section, additional reports will look at current growth forecasts, market trends and The City's financial capacity.

A major review of the Core Indicators for Land Use and Mobility should occur on a ten year basis as part of the CTP policy review process (which will assess whether the policy direction remains appropriate or requires adjusting). Each metric and target will be evaluated to ensure that they align with the updated vision and policies of the MDP and CTP.

A regular cycle of reporting on the indicators will provide information for Council, administration and the public. This is supported by policy direction in the MDP, which states that:

- The City will monitor the Core Indicators for Land Use and Mobility on a continuous basis and report to Council, Administration and the public regarding the progress towards the targets prior to each business planning cycle.

Figure 11 – Core Indicators for Land Use and Mobility

Core indicators for Land Use and Mobility (MDP)					
#	Core indicators	Metric	Baseline	2018	60Year target
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 400 m of Primary Transit Network	0%	37%	45%
		Per cent of jobs within 400 m 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 1600 m (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 600 m 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%

Part 5
Transit System Phasing and Design

The development and **redevelopment** of cities is an uncertain process. However, significant benefit can be achieved when a degree of certainty is provided to major stakeholders (e.g., developers, communities, infrastructure and service providers) with regard to where, when and how cities will grow. Decisions affecting the expansion of major municipal infrastructure and services such as water, waste water, transit and **roadways** help to shape the direction for growth within the Calgary Region and affect the social, environmental and economic health of our communities.

The following criteria will be used to guide decisions about the phasing of transit investments in Primary Transit corridors to support strategic land use directions.

Ridership demand

Many proposed Primary Transit corridors (e.g., LRT corridors, Centre Street) carry heavy volumes of passengers and operate at frequencies of 10 minutes or less for extended time periods. These corridors are capable of being upgraded to Primary Transit service levels with a modest level of investment. Focusing investment in existing high-demand transit corridors will achieve the dual benefit of increasing transit capacity to attract new transit riders and providing incentives for more intensive, mixed use development.

Support growth in strategically located Activity Centres and Main Streets

The Primary Transit Network serves as an organizing tool for both Transit and Land Use Planning to ensure that both elements support one another. It is a commitment that quality transit service will be available if land use and street designs achieve good transit-oriented forms. Timely investment in improved transit service will help motivate market responses, focusing infill and greenfield intensification within walking distance of the Primary Transit Network.

Corridor completion

Ideally, specific route investments should align with Primary Transit corridors as much as possible to achieve the desired 10-minute service levels. These criteria may also result in rationalization of transit routes to align with proposed Primary Transit corridors.

Improve cross-town transit services

More emphasis and resources must be directed toward the upgrading of existing cross-town transit services to Primary Transit service levels and the creation of new cross-town transit connections. These investments will enable Transit to attract a greater share of the substantial volume of cross-town work, school, shopping trips that are occurring between residential and employment areas in suburban areas, and it will support the development of new transit connections between proposed compact, mixed-use **Activity Centres** and **Main Streets**.

New corridor development

Several major mainline and cross-town transit corridors will be upgraded to Primary Transit service levels within the next five to 10 years, provided that the required capital and operating investments are prioritized. However, some components of the Primary Transit Network involve the creation of new transit corridors (e.g., new river crossings for transit, walking, wheeling and EMS) and may require an extended time period to develop to Primary Transit service levels, as they are not currently anchored or supported by **Transit-oriented Developments**.

Using the priorities and criteria described above will make frequent, direct, reliable transit service available to the greatest number of people and achieve a built form that will foster integration between land use/community design and transit service.

Transit implementation policies

Calgary City Council has approved macro level policies that provide a framework for the planning and implementation of transit service in Calgary. These policies encompass decisions relating to maximum walking distance for access to transit service and fare policy, as well as system and route level performance standards. Taken together, these policies drive decisions regarding route structure, level of service, phasing of service and cost of delivering transit service to the community.

The following guidelines should be used to guide the planning and implementation of transit services.

- Community design will minimize pedestrian **street** walking distance to transit service (i.e., a bus zone or LRT station) to 400 metres or less.
- In recognition of unusual circumstances, up to five per cent of the area population (dwelling units) may be located beyond 400 metres **street** walking distance from transit service (i.e., a bus zone or rail station). In site specific conditions, this guideline may be exceeded and compromises will be necessary.
- Council-approved route performance measures are used to ensure bus routes are operating efficiently:
  - Regular bus – minimum of 20 to 25 boarding passengers per operating hour.
  - Community Shuttle – minimum of 12 to 15 boarding passengers per operating hour.
  - Current policy requirements that Calgary Transit recover between 50 to 55 per cent of its operating costs (revenue-cost ratio) through transit fares and other sources of system-derived revenue.
- In accordance with the preceding policies, transit service will be extended to greenfield areas as soon as possible subject to:
  - The provision of **streets** adequately located and constructed for transit use.
  - The location of the developing service area contiguous to existing service areas, so that service is provided in accordance with approved minimum ridership policies.
- Subject to the above policies and the individual characteristics of the service area, in response to customer demand, transit service within a service area will generally be staged as follows:
  - Weekday a.m. and p.m. peak-period service.
  - Weekday service between the a.m. and p.m. peak periods.
  - Saturday service.
  - Evening service on all weekdays and Saturdays.
  - Sunday service.
- The normal service delivery sequence may be altered in communities that have unusual service requirements.
- Bus and LRT service will operate within a schedule adherence range of not more than one minute early or five minutes later than the design schedule. Buses or LRT will not depart a scheduled time-point early.

Transit Mobility Hubs

A Transit Mobility Hub is a place of connectivity where different modes of transportation (i.e., walking, cycling, and bus and rail transit) come together seamlessly and where there is an attractive, intensive and diverse concentration of housing, employment, shopping and other amenities around a major transit station.

Transit stations are the key point of contact between the traveller and the transit system; therefore, these facilities should be designed to enable efficient movement and stopping of transit vehicles, provide a safe, clean and comfortable environment for transit customers and contribute to the creation of attractive **Transit-oriented** Developments.

Some transit stations are particularly important because they are focal points for terminating transit lines or provide important connections between intersecting inter-city, regional and city transit routes. These stations will service the highest proportion of transit network trips and should be designed to provide comfortable, seamless connections for transit riders.

As a general principle, the first priority in the design of Transit Mobility Hubs should be to accommodate the requirements for efficient transit access, comfortable passenger waiting areas and safe, direct, unobstructed routes for pedestrians and cyclists. As discussed in section 3.1, transit, walking and wheeling are more sustainable modes of transportation in that they require less energy, need less infrastructure and are available to almost all Calgarians. Giving priority to these access modes will foster greater mobility choices and support the creation of attractive **Transit-oriented Developments**.

It is essential that Transit Mobility Hubs are designed and maintained to a high standard to provide a safe, clean and comfortable environment where transit riders feel welcome and valued. The following types of facilities should be incorporated:

- Bus layover spaces
- Transit priority **roadways**
- Taxi stands
- Stations that are comfortable, clean, attractive, safe and accessible and provide good interaction with adjacent land uses
- Shaded areas to mitigate hot weather conditions and heated areas to provide a comfortable environment during cold weather conditions
- Well-designed, amply-sized pedestrian walkways and customer waiting areas
- Commercial/retail space, public washrooms and telephones
- Secure storage facilities for bicycles
- **Pedestrian-oriented** lighting
- Attractive public art
- Way finding signage to direct people to their destinations
- Real time schedule information
- Fare purchase equipment
- **Natural infrastructure** to increase infiltration and perviousness and manage stormwater run-off
- Park and ride, if provided, sized appropriately to the required access

Three categories of Transit Mobility Hubs have been identified:

Regional/inter-city gateway hubs

- Regional/inter-city gateway hubs are located at major regional and inter-city interchange points between the Primary Transit Network and other modes of public transportation. Regional/inter-city gateway hubs would be located at the following locations:
  - Calgary International Airport
  - At connection points between the Primary Transit Network and future inter-city high-speed rail service (CP railway corridor and 96 Avenue N. and the potential future rail-side development at 9 Avenue and 8 **Street** S.E.).
  - At connection points between the Primary Transit Network and future regional commuter rail and bus rapid transit corridors
  - At connection points between the Primary Transit Network and inter-city bus services (e.g., Greyhound and Red Arrow Express)

Primary Transit hubs

- Primary Transit hubs are focal points for terminating primary transit lines or major transfer centres between intersecting Primary Transit lines. These stations will accommodate higher passenger volumes than other transit stations and, therefore, should include enhanced amenities to provide a pleasant customer experience and to accommodate expected ridership levels. Primary Transit hubs generally coincide with Major **Activity Centres** and Community **Activity Centres** (see the Urban Structure Map in the MDP), which will further increase transit demand and reduce single occupant vehicle use.

Transit centres

- Transit centres are points between intersecting transit lines where there is significant passenger activity but not at the scale of a Primary Transit Hub. Transit centres are located at the intersection between Primary and Base Transit services (e.g., Sunnyside, Fish Creek Lacombe Station and Rundle Station).

Part 6
Principles and Design Considerations for Crossings of Watercourses

Within the Calgary Region, there are many crossings of **watercourse**s (e.g., river, creek and ravine systems) by transportation infrastructure, including freight railways, major **roadway** corridors, Light rail transit lines and pedestrian bridges. This infrastructure provides essential mobility and **connectivity** between communities and external destinations, and it supports economic development by ensuring the efficient movement of people and goods at a city-wide and regional level.

Transportation crossings of rivers and creeks require the construction of culverts, piers and bridges, etc. and have the potential to affect riparian areas and river and creek habitats. For these reasons, the need for river and creek crossings must be balanced with impacts to the environment and be treated with the utmost environmental sensitivity.

During the next 30 years, components of Calgary's **roadway**, transit and pathway systems will require new crossings of river or creek systems, or widening or modification of existing bridge structures. **Watercourse** crossings may also be needed for electrical transmission, telecommunications, water or wastewater lines. In such projects, it is essential to balance the need for expanded infrastructure with the significance of the environmental areas and communities that may have to be crossed. When a crossing is deemed necessary, these facilities should be designed and constructed to protect the rivers, creeks and other natural ecosystems that will be affected.

The following discussion describes seven key principles that should be considered whenever a new or expanded river or stream crossing is contemplated.

Principle 1: Demonstrated need for the crossing.

A balanced triple bottom line framework should be used to assess the social, economic and environmental implications of the crossing and the corridor it serves and all alternatives, including the option of doing nothing.

Principle 2: Advanced planning for appropriate siting based on all relevant factors.

Several factors play a role when considering, planning, designing and constructing these crossings. These factors include:

- City-wide **street**, transit and utility connectivity to promote compact growth and public transit while reducing vehicle dependence.

- Use of river and stream corridors by people, fish, migratory birds and other wildlife and the sensitive integration of human development within watercourse ecosystems.
- Waterway constraints, such as hydrology (e.g., volume of water from droughts to floods), hydraulics (e.g., erosion power of moving water and ice) and channel morphology (e.g., meandering, braiding, entrenchment, etc.).
- Location and design of stream channel crossings.
- Bridge design principles (e.g., structural, aesthetic).

River crossing sites should only be chosen after careful determination of the least damaging crossing location – before the crossing and the associated infrastructure leading to it are designed.

Principle 3: Adherence to the recommendations of a comprehensive biophysical and social impact assessment.

The biophysical impact assessment should consider:

- plants and animals.
- seasonal and climate-related hydrological changes (droughts, floods, ice conditions etc.).
- conditions and functionalities before and after construction.
- hydraulic conditions and functions (e.g., erosion, scouring and deposition).
- connectivity of viable wildlife habitats.
- fish passage.
- long term impacts from operations.

The social impact assessment should build on the needs assessment (see Principle 1) and cover all relevant issues related to how the crossing, corridor or related infrastructure will affect people, their quality of life, their behaviour and the communities in which they live.

Principle 4: Successful minimization of impacts from construction, rehabilitation and ongoing operation and maintenance through engineering design and rehabilitation requirements.

Every effort should be made to avoid potential adverse impacts, and such efforts should be demonstrated prior to accepting mitigation as an option. To minimize the impacts of river crossings, the following standards should be implemented:

- Engineering design should follow best management practices, including the following:
  - » Provide the minimum **roadway** width necessary to service intended needs and adjacent land uses. An effect of a highly connected **street** system is an increase in impervious surfaces. Therefore, it is beneficial to narrow **streets**, which can decrease the amount of impervious paving.
  - » Wide **streets** and slope embankments can result in the need to disturb a significant length of the watercourse. By narrowing **street** and shoulder widths at watercourse crossings and by considering steeper embankments or clear span bridges, the total length of disturbed channel may be reduced.
  - » Use more habitat-friendly forms of river training such as bio-engineering to mimic natural armouring, instead of riprap and concrete. Replicate historical natural bank stabilization, rather than hard surfaces.
  - » A clear span bridge is usually the preferred type of crossing because it typically causes less impact to watercourse and flood plain functions.
  - » When combining utility crossings with bridges, any corrosion problems due to leaks or electric currents should be anticipated and prevented.
  - » Bridge spans that either eliminate or minimize the disturbance of the watercourse bed and shore are preferable.
  - » Recreation access to the watercourse and approach ramps should be included, as appropriate.
  - » Where significant conflicts are expected, priority should be given to the protection of wildlife habitat and corridors (ecologically sensitive areas) over all other uses.
- Adverse biophysical impacts should be avoided if possible, or minimized if unavoidable.
  - » Vegetation impacts should be minimized by crossing the stream corridor at a right angle and keeping the right-of-way as narrow as possible.

  - » Designing for acoustic, visual and safety factors is important.
    - – Sound barriers block the view and turn crossings into visual canyons; however, they may be needed to reduce salt spray and/or disruptions to wildlife habitat and corridors.
    - – Concrete is very noisy but physical buffers and rubberized surfaces help.
    - – Wet surfaces increase traffic noise, especially with low clouds that reflect sound back to the ground.
- Water from bridge and approach runoff needs primary and secondary treatment. Best management practices such as stormwater ponds, storm receptors, and constructed wetlands should be used in the vicinity of the crossing to treat street drainage and runoff from bridge decks to meet federal, provincial and municipal requirements as well as the objectives and criteria in water and watershed management plans.
- Shadowing from crossings can alter the seasonal and daily sunlight patterns on water and land and change biological functions, structure and viability. These impacts may be addressed by narrowing the right-of-way, using grated bridge decking where appropriate, or dividing the roadway into two with an open segment in between.
- The natural hydraulics of the watercourse must be respected and accommodated.
  - » Bridge crossings should be sized to accommodate the maximum flood flow as per design guidelines.
  - » Adequate clearance must be provided between the high-water flood level and the lowest part of the bridge structure, to allow unobstructed passage of debris.
  - » The placement of and hydraulic impacts due to bridge abutments should consider existing impediments and recreation river traffic because of the dangers to boaters during different water levels.
  - » Bridge abutments, piers and footings should be located outside the bank-full channel. An arched construction that spans the channel may be preferable. For bridge elements located in the flood plain, the orientation and surfaces of the structures should be hydraulically smooth and designed in a manner to allow a gradual contraction of flow from the natural channel and flood plain through the crossing, and expansion of the flow downstream of the crossing.
  - » Bridge length should be established to allow proper conveyance of the maximum flood flow as per design guidelines. The length of the bridge should be increased to eliminate the potential for scour of the abutments and piers, to provide access under the crossing for pedestrian paths, and to preserve wildlife migration corridors and riparian vegetation.
  - » The footprint of crossings and their associated facilities should be minimized to reduce impacts or interruptions to natural groundwater flows within the alluvial aquifer.

Principle 5: Co-operation between multiple jurisdictions based on long term planning and mutual agreement on objectives and uses.

- Integrate proposed watercourse crossings with relevant plans and policies such as local watershed management plans (e.g., Bow River, Elbow River, Nose Creek), the provincial Water for Life Strategy and Land Use Framework, the Calgary Metropolitan Region Board plans, and the City's Wetland Conservation Plan and Riparian Action Plan.
- Aim to exceed the current minimum requirements established by regulatory agencies, in anticipation of more stringent regulations as our increasing population puts more pressure on shared resources and natural capital.
- Contact agencies responsible for fisheries, terrestrial species, hydraulics, alluvial aquifers, flood plain management, wetlands etc. to ensure that all requirements and initiatives will be co-ordinated.
- Pre-screening of locations should include long term goals of multiple jurisdictions (municipal, regional, provincial, federal) to optimize each individual crossing and minimize the number of crossings.

Principle 6: Effective policies, regulations, guidelines and enforcement.

Proper planning and design of watercourse crossings must be governed and supported by environmentally responsible legislation. Some relevant examples of local regulations, guidelines, policies etc. are listed below:

- The Department of Fisheries and Oceans Canada (DFO) typically requires a site-specific analysis for major watercourse crossings, which would, at a minimum, include the following details: fish habitat, hydraulics, timing of the project (for spawning and mitigation), construction activities and sequencing.
- The City of Calgary biophysical components include flora, fauna, terrestrial, avian, amphibians, insects and hydrology.
- Alberta's Wetland Policy and Calgary's Wetland Conservation Plan include a 'no net loss' principle, with a prioritized approach: avoid, mitigate, compensate.
- The City of Calgary's Wetland Conservation Plan includes a minimum 3:1 replacement ratio on the basis of affected wildlife habitat and other functionalities.
- City of Calgary Stormwater Management and Design Manual.
- Alberta Water Act Code of Practice.
- Alberta Transportation guidelines provide guidance on sizing, hydrotechnical design and fish habitat.

Principle 7: Public consultation.

The City should consult the public, impacted communities and businesses on the planning, design and construction of any new river crossings. The consultation process should address the environmental, social, fiscal, safety and mobility impacts of the proposed crossing.

Part 7
Glossary of Terms

A

accessibility

Ease of access/egress to any location by walking, wheeling, transit and private vehicles, or for commercial vehicles.

active modes

Non motorized travel, primarily walking, wheeling and movements with mobility devices.

Activity Centre

All areas defined as Major **Activity Centres**, Community **Activity Centres** or Neighbourhood **Activity Centres** in the MDP, and as shown on the MDP Urban Structure Maps.

asset management program

A process that guides the gaining of assets, along with their use and disposal in order to make the most of the assets and their potential throughout the life of the assets. While doing this, it also manages and maintains any costs and risks associated with the assets.

B

Balanced Growth Boundary

The boundary between Developed and Developing areas of the city in 2006, used to measure the balance of growth being achieved by way of the urban expansion core indicator.

built form

The engineered surroundings that provide the setting for human activity and includes buildings, **streets** and structures (including infrastructure).

bus rapid transit (BRT)

A type of limited stop bus service that relies on technology to speed up the service. It can operate on exclusive transit ways, high-occupancy vehicle lanes and any type of **road** or **street**. A BRT line combines intelligent transportation systems technology, priority for transit, rapid and convenient fare collection and integration with land use policy, in order to upgrade bus system performance substantially.

C

Calgary Metropolitan Region Board

The provincially mandated Growth Board for the Calgary Region, as described in section 1.3.

Calgary Metropolitan Region Board Growth Plan

Refers to the current approved Growth Plan of the Calgary Metropolitan Region Board.

canopy cover

The area within the boundaries of Calgary covered by tree and forest foliage.

capacity

The volume of people or vehicles a transportation facility was designed to carry in a unit of time, such as an hour. Can also be applied to transit or walking/wheeling facilities (e.g., pathways).

complete community

A community that is fully developed and meets the needs of local residents through an entire lifetime. Complete communities include a full range of housing, commerce, recreational, institutional and public spaces. A complete community provides a physical and social environment where residents and visitors can live, learn, work and play.

Complete Street

A street designed and operated to enable safe, attractive and comfortable access and travel for all users, including pedestrians, cyclists and public transit and private vehicle users. A Complete Street incorporates natural infrastructure and optimize public space and aesthetics wherever possible. The degree to which any one street supports different modes of transportation, natural infrastructure or public space varies depending on surrounding context and role of the street.

congestion

A condition lasting 15 minutes or longer where travel demand exceeds the design capacity of a transportation facility.

connectivity

The directness of links and the density of connections in a path or road network. A connected transportation system allows for more direct travel between destinations, offers more route options and makes active transportation more feasible.

Crime Prevention Through Environmental Design (CPTED)

The proper design and effective use of the built environment, which may lead to a reduction in the fear and incidence of crime and an improvement in quality of life.

D

deep utility

Design indicators are criteria for measuring progress towards sustainability, with a focus on the issues relating to the interaction and design of land use and transportation systems (e.g., proximity of population and jobs to convenient transit). Effective design issues should be measured easily and reliably, be simple and easy to understand, and can be used to drive future decision-making processes related to land use and transportation.

design indicators

Stormwater, sanitary and water pipes.

E

ecosystem

The interaction between organisms, including humans and their environment. Ecosystem health/integrity refers to the adequate structure and functioning of an ecosystem, as described by scientific information and societal priorities.

G

Greater Downtown

Refers to an area comprised of the Eau Claire, Chinatown, Downtown West, East Village, Downtown Core, and Beltline communities. **Greater Downtown** is located on the south bank of the Bow River and bounded to the east by the Elbow River, to the south by 17 Avenue S.W. and to the west by 14 Street S.W. The direction within this Plan will also apply to properties west of 14 Street SW and south of 17 Avenue S. This area can also referred to as Centre City.

greenhouse gas (GHG) emissions

Gases in the atmosphere that absorb and emit radiation within the thermal infrared range.

H

hydrology

The study of the movement, distribution and quality of water throughout the Earth; hydrology thus addresses both the hydrologic cycle and water resources.

I

impervious surfaces

Mainly artificial structures, such as building roofs, road pavements, sidewalks and parking lots that cannot be easily penetrated by water, thereby resulting in runoff.

intensification

The development of a property, site or area at a higher density than currently exists. Intensification can be achieved through redevelopment, development of vacant/ underutilized lots, the conversion of existing buildings, or through infill development in previously developed areas.

intensity

A measure of the concentration of people and jobs within a given area calculated by totaling the number of people either living or working in a given area.

intermodal facilities

Places that accommodate connections between transportation modes. Typically refers to break of bulk locations between rail and air and truck.

L

life cycle cost

The sum of all recurring and one-time (non-recurring) costs over the full life span or a specified period of a good, service, structure or system. It includes purchase price, installation cost, operating costs, maintenance and upgrade costs and remaining (residual or salvage) value at the end of ownership or of its useful life.

light rail transit (LRT)

Electrically-powered rail cars, operating in sets of three to five cars per train on protected rights-of-way, adjacent to or in the medians of roadways or rail rights-of-way. Generally at grade, with some sections operating in mixed traffic and/or tunnels or on elevated bridge structures.

logistics

The management of the flow of goods, information and other resources, including energy and people, between the point of origin and the point of consumption in order to meet the requirements of consumers.

low impact development (LID)

An approach to land development that uses various land planning and design practices and technologies to simultaneously conserve and protect natural resource systems and reduce infrastructure costs.

M

Main Street

All areas defined as Urban Corridors or Neighbourhood Corridors in the MDP, and as shown on the MDP Urban Structure Map.

mixed use development

The development of land, a building or a structure with two or more different uses, such as residential, office and retail. Mixed-use can occur vertically within a building, or horizontally on a site.

mode split or modal split

The proportion of total person trips using each of the various modes of transportation. The proportion using any one mode is its modal share.

N

native biodiversity

Species of flora and fauna that are indigenous to a specific area.

natural infrastructure

An interconnected network of natural green and engineered green elements applicable at multiple scales in the land use and mobility framework. Natural green elements include the conservation and integration of traditional green elements such as trees, wetlands, riparian areas and parks. Engineered green elements include systems and technologies designed to mimic ecological functions or to reduce impacts on ecological systems. Examples include green alleys, green buildings and green roadways and bridge.

P

park and ride lots

Parking lots located at LRT stations or bus stops that allow automobile users to park their private vehicles, access and transfer to and from public transportation service in a convenient manner.

parking facilities

Any surface used to provide parking for vehicles, whether inside part of or all of a building, or outside either off-street or within the roadway right-of-way.

pedestrian-oriented or pedestrian-friendly

An environment designed to make travel on foot and/or by assisted mobility device safe, convenient, attractive and accessible for all ages and abilities. Considerations include directness of the route, interest along the route, safety, street activity, separation of pedestrians and traffic, street furniture, surface material, sidewalk width, prevailing wind direction, intersection treatment, curb cuts, ramps and landscaping.

primary transit threshold

A minimum intensity of people or jobs per gross developable hectare that is required within walking distance of a transit station or stop to support service levels of the Primary Transit Network.

public realm

The space between and within buildings that are publicly accessible, including **streets**, squares, parks and open spaces. These areas and settings support or facilitate public life and social interaction.

R

redevelopment

The creation of new units, uses or lots on previously developed land in existing communities.

right-of-way (ROW)

Publicly owned land containing **roads** and **streets** and/or utilities.

road

Roadways that are designed to move large volumes of vehicular traffic (private vehicles, commercial vehicles and occasionally transit) at higher speeds over long distances.

roadway

A generic term that encompasses all types of **roads** and **streets**.

S

sense of place

A strong identity and character that is felt by local inhabitants and visitors. Factors that help to create a "strong sense of place" include natural and cultural features, built form and architecture, mobility to and within the place and the people who frequent that place. Areas with a good sense of place often have elements that are appealing to the five senses (sight, smell, touch, taste, sound) and generally encourage people to linger longer and enjoy the atmosphere.

shallow utility

Gas, electrical, telephone and television cable services.

street

Roadways that are designed to accommodate all modes of transportation (to varying degrees depending on the specific type of **street**). They also contribute to sense of place, and typically provide more **streetscape** elements than **roads**.

streetcars

Urban rail vehicles operating a low speeds (e.g., 10 to 25 kph) in mixed traffic, with closely spaced stops (e.g., every 200 metres).

streetscape

All the elements that make up the physical environment of a **street** and define its character. This includes paving, trees and vegetation, lighting, building type, style setback, pedestrian, cycle and transit amenities, **street** furniture, etc.

sustainability

Meeting the needs of the present without compromising the ability of future generations to meet their own needs. It includes environmental, economic and social sustainability. **Sustainability** is defined by the 11 **Sustainability** Principles for Land Use and Mobility, approved by Calgary City Council on Jan. 8, 2007.

T

Transit-Oriented Development (TOD)

A compact, mixed-use community within walking distance of a transit stop, that mixes residential, retail, office, open space and public uses in a way that makes it convenient to travel on foot or by public transportation instead of by car.

transit-oriented, transit-friendly or transit-supportive

The elements of urban form and design that make transit more accessible and efficient. These range from land use elements, (e.g., locating higher-intensity housing and commercial uses along transit routes) to design (e.g., **street** layout that allows efficient bus routing). It also encompasses pedestrian-friendly features, as most transit riders begin and end their rides as pedestrians.

transit priority measures

Strategies that improve transit operating speeds and transit travel time reliability in mixed traffic, such as traffic signal priority or queue jumps.

typology

Typology defines the key geographic areas within the urban boundary that share common characteristics. Typologies establish the strategic framework within which more detailed land use designations and policies can be established. Integral to each typology and the city as a whole are the "**Road** and **Street** Palette" and transit services which are integrated with the land use pattern or typologies.

U

universal design

Universal design is the design of products, building features and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.

urban forest

All the trees and associated vegetative understory in the city, including trees and shrubs intentionally planted, naturally occurring or accidentally seeded within the city limits.

W

walkable

See "pedestrian-oriented."

watercourse

A natural or artificial channel through which water flows.

watershed

Watersheds include groundwater, springs, wetlands, ponds, streams and lakes as well as all land that drains into these linked aquatic systems. **Watersheds** reflect both the natural characteristics of their geography and the impacts of human activities within them.

wayfinding

A term used to describe how people respond to the built environment to orient themselves. Elements that contribute to wayfinding include reference points such as signage, natural areas or parks, landmark buildings, bridges, distinctive lighting, public art, etc.

wetlands

A (Calgary) wetland is a waterbody and its bed and shores, that is naturally occurring or disturbed and is located within the Foothills Fescue and Foothills Parkland Natural Regions within the city of Calgary (as per the Wetland Conservation Plan).

wheeling

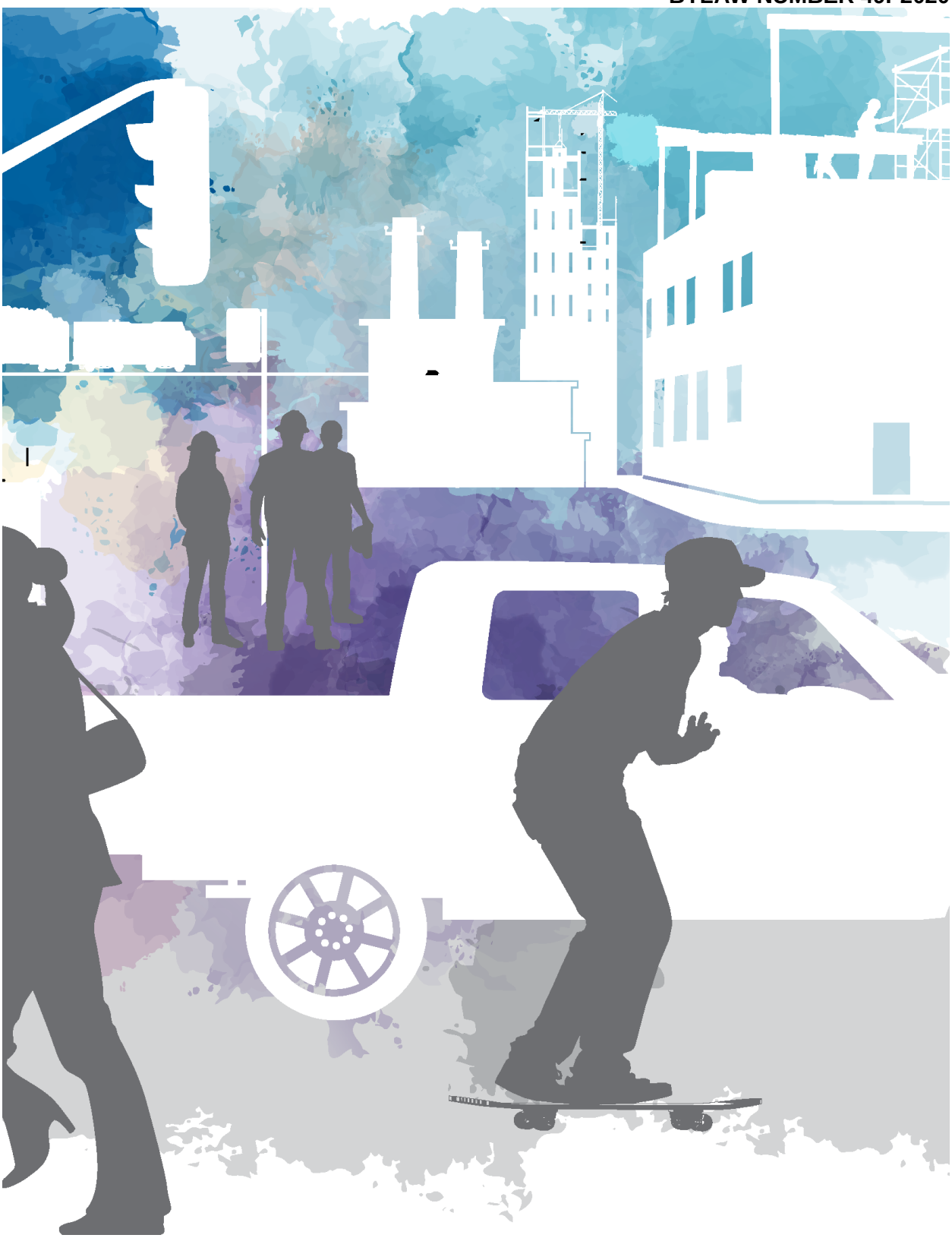
A person travelling by bike, skateboard, in-line skates, kick-scooter, e-scooter, or other similar form of mobility device.

Part 8
Maps

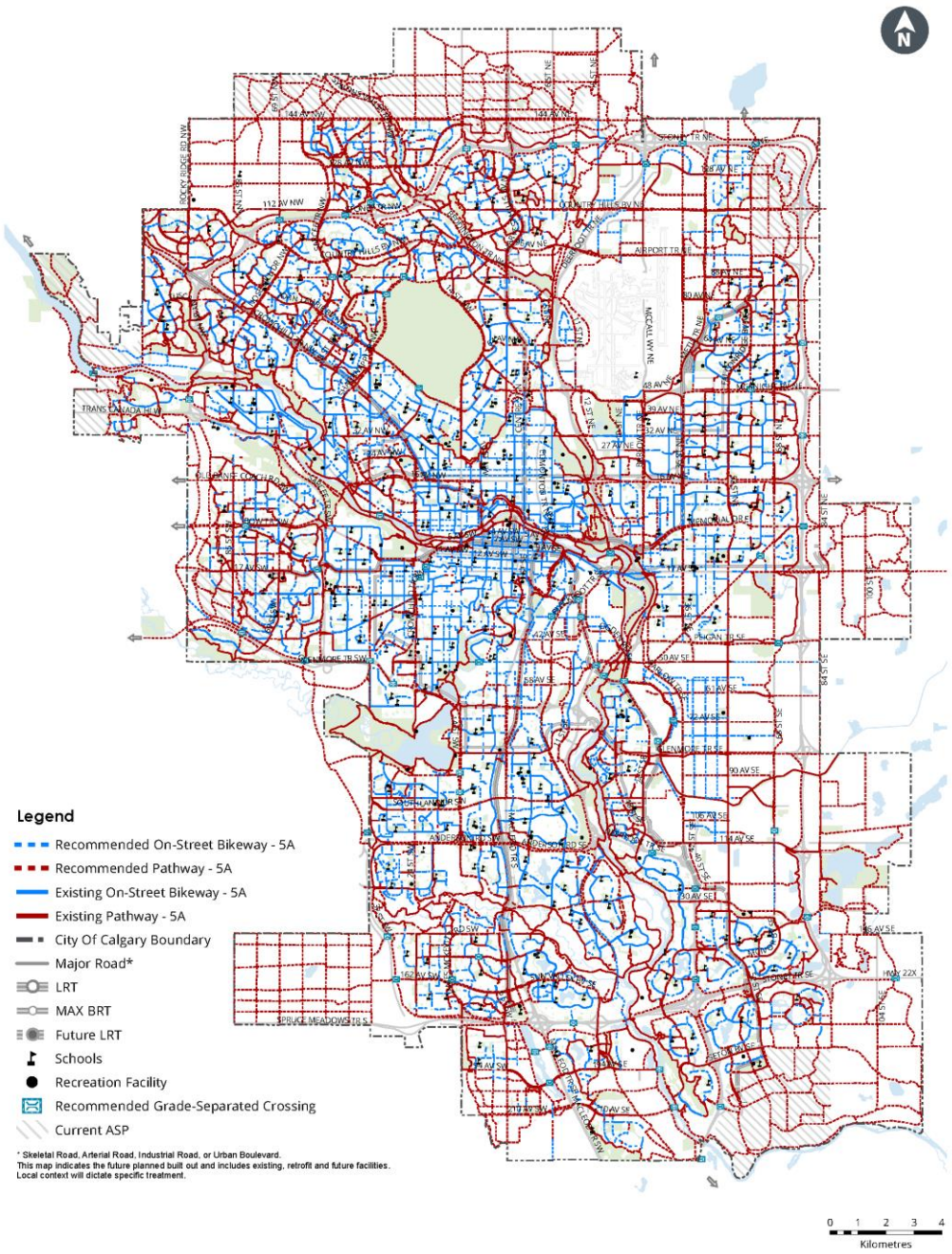
These maps represent a conceptual land use structure and transportation networks for the city as a whole. No representation is made herein that a particular site use or City investment, as represented on these maps, will be made. Site specific assessments, including environmental contamination, as well as the future financial capacities of the City of Calgary must be considered before any land use or City investment decisions are made.

PROPOSED

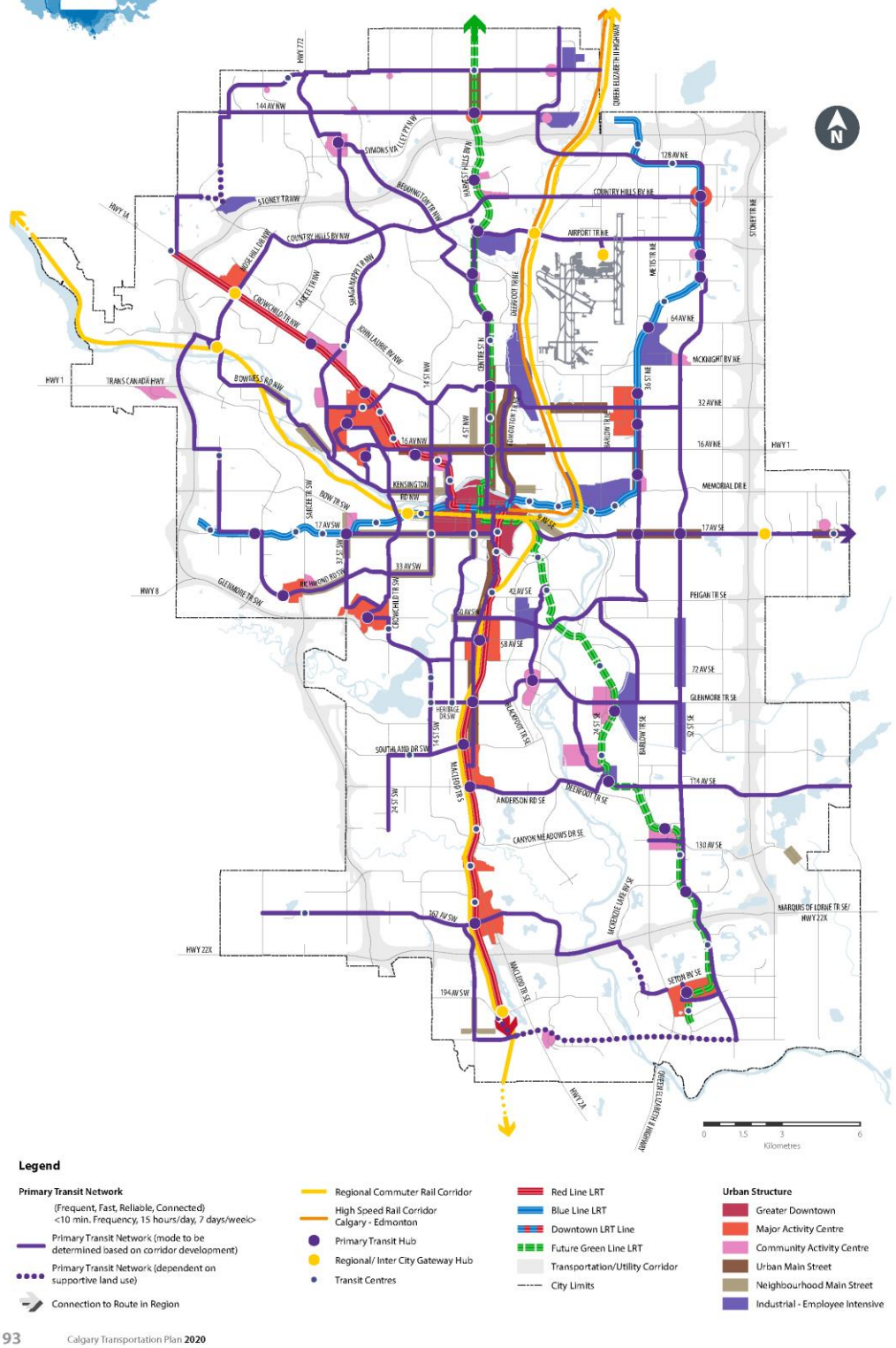
BYLAW NUMBER 49P2020



1 Always Available for All Ages and Abilities (5A) Network



2 Primary Transit Network



Legend

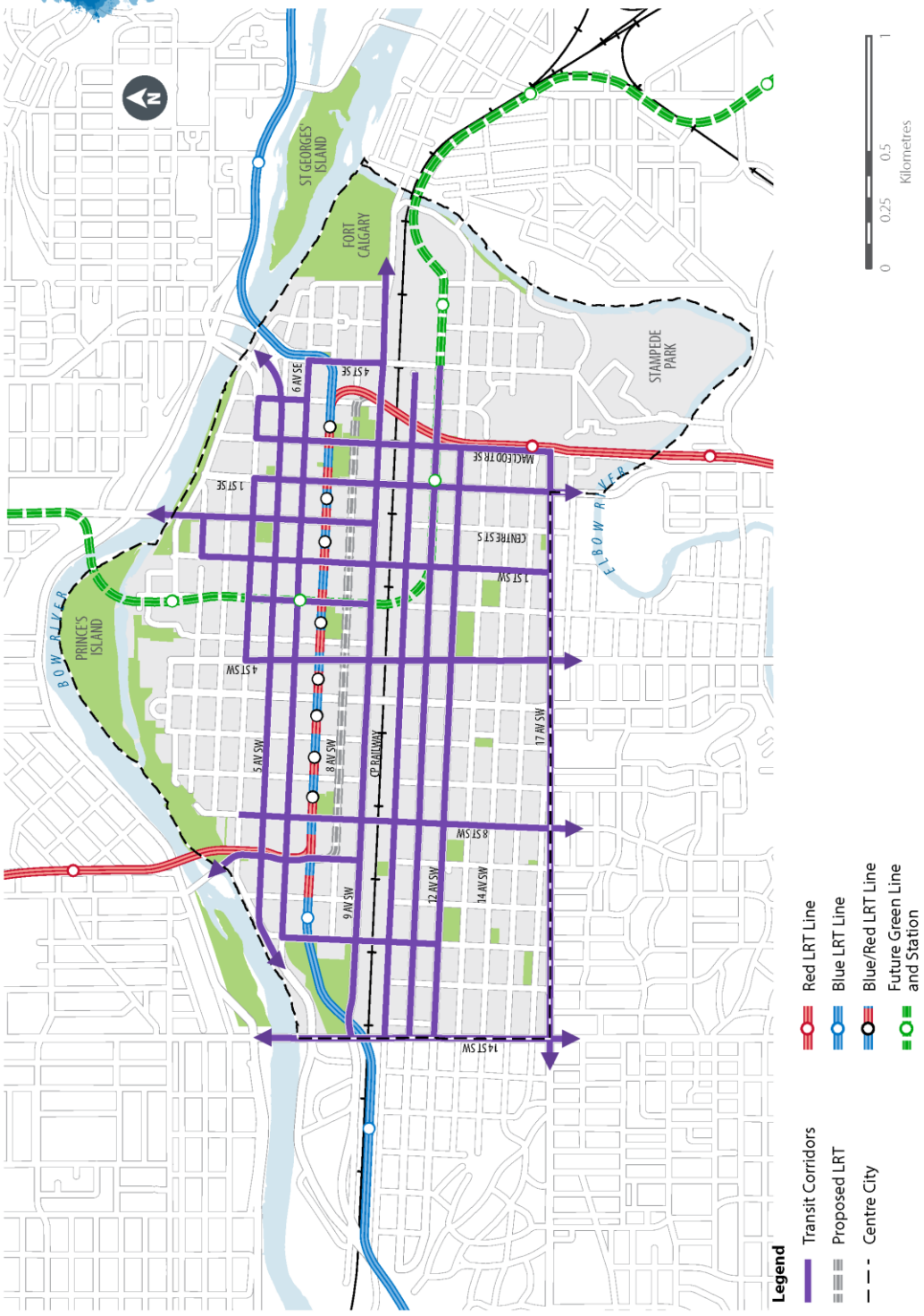
Primary Transit Network
- (Frequent, Fast, Reliable, Connected) <10 min. Frequency, 15 hours/day, 7 days/week>
- Primary Transit Network (mode to be determined based on corridor development)
- Primary Transit Network (dependent on supportive land use)
- Connection to Route in Region

- Regional Commuter Rail Corridor
- High Speed Rail Corridor Calgary - Edmonton
- Primary Transit Hub
- Regional/ Inter City Gateway Hub
- Transit Centres

- Red Line LRT
- Blue Line LRT
- Downtown LRT Line
- Future Green Line LRT
- Transportation/Utility Corridor
- City Limits

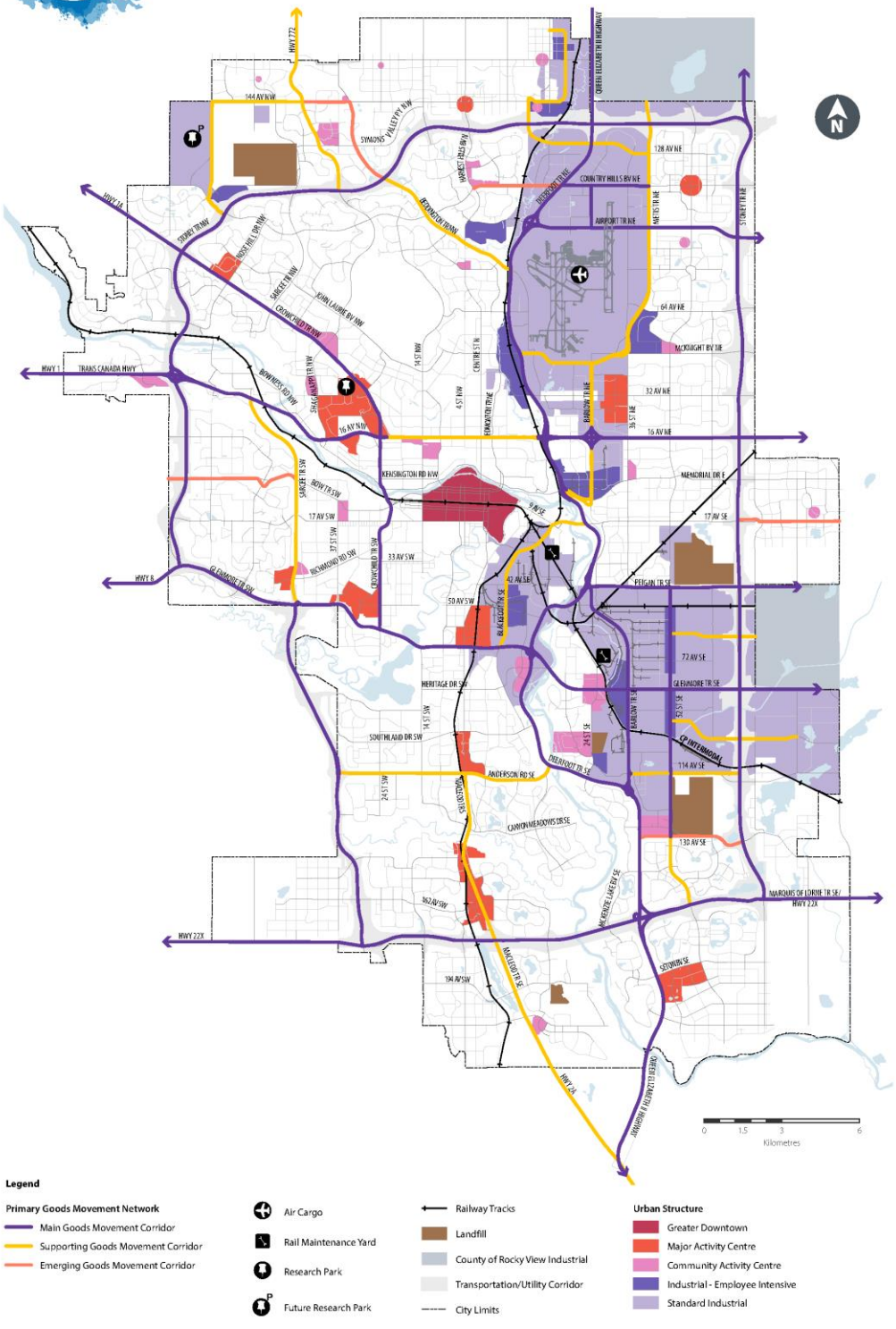
Urban Structure
- Greater Downtown
- Major Activity Centre
- Community Activity Centre
- Urban Main Street
- Neighbourhood Main Street
- Industrial - Employee Intensive

3 Downtown Transit Network

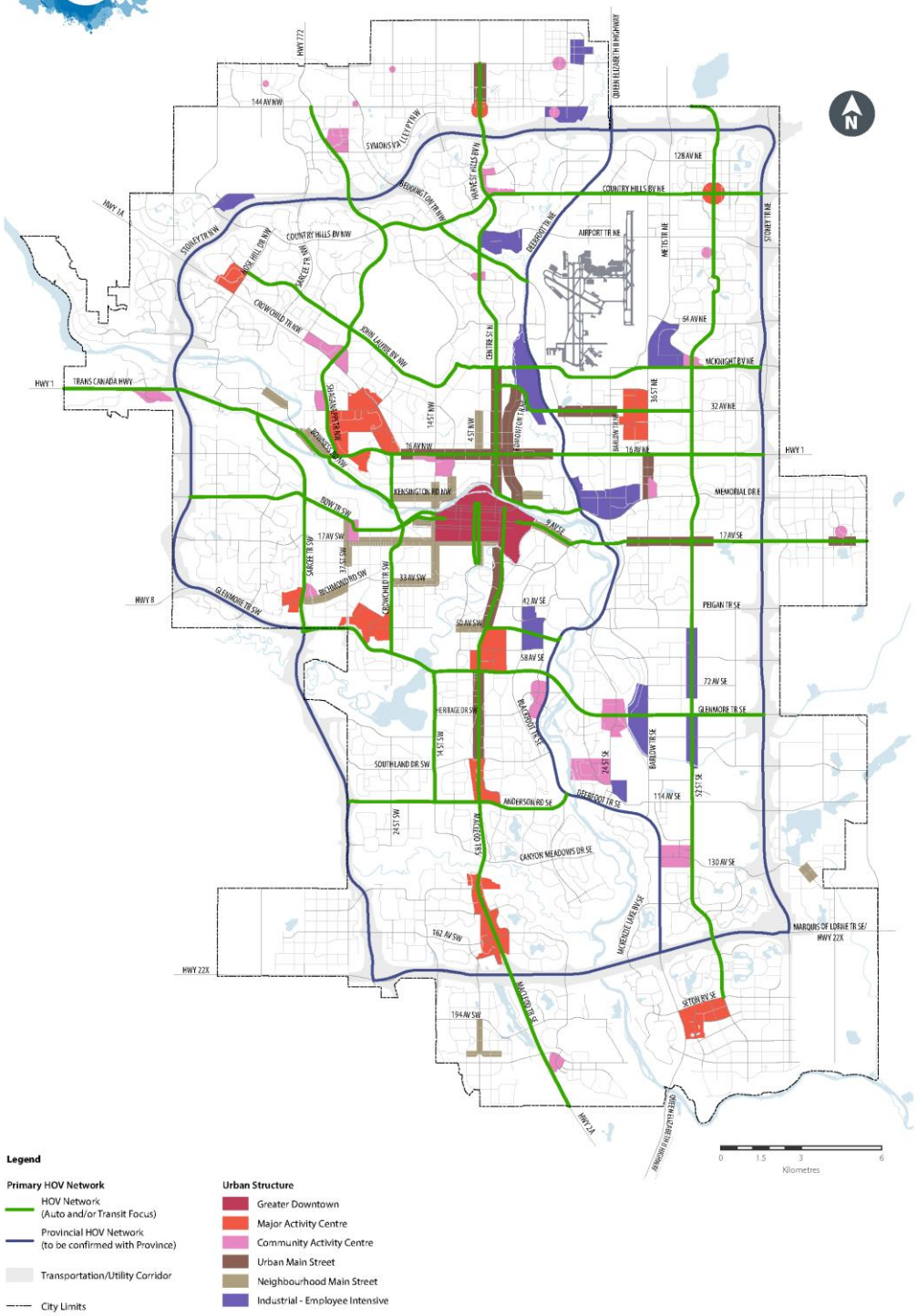


4 Conceptual Calgary Regional Transit Plan [removed]

5 Primary Goods Movement Network



6 Primary HOV Network



Legend

Primary HOV Network
- HOV Network (Auto and/or Transit Focus)
- Provincial HOV Network (to be confirmed with Province)
- Transportation/Utility Corridor
- City Limits

Urban Structure
- Greater Downtown
- Major Activity Centre
- Community Activity Centre
- Urban Main Street
- Neighbourhood Main Street
- Industrial - Employee Intensive

7 Road and Street Network