TOWN OF MORINVILLE

TRANSPORTATION MASTER PLAN

JULY 31, 2020

Morinville
Growing Together

ACKNOWLEDGEMENTS

The Town of Morinville Transportation Master Plan was prepared by Bunt & Associates Engineering Ltd. and their partners (Intelligent Futures and Stantec Consulting Ltd.), with support and guidance from the Town of Morinville Council and Administration, as well as numerous local and regional stakeholders. The efforts of all involved are greatly appreciated.

TOWN OF MORINVILLE

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Contents

List of Acronyms

AADT	Average Annual Daily Traffic
ADA	Americans With Disabilities Act
ASP	Area Structure Plan
CPTED	Crime Prevention Through Environmental Design
EDSAP	Economic Development Strategic Action Plan
EMRB	Edmonton Metropolitan Region Board
GHG	Greenhouse Gas
IRTMP	Integrated Regional Transportation Master Plan
ITS	Intelligent Transportation Systems
LOS	Level of Service
LRT	Light Rail Transit
LUB	Land Use Bylaw
MDP	Municipal Development Plan
MSP	Municipal Sustainability Plan
PRCTMP	Parks, Recreation, Culture, and Trails Master Plan
TAC	Transportation Association of Canada
TMP	Transportation Master Plan
V/C	Volume To Capacity Ratio
VPD	Vehicles Per Day

Executive Summary

The 2020 Transportation Master Plan (TMP) is a comprehensive planning document to guide the Town of Morinville through growth and change over the next 25 years. This plan supports the town's sustainability, development, and mobility planning goals, as well as the important role that Morinville plays in the Edmonton Metropolitan Region. The TMP forms an integral part of the town's regulatory framework providing guidance on land use, transit, active transportation, complete streets, accessibility, parking, and roadway upgrade planning for the short, medium, and long-term.

Morinville
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THE TMP VISION

"To provide a well-planned and fiscally responsible multi-modal transportation network that provides safe, efficient, convenient and enjoyable connectivity, both within the community and the metropolitan region, that promotes social and community wellness, fosters growth and promotes sustainability."

THE TMP GOALS

GOAL 1: TRANSPORTATION & LAND USE INTEGRATION

Recognizing the strong interconnectivity between transportation and land use, the two complement and support each other such that the transportation system is optimized and supports land use best practices.

GOAL 2: ACCESS & MOBILITY

The transportation system is interconnected and integrated allowing for the efficient movement of goods within the community and surrounding region through the provision of mode choices and reasonable access serving the diverse population.

GOAL 3: SUSTAINABILITY

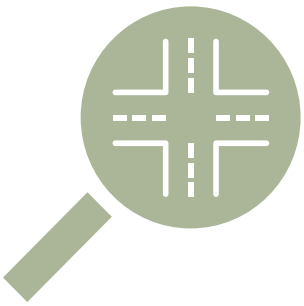
The transportation system reflects and supports the Town of Morinville's vision for a sustainable, adaptable and livable community that increases residents' quality of life while minimizing long-term operation, maintenance and replacement costs.

GOAL 4: HEALTH & SAFETY

The transportation system supports healthy, active lifestyles, and addresses user safety and security including access for emergency response services, contributing to Morinville's livability.

GOAL 5: ADAPTABILITY

The transportation system provides safe, attractive, multi-use and flexible spaces that can accommodate different uses at different times, adapting to the needs of the community as it grows.



EXISTING & FUTURE CONDITIONS

Since 1916, Morinville has grown from a population of 350 to 9,893 as of the last municipal census completed in 2016. Population growth has been variable, with periods of accelerated population growth interspersed with extended periods of slower growth. Referring to the Municipal Development Plan (MDP) and the Edmonton Metropolitan Region Board (EMRB) Growth Plan, Morinville is projected to reach a population of around 16,500 by the year 2045 and a full build-out population of approximately 32,500 without annexation of further lands.

In 2016, it is estimated that 1,026 Morinville residents were employed within town, while an additional 3,360 residents worked outside the community. Overall there was an estimated 2,880 jobs located within Morinville. Projecting forward, it is estimated that Morinville will have about 4,344 jobs within the community in 25 years, and 9,400 jobs at full build-out of within the town boundary.

Morinville is currently served by five main roadways: Highway 2, Highway 642 (100 Avenue), 100 Street, Cardiff Road and East Boundary Road. Highway 642 (100 Avenue) is the main east-west arterial through the community and is slated as a future four-lane divided arterial from Highway 2 to East Boundary Road. To meet future demands, it is anticipated that upgrades to 100 Street (the main north-south arterial through the community) and Cardiff Road will be required. East Boundary Road, which is currently a lower volume north-south gravel roadway that runs along the east boundary of town, is a priority for upgrading to a two-lane paved roadway. Doing so, will provide Morinville with a second north-south arterial relieving pressures on 100 Street, connecting lands for further development, and providing an alternate truck route for the community.

Active transportation is a key focus for the town, as illustrated by the completion of the Trails Master Plan in 2019. Recognizing that there are gaps in the active transportation network, Morinville is committed to providing a more robust and well-connected active transportation network (i.e. trails, shared use paths and sidewalks). This will provide greater recreational opportunities and greater opportunity for purpose based active mode trips (i.e. shopping, commuting).

Publive transit does not currently exist within Morinville. Under current conditions, with a large proportion of Morinville's work force employed outside the community and spread throughout the metropolitan region, it is difficult to provide meaningful transit service and expect the local population to embrace transit for their daily commutes. The EMRB Growth Plan identifies the need for regional transit service from Morinville to St. Albert by the year 2044. In the future, as Morinville's population grows and logical regional connection points are implemented to entice usage, transit is envisioned to be a valued component of Morinville's transportation system. Morinville is committed to supporting public transit links with regional communities and will continue to work with regional partners to develop efficient and cost-effective transit links where appropriate and feasible.

RECOMMENDED ROAD NETWORK

Short (0-5 years), Medium (6-15 years) and Long-term (16-25 years) roadway improvements have been identified to meet the anticipated demand generated by growth in Morinville and the surrounding area. Upgrades to 100 Street, Highway 642 (100 Avenue), Cardiff Road, and East Boundary Road, including key intersections have been identified over the course of the next 25 years.

Along 100 Avenue, where previous planning efforts recommended installing a series of roundabouts to meet the full build-out traffic demands, Morinville will need to finalize whether traffic signals, roundabouts or a combination thereof are installed along the corridor.

While not anticipated to be required over the next 25 years, Morinville will consider opportunities to protect two new east-west arterials in the community: one between 100 Avenue and the north town limit and one between Cardiff Road and the CN Railway Crossing. These two new arterial roadways are envisioned to provide additional route options for the community and reduce the traffic pressures on 100 Street and 100 Avenue, especially as Morinville reaches full build-out of available lands. Planning for and protecting these future arterials in the short-term will ensure that they can be constructed when needed.

All roadways upgrades in the community will consider complete streets and elements of universal design ensuring the right road for the right purpose and a roadway network that meets the multi-modal needs of the community.

RECOMMENDED ACTIVE TRANSPORTATION

The 2019 Parks, Recreation, Culture, and Trails Master Plan provides a long-term vision for the active transportation network in the community. Several of the future connections identified in the Parks, Recreation, Culture, and Trails Master Plan are located on privately owned lands. Morinville is unable to construct these trails prior to subdivision or negotiation with the landowner or purchase of the necessary right-of-way. Because the timing of development of privately owned lands is unknown, from a construction perspective the TMP focuses on future active transportation links located on public lands, and provides a prioritized short, medium and long-term improvement strategy for these links. While the TMP prioritizes these improvements into three horizons, Morinville will seek to accelerate the construction of the active transportation network, where possible.

It is envisioned that with the anticipated growth in the community over the next 25 years, much of the privately owned lands within the community will have begun to be built-out providing greater opportunity for the active transportation network to be built beyond the links identified in the TMP.

Active transportation connections to Heritage Lake is an important initiative, but one that comes with significant challenges. Highway 2 poses a significant barrier to providing convenient and safe active modes of connection to Heritage Lake. The Parks, Recreation, Culture, and Trails Master Plan identifies a future trail connection to Heritage Lake that runs parallel to the CN Rail line through the Westwinds subdivision and utilizes the existing CN Rail underpass at Highway 2. Morinville will work with CN and Alberta Transportation to explore the feasibility of this proposed active transportation connection to Heritage Lake. In addition, providing a second active transportation connection that conveniently and safely connects north Morinville residents to Heritage Lake will be considered, possibly along Highway 642 (100 Avenue).

The planning, design and construction of active transportation links in Morinville will incorporate Crime Prevention Through Environmental Design (CPTED) principles, which aims to prevent crime by designing the physical environment that positively influences human behavior.

Key to the build-out of Morinville's active transportation network will be the careful consideration of pedestrian crossings and appropriate measures for a safe and enjoyable user experience.

RECOMMENDED PUBLIC TRANSPORTATION NETWORK

It is recognized given the commuting distances and destinations of residents that the private automobile will continue to be the primary means of moving people and goods within the community and surrounding region; however, a key objective of the TMP is to reduce reliance on the private automobile.

Morinville recently agreed to participate in a Regional Transit Services Commission (RTSC). If approved by the Alberta Government, the RSTC will provide increased opportunities to incorporate transit into Morinville's transportation offerings. Regardless of whether the RSTC comes to fruition or not, Morinville will continue to work with regional partners to identify opportunities for transit.

It is envisioned that peak-only express transit service between Morinville and St. Albert is the first step in establishing transit for Morinville residents. From there, Morinville residents will have access to several transit route options.

As regional public transportation initiatives are completed such as; the Campbell Road Park and Ride Transit Centre, Edmonton's Northwest LRT line, and the extension of LRT through St. Albert, to a future park and ride facility at the north end of St. Albert, ease of access to a wide range of public transportation options will make travel by transit an attractive option for Morinville residents.

RECOMMENDED COMMERCIAL/GOODS MOVEMENT

It is envisioned that Highway 642 (100 Avenue) through the community will remain a designated truck route and dangerous goods route. Should Morinville ever take over ownership of 100 Avenue from the province, consideration can be given to removing all or a portion of the roadway as a truck/dangerous goods route.

There is the potential to remove 107 Street and 101 Avenue as truck routes in the community, both of which traverse through residential areas as well as adjacent Morinville Public School.

Opportunities to revise the 100 Street truck/dangerous good route will also be explored, with a focus on reducing commercial through traffic in the Coeur de Morinville.

Finally, it is envisioned that once East Boundary Road is upgraded to a paved two-lane arterial roadway, it and Cardiff Road will be designated as truck routes within the community.

The TMP identifies potential future truck routes and dangerous goods routes in Morinville; however, this is only intended to form a launch point for more detailed undertakings to be completed by Morinville in conjunction with key stakeholders. Ultimately, the intent of revising the truck routes and dangerous good routes is to provide much needed connectivity while improving public safety.

INTELLIGENT TRANSPORTATION SYSTEMS

Intelligent Transportation Systems (ITS) is the application of information and communication technologies to improve the safety, efficiency and sustainability of transportation networks. Given the existing population size and relative simplicity of Morinville's transportation network, the application of ITS services may not seem overly relevant today; however, limited applications may prove useful. Over the course of the next 25 years as population and employment continue to grow, so to will the demands placed on the transportation network. The integration of ITS can help Morinville manage congestion and safety on the transportation network.

IMPLEMENTATION

The TMP provides a long-term vision for the transportation network to meet the priorities of the community and the anticipated demands due to increased growth and includes a series of recommended action items and construction projects divided into three horizons (short, medium and long-term).

The success of the TMP will be measured primarily through the implementation of the action items and construction project over the course of the next 25 years. However, success will also be based on specific measurables. Critical to these measurables is data collection, which not only assists in understanding where the community is at any give time, but also in establishing baselines and achievable goals for mode split and greenhouse gas emissions or confirming when improvements are required.

1

Introduction

The 2020 Transportation Master Plan (TMP) is a comprehensive planning document to guide Morinville through growth and change over the next 25 years. This plan supports the town's sustainability, development, and mobility planning goals, as well as the important role that Morinville plays in the Edmonton Metropolitan Region. The TMP forms an integral part of the town's regulatory framework providing guidance on land use, transit, active transportation, complete streets, accessibility, parking, and roadway upgrade planning for the short, medium, and long-term.

At the top, Morinville is guided by the Municipal Sustainability Plan (MSP), which provides a vision for Morinville grounded in six pillars of sustainability. It is aspirational and a key decision-making reference document to guide lower level plans, such as the TMP.

The six pillars of sustainability and how transportation is related is summarized as follows:

GOVERNANCE

Citizens are actively involved in municipal planning, policy development and decision making, such as the TMP, with the town providing sound management, accountable leadership, quality service, efficient community planning and regional leadership. A well-planned transportation network that involves citizens and stakeholders, and is cognizant of the larger community vision and goals helps ensure sustainability.

CULTURAL

The transportation network not only provides access to cultural and recreational amenities (i.e. parks, museums, etc.), but also recreational opportunities through the town's active transportation network.

SOCIAL

A transportation network that is multi-modal, safe and appropriately planned/designed helps make Morinville a desirable place to live and contributes to a healthy, safe, inclusive and affordable community.

ECONOMIC

A transportation network that is multi-modal, safe and appropriately planned/designed contributes to the economic vitality, growth and development of the community, while simultaneously improving quality of life and the environment.

INFRASTRUCTURE

A transportation system that is multi-modal, safe, appropriately planned/designed and well-maintained supports the efficient movement of people and goods throughout the community and region.

ENVIRONMENTAL

A transportation system that provides mode choice, encourages the use of alternate forms of transportation, and is well planned to support growth in the community, contributes to a healthy ecosystem, a reduced ecological footprint, and improved climate and air quality.

1.1 DOCUMENT OUTLINE

This document summarizes the process and outcomes of the TMP, with further details provided in the appendices. The TMP is organized as follows:

SECTION 2:

STRATEGIC FRAMEWORK

The strategic framework that directs the TMP was developed based on a review of relevant town and regional documents, plus feedback from the general public and stakeholders. Section 2 of this document summarizes the relevant documents that influence the TMP and establishes the vision and strategic goals for the TMP.

SECTION 3:

EXISTING & FUTURE CONDITIONS

Section 3 outlines the existing and expected future conditions as it pertains to land use, demographics, population, traffic, collisions and the overall transportation network that frames and influences the decision-making process and recommendations of the TMP.

SECTION 4:

TRANSPORTATION MODEL

Section 4 outlines the results of the four-step transportation model completed to estimate the future transportation demands.

SECTION 5:

TRANSPORTATION MASTER PLAN

The TMP consists of five key elements: roads, active transportation, public transportation, goods movement and intelligent transportation systems. Each of these sections considers the existing and future conditions discussed in Section 3, and identifies recommendations related to the vision and strategic goals outlined in Section 2.

SECTION 6:

IMPLEMENTATION

Section 6 provides an implementation strategy for the immediate term (0-5 years), medium term (10-15 years) and 25-year term. This includes improvement prioritization and high-level opinion of probable costs.

1.2 TMP DEVELOPMENT PROCESS

The TMP process consisted of the following phases:

PHASE 1:

PROJECT INITIATION

Working with the Town of Morinville administration, the project team established the timelines, deliverables and desired outcomes of the project. A steering committee was established by the town representing various disciplines.

PHASE 2:

DATA COLLECTION, STRATEGIC FRAMEWORK & EXISTING/FUTURE CONDITIONS

The collection and review of existing traffic volumes, collisions, land use plans, population and employment forecasts, plus the review of relevant statutory and non-statutory documents of the town and region, were critical to understanding where Morinville is at today and where the community is headed over the next 25 years.

PHASE 3:

PUBLIC/STAKEHOLDER ENGAGEMENT

The first round of public/stakeholder engagement was used as an opportunity to confirm that the vision, goals, principles and objectives outlined in the 2017 Municipal Development Plan (MDP) and Mobility Strategy still resonate with the general public and stakeholders, with the results informing the efforts of Phase 4.

PHASE 4:

VISION, STRATEGIC GOALS & OBJECTIVES

Using the information gathered in Phases 2 and 3, the project team, working with the steering committee, developed the vision, strategic goals and objectives to guide the TMP.

PHASE 5:

MODEL DEVELOPMENT

Following a detailed review of available census data, EMRB growth projections, relevant Morinville planning documents (i.e. Land Use Bylaw, Area Structure Plans, Outline Plans, etc.), population and employment growth in Morinville was estimated over the next 25 years. With an understanding of the available lands for development and densification, this information was then used to develop a transportation demand model for Morinville. The transportation model was developed for the 25-year and 15-year horizons to inform recommendations identified in the TMP. The model is intended as an ongoing tool that can be revisited and revised over time to be reflective of currently unforeseen changes.

PHASE 6:

DRAFT IMPLEMENTATION PLAN

Using the information gathered in Phases 2 through 5, a draft implementation plan was developed outlining expected transportation needs in the short-term, medium-term and 25-year horizon for consideration by the general public and stakeholders.

PHASE 7:

PUBLIC/STAKEHOLDER ENGAGEMENT

The second round of public and stakeholder engagement was conducted to gain feedback regarding the draft implementation plan.

PHASE 8:

RECOMMENDED IMPLEMENTATION PLAN

Based on the results of the public/stakeholder engagement in Phase 7, the draft implementation plan was revised to establish the TMP recommendations. This is intended to serve as a living tool for the town to prioritize transportation investment and decision making over the next 25 years.

PHASE 9:

REPORTING & PRESENTATION

The final draft TMP was presented to and approved by Town Council on July 14, 2020. The TMP was finalized to guide land use and transportation decision-making for years to come.

1.3 DATA COLLECTION

In October 2019, traffic counts were undertaken at key locations in Morinville to establish existing traffic conditions. Existing AM and PM peak hour turning movement volumes were processed at key arterial/arterial and arterial/collector intersections. In addition, 24-hour total traffic volumes were processed along key roadways to establish existing daily traffic volumes. This information was used to:

1. Establish existing traffic for use in transportation modeling.

2. Analyze existing intersection operations to inform short-term intersection improvements that should be considered.

3. Determine if any existing roadways are at capacity based on current roadway geometry and traffic volume thresholds.

Available collision data from 2014 to 2018 was also processed to identify existing collision trends to help inform short-term improvements.

Furthermore, available documents from Morinville (i.e. Municipal Sustainability Plan, Municipal Development Plan, Land Use Bylaw, Area Structure Plans, etc.) and the surrounding region (Sturgeon County, St. Albert, etc.) were gathered and reviewed to ensure that the TMP is reflective of the goals and plans for both the town and the metropolitan region. This information, in addition to the results of the stakeholder/public engagement, helped in establishing the vision, strategic goals, and objectives of the TMP.

1.4 TRANSPORTATION MODEL

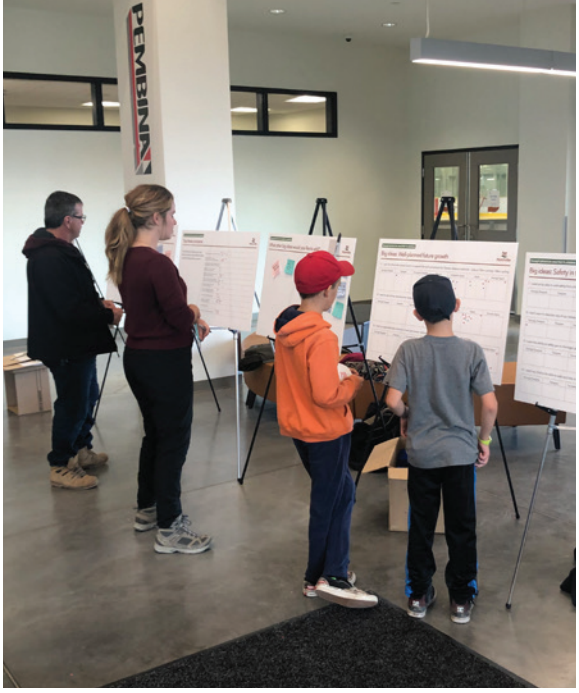
Using the data and information collected in Phase 2 of the TMP process, a transportation model was developed using PTV VISTRO for two planning horizons: 15-year and 25-year horizon. The modeling projections are based on projected population and employment growth, forecasted land development, and regional growth.

The model was developed to represent typical weekday daily traffic volumes to inform the roadway cross-sections required in the 15-year and 25-year horizon to support the projected growth in Morinville. This information helped inform the implementation plans and prioritization of upgrades.

1.5 ENGAGEMENT

STEERING COMMITTEE

A steering committee was formed at the outset of the project to guide the project team through the development of the TMP. The committee consisted of Morinville staff from various departments including planning, public works, and enforcement services, as well as an external consultant with a long history of involvement in the town. The steering committee coordinated with other Morinville staff members as well as Town Council throughout the project. This committee was invaluable throughout the TMP process providing guidance, support and knowledge transfer.



PUBLIC ENGAGEMENT

PHASE 1

Public engagement was divided into two phases. The first phase of public engagement occurred early in the TMP development process, prior to the development of the vision, strategic goals, and objectives. The results of the first phase of public engagement helped inform and influence the vision, strategic goals, and objectives, in addition to providing insights into issues and public priorities to be considered as the project moved forward.

This first phase of engagement included an online survey that was promoted via the town's website and social media. In addition, two community pop-up events were held in October 2019 to capture residents' attention while at existing events and venues in the community, allowing the project team to connect with people where they already are. The first occurred at the recently opened Morinville Leisure Centre on a Saturday, while the second occurred at the "Made in Morinville Fall Show and Sale" on a Friday. Finally, the project team contacted key stakeholders identified by the steering committee, which included the EMRB, RCMP, Fire Department, Sturgeon County, St. Albert, Alberta Transportation, Morinville Chamber of Commerce, School Divisions, and developers. For those stakeholders interested, interviews were arranged and conducted.

PHASE II

The second phase of public engagement occurred in April/ May 2020, with a focus on receiving feedback on the draft recommended improvement strategies and action plans. This consisted of a virtual online workshop with key stakeholders invited by the town, followed by an online survey conducted through the town's website.

COUNCIL PRESENTATIONS

The steering committee provided regular updates to Town Council throughout the TMP development process.

In addition, a presentation was made to Town Council in January 2020 to provide an update on the project process/progress, present preliminary findings, and discuss next steps.

The final draft TMP was presented to and approved by Town Council on July 14, 2020.

1.6 FUTURE STEPS

The TMP is intended as a living document that should be updated every 5 years, or as major initiatives are realized such as the vision for greenfield lands within town changes, or acceleration of new technologies/ trends, or significant changes in the *Regional Transportation Master Plan*.

2

Strategic Framework

The TMP is not an isolated planning document. Rather, it is part of a family of plans that work together to guide growth and change in the community. The TMP is influenced by and works in concert with this family of plans and considers both the local context and metropolitan region plans. The highlights from major plans are outlined in this section.

2.1 ALIGNMENT WITH STRATEGIC FRAMEWORK

MSP VISION

Morinville, the family choice, embracing our past to build our future through:

- Exhibiting inclusive, open and fiscally responsible governance.
- Maintaining and celebrating small town culture.
- Promoting social and community wellness.
- Encouraging, facilitating and supporting opportunities for a vibrant, diverse and independent economy.
- Efficient and sustainable planning, implementation and protection of municipal infrastructure.
- Respecting the environment and promoting responsible use of land and resources

MUNICIPAL SUSTAINABILITY PLAN

In terms of plan hierarchy in Morinville, the Municipal Sustainability Plan (MSP) is the highest-level plan. It is not statutory, and not enforceable by bylaw; however, it is recognized as a key decision-making reference document. It is aspirational and provides opportunities for lower level plans to assist in its implementation.

The MSP establishes the long-term vision for the community and is grounded in six sustainability pillars that represent all aspects of the community: Governance, Cultural, Social, Economic, Infrastructure and Environmental.

It is further grounded in seven key principles and 30 sustainability goals that describe the community outcomes that Morinville aspires to achieve. The TMP has been developed in alignment with the town's sustainability vision, principles and goals.

EDMONTON METROPOLITAN REGION BOARD

The Edmonton Metropolitan Region Board (EMRB), formerly known as the Capital Region Board (CRB) is mandated by the province to implement the region's *30-year Growth Plan* and to develop a Metropolitan Region Servicing Plan and Integrated Regional *Transportation Master Plan*. The EMRB is comprised of 13 regional municipalities with populations of 5,000 or more, which includes Morinville.

The Edmonton Metropolitan Region *Growth Plan*: Re-imagine. Plan. Build

Approved in 2017, the Edmonton Metropolitan Region *Growth Plan* includes six interrelated regional policy areas to support where and how to manage growth, one of those being Transportation Systems.

Included within the *Growth Plan* is the intended road, transit and trails to 2044, which is illustrated in **Figures 2-1(pg. 11)** and **2-2 (pg. 12)**.

Figure 2-1: EMRB Growth Plan - Regional Roads to 2044

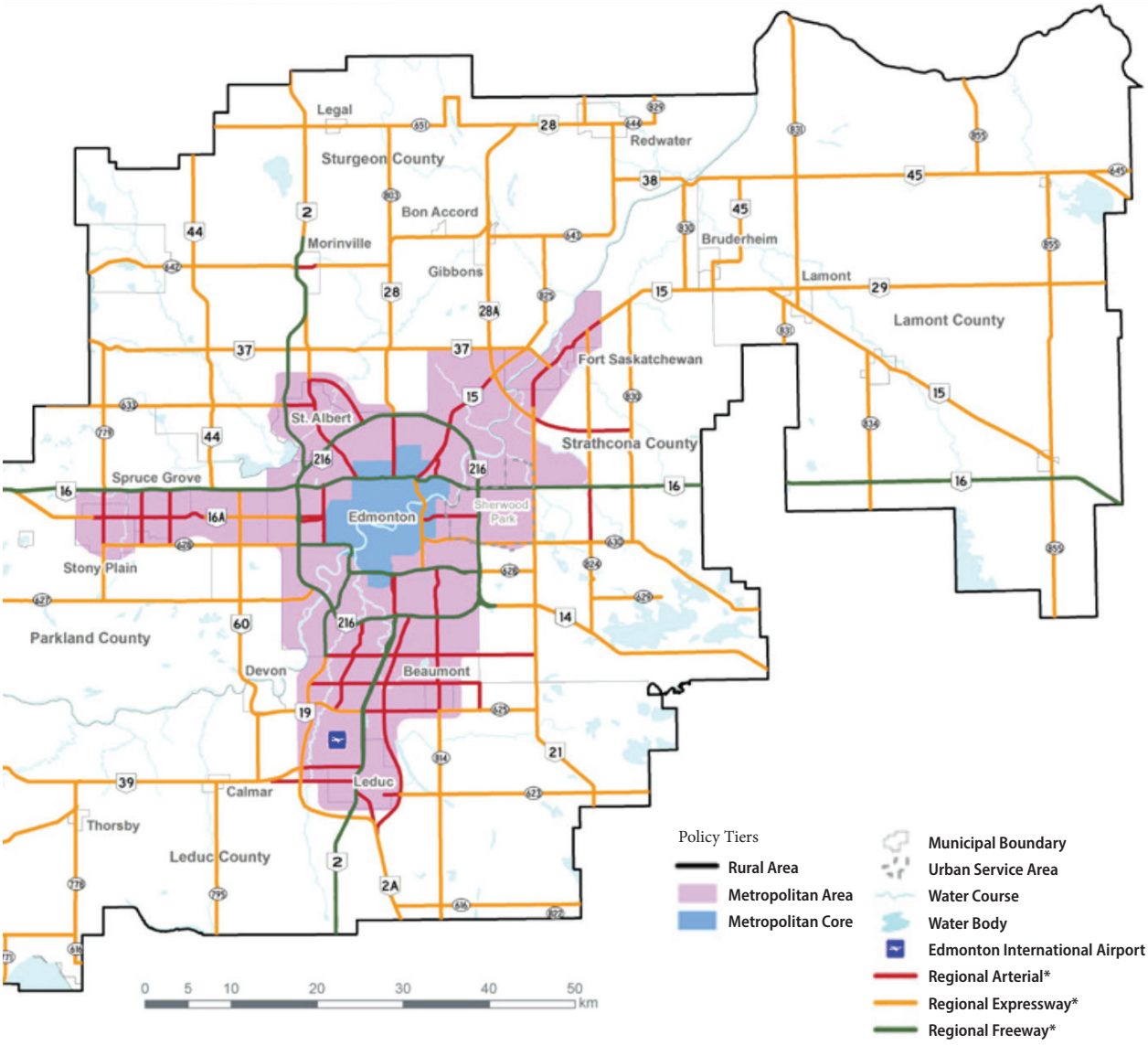
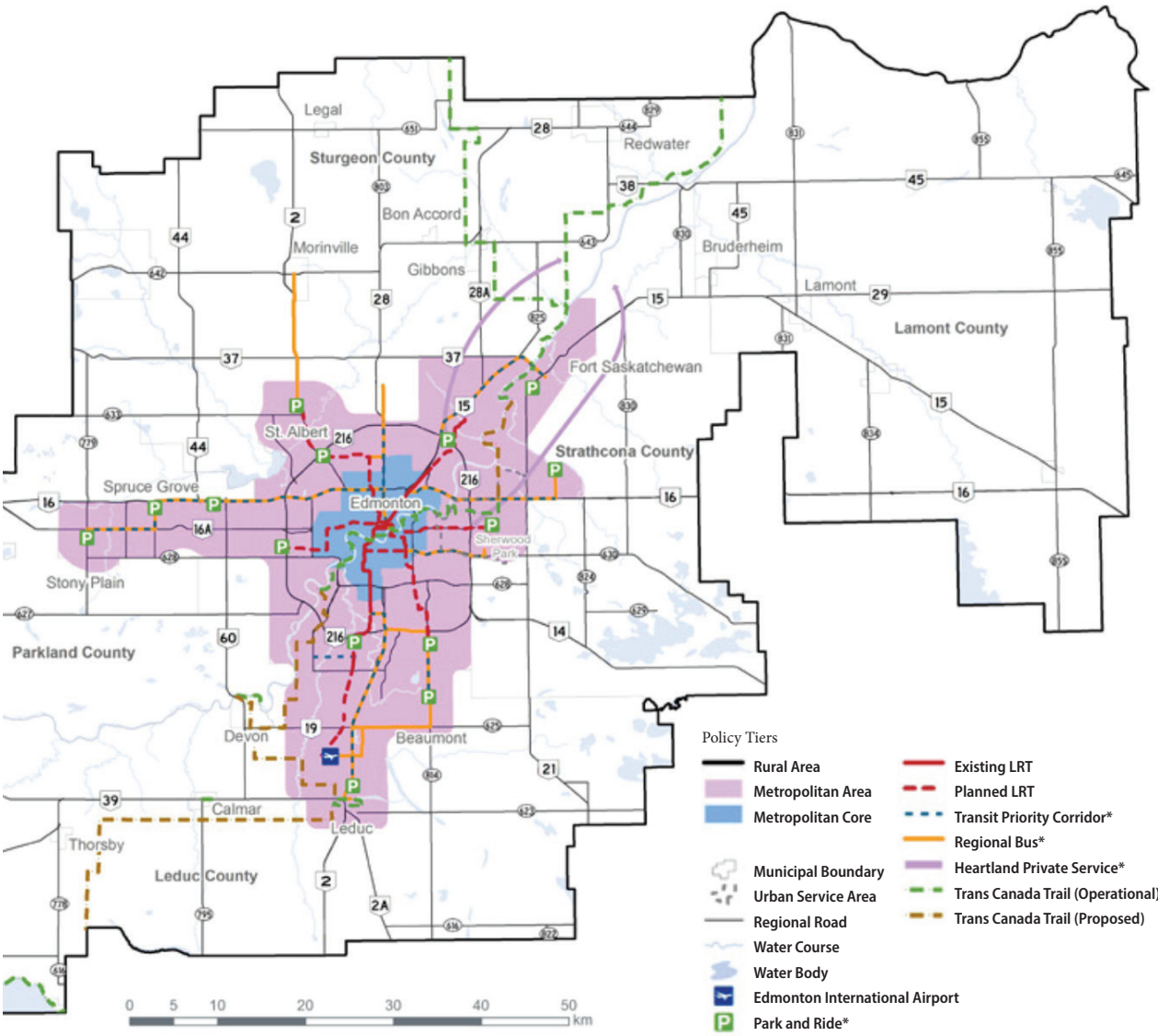


Figure 2-2: EMRB Growth Plan - Regional Transit & Trails to 2044



EMRB INTEGRATED REGIONAL TRANSPORTATION MASTER PLAN

The EMRB approved the *Integrated Regional Transportation Master Plan* (IRTMP) in September 2011, which defines key elements of the Region's future transportation system to the year 2044. In order to help implement the IRTMP, in 2014 the EMRB began publishing annual shorter-term priorities of roadway and transit projects to help foster coordination of regional transportation initiatives between municipalities, and to influence the Provincial Three-Year Capital Budget.

The IRTMP Priority Regional Transportation Projects was last published in 2018. **Table 2-1** summarizes the projects relevant to Morinville. With the release of the 2017 *Growth Plan*, the EMRB has recently initiated a major update to the IRTMP which is slated for completion in 2021.

Table 2-1: Key Regional Transportation Projects

RANK	PROJECT NAME	PROJECT TYPE
READY FOR CONSTRUCTION (12 PROJECTS)		
11	Highway 2 at Cardiff Road	Interchange
READY FOR DESIGN (44 PROJECTS)		
6	Ray Gibbon Drive (Anthony Henday to Villeneuve Road)	Twinning
7	NW LRT (Blatchford to Campbell Road Transit Centre)	LRT Extension
27	127 Street (Edmonton City Limits to St. Albert Trail/Highway 2)	New Link
30	NW LRT (Campbell Road Transit Centre to North St. Albert Park n Ride)	LRT Extension
31	Highway 642 (Highway 2 to East Boundary Road)	Intersection Improvements
42	Ray Gibbon Drive (Villeneuve Road to Highway 37)	Extend First Two Lanes
44	Ray Gibbon Drive (Highway 37 to Highway 2)	Extend First Two Lanes
READY FOR PLANNING (31 PROJECTS)		
26	North St. Albert Regional Park n Ride at North End of St. Albert	New Park n Ride
30	127 Street (Anthony Henday Drive to Edmonton City Limits	New Link

The Mobility Strategy addresses the integration between land use and transportation, complete streets, universal design, economic development, corridor typologies and associated best management practices, and operational characteristics.

While other documents influence the TMP, the Mobility Strategy provides key guidance and direction on the development of the TMP for Morinville.

MOBILITY STRATEGY

In 2017, Morinville completed its first-ever Mobility Strategy setting the stage for a future TMP. The Mobility Strategy was developed concurrently with the 2017 updates to the MDP and explores high level ideas to improve mobility for residents. The TMP is not intended as a replacement to the Mobility Strategy, but rather to align with the Mobility Strategy and expand on some of the recommendations identified.

A key component of the Mobility Strategy was public engagement, which included a number of different groups/individuals, forums and engagement tactics. The engagement process formed the foundation of the study's recommendations ultimately identifying key concerns, vision, principles, goals and objectives for Morinville's transportation network.

The Mobility Strategy identifies 13 "Big Ideas" framed around enhancing lifestyle, improving trail and street function, safety and well-planned future growth, focused mainly on active transportation. To make these big ideas a reality, a set of five principles were established to guide the design, implementation and operations of trails, streets and other public open space in Morinville:

GREAT PLACES

Safe, attractive, multi-use and flexible space for people to enjoy day to day and during programmed events, year-round.

A NETWORK OF EFFICIENCY

Planning our mobility network not in isolation but ensuring phased development and redevelopment projects are cognizant to the larger context of community-wide mobility.

ADAPTABLE OPEN SPACE

Streets, trails and open space that can accommodate different uses, such as a street segment closed for occasional festivals, or an urban sidewalk that can accommodate businesses occupying portions of municipally-owned land for retail or dining through special contractual arrangement.

SUSTAINABILITY

Being mindful of construction techniques and the wise use of land that minimizes long-term operational, maintenance and replacement costs.

ADAPTABILITY

Lasting the test of time of this plan, while adapting to the needs of the community as Morinville develops and redevelops considering a changing dynamic of citizen and business owner needs.

MUNICIPAL DEVELOPMENT PLAN

The MDP is the sustainability-oriented overarching land use plan for the community.

Recognizing the integral connection between land use and transportation, the MDP establishes the goal for transportation and mobility in Morinville as:

"The goal of a well-planned transportation network is to provide safe, convenient and enjoyable connections between the internal origins and destinations of the community and between the community and the surrounding region. All modes of transportation are accommodated safely and efficiently in a well-planned transportation network, and the notion of 'complete streets' is given priority."

(Municipal Development Plan, 2017
Section 10 – Transportation & Mobility, p. 59)

Drawing from the Mobility Strategy, the MDP defines 17 transportation and mobility policies in support of this goal that have been incorporated into the TMP.

PARKS, RECREATION, CULTURE, AND TRAILS MASTER PLAN

Completed by Morinville in 2019, the *Parks, Recreation, Culture, and Trails Master Plan* (PRCTMP) serves as a framework for elected officials and administrators, guiding the decision-making process concerning the provision of parks, recreation, culture and trail services, facilities and spaces to Morinville residents. It establishes the vision, goals, and objectives of parks, recreation, culture and trails in Morinville.

From a transportation perspective, a key component is the *Trails Master Plan* that is incorporated into the overall PRCTMP. The *Trails Master Plan* includes an inventory of the town's existing active transportation facilities and establishes a future active transportation network plan complete with trail type and standards. This is a key piece of information incorporated into the TMP and discussed in greater detail in **Section 3 – Existing & Future Conditions**.

PRCTMP VISION

Residents of the Morinville region have opportunities to be active and creative, both indoors and outdoors, throughout the year.

(Parks, Recreation, Culture, and Trails Master Plan, 2019
Section 3 - Foundations, pg. 8)

2.2 ALIGNMENT WITH OTHER PLANS

MORINVILLE TRAFFIC SAFETY PLAN 2018-2021

The purpose of this plan is to serve as an internal guiding document for operational decision-making related to traffic safety through 2021 with a primary focus on four driving behaviours: speeding; distracted driving; crosswalk and pedestrian safety; and intersection safety. Key targets of the *Traffic Safety Plan*:

- Be equivalent or less than 30th percentile of the overall provincial collision rates per 10,000 population by 2021;
- No more than five injury collision per year by 2021; and
- No more than 100 motor vehicle collisions per year by 2021.

In pursuit of these targets, the Traffic Safety Plan focuses on reducing speeding, reducing distracted driving, improving crosswalk/pedestrian safety, and improving intersection safety through objectives related to the four "E's" of safety (Evaluation, Engineering, Education, Enforcement).

With the Traffic Safety Plan being a short-term plan, the TMP considers these targets in identifying short-term transportation improvements and action items.

ECONOMIC DEVELOPMENT STRATEGIC ACTION PLAN

In 2015 Morinville completed the *Economic Development Strategic Action Plan (EDSAP)* that sets clear objectives to achieve economic development success within Morinville from 2015-2020. The EDSAP relates directly to transportation and mobility in the context of providing suitable and appropriate parking for local businesses and addressing the means by which staff and customers travel to local businesses.

HIGHWAY 642 (100 AVENUE) FUNCTIONAL PLANNING STUDY

Completed in 2013, Morinville, in conjunction with Alberta Transportation, completed a functional planning study that identified an intermediate build-out (about 16,000 population) and long-term build-out (about 32,000 population) improvement strategy for Highway 642 (100 Avenue) through the community.

Since this study was completed, there is desire by the town to revisit this functional planning study, specifically regarding the use of roundabouts versus traffic signal control. Key long-term recommendations from the *Highway 642 Functional Planning Study*:

- Seven roundabouts installed along 100 Avenue (107 Street, 104 Street, 102 Street, 100 Street, Grandin Drive West, Grandin Drive East, and East Boundary Road).
- 100 Avenue between 107 Street and 99 Street:
  - Remove and replace curb and gutter on both sides of road.
  - Widen sidewalks on both sides of road to 4.0m.
  - Provide 1.5m wide raised slab median separating eastbound and westbound traffic.
  - Close, consolidate or relocate a number of existing accesses.

AREA STRUCTURE PLANS

The TMP considers all approved area structure plans and outline plans within Morinville to identify where future infrastructure and connections will be required. Relevant plans include:

- Champagne District
- Coeur de Morinville
- Grandin Heights
- South Business Commercial
- South Glens
- Westmor Development Park
- Westwinds
- Coal Creek Industrial
- Meadows of Morinville
- Morinville 10 Acre Site

Since this study was completed, there is desire by the town to revisit this functional planning study, specifically regarding the use of roundabouts versus traffic signal control.

TRAFFIC SAFETY BYLAW

Among other things, the *Traffic Safety Bylaw* identifies the designated truck routes within Morinville. Commercial vehicles are allowed to deviate from the designated truck routes using the most direct route to/from their intended destination. The existing truck routes are:

- 100 Street (South Boundary to North Boundary)
- 100 Avenue (West Boundary to East Boundary)
- 107 Street (100 Avenue to town Shops)
- 101 Avenue (107 Street to 100 Street)
- Industrial Park Roadways

DANGEROUS GOODS CONTROL ROUTE BYLAW

This bylaw regulates the transport of dangerous goods within Morinville. Dangerous goods carriers may not stop anywhere in the community, unless loading or unloading, refueling or getting repairs, or at a vehicle storage location. An exemption or special permit may be granted from the town under certain conditions.

Currently, the only permitted dangerous goods routes in Morinville includes Highway 642 (100 Avenue) from east to west town limits, and 100 Street from north to south town limits (see **Figure 3-15**).

2.3 VISION, STRATEGIC GOALS & OBJECTIVES

Taking into consideration the existing transportation, population and employment, policy framework, and public/stakeholder input, a vision and strategic goals for the TMP were established. The vision for Morinville's TMP captures the aspirations and direction for Morinville's transportation network over the next 25 years.

TMP VISION

To provide a well-planned and fiscally responsible multi-modal transportation network that provides safe, efficient, convenient and enjoyable connectivity, both within the community and the metropolitan region, that promotes social and community wellness, fosters growth and promotes sustainability.

TMP GOALS

GOAL 1: TRANSPORTATION & LAND USE INTEGRATIONS

Recognizing the strong interconnectivity between transportation and land use, the two complement and support each other such that the transportation system is optimized and supports land use best practices.

1. Reduce reliance on automobile travel by providing a multi-modal transportation network that connects citizens to employment, services, entertainment and recreation.
2. Prioritize the implementation of regionally coordinated, accessible and affordable public transit contributing to labour force mobility and reducing reliance on the private automobile
3. Protect the right road for the right purpose in the community.

GOAL 2: ACCESS & MOBILITY

The transportation system is interconnected and integrated allowing for the efficient movement of people and goods within the community and surrounding region through the provision of mode choices and reasonable access serving our diverse population.

1. Incorporate universal design making the community accessible to a diverse population regardless of mobility challenges.
2. Implement complete street and a connected active transportation network offering mode choice to citizens.
3. Integrate Morinville's transportation network with the regional transportation network for roads, transit and active transportation.
4. Provide truck routes to ensure accessibility to commercial and employment areas, while protecting the multi-modal functionality of roads and vulnerable road users.
5. Develop roads and intersections that prioritize safety for all users in balance with efficiency, accessibility and goods movement.

GOAL 3: SUSTAINABILITY

The transportation system reflects and supports Morinville's vision for a sustainable, adaptable and livable community that increases residents' quality of life while minimizing long-term operation, maintenance and replacement costs.

1. Design and implement a strong multi-modal transportation network that proactively reduces greenhouse gas emissions, local air pollutants, and the consumption of non-renewable resources.
2. Support multi-modal transportation facilities including active transportation and public transit.
3. Employ sound planning and the use of sustainable practices that minimize long-term operational, maintenance, and replacement costs.

GOAL 4: HEALTH & SAFETY

The transportation system supports healthy, active lifestyles, and addresses user safety and security including access for emergency response services, contributing to Morinville's livability.

1. Provide opportunities for daily physical exercise in all seasons to improve livability.
2. Develop a walkable community to encourage health, active lifestyles, and increase citizen security by adding more eyes on the street.
3. Design the transportation system to promote the safe movement of people rather than just vehicles.
4. Provide appropriate access for emergency response services.

GOAL 5: ADAPTABILITY

The transportation system provides safe, attractive, multi-use and flexible spaces that can accommodate different uses at different times, adapting to the needs of the community as it grows.

1. Encourage flexibility in the design of streets based on the modal priorities and context of a specific corridor.
2. Develop 100 Avenue and 100 Street within the Coeur de Morinville using complete streets principles to create corridors that balance the need for moving vehicles while providing a main street that offers a unique, flexible, safe and enjoyable space for pedestrians and patrons.

3

Existing and Future Conditions

Referring to the MDP and the EMRB Growth Plan, Morinville is projected to reach a population of between 15,000 and 18,000 in the 25-year horizon (2045). For the purposes of the TMP, a 2045 population of 16,500 has been used.

3.1 POPULATION

Since 1916, Morinville has grown from a population of 350 to 9,893 as of the last municipal census completed in 2016. Population growth has been variable, with periods of accelerated population growth interspersed with extended periods of slower growth. This includes:

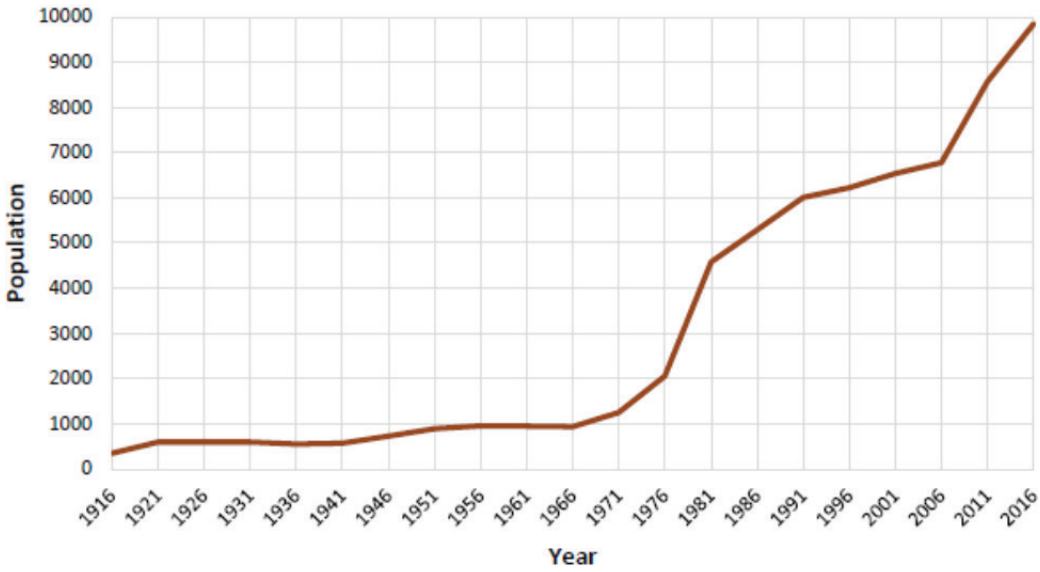
- Accelerated growth between 1966 and 1981 when the population grew from 935 to 4,584 (average growth of 26% per year)
- Continual but slower growth between 1981 and 2006 when the population grew from 4,584 to 6,775 (average growth rate of 1.9% per year)
- Accelerated growth between 2006 and 2016 when the population grew from 6,775 to 9,893 (average growth of 4.6% per year)

Figure 3-1 illustrates the continual population growth patterns with periods of stability, moderate growth and accelerated growth.

Referring to the MDP and the EMRB Growth Plan, Morinville is projected to reach a population of between 15,000 and 18,000 in the 25-year horizon (2045). For the purposes of the TMP, a 2045 population of 16,500 has been used.

Taking into consideration both the approved land use plans and the remaining unplanned greenfield lands within the town boundary, an average of 2.82 persons per dwelling unit, and the minimum residential density targets established by the EMRB, it is anticipated that Morinville could reach a full build-out population of approximately 32,500 without annexation of further lands.

Figure 3-1: Historic Population Change



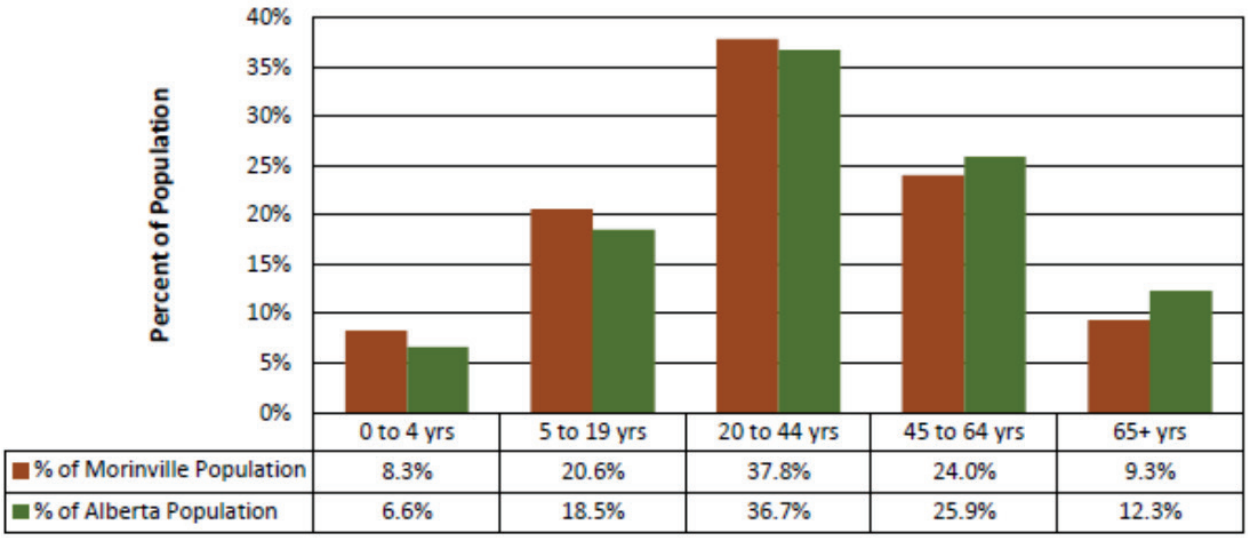
DEMOGRAPHICS

Morinville has a relatively young population, younger than the provincial average. One indicator to support this is the median age. Morinville has a lower median age (35.1 years in 2016) compared to the province as a whole (37.8 years).

A second indicator of the relative youthfulness of the community is the age distribution. Morinville has relatively more people in the younger age groups and fewer in the older age groups than Alberta as a whole. In 2016, Morinville had 28.9% of its population in the 0-19 age group compared to 25.1% for Alberta as a whole. In addition, 33.3% of the population was over the age of 45 compared to 38.2% for Alberta as a whole. The age distribution comparison of Morinville to Alberta is illustrated in **Figure 3-2**.

A well-planned and safe multi-modal transportation network will benefit all age groups, with the greatest benefits realized by the younger (under 19 years of age) and older (65+ years of age) demographics. Providing a safe and connected active transportation network, as well as access to transit, will improve the mobility of those without access to a vehicle. In addition, it sets the stage for allowing residents to continue living in the community as they age knowing that the transportation network meets the needs of all demographics.

Figure 3-2: 2016 Age Distribution - Morinville v. Alberta



	0 to 4 yrs	5 to 19 yrs	20 to 44 yrs	45 to 64 yrs	65+ yrs
% of Morinville Population	8.3%	20.6%	37.8%	24.0%	9.3%
% of Alberta Population	6.6%	18.5%	36.7%	25.9%	12.3%

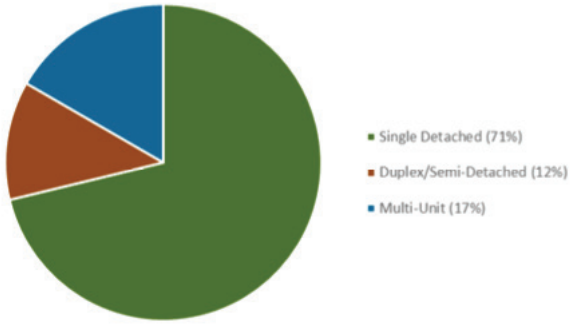
3.2 LAND USE

The current land use plan for Morinville is shown in **Figure 3-5 (pg. 26)**. Morinville is primarily a residential community. Commercial lands are concentrated within the Coeur de Morinville and along 100 Street, south of the railway tracks, while industrial lands are also concentrated south of the railway tracks along 100 Street.

HOUSING

At around 65% to 70%, the majority of dwelling units in Morinville are single detached homes. In addition, at least 71% of the occupied dwelling units are inhabited by the owners. Of the housing starts since 2014, 71% were single detached dwelling units, 12% were duplex/semi-detached, and 17% were multi-unit, which is illustrated in **Figure 3-3**.

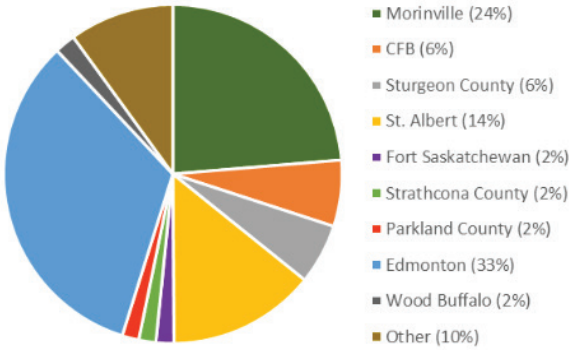
Figure 3-3: Housing Starts (2014-2018)



EMPLOYMENT

In 2016, it is estimated that 1,026 Morinville residents were employed within town. An additional 3,360 Morinville residents work outside of the community. **Figure 3-4** illustrates the employment destination of Morinville's workforce.

Figure 3-4: Morinville Resident Place of Employment



Other key highlights of employment in Morinville are:

- As of 2016, there was an estimated 2,880 jobs located within town, with Morinville residents accounting for 1,026 (36%) of those jobs. That means 1,854 (64%) of jobs within town employ persons from outside of Morinville.
- Of the total business licenses issued by the town, year over year, an average of 25% are for home-based businesses.
- There are approximately 29 jobs for every 100 residents of Morinville.

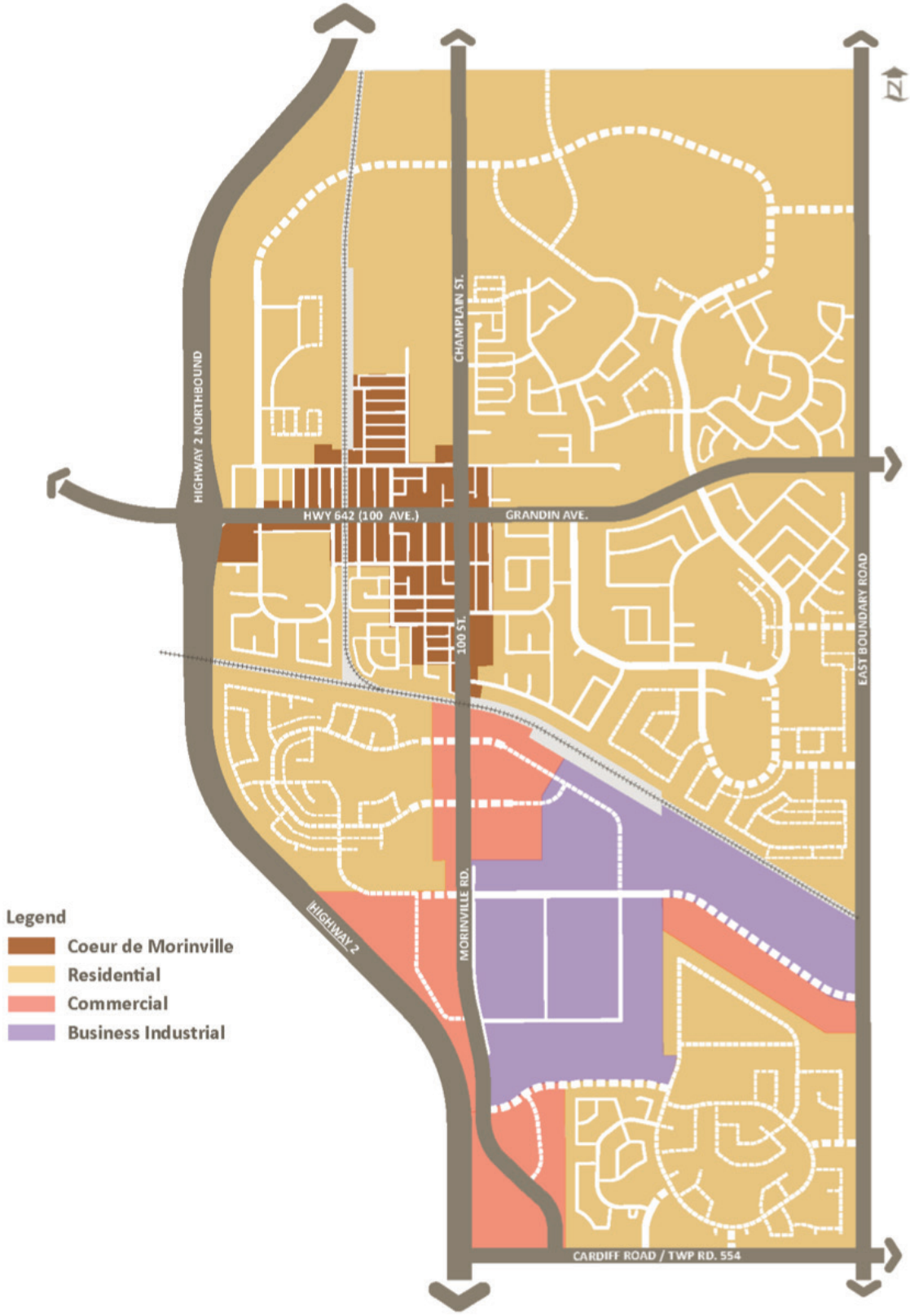
Projecting forward, the EMRB Growth Plan estimates that in 2044 there will be 4,344 jobs in Morinville. Furthermore, at full build-out within the town boundary, it is estimated that Morinville can accommodate 9,400 jobs based on maintaining 29 jobs per 100 residents.

POPULATION & EMPLOYMENT PROJECTIONS

Using the information discussed in **Section 3.1 and 3.2**, the following population and employment forecasts are summarized. It is noted that the 15-year horizon population and employment estimate is simply a linear relationship to the 25-year horizon.

TIMELINE	POPULATION	EMPLOYMENT
Existing	9,893	2,800
15-year Horizon	13,858	3,726
25-year Horizon	16,501	4,344
Full Build-out Horizon	32,317	9,372

Figure 3-5: Morinville Land Use Plan



3.3 TRANSPORTATION

Morinville's transportation system consists of a number of local and regional roadways, as well as an active transportation network of sidewalks and shared use paths that connect to various amenities and destinations within town as well as provide recreational opportunities. No transit it currently provided locally within the town or to regional destinations.

ROADS

Morinville is served by five main roadways:

HIGHWAY 2

Forms the west boundary of town and is a provincial highway under the direction, control and management of Alberta Transportation It is currently constructed as a four-lane divided highway from St. Albert to just north of Morinville, with ultimate plans to twin the highway from north of Morinville to Highway 18. Highway 2 is designated as a Level 2 multi-lane highway by the province. This highway is a key route to/from Morinville used by residents and visitors on a daily basis. Two access points are provided from Highway 2 into Morinville, one via a signalized intersection with Cardiff Road and the other via the interchange at Highway 642. Alberta Transportation has completed detailed design for a future interchange at the junction of Highway 2/ Cardiff Road; however, the timing of the improvement is outside their three-year construction program with no set timeline for when construction will occur.

HIGHWAY 642 (100 AVENUE)

The only major east-west thoroughfare in Morinville functioning as the town's Main Street as it passes through the Coeur de Morinville. It is also a provincial highway providing regional connectivity between Highways 777, 44, 2 and 28. It serves cars, trucks, bicycles, and pedestrians. It provides access to a number of residential neighbourhoods as well as direct access to a number of fronting properties. Functional planning has been completed by the town and Alberta Transportation regarding the ultimate improvement plan for this corridor.

100 STREET

The main north-south thoroughfare in Morinville. It is currently constructed as a two-lane roadway with a mix of rural, urban and semi-urban cross-sections depending on where you are located within town. The town is in the process of finalizing detailed design plans for 100 Street from 87 Avenue to the railway crossing that includes a semi-urban two-lane cross-section with curb and gutter and a shared use path on the west side, a rural shoulder and ditch on the east side, and a centre two-way turning lane.

CARDIFF ROAD (TOWNSHIP ROAD 554)

A regional east-west paved roadway that provides connectivity between Highway 2 and Highway 28, as well as providing access to the Hamlet of Cardiff. West of Highway 2 the road is currently unpaved.

EAST BOUNDARY ROAD

Currently a low volume north-south gravel roadway that runs along the east boundary of the town. This roadway is considered a priority road by the town for upgrading to a two-lane paved roadway. The town has completed detailed design for this upgrade.

The existing road network is illustrated in **Figure 3-6 (pg. 28)**.

Figure 3-6: Existing Road Network

EXISTING INTERSECTION OPERATIONS

As part of the TMP, turning movement counts were captured at key intersections along the major roadways and the existing AM and PM peak hour intersection operations were analyzed. **Table 3-1 (pg. 30)** summarizes the existing operations at key intersections.

Intersection operations are measured by two main criteria: Level of Service (LOS) and volume-to-capacity ratio (v/c).

WHAT IS VOLUME-TO-CAPACITY (V/C)?

The v/c ratio describes the extent to which the traffic volumes can be accommodated by the physical capacity of the road configuration and traffic control. A value less than 0.9 indicates that generally there is sufficient capacity. A value between 0.9 and 1.0 suggest unstable operations may occur and volumes are nearing capacity. A value over 1.0 indicates that traffic volumes are theoretically exceeding capacity of the roadway geometry.

WHAT IS LEVEL OF SERVICE (LOS)?

It is the estimated average delay per vehicle by movement (i.e. left-turn, right-turn, etc.) passing through the intersection. A low average delay merits a LOS A rating, while average delays greater than 50 seconds (at unsignalized intersections) or 80 seconds (at signalized intersections) results in a LOS F rating.

Table 3-1: 2019 Existing Intersection Operations

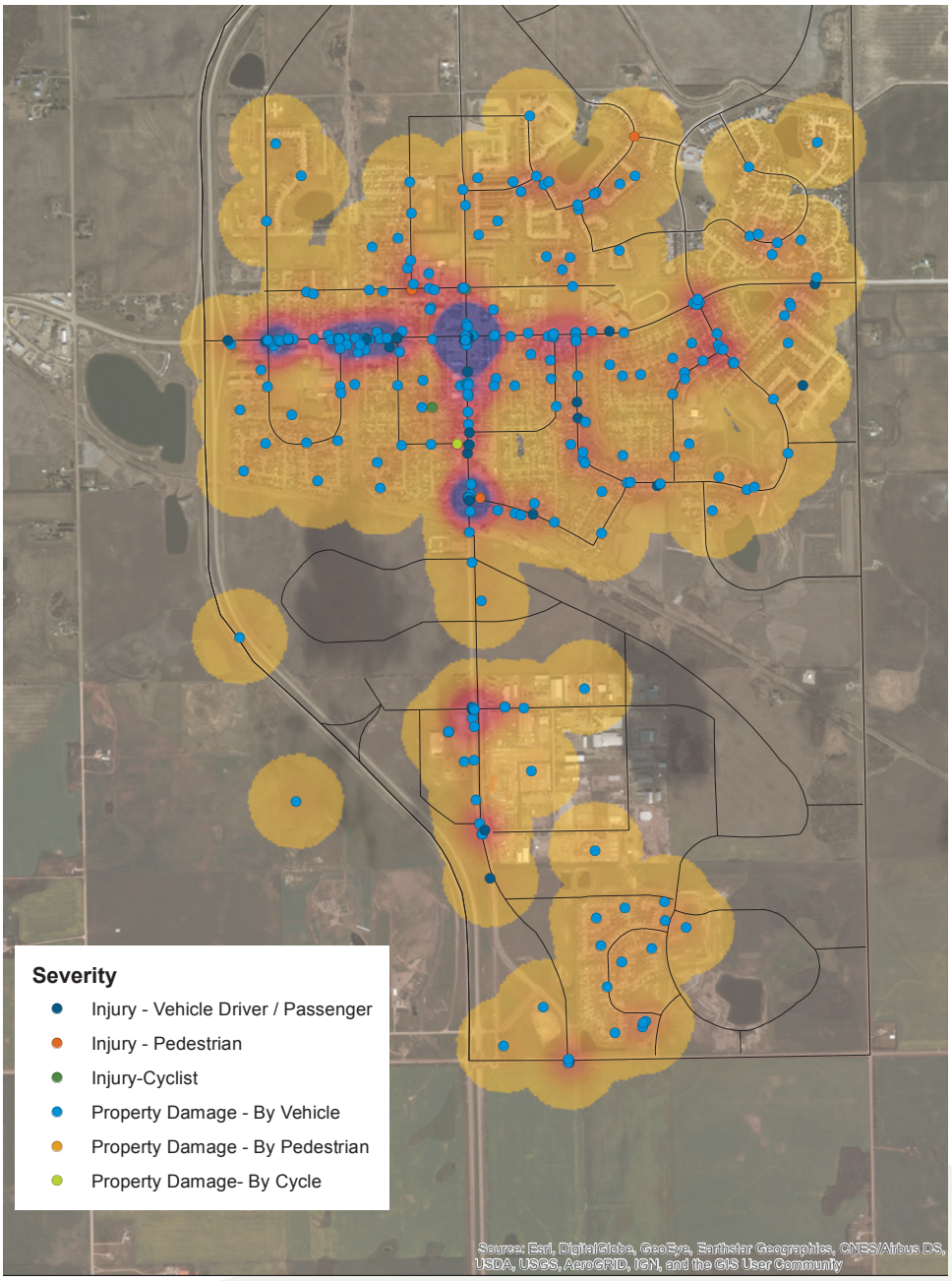
INTERSECTION	CONTROL TYPE	OVERALL LOS	EASTBOUND (MAX V/C)	WESTBOUND (MAX V/C)	NORTHBOUND (MAX V/C)	SOUTHBOUND (MAX V/C)
AM Peak Hour						
100 Avenue and Highway 2 SB Ramps	SB Stop	A	-	A (0.24)	-	D (0.27)
100 Avenue and Highway 2 NB Ramps	NB Stop	A	A (0.01)	-	C (0.20)	-
100 Avenue and 107 Street	N/S Stop	A	A (0.04)	A (0.02)	C (0.27)	C (0.17)
100 Avenue and 100 Street	Signal	B	B (0.22)	B (0.34)	B (0.31)	B (0.64)
100 Avenue and Grandin Drive West	NB Stop	A	-	A (0.02)	B (0.18)	-
100 Avenue and Grandin Drive East	All-Way Stop	B	B (0.29)	B (0.36)	C (0.53)	C (0.46)
100 Avenue and East Boundary Road	N/S Stop	A	A (0.01)	A (0.00)	B (0.06)	B (0.03)
Cardiff Road and Highway 2	Signal	C	C (0.17)	D (0.64)	D (0.24)	D (0.22)
Cardiff Road and 100 Street	All-Way Stop	B	B (0.51)	B (0.25)	-	B (0.48)
Cardiff Road and East Boundary Road	N/S Stop	A	A (0.00)	A (0.01)	B (0.01)	B (0.03)
PM Peak Hour						
100 Avenue and Highway 2 SB Ramps	SB Stop	A	-	A (0.15)	-	C (0.11)
100 Avenue and Highway 2 NB Ramps	NB Stop	A	A (0.02)	-	C (0.31)	-
100 Avenue and 107 Street	N/S Stop	A	A (0.03)	A (0.04)	C (0.37)	B (0.13)
100 Avenue and 100 Street	Signal	B	B (0.33)	B (0.29)	B (0.54)	B (0.55)
100 Avenue and Grandin Drive West	NB Stop	A	-	A (0.02)	C (0.10)	-
100 Avenue and Grandin Drive East	All-Way Stop	B	B (0.34)	B (0.25)	B (0.43)	B (0.27)
100 Avenue and East Boundary Road	N/S Stop	A	A (0.00)	A (0.00)	B (0.03)	B (0.01)
Cardiff Road and Highway 2	Signal	B	D (0.11)	D (0.63)	D (0.35)	D (0.17)
Cardiff Road and 100 Street	All-Way Stop	D	E (0.91)	B (0.23)	-	D (0.77)
Cardiff Road and East Boundary Road	N/S Stop	A	A (0.00)	A (0.00)	B (0.03)	B (0.02)

All of the key intersections noted in **Table 3-1** are operating well to very well, with the exception of the Cardiff Road/100 Street intersection in the PM peak hour, where the eastbound movements (left-turn and through) are operating at LOS E and nearing capacity. This is mainly due to the heavy eastbound left-turns returning to Morinville in the PM peak hour.

COLLISION TRENDS

A review of the frequency, temporal distribution, location, collision severity, and collision types was undertaken for the entire town using available collision data from 2014 through 2018 to determine any notable crash patterns and black spot locations. Detailed collision analysis is included in the appendices, while the following highlights the findings of the collision analysis.

Figure 3-7: Collision Summary (2014 - 2018)



COLLISION PATTERNS

The collision patterns from 2014 through 2018 are illustrated as follows:

Figure 3-8: Collision Severity

Figure 3-9: Collision Frequency by Year

Figure 3-10: Collision Type

Figure 3-11: Collision Distribution by Month

Figure 3-12: Collision Distribution by Day

Figure 3-13: Collision Distribution by Hour

Figure 3-8: Collision Severity

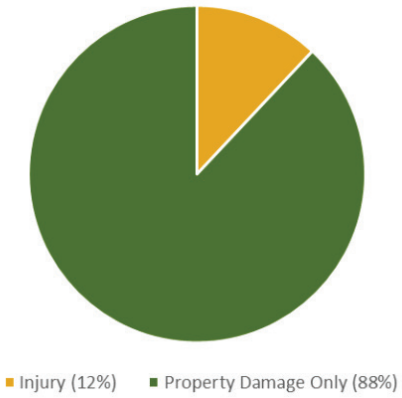


Figure 3-9: Collision Frequency by Year

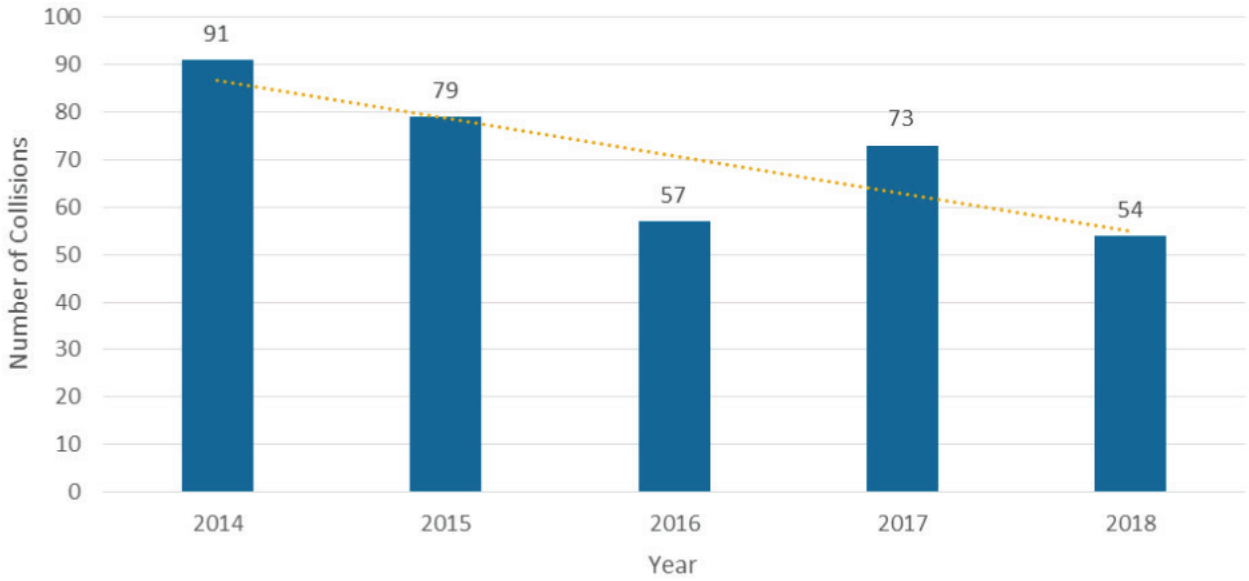


Figure 3-10: Collision Type

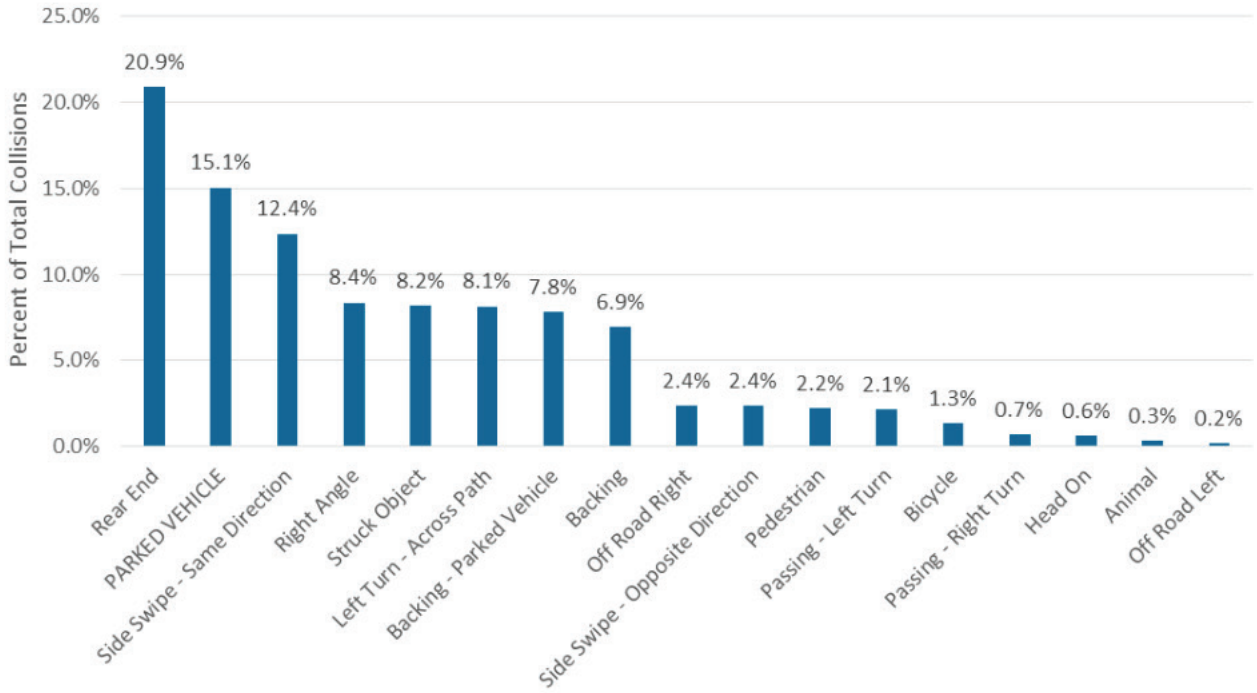


Figure 3-11: Collision Distribution by Month

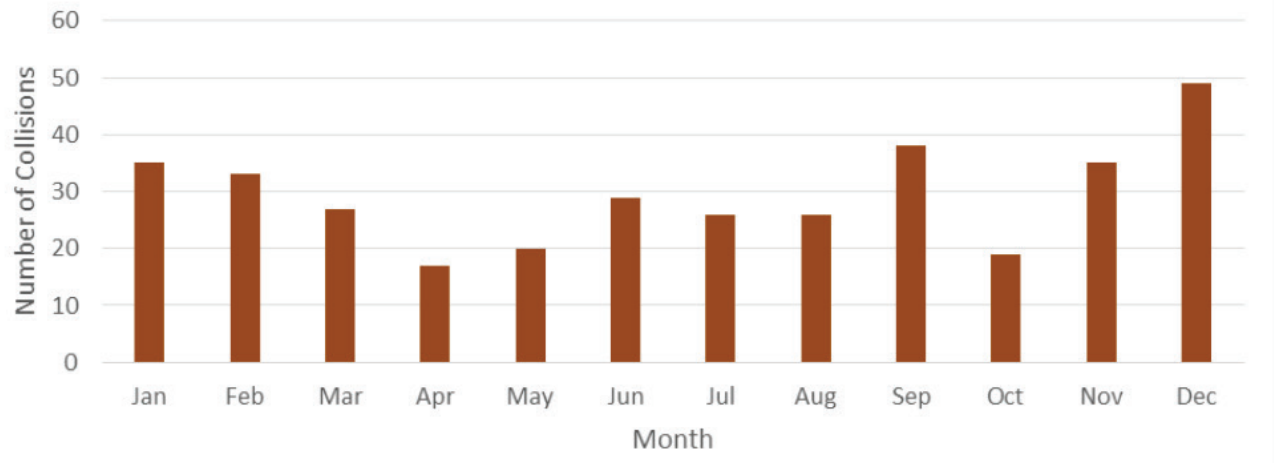


Figure 3-12: Collision Distribution by Day

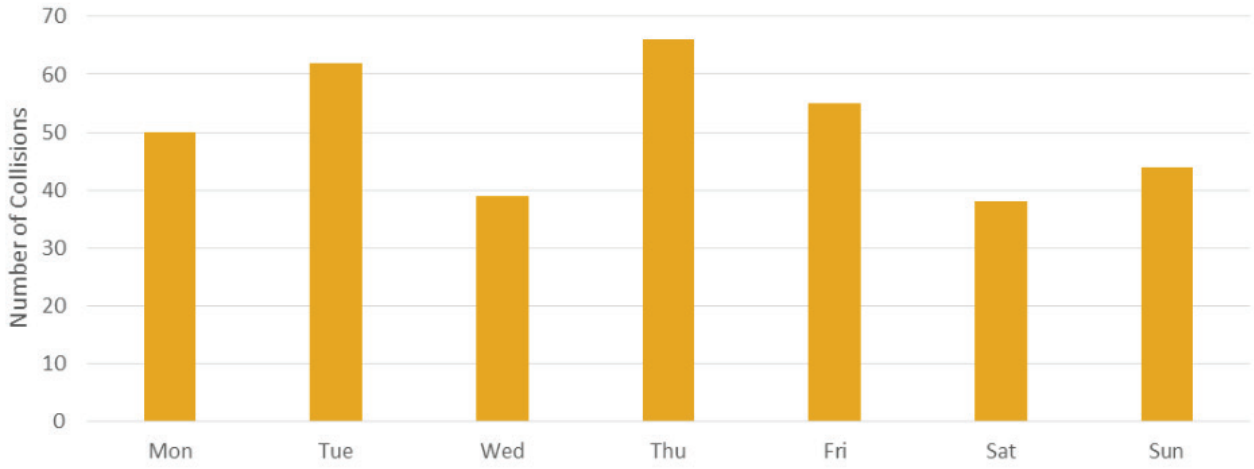
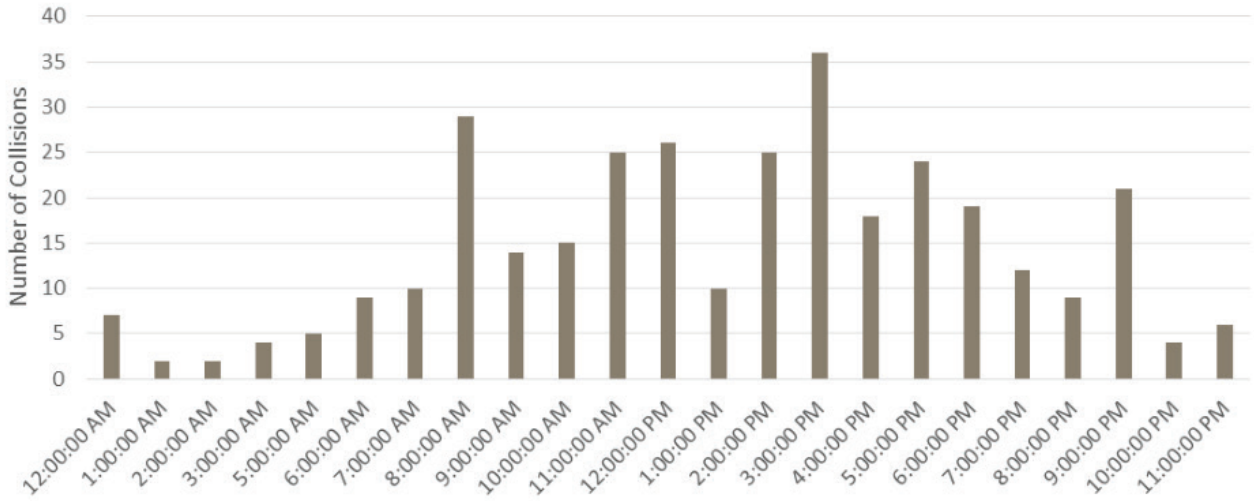


Figure 3-13: Collision Distribution by Hour



HIGHLIGHTS OF THE COLLISION REVIEW ARE:

- The average number of collisions per year is trending downward in Morinville.
- The collision severity breakdown is typical to other jurisdictions.
- Collisions were clustered along 100 Avenue and 100 Street, particularly in areas with small driveway/lane/intersection spacing.
- There was a high proportion of right-angle collisions, which primarily appear to be associated with stop controlled intersections and uncontrolled driveways, in particular along 100 Avenue and 100 Street.
- Parked vehicle collisions were spread throughout town and primarily located in residential areas with a concentration on 100 Avenue between 107 Street and 100 Street.
- There was a small collision spike in September, presumably associated with back to school. This is worth further investigation and consideration of implementing a safe journeys to school program.
- There was an unusual increase in collisions around 9pm. Impaired driving data and location data was compared to the time of collisions, but no conclusive pattern was identified. Collisions at this time of day were highest in 2014 and steadily decreased each year since indicating that this pattern may have already been eliminated. The remainder of the hourly profile follows typical patterns.

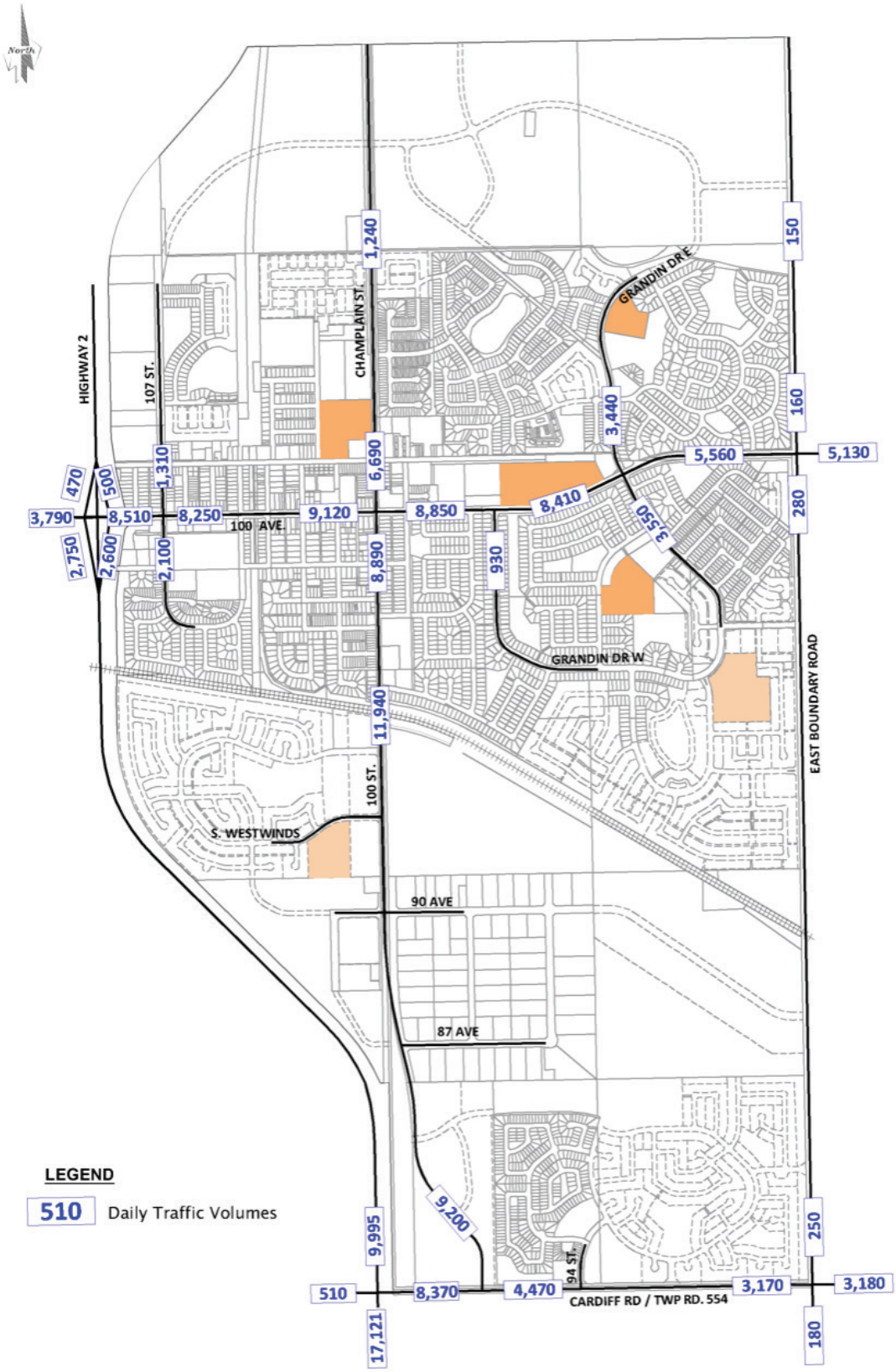
The locations in Morinville with the highest collision frequencies and risk ratings are the locations that would most likely benefit from additional safety mitigation measures. The areas suggested for consideration of specific safety improvements are:

- 100 Avenue & 100 Street intersection
- 100 Avenue & 107 Street intersection
- 100 Avenue (107 Street to 100 Street)
- 100 Street (100 Avenue to 95 Avenue)

EXISTING 24-HOUR TRAFFIC VOLUMES

Daily two-way traffic volumes were captured at key roadways within Morinville, which are illustrated in **Figure 3-14 (pg. 36)**. The two busiest segments of roadway in town is the portion of 100 Avenue just west of 100 Street, and the portion of 100 Street from south of 100 Avenue to 87 Avenue. The higher volumes on these roadway segments are reflective of the commercial and employment land uses within the area.

Figure 3-14: Existing Roadway Daily Link Volumes



Source: Wikimedia, Author Vanstrat

PUBLIC TRANSPORTATION

According to Statistics Canada's 2011 National Household Survey, 94% of employed Morinville residents 15 years of age or older rely on passenger vehicles for their daily commute. Under current conditions, with such a large proportion of Morinville's work force employed outside the community and spread throughout the metropolitan region, it is difficult to provide meaningful transit service and expect the local population to embrace transit for their daily commutes.

The EMRB Growth Plan identifies the need for regional transit service from Morinville to St. Albert by the year 2044. It is envisioned that once light rail transit is provided through St. Albert from the Campbell Transit Centre to the planned north St. Albert Park n' Ride, that regional transit service from Morinville to the new Park n' Ride facility could be supported.

With several Morinville residents employed at the Edmonton Garrison, the town is committed to exploring transit opportunities for an efficient, cost-effective and affordable transit solution between Morinville and the Edmonton Garrison.

In the future, as Morinville's population grows and logical regional connection points are implemented to entice usage, transit is envisioned to be a valued component of the town's transportation system. Morinville is committed to supporting public transit links with regional communities and will continue to work with regional partners to develop efficient and cost-effective transit links with adjacent communities when appropriate and feasible.

One possible development that could accelerate the implementation of transit in Morinville is the implementation of a Regional Transit Services Commission (RTSC), which is currently being explored. A RTSC consisting of representation from the EMRB member communities could help reduce redundancies, improve service, reduce costs, and reduce barriers for municipalities seeking to provide transit services. At the time of this TMP it is uncertain how this will unfold, but is something that the town should continue to monitor and/or engage in.

ACTIVE TRANSPORTATION

Active transportation is a key focus for the town, with significant discussion and guidance provided in Morinville's *Mobility Strategy*, the *MDP* and the *Parks, Recreation, Culture, and Trails Master Plan*, all completed in 2017 or later.

The most recent initiative, the Parks, Recreation, Culture, and Trails Master Plan, was completed in 2019. This document provides an inventory of the existing active transportation network. It also provides a long-term plan for the development of a comprehensive and cohesive active transportation network in both existing urban areas and future growth areas upon build-out of the community. This plan is illustrated in **Figure 3-15 (pg. 40)**.

As per the *Parks, Recreation, Culture, and Trails Master Plan*, the active transportation network is categorized into seven classifications:

1. ASPHALT TRAIL (2.0–3.0M WIDTH)

Placed in Municipal Reserve and Public Utility Lot areas with anticipated year-round use. The width is determined by the anticipated intensity of use, with the larger 3.0m width used in close proximity to facilities such as schools and community centres with higher volumes of pedestrians and cyclists.

2. CONCRETE ACCESS TRAIL (1.2M WIDTH)

Located in Public Utility Lots such as utility easements to provide a connection between a typical urban sidewalk and another trail type located within public open space.

3. GRAVEL TRAIL (3.0M WIDTH)

Placed in Municipal Reserve and Public Utility Lot areas with anticipated seasonal use where snow clearing is not anticipated and when less intensity of use is predicted. These facilities can be upgraded in future years to a paved surface using the gravel as a base structure, if warranted.

4. RED SHALE TRAIL (2.0M WIDTH)

Passive trail use such as walkways through Public Utility Lots where lower volumes of use is anticipated, or over utility right-of-way areas such as high pressure gas lines where a paved trail is not permitted by the utility company.

5. SHARED ROAD PEDESTRIAN/BICYCLE ROUTE (1.2-3.0M WIDTH)

Pavement markings on a paved road surface that designates a portion of the road for pedestrians and/or cyclists. This is a shared corridor that does not separate vehicular and pedestrian alignments.

6. STREET CONNECTOR ROUTE (3.0M WIDTH)

Shared use paths that are within the road right-of-way but separated from the curb by a grass boulevard with trees. These are different from boulevard sidewalks due to the extra width provided.

7. GRASS EASEMENT (4.0-6.0M WIDTH)

A narrow strip of land providing physical access between roadway sidewalks and public open space such as stormwater management facilities. Hard surfaced trails are not warranted through these walkways when the public open space it leads to does not include any trails. Grass easements may be upgraded to a hard surface in the future should the open space it leads to be upgraded to include trails.

More and more Canadians are seeking mobility choice and recreational opportunities. The development of a comprehensive and cohesive active transportation network will provide mode choice to the 24% of Morinville's workforce who work in town, provide safer and better access to amenities and institutions, and provide safer and more enjoyable recreational opportunities.

There are challenges that Morinville faces as it seeks to improve active transportation mobility in the community. The timing of some of the future connections identified in the *Parks, Recreation, Culture, and Trails Master Plan* is uncertain, especially for those that are located within privately held lands, as the town has little to no control over when those lands will develop. While the trails plan provides a long-term vision and guidance for when these privately held lands are developed, the TMP focus is on the proposed active transportation network that is situated within publicly held lands such as road right-of-way, Public Utility Lots, and Municipal Reserves.

In 2020, when this TMP was being finalized, the global pandemic (COVID-19) was posing a significant health risk throughout the world. With the impacts of COVID-19 being felt throughout the world, planners and engineers are considering how to make communities more resilient to potential pandemics in the future. This includes our transportation networks providing enough space to allow social distancing measures to be followed (i.e. wider sidewalks and trails), especially on well utilized corridors. As the planning and engineering community develop best practices and guidelines on this topic, the surfacing materials used, and the width of sidewalks/trails may need to be rethought.

Figure 3-15: Existing & Future Active Transportation Network (Trails Master Plan)

DOWNTOWN PARKING

Within the Coeur de Morinville, parking is provided via a combination of free on-street parking and on-site parking either accessed directly from 100 Avenue and 100 Street or via rear alley access. Based on spot checks completed by the town in 2019 for both the on-street and off-street parking in the Coeur de Morinville, while some individual properties have busier parking lots, overall there does not appear to be any parking capacity issues under current conditions.

Through the *Coeur de Morinville Area Structure Plan (ASP)*, the town is committed to densifying and creating a vibrant downtown core with a balance of residential, retail, jobs and numerous civic and social facilities. As this vision for the Coeur becomes a reality, additional pressures on the parking system may arise requiring consideration of mitigation measures such as the introduction of:

- paid public parking lots;
- paid on-street parking;
- time restricted on-street parking;
- permitted parking; and
- cash in lieu of parking for new developments.

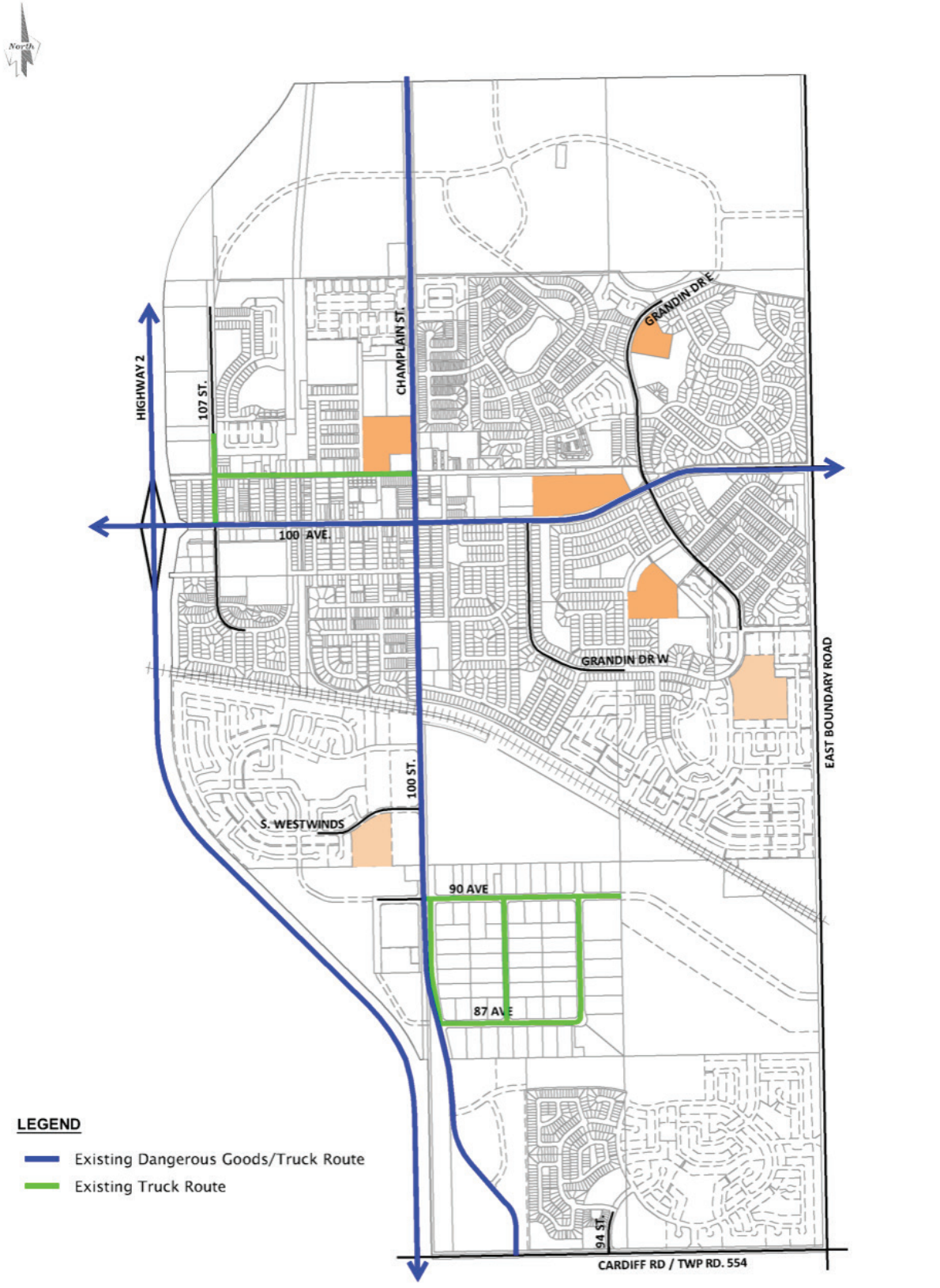
DANGEROUS GOODS & TRUCK ROUTES

Existing truck routes and dangerous goods routes in Morinville are illustrated in **Figure 3-16 (pg. 42)**. Currently, Highway 642 (100 Avenue) and 100 Street are the only dangerous goods routes within the community.

Based on consultation undertaken as part of the 2017 *Mobility Strategy*, the transportation industry generally feels that these two routes are sufficient for large transport trucks with little need to gain access to other areas of the community, and do not feel that the road network in Morinville poses challenges under current conditions.

It is envisioned that once East Boundary Road is upgraded to a paved two-lane roadway, East Boundary Road will provide a secondary north-south arterial in Morinville and draw some of the truck traffic within the community and act as a truck bypass for regional traffic. Amendments to the *Traffic Safety Bylaw* and the *Dangerous Goods Control Route Bylaw* will be required to include East Boundary Road as a truck route and/or dangerous goods route.

Figure 3-16: Existing Dangerous Goods & Truck Routes



City of Beaumont, Alberta Twitter photo

In recent years, the introduction of sharing services for cars (Pogo, car2go), e-scooters (Lime, Bird), bicycles (mobi) and e-bikes (Jump) is already impacting and changing the way people get around, especially in major metropolitan areas. Another key technology is automated and connected vehicles.

3.4 EMERGING TECHNOLOGIES

AUTOMATED AND CONNECTED VEHICLES

It is no longer a matter of if this technology comes to fruition, but rather when and what the impact will be on transportation networks. While the timing is inexact, the City of Edmonton estimates that 75% of all cars on Edmonton roads will be autonomous by 2040, with autonomous vehicles available to the public between 2020 and 2025.

Positives associated with automated and connected vehicles is a safer and more efficient transportation system with greater roadway capacity and the potential for increased frequency and capacity of transit. However, if not properly managed and implemented, they could produce negative impacts such as increased traffic due to induced demand and increased roadway congestion.

Within Alberta and Canada, several initiatives have been undertaken regarding the future of automated and connected vehicles. The Cities of Edmonton, Calgary, and Wetaskiwin have all undertaken autonomous vehicle demonstrations allowing members of the public to ride in a shuttle along short, controlled routes separated from public traffic. The City of Beaumont is currently operating a pilot project using an electric autonomous shuttle operating with a designated route on a public road with mixed traffic.

Recognizing the potential opportunities and impacts of automated and connected vehicles on transportation systems, another key initiative is the *Automated and Connected Vehicles Policy Framework for Canada*, which was finalized in January 2019. This document provides a set of policy principles for all jurisdictions in Canada to follow through the testing and deployment of these vehicles and focuses on policy and regulatory issues that will need to be addressed moving forward. It is expected that automated and connected vehicles will have an impact within the 25-year horizon of the TMP, but what that impact will look like in a smaller urban centre like Morinville is not yet fully understood. Future updates to the TMP will be required as this technology emerges in the community.

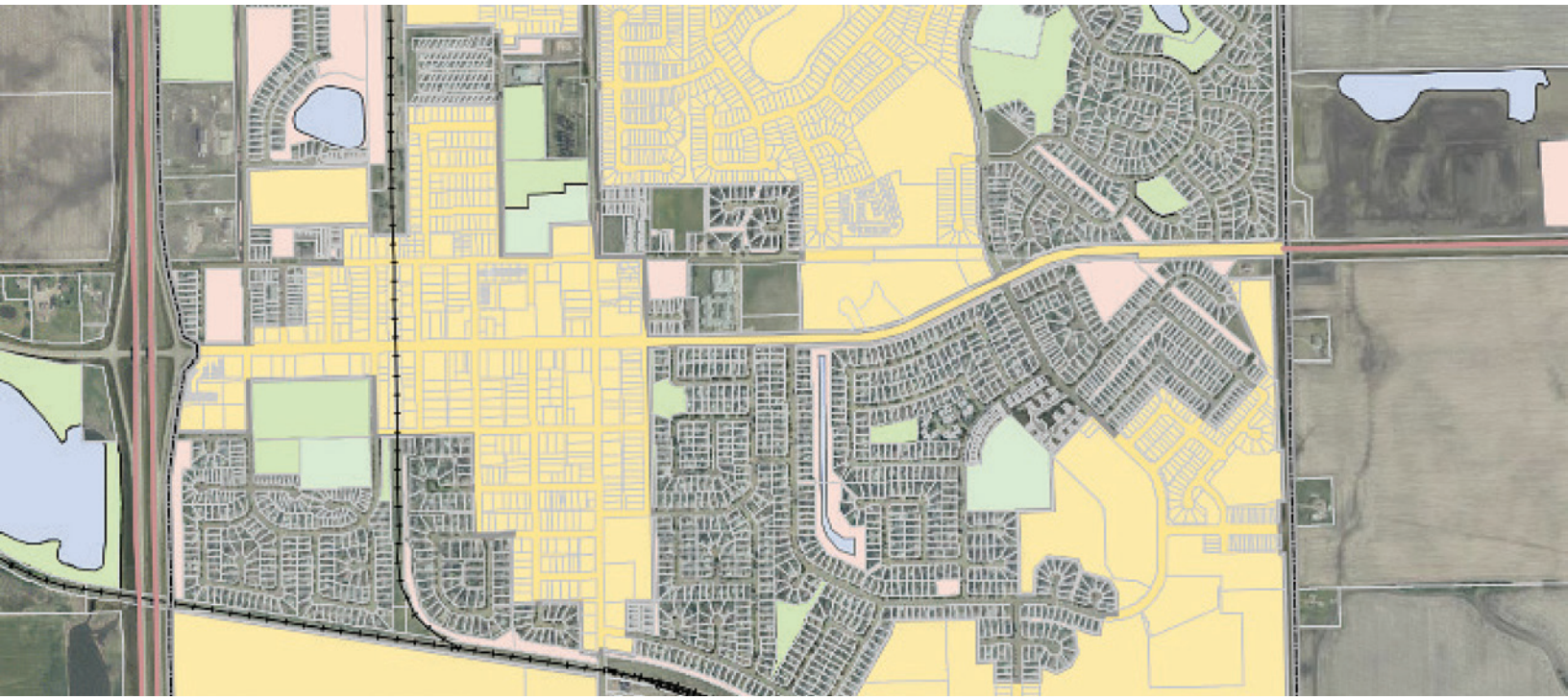
RIDESHARE SERVICES

Rideshare services such as Uber and Lyft operate all over the world, including Uber in the metropolitan region. Uber currently operates in St. Albert (approximate population 66,000) and Spruce Grove (approximate population 35,000). Based on a full build-out population in Morinville of 32,500, it is conceivable that a business case and demand for rideshare could exist in the long-term. However, in the 25-year horizon, with a population of approximately 16,500, it is unlikely that rideshare services will operate in Morinville.

SCOOTER AND BIKESHARE SERVICES

In Alberta, both Edmonton and Calgary are undertaking shared e-scooter pilot projects, with Lime and Bird e-scooters operating in both cities. In addition, Calgary is also undertaking a pilot project for e-bikes, with service offered by Lime. In Edmonton, City Council approved changes in bylaw to allow e-scooters to operate. E-scooters are allowed to travel in bike lanes, on shared use paths, and on roads with a posted speed limit of 50 km/h or less. They are not allowed to operate on sidewalks or park trails not maintained by the City. So far, the results are somewhat mixed. The ridership numbers have been encouraging in both Edmonton and Calgary, but there has been some backlash regarding users not following the rules and continuing to ride on the sidewalk.

Whether these services will be offered following the completion of the pilot projects is yet to be seen. If successful, these types of services offer another mobility choice with the potential benefit of reducing dependency on vehicles for shorter trips, at least in the non-winter months.



4

Transportation Model

A four-step transportation model was developed to estimate the projected traffic volumes at two horizons: medium-term (15 year) and long-term (25 year) to assist in the development of improvement strategies. A detailed report summarizing the transportation model can be found in Appendix A.

The transportation model was developed based on the following population and employment projections, which align with the EMRB and Morinville, growth projections, and is discussed in greater detail in **Sections 3.1 and 3.2** of the TMP.

Table 4-1: Population & Employment Forecasts

TIMELINE	POPULATION	EMPLOYMENT
Existing	9,893	2,800
15-year Horizon	13,858	3,726
25-year Horizon	16,501	4,344
Full Build-out Horizon	32,317	9,372

The transportation model developed for the TMP represents an interpretation of the best-known information at the time of model development and several assumptions on how lands within Morinville will develop. There are several factors that will ultimately influence traffic volumes in the community, and the transportation model is only intended to provide high level guidance. The model and TMP is a living document, which should be revisited intermittently (i.e. every 5 years) to confirm/revise the transportation model and TMP recommendations.

The projected daily traffic volumes along arterial roadways for the 15-year and 25-year horizons are shown in **Figures 4-1 (pg. 47)** and **Figure 4-2 (pg. 48)**.

Figure 4-1: Medium Term (15-year Horizon) Projected Daily Traffic Volumes

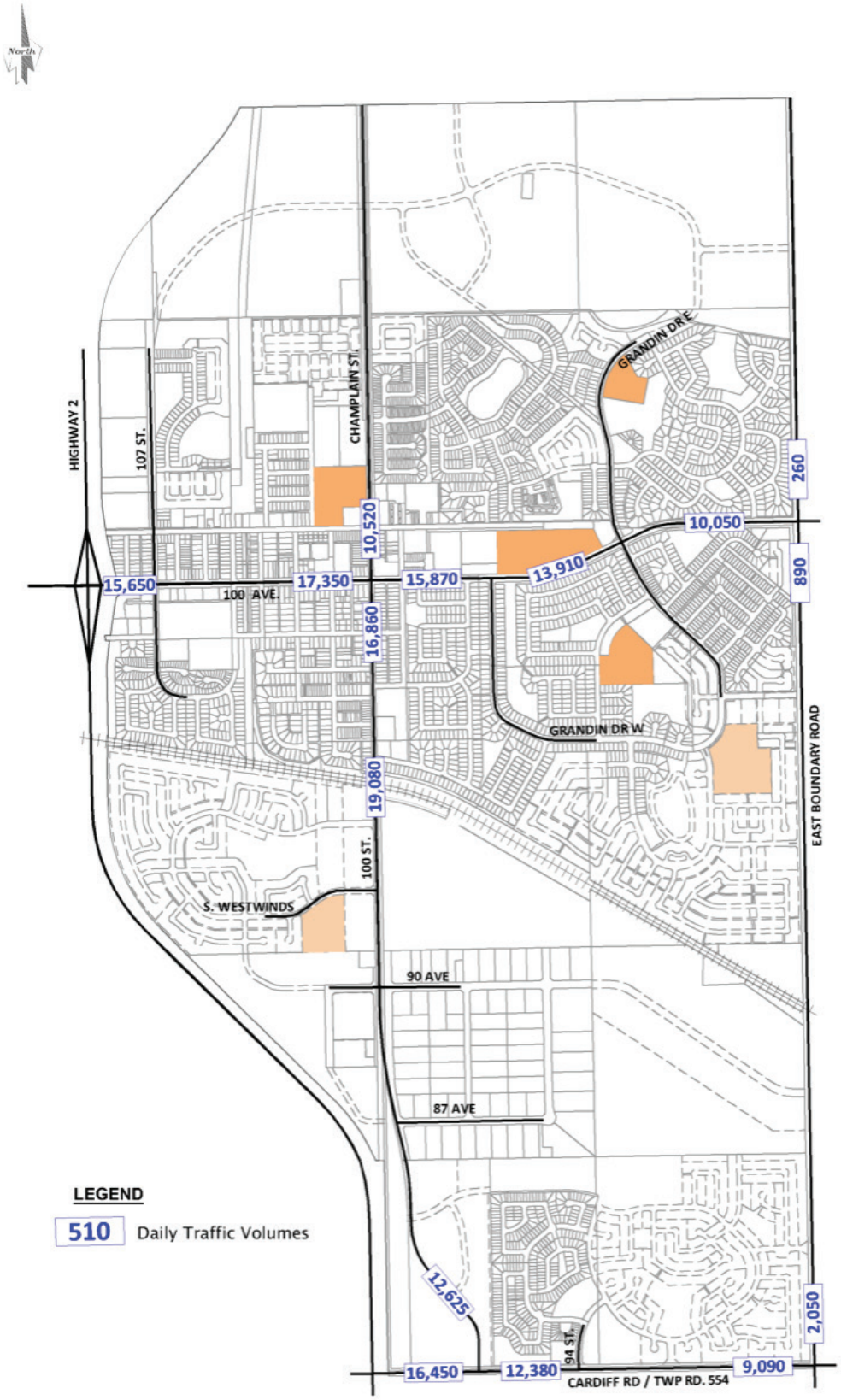
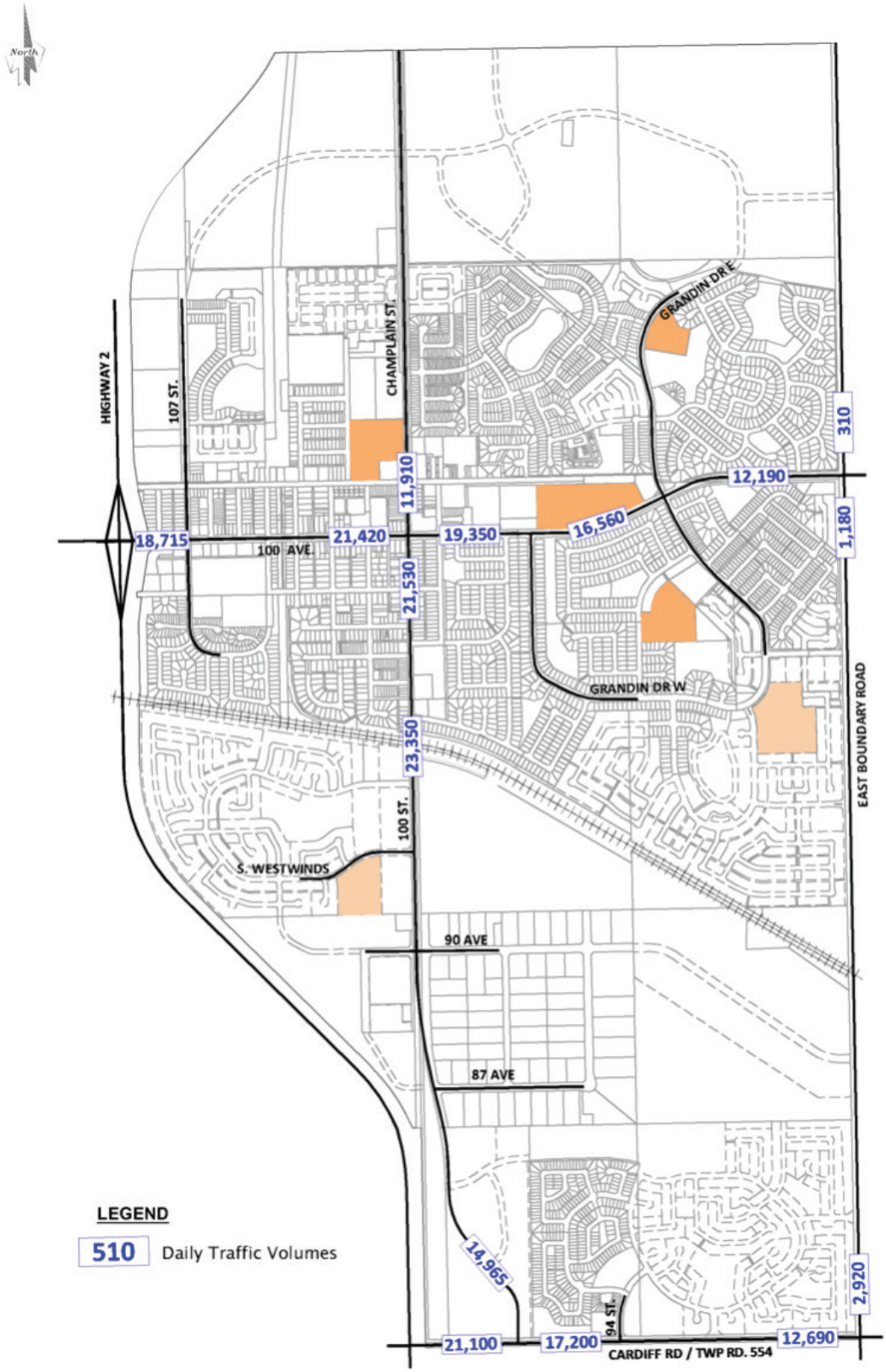


Figure 4-2: Long Term (25-year Horizon) Projected Daily Traffic Volumes



5

Transportation Master Plan

The TMP presented herein is the guiding document to inform the transportation network in Morinville over the next 25 years, aligning with the vision, strategic goals, and objectives outlined in Section 2 and summarized in Table 5-1.

The private automobile is, and will continue to be, important to the travelling needs of Morinville residents; however, providing greater mode choice to residents including a robust active transportation (i.e. walking, cycling) network and the eventual inclusion of public transit options is a key component moving forward. Not only will this reduce demands on the roadway network, but also provide a more inclusive and healthier community.

The following sections (Roads, Active Transportation, Public Transportation, Commercial/Goods Movement and ITS) highlights the key projects and strategies identified to meet the vision, strategic goals, and objectives of the TMP. The key focus areas are:

- Improve safety at intersections and pedestrian crossings.
- Plan and implement multi-modal upgrades to key arterials (100 Avenue, 100 Street, East Boundary Road, Cardiff Road) to support continued growth in Morinville.
- Prioritize upgrades to the active transportation network.
- Incorporate transit into the transportation system to provide mode choice to residents.

Table 5-1: TMP Strategic Goal & Objectives

STRATEGIC GOAL	OBJECTIVES
Transportation & Land Use Integration	Provide a multi-modal transportation network that connects citizens to employment, services, entertainment and recreation.
	Prioritize the implementation of regionally coordinated, accessible and affordable transit.
	Protect the right road for the right purpose.
Access & Mobility	Incorporate Universal Design making the community accessible to a diverse population regardless of mobility challenges.
	Implement Complete Streets and a connected active transportation network offering mode choice to citizens.
	Integrate Morinville's transportation network with the regional network for roads, transit and active transportation.
	Provide truck routes to ensure accessibility to commercial and employment areas but respects the multi-modal functionality of roads.
	Develop roads and intersections that prioritize safety for all users in balance with efficiency, accessibility and goods movements.
Sustainability	Provide a strong multi-modal network proactively reducing greenhouse gas emissions, air pollutants and consumption of non-renewables.
	Support multi-modal transportation facilities including active transportation and transit.
	Employ sound planning and sustainable practices that minimize long-term operational, maintenance and replacement costs.
Health & Safety	Provide opportunities for daily physical exercise in all seasons.
	Develop a walkable community.
	Design for the safe movement of people.
	Provide appropriate access for emergency response services.
Adaptability	Encourage flexibility in the design of streets based on the modal priorities and context of a specific corridor.
	Develop 100 Avenue and 100 Street within the Coeur that balances the need for moving vehicles while providing a corridor that offers unique, flexible, safe and enjoyable spaces for pedestrians and patrons.

Roadway upgrades should incorporate Complete Streets and Universal Design principles to ensure a multi-modal and accessible transportation network, which requires the town to update their Design and Construction standards.

5.1 ROADS

Overall, the existing roadway network is currently meeting the needs of the community; however, as Morinville grows over the next 25 years the added pressures on Morinville's limited arterial roadway network will require upgrades to these roadways and key intersections.

COMPLETE STREETS

A complete street is a segment of roadway that maximizes use, safety and comfort for a variety of users within a shared corridor. Ideally, complete streets have the following:

- Roadway design speeds no greater than 50 km/h, with posted speeds at or less than that.
- Minimal vehicle travel lane and roadway widths thereby minimizing pedestrian crossing distances at intersections and crosswalks.
- Accommodation of various travel modes such as transit, automobiles, commercial vehicles, pedestrians, cyclists, joggers.
- Efficient placement of different roadways that are cognizant of operations such as snow clearing and removal, while still allowing for safe movement of people.
- Street oriented buildings that have a good mix of residential and commercial uses.
- An overall priority to pedestrians and transit, opposed to giving priority to a high level of service for automobiles.
- Various vehicular and pedestrian accommodations and amenities such as lighting, parking, bicycle racks, benches, public art and waste receptacles while working within traditional road rights-of-ways.

A complete street commonly includes five design zones:

1. VEHICULAR LANE
This space is typically dedicated to the movement of vehicular traffic but can include space for cycling.

2. FLEXIBLE ZONE
This space located between the travelled way and the furnishing zone provides for various permanent and temporary street uses depending on the context/characteristics of the street. This includes, but not limited to, uses such as vehicle parking, patios, bicycle parking, loading zones, transit stops and taxi stands.

3. FURNITURE ZONE
The space located between the pedestrian through zone and the roadway curb provides an area for signs, streetlights, trees/landscaping, transit stops, benches, waste receptacles, etc. This is also the preferred location for snow storage.

4. PEDESTRIAN THROUGHFARE
This space, located adjacent to the frontage zone, is typically reserved for people walking and is set back from the roadway curb.

5. FRONTAGE ZONE
A narrow width of privately owned land accommodating access into buildings and a transition of grade between the sidewalk and building door threshold. This strip can also include temporary signage, furniture and other promotional items that are off the common sidewalk.

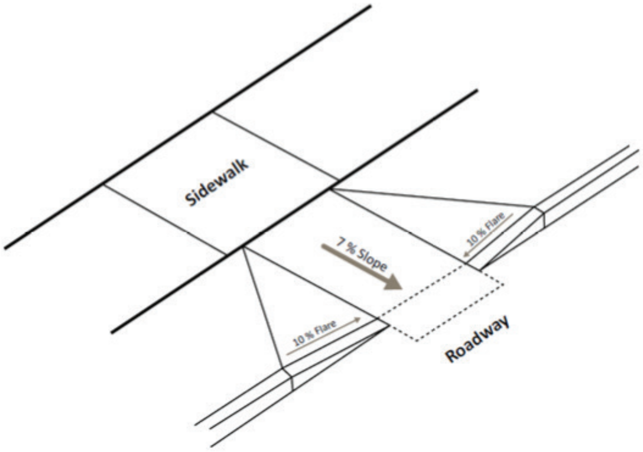
Source: Town of Morinville Mobility Strategy (2017)

All streets and other public open spaces should be designed to accommodate a full spectrum of users of all abilities, including people with mobility challenges/aids. Design of the public realm should address physical access for all users and must be cognizant of materials used for various surfaces.

UNIVERSAL DESIGN

There are many principles of universal design. Those most applicable to Morinville's transportation network include:

- Providing curb ramps at all mid-block and intersection crosswalks in each direction that sidewalk exists.
- Reducing straight faced curb heights adjacent to any barrier free parking stall or using a rolled face curb for ease of maneuvering by persons with mobility challenges/aids.
- Including highly visible, tactile walking surfaces with tactile ground surface indicators at marked crosswalks.
- Installing audible crossing signals at all new or renovated crosswalks to indicate dedicated crossing.
- Providing adequate trail surfacing to meet accessibility guidelines (i.e. ADA Standards for Accessible Design).
- Minimizing or eliminating sudden grade changes or drops between doorway thresholds and adjacent sidewalks.
- Ensuring sidewalks and trails are clear of any protruding tree branches or other vegetation that obstruct pedestrian movements.



Source: Town of Morinville Mobility Strategy (2017)

FUTURE ROAD NETWORK

HIGHWAY 642 (100 AVENUE)

100 Avenue is a provincial highway and the only east-west arterial through Morinville. It functions as both a thoroughfare carrying regional traffic as well as the town's Main Street through the Coeur de Morinville (Highway 2 to 100 Street). East of 99 Street the roadway is developed as a four-lane divided arterial with access management controls in place. West of 99 Street the roadway is a four-lane undivided arterial with little access management controls in place.

Within the next 6-15 years it is anticipated that the portion of 100 Avenue between Highway 2 and 99 Street will require upgrading to a four-lane divided arterial with all-directional access limited to key intersections (107 Street, 104 Street, 102 Street, 100 Street) including intersection upgrades.

The 2013 *Functional Planning Study* recommended developing roundabouts at these intersections; however, some concerns have been raised regarding the installation of roundabouts along the corridor. If the town chooses to move forward with roundabouts at key intersections, the results of the 2013 *Functional Planning Study* remain relevant. However, if traffic signal control along the corridor is considered (especially within the Coeur), the functional planning study should be revisited to confirm the intersection geometry required. A decision regarding the future upgrades to 100 Avenue should be made within the next 5 years to ensure that the corridor can be protected, and design and construction can occur when needed.

100 STREET

100 Street is the main north-south arterial roadway in Morinville. In terms of its function and the traffic volumes experienced, the roadway can be broken into four segments, which are described on the following pages.

It is noted that although beyond the 25-year horizon of the TMP, it is anticipated that at full build-out of current lands within the town Boundary, 100 Street will need to be upgraded to a four-lane divided arterial cross-section from Cardiff Road to the North town Boundary. Future planning efforts along 100 Street should consider and protect, where possible, for a future four-lane divided arterial cross-section.

Segment 1 – Cardiff Road to 87 Avenue

Currently a two-lane undivided rural cross-section carrying around 9,200 vehicles per day (vpd), it is estimated to carry around 15,000 vpd in the 25-year horizon. In the medium term (6-15 year horizon) it is anticipated that traffic volumes will warrant upgrades to a two-lane divided cross-section with raised median to allow for the introduction of left-turn bays at key intersections.

Segment 2 – 87 Avenue to CN Railway Crossing

Currently a three-lane undivided rural cross-section with a centre two-way left-turn lane, this portion of 100 Street currently accommodates up to 12,000 vpd. In the 25-year horizon, daily traffic is estimated to increase to about 23,500 vpd. This portion of 100 Street will be upgraded in 2020 to incorporate curb and gutter and a shared use path on the west side, along with the three-lane undivided roadway cross-section. To promote a safer roadway for vehicles as well as pedestrian crossings and a more consistent cross-section throughout, it is recommended that this portion of 100 Street be upgraded to a two-lane divided cross-section with raised median at the same time as Segment 1.

Segment 3 – CN Railway Crossing to 100 Avenue

Currently a two-lane undivided urban cross-section with on-street parking and monolithic sidewalk on both sides of the roadway, this portion of 100 Street currently experiences between 9,000 vpd and 12,000 vpd. In the 25-year horizon, daily traffic is estimated to range between 21,500 vpd and 23,500 vpd. This segment of 100 Street is not only an important arterial roadway in the community, but also a Main Street within the Coeur de Morinville serving both vehicular and pedestrian traffic.

There is a significant amount of access along this section of roadway, whether driveways to commercial businesses or access into residential neighbourhoods. As the traffic volumes on 100 Street increase, the delays on the roadway will increase as will the potential conflicts between vehicles and pedestrians. Reducing the number of accesses will be critical to managing delays, improving safety and providing an appropriate complete street that improves the user experience for pedestrians.

From a traffic volume perspective, in the medium-term (6-15 year) horizon it is anticipated that upgrades to this portion of 100 Street as a two-lane divided roadway with raised median will be warranted, which will allow for left-turn bays at key intersections. Not only will this help reduce the number of all-directional accesses along the corridor, but it will also provide Morinville the opportunity to:

- Better define the corridor as a Main Street.
- Better define pedestrian crossing points.
- Widen the sidewalks to provide greater public realm space.
- Reduce conflict points between pedestrians and vehicular traffic.

This, in concert with implementing the Coeur de Morinville ASP, will help Morinville reach its vision for this portion of 100 Street as a vibrant Main Street where people gather to shop, eat and be entertained within an activated public realm.

As the lands adjacent 100 Street redevelop, on-site parking will be impacted, as will on-street parking with the introduction of a raised median along 100 Street. Opportunities for centralized parking within the Coeur will be considered to ensure that appropriate parking supply is provided for the area. It is recommended that this be looked at in the short-term (0-5 year) horizon.

Segment 4 – 100 Avenue to North Town Boundary

This portion consists of a two-lane undivided cross-section currently carrying between 1,250 vpd and 6,700 vpd. It is fully urbanized with curb and gutter, on-street parking and monolithic sidewalk on both sides of the roadway between 100 Avenue and 101 Avenue. North of 101 Avenue the roadway transitions to semi-urban with curb and gutter and a separated shared use path on the east side, but rural ditch and no active sidewalk or shared use path on the west side.

In the 25-year horizon, this portion of 100 Street is estimated to carry between 1,550 vpd and 11,900 vpd, which can typically be supported by a two-lane undivided cross-section.

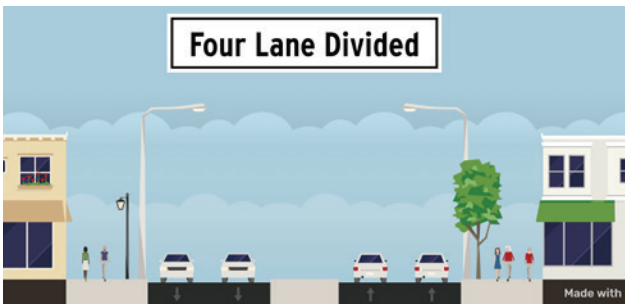
100 Street/95 Avenue Intersection

When the vehicle queue on 100 Street southbound extends near or beyond this intersection, vehicles on 95 Avenue are unable to make the westbound left-turn onto 100 Street, which in turn also blocks westbound right-turns. This results in queues forming on 95 Avenue, and vehicles short-cutting through the commercial strip mall in the northeast corner of the intersection.

While traffic signals or a roundabout are ultimately envisioned at this intersection, neither will address the short-cutting issue. As a short-term mitigation the banning of on-street parking along the first 75 metres of 95 Avenue east of 100 Street would allow for the stripping of designated westbound left-turn bay and a separate westbound through/right-turn lane. This is a low-cost investment that should help reduce short-cutting through the strip mall and reduce the impacts of the train on vehicles seeking to travel northbound on 100 Street from 95 Avenue.

In the 25-year horizon, this portion of 100 Street is estimated to carry between 1,550 vpd and 11,900 vpd, which can typically be supported by a two-lane undivided cross-section.

During the second round of public engagement, concerns were raised regarding the existing operations of the 100 Street/95 Avenue intersection, specifically when train movements are blocking 100 Street.



CARDIFF ROAD

Cardiff Road (Township Road 554) is a regional east-west paved roadway that carries around 3,200 vpd at East Boundary Road and increases to around 8,400 vpd at Highway 2. In the 25-year horizon, the daily traffic volumes are estimated to increase to between 12,700 and 21,100 vpd. From a traffic volume perspective Cardiff Road can be broken into two segments, which are described below.

Segment 1 – Highway 2 to 94 Street

As the busiest segment of Cardiff Road, it is anticipated that this portion of roadway will require upgrading to a four-lane divided cross-section in the medium-term (6-15 year) horizon.

Segment 2 – 94 Street to East Boundary Road

In the long-term (16-25 year) horizon, it is anticipated that this portion of roadway will require upgrading to a four-lane divided cross-section.

During the second round of engagement concerns regarding the connectivity of the South Glens neighbourhood to the rest of Morinville were raised.

South Glens Access

Many of the improvements identified in the TMP will provide better connectivity to South Glens, such as active transportation connections on 100 Street and East Boundary Road, and roadway upgrades on Cardiff Road, East Boundary Road and 100 Street.

However, currently South Glens is only accessible from one access point, the Cardiff Road/94 Street intersection. As the subdivision builds-out, the developer will construct additional access points to Cardiff Road, East Boundary Road and internal connections to adjoining lands, but the timing of these improvements is unknown and development driven.

In the medium-term (6-15 years) when upgrades to Cardiff Road from Highway 2 and 94 Street are envisioned, the town will consider potential upgrades to the Cardiff Road/94 Street intersection to better service South Glens residents.

EAST BOUNDARY ROAD

East Boundary Road is currently a low volume north-south rural gravel roadway carrying between 150 vpd and 280 vpd. In the 25-year horizon, this roadway in estimated to carry between 300 vpd and 2,900 vpd. While the existing volumes are low, East Boundary Road from Cardiff Road to Manawan Canal is considered a priority road by the town for upgrading to a two-lane paved roadway. Detailed design has been completed for this upgrade, which includes the introduction of a separated shared use path that parallels East Boundary Road on the west side. Upgrading East Boundary Road in the short-term (0-5 years) is a priority upgrade for several reasons:

- The existing gravel roadway is in poor condition with annual maintenance issues.
- It will provide a greater opportunity for development of lands within Grandin Heights and South Glens.
- It will provide an active transportation connection between south Morinville and the Leisure Centre.
- It will provide another north-south arterial connection in town reducing reliance on 100 Street.
- It will provide another truck route in town reducing reliance on 100 Avenue and 100 Street.

In the 25-year horizon, upgrading East Boundary Road beyond the two-lane paved arterial cross-section is not envisioned; however, the town will monitor development of Sturgeon County lands on the east side of East Boundary Road. Should intensification of these County lands be envisioned, upgrading East Boundary Road to a four-lane divided arterial may become warranted.

NEW EAST-WEST ARTERIALS

While not anticipated to be required in the 25 year horizon, Morinville will undertake planning efforts to identify and protect up to two new east-west arterials, one located south of CN rail line to service lands within the southern portion of town and one located north of 100 Avenue to service lands within the northern portion of town. New east-west arterials will help to serve the needs of the community at full build-out and reduce the traffic pressures on 100 Avenue, 100 Street and Cardiff Road. Identifying and protecting these new arterials in the short-term, prior to increased development within town, will ensure that these arterials can be built when needed in the future.

Ideally, these two new east-west arterials would provide continuous connectivity between Highway 2 and East Boundary Road. Highway 2 is a Provincial Highway designated as multi-lane by Alberta Transportation, which allows for at-grade signalized intersections along the corridor. However, as Highway 2 is owned and operated by the Alberta Government, Morinville will require approval from Alberta Transportation for any new roadway connection/ intersection with Highway 2. Morinville should engage with Alberta Transportation in the short-term to begin the dialogue around this important initiative.

An interchange is currently planned for the Highway 2/Cardiff Road intersection; however, timing of this upgrade is unknown. It is noted that if the town were able to secure two new east-west arterial connections to Highway 2, an interchange at the Highway 2/ Cardiff Road intersection will not likely be required. Eliminating the need for an interchange at this location would allow for upgrades to occur along Cardiff Road when warranted without worrying about throwaway costs due to interchange construction.

5.2 ACTIVE TRANSPORTATION

Over the course of the next 25 years, Morinville will make a concerted effort to develop a robust active transportation network that connects residents to employment, shopping, schools, cultural and recreational opportunities. This includes developing trails in existing public rights-of-way, as well as working with developers to incorporate active transportation when planning and constructing new developments. It also includes working with regional partners to establish active transportation links that connect to areas and amenities outside the town (i.e. connection between Morinville and Cardiff).

The 2019 *Parks, Recreation, Culture, and Trails Master Plan* provides the roadmap for the trails network in the community. Several of the future trails identified in the *Trails Master Plan* are located on privately owned lands. The town is unable to construct these trails prior to subdivision or negotiation with the landowner or purchase of the necessary right-of-way. Because the timing of development on privately owned lands is unknown, from a construction perspective the TMP focuses on future active transportation links located on public lands.

It is envisioned that with the anticipated growth in the community over the next 25 years, much of the privately owned lands within the community will have begun to be built-out providing greater opportunity for the active transportation network to be built beyond the links identified in the TMP. **Figure 5-1 (pg. 63)** illustrates the existing and planned trails network for Morinville, as per the Trails Master Plan, with the distinction between future trails located on existing public lands versus privately owned lands.

The planning, design and construction of active transportation links in Morinville will incorporate Crime Prevention Through Environmental Design principles (CPTED), which aims to prevent crime by designing a physical environment that positively influences human behaviour. The proper design and effective use of the built environment can lead to a reduction in the incidence and fear of crime, thereby improving the quality of life.

Key to the build-out of the town's active transportation network will be the careful consideration of pedestrian crossings within the community and ensuring appropriate measures for safe and enjoyable user experience. As a short-term priority (0-5 year), the town will seek to undertake an assessment of all pedestrian crossings within the community applying the methodologies and guidelines of the Transportation Association of Canada's (TAC) Pedestrian Crossing Control Guide. Another key safety component of the active transportation network is the undertaking of a Safe Journeys to School study to identify safety issues and mitigation measures to make getting to and from school safer for all kids.

During the first round of public engagement the top issues/concerns and priorities amongst residents was pedestrian safety and the town's active transportation network. This included pedestrian safety crossing Highway 642 (100 Avenue) as well within neighbourhoods and the provision for safe journeys to schools. Residents desire an active transportation network that is robust, safe and connected, filling the needs of both purpose based and recreation based trips.

HERITAGE LAKE

One of the key recreational areas for Morinville is Heritage Lake, located west of Highway 2 and south of Highway 642. Highway 2 poses a significant barrier to providing a convenient and safe active modes connection to Heritage Lake. The *Parks, Recreation, Culture, and Trails Master Plan* identifies a future trail connection to Heritage Lake that runs parallel to the CN Rail line through the Westwinds subdivision and utilizes the existing CN Rail underpass at Highway 2. However, this will require the introduction of an isolated railway crossing for pedestrians/cyclists to access Heritage Lake. In addition, it will likely require the widening of the railway underpass and additional safety measures to mitigate the risk of conflicts between pedestrians/cyclists and trains. Morinville will work with CN and Alberta Transportation to explore the feasibility of this proposed active transportation connection to Heritage Lake.

While the above noted connection would provide convenient access to Heritage Lake for developments south of 100 Avenue, providing a second active transportation connection that conveniently and safely connects north Morinville residents to Heritage Lake should also be considered. The most logical connection is via Highway 642 (100 Avenue); however, this has challenges of its own, especially at the Highway 2/Highway 642 interchange. The Highway 642 cross-section would need to be widened under the Highway 2 overpass to accommodate an active transportation link. At a minimum, this would require the introduction of retaining walls under Highway 2 and could require lengthening of the Highway 2 bridge.

Morinville will work with Alberta Transportation to explore the feasibility of this active transportation connection to Heritage Lake.

The introduction of two new east-west arterials in Morinville has the potential to provide two new viable active transportation connections between the community and Heritage Lake. With the implementation of complete streets principles, planning for these east-west arterials should consider active transportation needs and how they can better connect residents to Heritage Lake.

CARDIFF

While all the identified trails in the *Parks, Recreation, Culture, and Trails Master Plan* are important to providing a more well connected and usable trail system for the community, the TMP prioritizes the construction of certain trails based on feedback received from the community during consultation, the increased connectivity the trails provide, and their integration with other capital projects. As a higher priority, the following trails have been identified for construction within the short-term (0-5 year) horizon:

- A trail connection that parallels East Boundary Road from Cardiff Road to Manawan Canal. This will provide a continuous trail from the south town boundary to the existing trail system in north Morinville and provide connectivity to the Leisure Centre.
- A trail connection that parallels 100 Street from 87 Avenue to the CN Rail crossing, as well as from 105 Avenue to the existing east-west trail located in north Morinville. This will provide a continual active transportation connection from South Glens to the currently developed north edge of town and convenient access to shopping and employment along 100 Street.

While the TMP prioritizes these improvements into three horizons (short, medium, and long term), Morinville will seek to accelerate the construction of the trail system, where possible.

During the second round of engagement, active transportation connectivity between Morinville and the Hamlet of Cardiff (i.e. Cardiff Park) was raised as a desirable connection.

Within the medium-term horizon (6-15 years) the construction of an active transportation connection along Cardiff Road has been identified, which will connect to the future trail along East Boundary Road.

Sturgeon County is responsible for Cardiff Road east of East Boundary Road; therefore, the town will work with Sturgeon County to consider opportunities to extend this active transportation connection to Cardiff.

Figure 5-1: Future Trails Network

5.3 PUBLIC TRANSPORTATION

It is envisioned that peak-only express transit service between Morinville and St. Albert is the first step in establishing transit for Morinville residents. From there, Morinville residents will have access to several transit route options.

It is recognized given the commuting distances and destinations of residents that the private automobile will continue to be a critical mode for the movement of people and goods both within the community and regionally; however, a key objective of the TMP is to reduce reliance on the private automobile. While public transportation does not currently exist in Morinville, the EMRB Growth Plan identifies regional transit service from Morinville to St. Albert by the year 2044 to aid in greater mobility/mode choice and reduced vehicle trips.

Morinville recently agreed to participate in a formal request to the Alberta Government to create a new RTSC for the Edmonton Metropolitan Region. While the Alberta Government has not yet approved the creation of the RTSC, if approved it will provide increased opportunities to incorporate transit into the town's transportation offerings. Regardless of whether the RTSC comes to fruition or not, Morinville will continue to work with regional partners to identify opportunities for transit. The City of St. Albert is currently constructing the Campbell Road Park and Ride Transit Centre, which will serve as St. Albert Transit's principal transfer and operation station, replacing the current hub at Village Landing. This new transfer/operation station is anticipated to be operational sometime in 2020 and will have capacity for 16 buses. It is also proposed as the future terminus of Edmonton's Northwest LRT line.

Furthermore, while no specific timelines are defined, the EMRB Growth Plan includes the extension of LRT through St. Albert from the Campbell Road Park and Ride Transit Centre to a future regional park and ride transit centre at the north end of St. Albert by the year 2044.

Ease of access to a wide range of regional public transportation options will make travel by transit an attractive option for Morinville residents. As ridership grows, Morinville will be able to consider transit to other regional destinations such as the Edmonton Garrison, and eventually consider implementing local transit routes.

It is anticipated that transit service from Morinville to St. Albert will be available within the next 5 years. Once transit service to St. Albert is implemented, Morinville will monitor ridership and establish reasonable ridership targets for the community.

5.4 COMMERCIAL/GOODS MOVEMENT

Morinville is primarily a residential community; however, it does include industrial/commercial land uses along 100 Street and 100 Avenue. In addition, with 100 Avenue also being a Provincial Highway (Highway 642), it carries regional truck traffic.

With 100 Street and 100 Avenue acting as both Main Streets within the Coeur de Morinville and key arterial roadways within and through the community carrying a mix of cars, commercial vehicles, bicycles and pedestrians, these two roadways share unique challenges requiring a balanced approach between the need to move vehicular traffic and vulnerable road users (i.e. pedestrians and bicyclists).

Strategies for commercial/goods movement include:

- Provide connections to industrial and commercial sites within Morinville.
- Minimize heavy vehicle traffic within residential areas and near schools (where possible) by strategically designating appropriate truck routes.
- Provide regional connections to Highway 642 east and west of Morinville, as well as Highway 2.

FUTURE TRUCK ROUTE NETWORK

The TMP prioritizes the identification of key routes for future goods movements through Morinville. There is an opportunity to re-examine the existing truck routes and dangerous goods routes through the community to better align with the overall roadway functionality and adjacent land uses.

The routes identified in **Figure 5-2 (pg. 67)** are only intended to form a launch point for more detailed undertakings to be completed by Morinville in conjunction with key stakeholders. The actual future dangerous goods and truck routes in the community may eventually vary from what is presented in the TMP. Ultimately, the intent of revising the dangerous goods and truck routes is to provide much needed connectivity while improving public safety.

TRUCK ROUTES

The truck routes identified in the TMP are intended to provide connection between industrial and commercial areas in the community, as well as regional destinations beyond, while reducing the impact on residential areas and school zones.

As per Morinville's *Traffic Safety Bylaw*, and the Provincial *Traffic Safety Act*, commercial vehicles can obtain/deliver goods to/from a location off the truck route but should use the most direct route available to/from their destination. With this understanding, there is the potential to remove 107 Street and 101 Avenue as truck routes in the community, both of which traverse through residential areas as well as the adjacent Morinville Public School.

As a Provincial Highway, it is envisioned that Highway 642 (100 Avenue) through the community will continue to be a designated truck route. Should Morinville ever take ownership of 100 Avenue, thereby removing Highway 642 from the Provincial Highway Network, consideration can be given to removing all or a portion of 100 Avenue as a truck route through the community, especially through the Coeur de Morinville.

Opportunities to revise the 100 Street truck route should also be explored, with a focus on reducing commercial through traffic in the Coeur de Morinville.

It is envisioned that once East Boundary Road is upgraded to a paved two-lane arterial roadway, it and Cardiff Road will be designated as truck routes within the community. Furthermore, should Morinville ultimately construct new east-west arterials in the community, it is envisioned that these new arterials will be designated as truck routes.

24-HOUR DANGEROUS GOODS ROUTES

As per the Alberta Government's *Dangerous Goods Transportation and Handling Act*, dangerous goods consist of explosives, gases, flammable and combustible liquids, flammable solids, oxidizing substances, poisonous (toxic) and infectious substances, nuclear substances, corrosives, among other things. Dangerous Goods Routes are simply the designated routes by which these materials may be transported.

Currently, Morinville's *Dangerous Goods Control Bylaw*, which was last updated in 2004, designates 100 Street and 100 Avenue (Highway 642) as 24-hour dangerous goods routes through the community. The dangerous good routes within any community should be periodically reviewed to ensure the bylaw continues to meet the needs of the community.

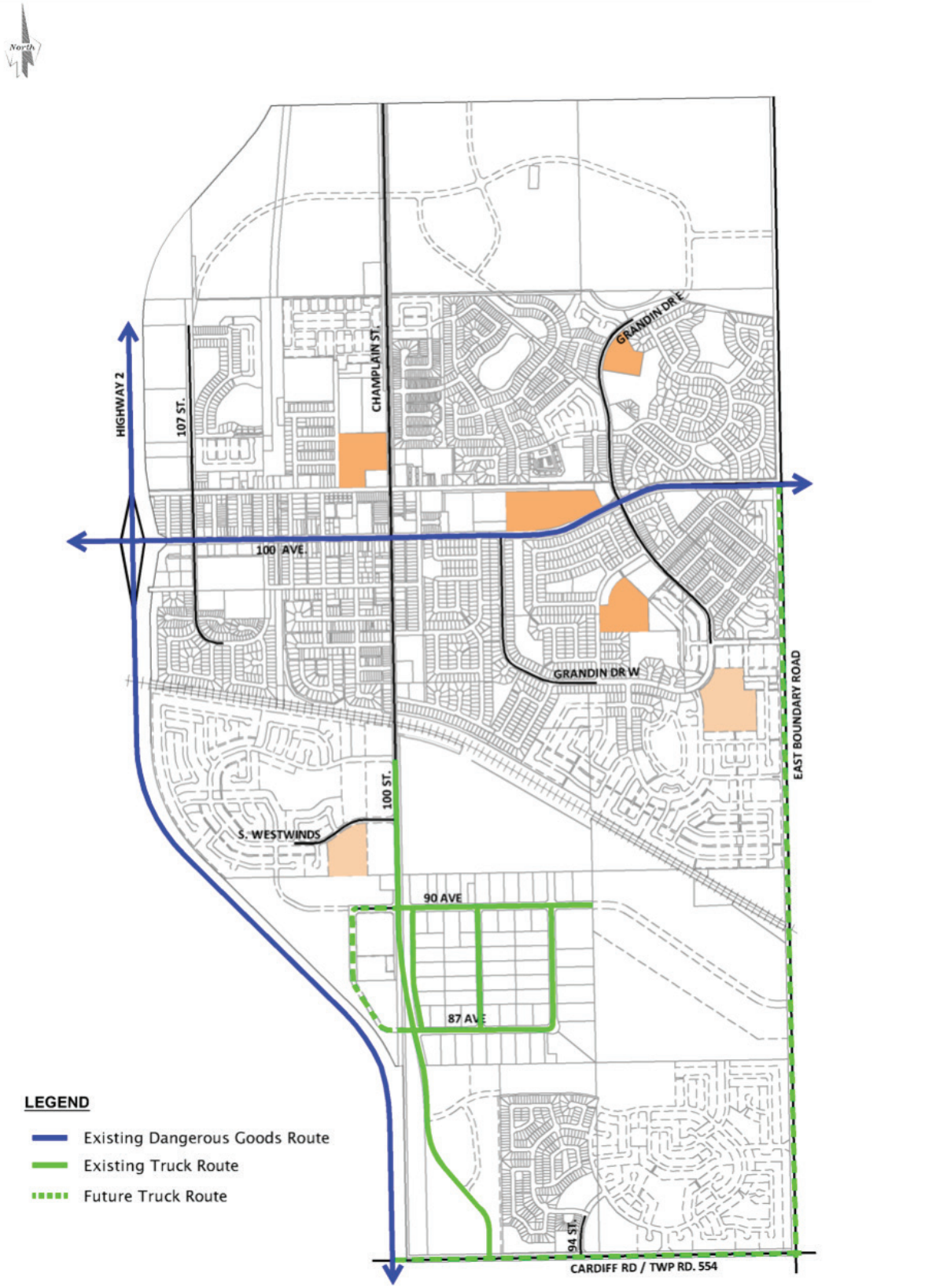
The Alberta Government, in conjunction with the federal government and other provincial/territorial governments has developed a set of guideline criteria to assist all Canadian municipalities prepare standardized dangerous goods routing bylaws. Published in 2018, the Alberta Government released Guidelines for *The Establishment of Dangerous Goods Routes in Alberta*, which is intended to help municipalities select appropriate dangerous goods routes.

Revisions to dangerous goods routes will be considered in greater detail by Morinville in conjunction with key stakeholders. The dangerous goods routes through Morinville should provide the needed connectivity while improving public safety, which may ultimately vary from the future truck network identified in the TMP.

Given the close proximity of Highway 2 to Morinville, there may be the opportunity to eliminate 100 Street as a dangerous goods route through the community. The elimination of 100 Street as a dangerous goods route does not preclude carriers from obtaining/delivering dangerous goods to/from a location off a dangerous goods route if the most direct truck route is utilized or if a special permit is acquired.

As a Provincial Highway, it is envisioned that Highway 642 (100 Avenue) through the community will continue to be a designated dangerous goods route. Should Morinville ever take ownership of 100 Avenue, thereby removing Highway 642 from the Provincial Highway Network, consideration can be given to removing 100 Avenue as a dangerous goods route through the community.

Figure 5-2: Future Truck Route Network



Morinville
Growing Together

ITS is the application of information and communication technologies to improve the safety, efficiency and sustainability of transportation networks, which is organized into nine categories comprised of 37 user services.

5.5 INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

ITS CATEGORIES

TRAVELLER INFORMATION

Consists of user services that deal with information collection, dissemination and processing for the transportation system such as pre-trip travel information, en-route driver information, route guidance and navigation, etc.

TRAFFIC MANAGEMENT

Consists of user services designed to use advanced systems and technologies to collect and process information about the transportation system and provide commands to various traffic control devices.

PUBLIC TRANSPORTATION MANAGEMENT

Consists of user services provided by public transit organizations throughout the country including such things as automation of the operations, planning and management functions, providing real-time en-route transit information, on-demand transit, and security.

ELECTRONIC PAYMENT

Consists of providing electronic payment services for tolls, fares and parking such as smart cards and parking payment systems.

COMMERCIAL VEHICLE OPERATIONS

Consists of user services that support the goals of improving the efficiency and safety of commercial fleet operations such as electronic clearances and automated roadside safety inspections among other things.

EMERGENCY MANAGEMENT

Addresses how ITS is incorporated into emergency management and public safety and covers the coordination between public safety and transportation to address situations ranging from traffic incidents to disasters to evacuations.

ADVANCED VEHICLE SAFETY SYSTEMS

Consists of user services that contribute to improving vehicle safety using on-board capabilities and deployed infrastructure. This can include collision avoidance systems, as well as connected and autonomous vehicles.

INFORMATION MANAGEMENT

Addresses how to process and store data acquired by ITS monitoring systems in a manner that is efficient, thorough, and user-friendly.

MAINTENANCE & CONSTRUCTION OPERATIONS

Addresses the monitoring, maintaining, improving and managing the physical condition of roadways. This includes things such as vehicle fleet management, roadway management, work zone management and safety, roadway maintenance conditions and work plan dissemination.

ITS is employed all over the world to varying degrees to address congestion and safety issues on constrained transportation networks. Examples of ITS already exist within the Edmonton Metropolitan Region including the City of Edmonton Epark system, the automated shuttle in the City of Beaumont, and adaptive traffic signals in St. Albert, just to name a few. Given the existing population size and relative simplicity of the Morinville's transportation network, the application of ITS services may not seem overly relevant today; however, limited applications may prove useful.

Over the course of the next 25 years as population and employment continue to grow, so to will the demands placed on the transportation network. The integration of ITS can help Morinville manage congestion and safety on the transportation network.

Referencing the *ITS Infrastructure for Canada*, examples include:

EMISSIONS TESTING & MITIGATION

Use technology to monitor and collect information facilitating the implementation and evaluation of pollution control strategies.

NON-VEHICULAR ROAD USER SAFETY

Provide warning systems primarily focused on pedestrian and bicyclist safety, which includes pedestrian crossing lights and audible pedestrian signals.

DEMAND RESPONSIVE TRANSIT

Support flexibly routed transit vehicles with on-demand routing to pick up passengers who have requested service and deliver them to their destination or route deviation schemes, where vehicles leave a fixed route for a short distance to pick up or drop off passengers.

PUBLIC TRANSPORTATION MANAGEMENT

Provide real-time computer analysis of vehicles and facilities that monitors the location of transit vehicles, identifies deviations from the schedule, and offers potential solutions to dispatchers and operators. This can also include information regarding passenger loads, vehicle run times, accumulated kilometres/ hours and vehicle maintenance to improve service.

ELECTRONIC PAYMENT

Incorporating electronic transit fare payment or parking payment systems.

It is envisioned that the development of a formalized ITS Strategic Plan will be warranted in the long-term (16-25 year) horizon; however, Morinville will continue to monitor growth and traffic operations to determine if the timeline should be adjusted.

6

IMPLEMENTATION

The implementation plan is based on a combination of technical analysis and the input/feedback provided by Morinville residents, stakeholders, town administration, regional partners and the project steering committee.

The TMP outlined in **Section 5** represents a 25-year endeavor. It provides a long-term vision for the transportation network to meet the priorities of the community and the anticipated demands due to increased growth. The overall improvements estimated to be required in the 25-year horizon are illustrated in **Figure 6-1 (pg 73)**.

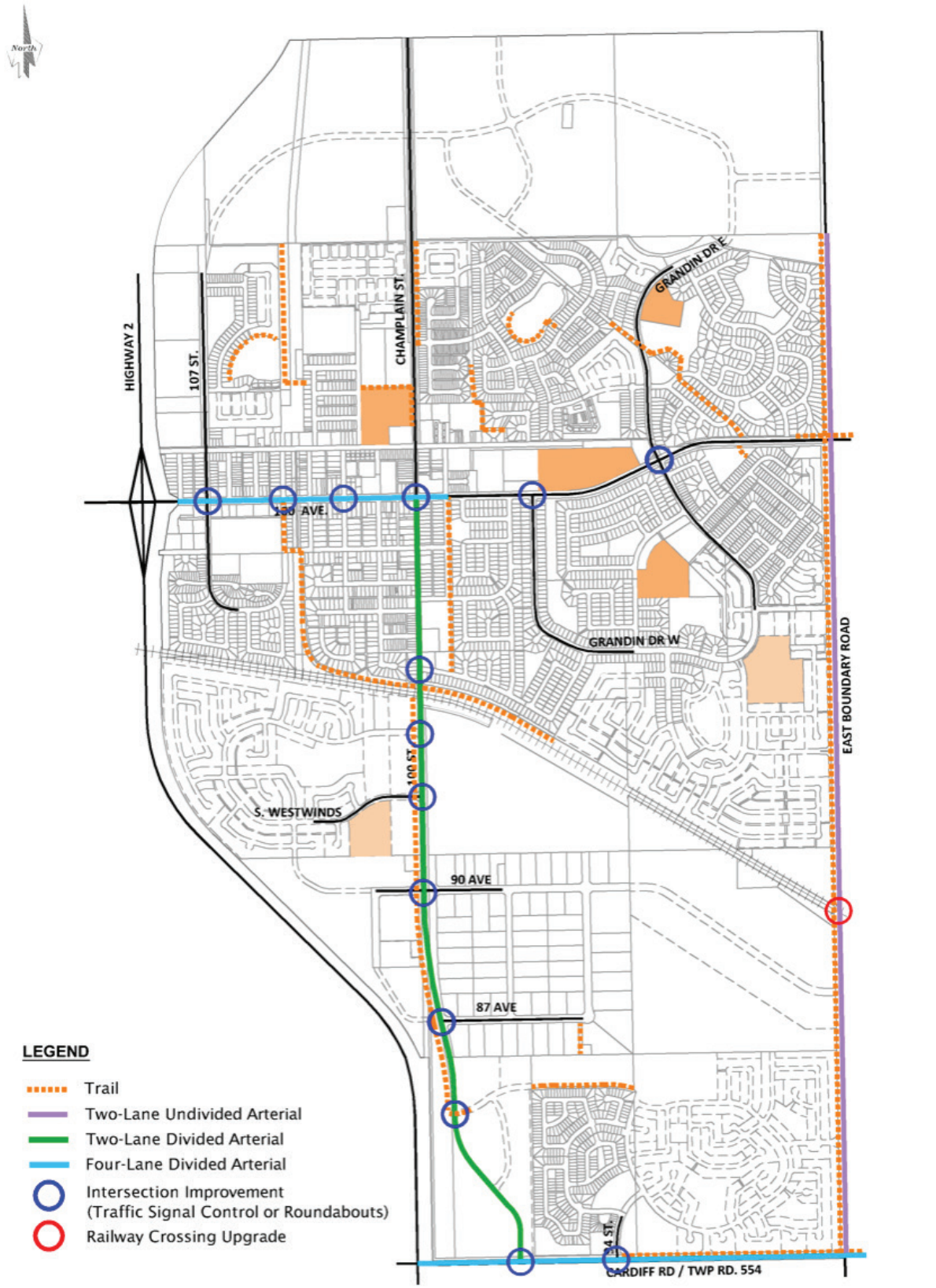
It is ambitious and not achievable overnight. To meet this long-term vision, a series of recommended action items and construction projects been identified and divided into three horizons: short-term (0-5 years), medium-term (6-15 years) and long-term (16-25 years), which is presented in the following sections.

Moving forward, the implementation plan will act as a road map to be referenced regularly. It will help guide project prioritization and the steps needed to realize the vision, as well as serve as an evaluation tool to gauge how Morinville is doing in terms of working towards the vision. The TMP and associated action items and construction projects should be reassessed periodically to ensure it remains current and relevant.

The implementation plan is guided by and correlated back to the TMP vision, strategic goals and objectives. The strategic goals are:

1. Transportation & Land Use Integration
2. Access & Mobility
3. Sustainability
4. Health & Safety
5. Adaptability

Figure 6-1: Overall (25-Year) Improvements



6.1 SHORT-TERM (0-5 YEARS)

In the short-term horizon, the greater emphasis is on planning and design, and development of standards and programs to set the stage for future growth and realizing the overall vision, goals and objectives of the TMP, as well as construction projects addressing existing issues/constraints in the community.

Table 6-1: Short-Term (0-5 Year) Action Items

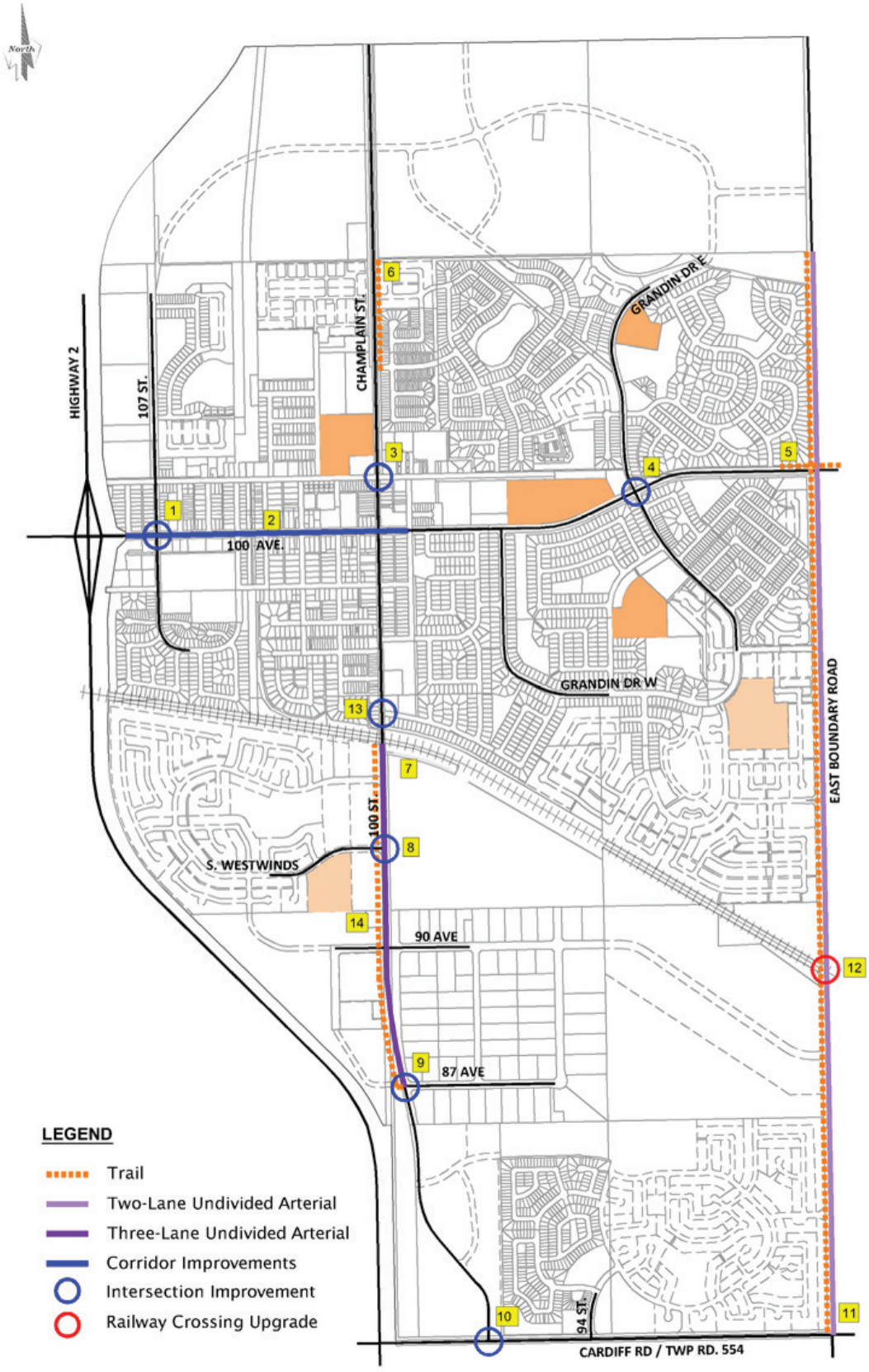
	ACTION ITEM	ALIGNED WITH GOALS					PRIORITY
		1	2	3	4	5	
1	Incorporate the TMP Improvement Strategies into Town's Annual & Long Range Capital Plan (Annually starting in 2021).	✓	✓	✓	✓	✓	Ongoing
2	Undertake Safe Journeys to School Study.				✓		High (Year 1)
3	Implement Safe Journeys to School strategies.				✓		Medium (Year 2- 4)
4	Partner with community leaders to achieve the TMP Vision.	✓	✓	✓	✓	✓	Ongoing
5	Work with Edmonton Metropolitan Region Board (EMRB) to align and implement the Town's TMP and EMRB's Integrated Regional Transportation Master Plan.	✓	✓				Ongoing
6	Update Municipal Engineering Standards to incorporate complete streets and universal design and establish design triggers/thresholds.	✓	✓	✓			High (Year 1)
7	Update Traffic Safety Plan.				✓		Ongoing
8	Establish a safety review process when collisions involving a fatality or serious injury on public roadways occur.				✓		Medium (Year 2-4)
9	Develop annual network screening program to identify high collision locations.				✓		Low (Year 5)
10	Establish an in-service safety review program for high collision locations.				✓		Low (Year 5)
11	Undertake a review of pedestrian crossings within Morinville applying the methodologies and guidelines of the Transportation Association of Canada's Pedestrian Crossing Control Guide (Third Edition).		✓		✓		High (Year 1)
12	Implement pedestrian crossing upgrades based on the results of the pedestrian crossing review.		✓		✓		Medium (Year 2-4)
13	Establish greenhouse gas baseline information and reduction targets related to transportation including data to measure.			✓			Low (Year 5)
14	Update Highway 642 Functional Planning Study (FPS) to confirm recommended improvement plan.	✓	✓	✓	✓	✓	High (Year 1)
15	Advocate for upgrades to Highway 642 through Morinville following update of Highway 642 FPS.	✓	✓	✓	✓	✓	Ongoing

	ACTION ITEM	ALIGNED WITH GOALS					PRIORITY
		1	2	3	4	5	
16	Undertake FPS for potential east-west arterial from East Boundary Road to Highway 2, located somewhere between Cardiff Road and 100 Avenue.	✓	✓	✓	✓		High (Year 1)
17	Under FPS for potential east-west arterial from East Boundary Road to Highway 2, located somewhere between 100 Avenue and the North Morinville Boundary.	✓	✓	✓	✓		Medium (Year 2-4)
18	Undertake planning/design efforts to confirm right-of-way requirements to convert 100 Street from Cardiff Road to the railway crossing as an eventual 4-lane divided arterial roadway.	✓		✓			Low (Year 5)
19	Undertake planning/design efforts to confirm right-of-way requirement to protect East Boundary Road from Cardiff Road to Highway 642 as an eventual 4-lane divided arterial roadway.	✓		✓			Low (Year 5)
20	Undertake planning/design efforts to Cardiff Road from Highway 2 to East Boundary Road as an eventual 4-lane divided arterial roadway.	✓		✓			Medium (Year 2-4)
21	Develop temporary traffic control/special event management policy.					✓	Low (Year 5)
22	Incorporate Crime Prevention Through Environmental Design principles into active transportation planning.				✓		High (Year 1)
23	Undertake design & construction of active transportation links identified in the TMP.	✓	✓	✓	✓		Ongoing
24	Work with community partners to secure lands and implement active transportation network links to key destinations in the community.	✓	✓	✓	✓		Ongoing
25	Work with regional partners to identify future regional active transportation links.	✓	✓	✓	✓		Ongoing
26	Work with regional partners to identify opportunities for and implementation of regional transit service from Morinville to St. Albert/Edmonton.	✓	✓	✓			Ongoing
27	Update the Dangerous Goods Control Bylaw to include East Boundary Road and revise existing truck routes within Morinville.	✓	✓		✓		Medium (Year 2-4)
28	Prepare a downtown parking strategy that identifies future off-street parking facilities to address the loss of on-site parking from downtown redevelopment and increase parking demand from revitalization.	✓		✓		✓	Low (Year 5)
29	Develop Data Collection Program for Daily Traffic and Turning Movement Counts.	✓	✓	✓		✓	Low (Year 5)

Table 6-2: Short-Term (0-5 Year) Construction Projects

MAP ID	LOCATION	FROM	TO	IMPROVEMENTS	PRIORITY
1	100 AVE/107 ST	-	-	- Install a traffic signal.	Low (Year 5)
2	100 AVE	HWY 2	99 ST	- Install temporary curb extensions at intersections to reduce. pedestrian crossing distances and define on-street parking areas.	High (Year 1)
3	101 AVE/100 ST	-	-	- Intersection upgrades to address pedestrian safety.	High (Year 1)
4	100 AVE/ GRANDIN DR E	-	-	- Barricade eastbound/westbound left turn bays (all-directional but w/ simplified geometry); or - Install a traffic signal (when warrant met).	Medium (Year 2-4)
6	100 ST	400m N of 105 AVE	105 AVE	- 2.0-3.0m trail on east side.	High (Year 1)
7,8,9	100 ST	RAILWAY	87 AVE	- Three-lane undivided arterial cross-section. - 2.0-3.0m trail on west side.	Medium (Year 2-4)
	WESTWINDS SOUTH ACCESS/ 100 ST	-	-	- Install a traffic signal.	
	87 AVE/100 ST	-	-	- Install an overhead pedestrian flashing beacon system.	
10	CARDIFF RD/ 100 ST	-	-	- Install a traffic signal.	High (Year 1)
5, 11,12	100 AVE	87 ST	REC CENTRE	- 2.0-3.0m trail on north side.	Medium (Year 2-4)
	E BOUNDARY RD	MANAWAN CANAL	CARDIFF RD	- Two-lane undivided arterial cross-section. - 2.0-3.0m trail on west side. - Intersection improvements at 100 Ave.	
	E BOUNDARY RD RAIL CROSSING	-	-	- Install at-grade railway crossing warning signal with flashing lights and bell.	
13	100 ST/95 AVE			- Remove on-street parking to accommodate a westbound left-turn bay on 95 Avenue.	High (Year 1)

Figure 6-2: Short-Term (0-5 Year) Improvements



6.2 MEDIUM-TERM (6-15 YEARS)

In the medium-term horizon, with the bulk of the planning/design and guideline/program development efforts complete, the focus is anticipated to shift to implementation and construction. It is noted that in the medium-term horizon, the active transportation projects have been ranked from the highest to lowest priority, with a ranking of 1 being the highest priority. These rankings are directly influenced by feedback received from the community during the first round of public engagement.

Table 6-3: Medium-Term (6-15 Year) Action Plan

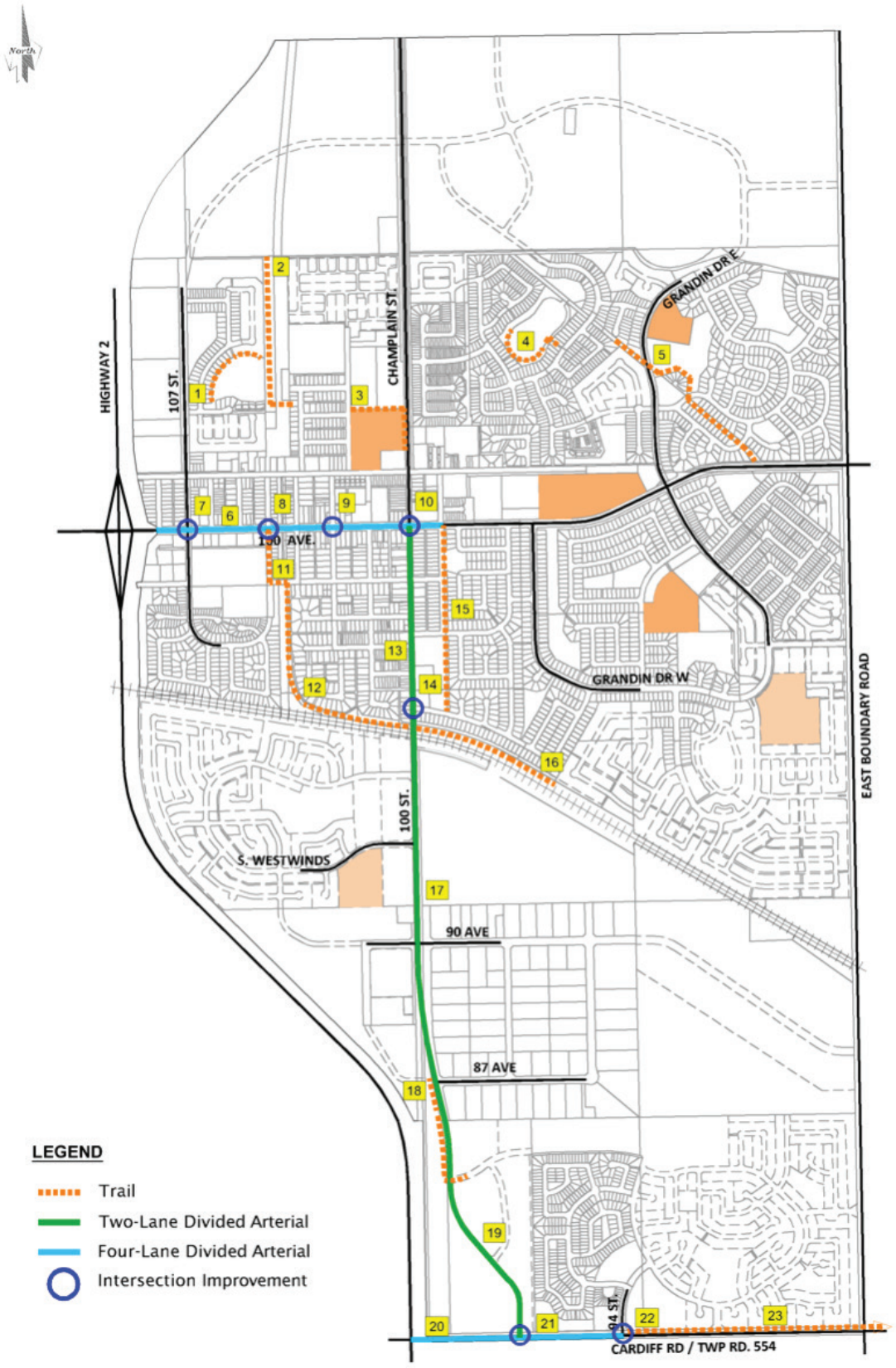
	ACTION ITEM	ALIGNED WITH GOALS					PRIORITY
		1	2	3	4	5	
1	Incorporate the TMP Improvement Strategies into Town's Annual & Long Range Capital Plan (Annually).	✓	✓	✓	✓	✓	Ongoing
2	Implement Safe Journeys to School strategies.				✓		Ongoing
3	Partner with community leaders to achieve the TMP Vision.	✓	✓	✓	✓	✓	Ongoing
4	Work with Edmonton Metropolitan Region Board (EMRB) to align and implement the Town's TMP and EMRB's Integrated Regional Transportation Master Plan.	✓	✓				Ongoing
5	Update Traffic Safety Plan.				✓		Ongoing
6	Implement pedestrian crossing upgrades based on the results of the pedestrian crossing review.		✓		✓		Ongoing
7	Develop achievable mode split targets and perform scheduled updates and evaluation of levels and targets.			✓			Low (Year 13-15)
8	Monitor greenhouse gas emissions and reduction targets related to transportation.			✓			Low (Year 13-15)
9	Advocate for upgrades to Highway 642 through Morinville following update of Highway 642 FPS (until complete).	✓	✓	✓	✓	✓	Ongoing
10	Undertake design & construction of active transportation links identified in the TMP.	✓	✓	✓	✓		Ongoing

	ACTION ITEM	ALIGNED WITH GOALS					PRIORITY
		1	2	3	4	5	
11	Work with community partners to secure lands and implement active transportation network links to key destinations in the community.	✓	✓	✓	✓		Ongoing
12	Work with regional partners to identify future regional active transportation links.	✓	✓	✓	✓		Ongoing
13	Work with regional partners to identify opportunities for and implementation of regional transit service from Morinville to regional destinations.	✓	✓	✓			Medium (Year 9-12)
14	Update Morinville Traffic Model to confirm TMP improvement strategies remain relevant and adjust the TMP as necessary (Year 6, Year 11, As Necessary).			✓			Ongoing
15	Undertake planning/design efforts for the protection of 100 Street from 100 Avenue to the North Morinville Boundary as a future 4-lane divided arterial roadway including access management.	✓		✓			High (Year 6-8)
16	Undertake functional planning of 100 Street from the railway crossing to 100 Avenue to define future access management, cross-section and right-of-way requirements as an eventual 4-lane divided roadway with upgraded pedestrian realm.	✓	✓	✓	✓	✓	High (Year 6-8)
17	Undertake transit feasibility study to identify opportunities for implementation of local transit service within Morinville.	✓	✓	✓	✓		Low (Year 13-15)

Table 6-4: Medium-Term (6-15 Year) Construction Projects

MAP ID	LOCATION	FROM	TO	IMPROVEMENTS	PRIORITY
			ACTIVE TRANSPORTATION IMPROVEMENTS		
23	CARDFF RD	94 ST	E.B.R.	- 2.0-3.0 trail on north side.	1
5	SUNSHINE	-	-	- 2.0m trail.	2
11	104 ST/99 AVE	100 AVE	RAILWAY	- 2.0-3.0m trail on west and south side.	3
12	OLD TOWNE	99 AVE	100 ST	- 3.0m trail.	3
4	CHAMPAGNE	-	-	- 2.0m trail.	4
15	99 ST	100 AVE	95 AVE	- 2.0-3.0m trail on east side.	5
3	OLD TOWNE	-	-	- 2.0-3.0m trail.	5
16	HITTINGER	-	-	- 2.0-3.0m trail.	6
1	HOULE	-	-	- 3.0m trail.	7
2	HOULE	-	-	- 3.0m trail.	7
			MULTI-MODAL IMPROVEMENTS		
6,7	100 AVE/107 ST	-	-	- Four-lane divided arterial cross-section on 100 Avenue - Construct a two-lane roundabout or signalized intersection.	Low (Year 13-15)
6,8	100 AVE/104 ST	-	-	-Four-lane divided arterial cross-section on 100 Avenue. - Construct a two-lane roundabout or signalized intersection.	Medium (Year 9-12)
6,9	100 AVE/102 ST	-	-	- Four-lane divided arterial cross-section on 100 Avenue. - Construct a two-lane roundabout or signalized intersection.	Medium (Year 9-12)
10,13,14	100 AVE/100 ST	-	-	- Four-lane divided arterial cross-section on 100 Avenue. - Construct a two-lane roundabout or signalized intersection.	High (Year 6-8)
	100 ST	100 AVE	RAILWAY	- Two-lane divided arterial cross-section. - All-directional access limited to key locations (i.e. 99 AVE, 97A AVE, etc.) - On-street parking limited to one side.	
	100 ST/ 95 AVE	-	-	- Construct roundabout or signalize.	
17, 18,19	100 ST	RAILWAY	87 AVE	- Two-lane divided arterial cross-section (Install Slab-on Median).	Low (Year 13-15)
	100 ST	87 AVE	S BUSINESS COMMERCIAL N ACCESS	- 2.0-3.0m trail on west side. - Relocate overhead flashing beacon system from 87 Ave to N access.	
	100 ST	87 AVE	CARDIFF RD	- Two-lane divided arterial cross-section.	
20,21,22	CARDIFF RD	HWY 2	94 ST	- Four-lane divided arterial cross-section.	High (Year 6-8)
	CARDIFF RD/100 ST	-	-	- Construct a two-lane roundabout; or - Intersection geometry improvements.	
	CARDIFF RD/94 ST			- Intersection upgrades + Signalization (If warranted).	

Figure 6-3: Medium-Term (6-15 Year) Improvements



6.3 LONG-TERM (16-25 YEARS)

In the long-term horizon, the bulk of the Action Items are focused on ongoing/annual efforts required to manage/oversee/coordinate a successful transportation network in keeping with Morinville's and their regional partners vision, goals and objectives for the future. From a construction perspective the greater emphasis is on monitoring and implementing intersection upgrades when they become warranted, which is discussed in **Section 6.4 (pg 85)**.

It is noted that in the medium-term horizon, the active transportation projects have been ranked from the highest to lowest priority, with a ranking of 1 being the highest priority. These rankings are directly influenced by feedback received from the community during the first round of public engagement.

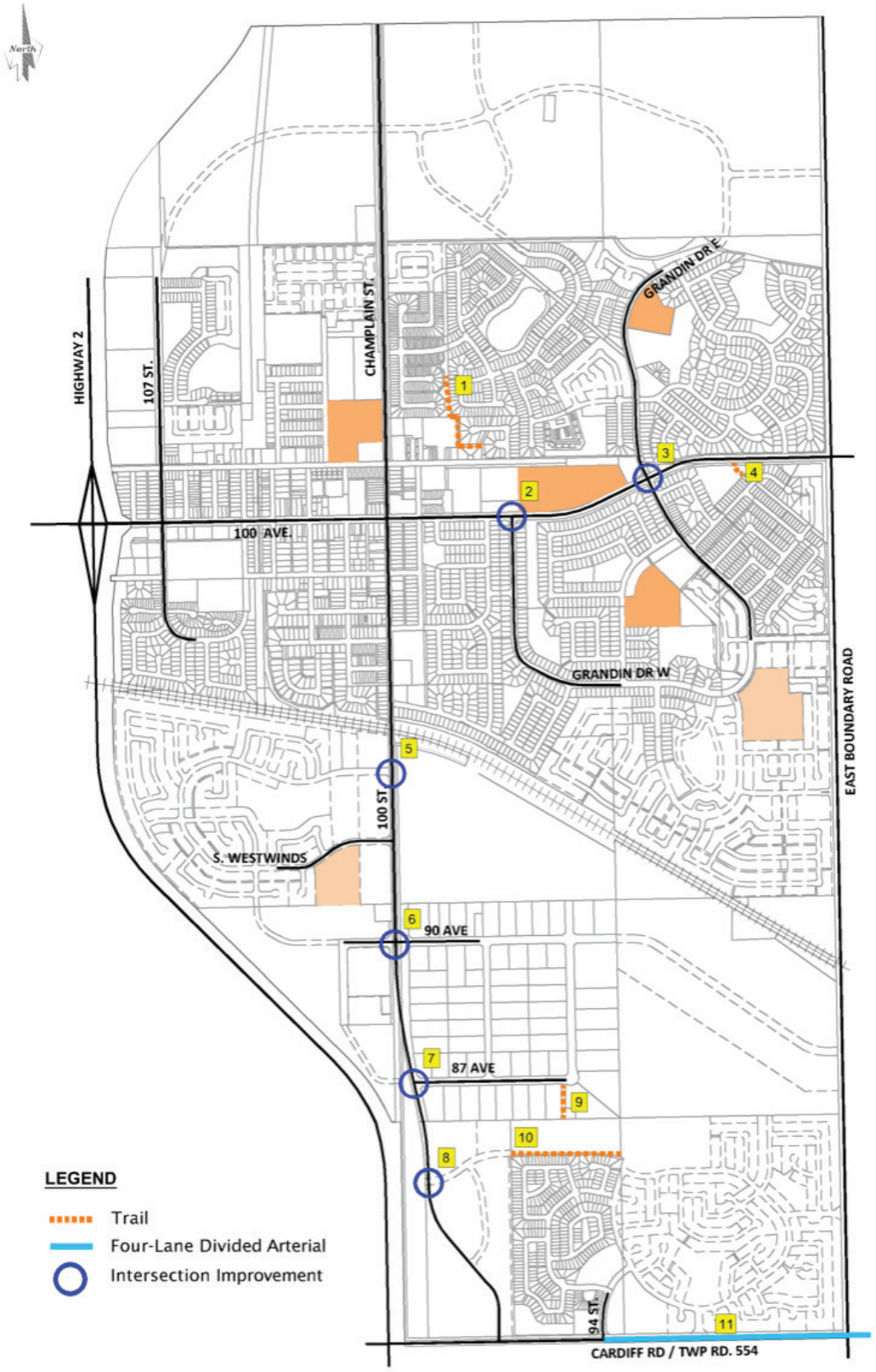
Table 6-5: Long-Term (16-25 Year) Action Items

	ACTION ITEM	ALIGNED WITH GOALS					PRIORITY
		1	2	3	4	5	
1	Incorporate the TMP Improvement Strategies into Town's Annual & Long Range Capital Plan (Annually).	✓	✓	✓	✓	✓	Ongoing
2	Partner with community leaders to achieve the TMP Vision.	✓	✓	✓	✓	✓	Ongoing
3	Work with Edmonton Metropolitan Region Board (EMRB) to align and implement the Town's TMP and EMRB's Integrated Regional Transportation Master Plan.	✓	✓				Ongoing
4	Update Traffic Safety Plan.				✓		Ongoing
5	Monitor greenhouse gas emissions and reduction targets related to transportation.			✓			Ongoing
6	Advocate for upgrades to Highway 642 through Morinville following update of Highway 642 FPS (until complete).	✓	✓	✓	✓	✓	Ongoing
7	Undertake design & construction of active transportation links identified in the TMP.	✓	✓	✓	✓		Ongoing
8	Work with community partners to secure lands and implement active transportation network links to key destinations in the community.	✓	✓	✓	✓		Ongoing
9	Work with regional partners to identify future regional active transportation links.	✓	✓	✓	✓		Ongoing
10	Work with regional partners to identify opportunities for and implementation of regional transit service from Morinville to regional destinations.	✓	✓	✓			Ongoing
11	Update Morinville Traffic Model to confirm TMP improvement strategies remain relevant and adjust the TMP as necessary (Year 16, Year 21, Year 26, As Necessary).			✓			Ongoing
12	Undertake transit feasibility study to identify opportunities for or implementation of local transit service within Morinville.	✓	✓	✓	✓		High (Year 16-18)
13	Develop Intelligent Transportation Systems Strategy.		✓	✓			High (Year 16-18)

Table 6-6: Long-Term (16-25 Year) Construction Projects

MAP ID	LOCATION	FROM	TO	IMPROVEMENTS	PRIORITY
			ACTIVE TRANSPORTATION		
1	CHAMPAGNE	-	-	- 2.0-3.0m trail.	1
9	-	-	-	- 2.0-3.0m trail.	2
10	SOUTH GLENS	-	-	- 2.0-3.0m trail.	3
4	GRANDIN HEIGHTS	-	-	- 2.0-3.0m trail. - Install a midblock overhead flashing beacon system for pedestrians.	4
			MULTI-MODAL IMPROVEMENTS		
2	100 AVE/ GRANDIN DR. W	-	-	- Construct a two-lane roundabout; or - Convert to right in/right out.	As warranted
3	100 AVE/ GRANDIN DR. E	-	-	- Construct a two-lane roundabout; or - Install a traffic signal/intersection upgrades.	As warranted
5	100 ST/N. WESTWIND ACCESS	-	-	- Make provisions for a traffic signal and install when warranted.	As warranted
6	100 ST/90 AVE	-	-	- Make provisions for a traffic signal and install when warranted.	As warranted
7	100 ST/87 AVE	-	-	- Make provisions for a traffic signal and install when warranted.	As warranted
8	100 ST/SOUTH BUSINESS COMMERCIAL N. ACCESS	-	-	- Make provisions for a traffic signal and install when warranted.	As warranted
11	CARDIFF RD	94 ST	E.B.R.	- Four-lane divided arterial cross-section.	Low (Year 23-25)

Figure 6-4: Long-Term (16-25 Year) Improvements



6.4 EVALUATION

The success of the TMP will be measured primarily through the implementation of the action items and completion of the identified construction projects over the course of the next 25 years. However, success will also be based on specific measurables such as level of service, volume-to-capacity, collision reductions, greenhouse gas emissions, and mode split to alternative transportation (i.e. transit, walking, cycling). Critical to these measurables is data collection, which not only assists in understanding where the community is at any given time, but also in establishing baselines and achievable goals for mode split and greenhouse gas emissions or confirming when improvements are required.

While the TMP establishes the anticipated roadway improvements in each horizon, it is based on the best information available at the time the TMP was prepared. If the rate of development differs from the estimated rates used in the TMP, or acceleration in technologies impact the way we travel, the need for certain improvements may be accelerated or decelerated. In the short-term (0-5 year) horizon, establishing a data collection program for daily volumes on arterial roadways and turning movement volumes at key arterial/arterial and arterial/collector roadways will be critical to monitoring transportation network performance and identifying when improvements are required based on level of service and volume-to-capacity standards, and various triggers/thresholds.

TRIGGERS & THRESHOLDS

ROADWAY CROSS-SECTIONS

Daily volumes provide guidance on the roadway cross-sections required to accommodate traffic volumes. Intersection operations along corridors provides additional information regarding the potential roadway geometry and traffic control required to accommodate traffic volumes.

The estimated volume thresholds by roadway classification are:

ROADWAY CROSS-SECTION	ESTIMATED VOLUME THRESHOLD
Local	Up to 1,000 vpd
Collector	Up to 5,000 vpd[1]
2-Lane Undivided Arterial	Up to 12,000 vpd
2-Lane Divided Arterial[2] or 4-Lane Undivided Arterial	12,000 vpd to 25,000 vpd
4-Lane Divided Arterial	16,000 vpd to 40,000 vpd

[1]Greater with mitigation measures such as removal of on-street parking or implementation of roundabouts or turn bays at intersections.

[2]Assumes opportunity to develop left turn bays at intersections and accesses.

INTERSECTION OPERATIONS

Intersection operations are typically rated by two measures. The volume to capacity (v/c) ratio describes the extent to which the traffic volumes can be accommodated by the physical capacity of the road configuration and signal control. A value (measured during the peak hour) less than 0.90 indicates that generally, there is sufficient capacity and projected traffic volumes can be accommodated at the intersection. A value between 0.90 and 1.0 suggests unstable operations may occur and volumes are nearing capacity conditions. A calculated value over 1.0 indicates that traffic volumes are theoretically exceeding capacity. The second measure of performance, Level of Service (LOS), is based on the estimated average delay per vehicle among all traffic passing through the intersection. A low average delay merits a LOS A rating. Average delays greater than 80 seconds per vehicle generally produce a LOS F rating for signalization intersections, while average delays greater than 50 seconds per vehicle generally produce a LOS F rating for unsignalized intersections.

Morinville does not currently have recommended design thresholds. For comparison purposes, the City of St. Albert's design threshold is LOS D for intersections, with LOS E considered acceptable for individual movements such as left turns. Where these thresholds are exceeded, improvements to geometry and/or traffic control should be considered. Geometry and traffic control improvements are generally incorporated at arterial roadway intersections where v/c ratios exceed 0.90 or delays result in LOS F. At collector intersections, improvements are typically identified where both conditions are met.

Currently, as a smaller urban centre than St. Albert, these design thresholds may not be acceptable to residents; however, as the community continues to grow, drivers are likely to accept greater delays. As a subsequent undertaking beyond the TMP, Morinville should establish local design thresholds.

TRAFFIC SIGNAL IMPLEMENTATION

The Transportation Association of Canada's (TAC) Traffic Signal Warrant Analysis provides an industry standard methodology/calculation for determining if traffic signals are warranted at an intersection. The TAC warrant matrix procedure uses six hours of traffic volume data: AM, midday, and PM, to determine the requirements for signalization. When an analysis score is higher than 100, traffic signalization is warranted at the intersection. However, if the six-hour side street traffic is below 75 vehicles, then traffic signalization should not typically be considered, even if an analysis score higher than 100 is achieved.

Some jurisdictions develop their own guidelines for traffic signal implementation. Guidelines may include operational criteria (traffic volumes, delays, geometry, queues, volume to capacity ratios, levels of service, etc.) and strategic criteria (intersection spacing, roadway hierarchy, neighbourhood impacts, alternate routes, etc.) to assess the need for signalization.

In the short-term, Morinville should utilize the TAC warrant to determine if traffic signals are required at any given location. When undertaking the development of design thresholds, Morinville can consider whether to develop a local traffic signal warrant.

It is noted that for locations where future roundabouts are planned and the traffic signal warrant is met, this would indicate that construction of the roundabout is warranted.

6.5 FUNDING

Each year, Morinville prepares a three-year operating budget and a 20-year capital plan. Funding sources available to the town include utility reserves, partnerships, offsite levies, capital grants and municipal capital reserves. The town's *Offsite Levy Bylaw*, which was approved by Council in 2018, outlines developer contributions for future roadway upgrades.

When preparing the 2021 three-year operating budget and 20-year capital plan, the recommended improvements and action items identified in the TMP should be incorporated. In addition, the Offsite Levy Bylaw will need to be revisited and adjusted based on the TMP. Planning level costs estimates for the recommended TMP action items and anticipated roadway improvements are included in **Appendix B**.

Over the next 25 years, an estimated $59.5M (2019 dollars) of funding will be required to implement the recommendations for the TMP, broken down as follows:

TIMEFRAME	CONSTRUCTION PROJECTS	ACTION ITEMS (I.E. PLANNING, POLICIES,	SUB-TOTAL	AVERAGE ANNUAL EXPENDITURE
Short-term	$15M	$1M	$16M	$3.2M
Medium-term	$29M	$1M	$30M	$3.0M
Long-term	$13M	$0.5M	$13.5M	$1.4M
TOTAL	**$57M**	**$2.5M**	**$59.5M**	**$2.4M**

This is an ambitious plan and fiscal realities may impede the town's ability to achieve the TMP recommendations within the exact timeframes identified. When dealing with funding constraints, the primary focus should be on the recommendations identified as high priority. Recognizing Morinville's fiscal responsibilities, the collection and monitoring of traffic volumes on the town's arterial roads and at key intersections is key to making data driven decisions based on accurate measurements.

6.6 CLOSURE

The TMP represents a 25-year vision for Morinville's transportation network taking the community to the year 2045. There is the potential for great change between now and 2045, and the TMP is key in preparing Morinville for the future as well as addressing the needs of today. The private automobile is and will continue to be an important aspect of transportation in the community; however, there is the opportunity to provide a more inclusive transportation network that recognizes the importance of transit, walking and cycling, meets the mobility needs of all residents, and sets Morinville down the path of realizing the sustainability goals for the community. The TMP should be periodically revisited (i.e. every 5 years or sooner) to confirm that it remains relevant and reflective of the community's needs.

APPENDIX A

TRANSPORTATION MODEL SUMMARY

APPENDIX B

COST ESTIMATES

APPENDIX C

WHAT WE HEARD

Morinville

Growing Together