

TRANSPORTATION MASTER PLAN

2025





The 2025 Transportation Master Plan outlines the City of Leduc's forward-looking approach to the long-term development, management, and enhancement of its transportation network. As the City grows into a more vibrant and economically significant regional hub, this plan responds to evolving mobility demands by promoting a safe, reliable, and multimodal transportation system.

TERMS AND DEFINITIONS

- Below are the terms and definitions used throughout this Transportation Master Plan
- ASP Area Structure Plan
- ATS Accessible Transportation Service
- BRT Bus Rapid Transit
- CCARP City Centre Area Redevelopment Plan
- City City of Leduc
- Community City of Leduc
- CPKC Canadian Pacific Kansas City Limited
- QE II Queen Elizabeth II
- EMRB Edmonton Metropolitan Region Board
- EMRGP Edmonton Metropolitan Region Growth Plan
- IRTMP Integrated Regional Transportation Master Plan
- LOS Level of Service
- MDP Municipal Development Plan
- POST Parks, Open Spaces and Trails
- Province Government of Alberta
- Region Edmonton Metropolitan Region
- ROW Right-of-way
- TAC Transportation Advisory Committee
- TEC Alberta Transportation and Economic Corridors
- TMP Transportation Master Plan
- vpd vehicles per day
- vph vehicles per hour
- v/c volume-to-capacity



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EXECUTIVE SUMMARY

The 2025 Transportation Master Plan outlines the City of Leduc's forward-looking approach to the long-term development, management, and enhancement of its transportation network. As the City grows into a more vibrant and economically significant regional hub, this plan responds to evolving mobility demands by promoting a safe, reliable, and multimodal transportation system.

Since the adoption of the previous TMP in 2018, the City has grown by approximately 10% and has made several major infrastructure investments, including the initial phase of the 65 Avenue Interchange. This updated TMP builds upon the City's 2018 plan and is closely aligned with the City's MDP, 2023-2026 Strategic Plan, and broader regional transportation strategies.

Developed through a multi-phased process of analysis and engagement, the TMP provides a robust framework for guiding infrastructure investments, coordinating land use planning, and supporting long-term economic development. By integrating transportation planning with growth management and community goals, the TMP ensures that the transportation system remains responsive to demographic shifts, economic drivers, and development pressures across the City and the surrounding region.

> The TMP's purpose is to ensure infrastructure planning aligns with anticipated growth, enabling the city to prioritize improvements, coordinate capital investments, and support the implementation of offsite levies.

WHAT WE HEARD

Public and stakeholder engagement shaped the TMP to ensure the plan reflects community values and priorities. Engagement activities included online tools (e.g., Vertisee map), bike tours, and surveys.

Key community insights include:

- Active Transportation: Strong demand for better sidewalks, crosswalks, trails, and multiway connectivity. Safety concerns near schools and busy corridors were prevalent.
- Speeding and Noise Concerns: Residential speeding and surface transportation noise were major concerns, resulting in support for the City's implementation of a 40 km/h city-wide residential speed limit.
- Road Network Improvements: Support for new highway connections (e.g., 65 Avenue Interchange) and concerns about congestion at key corridors like 50 Avenue and Highway 2A interchanges.
- **Bike Tour Feedback:** Emphasized the need for safer, better-connected cycling facilities and wayfinding enhancements across the city.

Community feedback directly informed active transportation planning, road network improvements, and noise mitigation strategies within the TMP.

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VISION AND PLAN OBJECTIVES

The TMP is guided by a vision for a safe, reliable, and multi-modal transportation system supporting livability, economic prosperity, and environmental preservation.

Four main objectives guide the plan:

ENHANCED CONNECTIVITY

Strengthening local and regional linkages to support accessibility, mobility choices, and economic development.

EFFICIENT AND SUSTAINABLE GROWTH

Ensuring transportation infrastructure supports compact, mixed-use development and environmental goals.

OPTIMIZED TRANSPORTATION SYSTEMS

Improving the safety, reliability, and user experience across all modes of transportation.

EFFECTIVE NETWORK MANAGEMENT

Leveraging data and technology for proactive maintenance, strategic investment, and climate resilience.

CONNECTING LEDUC

The City's growth is expanding southward and westward, with major commercial and residential developments on the horizon. To support this expansion, key network upgrades and robust citywide connections will be essential. The key TMP recommendations include:

ACTIVE TRANSPORTATION

- Expanded Multiway Network: Address missing and substandard links, and create new multiway connections, especially linking west and east Leduc (see Figure ES-1).
- Pedestrian Safety Enhancements: Prioritize sidewalk and crosswalk improvements, such as pedestrian bulb-outs, near schools, parks, and high pedestrian volume areas.
- Trail System Enhancements: Strengthen recreational trails, particularly around Telford Lake and new growth areas.

DOWNTOWN CORRIDOR ENHANCEMENTS

- Access Consolidation: Improve vehicle operations and pedestrian safety through the consolidation of accesses along 50 Avenue, where feasible.
- Safety Management: Conduct video-based conflict analysis to better understand and manage safety risks through the downtown area.
- Alignment with UCRP: Coordinate transportation projects within the downtown area with the UCRP to ensure alignment with redevelopment plans.

ROADWAY NOISE

 Noise Monitoring and Mitigation: Ongoing monitoring of roadway noise levels near residential areas, with mitigation measures considered where feasbile guided by the updated Surface Transportation Noise Policy.

ROADWAY NETWORK

- Highway Connections: Enhance regional connections through the future realignment of Highway 2A and Phase 2 construction of the 65 Avenue Interchange.
- Major Corridor & Intersection Enhancements: Improve roadway capacity and safety through targeted improvements such as corridor widening and intersection improvements to reduce congestion and support growth.
- Access Management: Maintain effective access management along the City's arterial roadways by minimizing conflict points, installing centre medians and applying the latest access management guidelines and best practices.

RAIL & GOODS MOVEMENT

- Rail Safety: Ongoing monitoring of rail crossing safety and traffic operations, and if required, coordinate with the Rail Authority to determine suitable mitigation measures.
- Highway Advocacy: Continued collaboration with TEC on the realignment of the Highway 2A corridor to facilitate the City's long-term growth, enhance regional connectivity and support the efficient movement of goods and people.

While the TMP identifies a transportation network that support current and future transit service, the detailed planning of transit routes, service levels, and operations is undertaken through a separate transit-specific planning process.

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Figure ES-1: Multiway Network

TRANSFORMING TRANSPORTATION IN LEDUC

The TMP also outlines a Capital Improvement Plan that includes road projects prioritized based on alignment with growth areas, anticipated network performance needs, and safety considerations.

Figure ES-2 highlights the recommended short-, medium-, and long-term network improvements to support the City's growth, enhance confectivity and improver iba Masity of the for residents and businesses.

In addition to the identified priorities, the TMP also considers potential network upgrades beyond the long-term horizon, including conceptual improvements that may be required to accommodate future development or evolving travel demands. Potential future regional improvements, such as Highway 2 upgrades, are also highlighted to ensure the City remains well positioned within the broader regional transportation network.

The next step of the TMP should focus on advancing the implementation of short-term priorities (see Table ES-1) to address immediate needs and lay the foundation for longer-term network improvements. Together, the TMP provides a flexible, strategic roadmap to guide infrastructure investment, support sustainable growth, and ensure the City continues to be a safe, connected, and vibrant community into the future.

Corridor	Segment	Recommended Short-Term Action
74 Street and 50 Avenue	-	Intersection Upgrade - Roundabout
74 Street	50 Ave to Crystal Creek Collector	New Rural 2-Lane Undivided
65 Avenue West	74 Street to Grant MacEwan Boulevard	New Rural 2-Lane Undivided
Coady Boulevard	Meadowview Boulevard to Pioneer Road	New Urban 4-Lane Undivided
Pioneer Road, Stage 2	Meadowview Way to Coady Boulevard	New First Half of Urban 4-Lane Divided
Pioneer Road, Stage 3	Coady Boulevard to C.W. Gaetz Road	New First Half of Urban 4-Lane Divided
Grant MacEwan Boulevard	Black Gold Drive to Spruce Boulevard/Windrose Drive South	Upgrade Rural 2-Lane Undivided to urban 4-Lane Divided
C.W Gaetz Road and Rollyview Road	-	Intersection Upgrade - Roundabout *Timeline contingent on development progress in surrounding neighbourhoods.

Table ES-1: Recommended Short-Term Improvements



Figure ES-2: Recommended Network Improvements

INTRODUCTION

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1. INTRODUCTION

The City of Leduc is a growing and dynamic community located south of the City of Edmonton. With a population of over 36,000 people, Leduc is home to a range of residential and established industrial development.

The city's proximity to EIA and neighbouring communities, including Edmonton and Leduc County, in combination with direct connections to Highway 2, provide residents and visitors easy access to city amenities, recreation and cultural attractions. The City serves as an economic hub for the Region, driven by growth in energy, advance manufacturing and logistics. As the City continues to grow and evolve, the changing dynamics of population growth, new transportation infrastructure and economic development will place increased pressures on the City's transportation network in the coming years.

As part of the City's commitment to fostering a well-connected and accessible transportation network, the TMP update aims to address emerging transportation challenges and seize opportunities to enhance the transportation infrastructure and services that meet residents' needs, and support economic prosperity and community well-being. The TMP update provides a strategic framework to guide decision-making, inform infrastructure investments and implement transportation policies that will create a transportation system that is resilient, adaptable, and responsive to the changing dynamics of the City and the surrounding region. The City undertakes a TMP approximately every seven years, a required plan to support offsite levy updates and ensure that the long-term infrastructure planning aligns with projected growth. While the TMP considers transit in terms of overall transportation mode choice and system integration, it does not provide detailed transit route planning, which is managed separately by the City's transit department.

The City's previous TMP was adopted in 2018 and provided recommendations for the road network over the short-, medium- and long-term. Since that time, Leduc has grown by over 10% and the City has made several key transportation investments including completion of 74 Street (north of 50 Avenue), Spine Road upgrades (north of 65 Avenue) as well as advancing the first phase of the 65 Avenue Interchange project. In addition to these projects, several planning and policy initiatives, such as the POST Master Plan, have increasingly emphasized integrating active transportation options.

This TMP establishes a forward-looking framework to guide the City in building a safe, connected, and efficient transportation network that supports future growth, improves multi-modal mobility, and reinforces its role in the regional transportation system.

1.1 TRANSPORTATION PLAN PROCESS

The TMP is a comprehensive, long-term strategy that guides the planning, development, and management of its road and active transportation network. It was developed through a phased approach, incorporating comprehensive traffic analysis and balanced community engagement.

- Phase 1 The first phase of the TMP process, conducted between Spring 2023 and Fall 2023, confirmed the transportation issues, needs, and aspirations of the City. This was achieved through a thorough review of the City's statutory and non-statutory documents such as the MDP, and a detailed assessment of the transportation network relative to existing traffic conditions, road classification, goods movement, active transportation network, and transit. Public engagement was also conducted through an online platform to gather input from residents on the current transportation issues and needs for growth. A noise assessment was also conducted to evaluate the current noise level along key roadways in the city. The findings guide the City in identifying areas where transportation-related noise impacts should be mitigated.
- Phase 2 Phase 2 of the TMP confirmed the City's growth plans and the impacts to the transportation network. This was achieved through a comprehensive update of the City's travel demand model and detailed operational analyses of future conditions, including roundabout analysis for three candidate locations. The outcome of the technical review and public engagement guided the development of road improvements to address areas of congestion and operational constraints. Stakeholder and focus-group engagement were also conducted to assess the preliminary directions of active transportation and transit in the city.
- Phase 3 The last phase of the TMP focused on developing strategic transportation directions and actions to support the City's growth initiatives and goals. Transportation projects were refined and prioritized to meet Leduc's long-term needs, resulting in the development of a Capital Plan and Implementation Plan. The Capital Plan distinguished between growthrelated infrastructure requirements, which is funded through offsite levies, and communitydriven improvements to existing infrastructure. Enhancements such as active transportation facilities, are typically funded through general taxation are typically funded through general taxation.



PHASE 1 - WHERE ARE WE NOW?

Understanding current issues, needs and opportunities in Leduc, including the Noise Assessment.

PHASE 2 - WHERE DO WE WANT TO GO?

Creating common vision on how the City will evolve with growth and where we want to be.

PHASE 3 - HOW DO WE GET THERE

Aligning related programs to help growth initiatives, efforts and strategic investments with the Transportation Master Plan.

2 WHAT WE HEARD



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2. WHAT WE HEARD

2.1. ENGAGEMENT PROCESS

Public and stakeholder engagement was fundamental in shaping this TMP to ensure the outcomes reflect the diverse needs of the City. Two rounds of community engagement were conducted with various interest groups, including the public, focus groups, and City stakeholders.

A range of engagement tools and activities were used to solicit feedback, including social media releases and the City's project website. Other engagement activities were conducted through a mix of in-person, and virtual meetings, a bike tour, and online feedback through the use of Vertisee—an interactive web-based map that allowed participants to post comments geographically.

During the bike tour, respondents received a short questionnaire that discussed design considerations and asked them to highlight specific issues they encounter travelling through the community.

WHAT WE ASKED

- What principles should drive transportation investments as the City grows?
- How do people currently move around the City of Leduc?
- What is working well, and what could be improved?
- What would you like to see more or less of?
- What advantages currently exist?

2.2. COMMUNITY INSIGHT

VERTISEE RESULTS

The online Vertisee map received a total of 610 submissions, with each submission categorized based on pre-defined feedback types. In some cases, a single respondent provided several similar comments along a corridor. To ensure a balanced representation of the community's perspective on the transportation network, similar individual responses were consolidated into a single comment. Following this synthesis, the total number of submissions narrowed to 478 with the following categories and number of responses (in brackets):

- New Crosswalk Opportunity (20)
- New Sidewalk Opportunity (29)
- New Trail Opportunity (37)
- Noise Concern (38)
- Other (36)
- Other Transportation Issue (22)
- Pedestrian Safety Concern (55)
- Road Safety Concern (54)
- Sightline Concern (15)
- Speed Concern (77)
- Traffic Congestion (37)
- Trail Issue (11)
- Trail Opportunity (17)
- Transit Improvements (30)

While the engagement platform required the user to pick one of the above 14 categories, many comments touched on multiple aspects of transportation. As such, some comments did not fall neatly into any of the pre-defined categories. To mitigate this limitation, the project team further summarized the overarching themes to highlight key takeaways and patterns. The following themes provided guidance on where to focus efforts on the TMP.

ACTIVE TRANSPORTATION

Crosswalks, Sidewalks, Multiway and Recreational Trails

Crosswalk and sidewalk comments primarily involve filling missing links within the existing network or building connections within industrial areas. Missing links include installing new sidewalks and crosswalks within existing neighbourhoods to connect existing networks. Respondents also discussed existing crosswalks and sidewalks that could be improved or maintained. These included crosswalks near schools and sidewalks at busy intersections. In general, pedestrian safety also rose as a major concern throughout the active transportation networks, further supporting the need for the TMP to focus efforts to ensure active modes users are able to safely travel throughout Leduc.

Respondents also commented on potential trail improvements around Telford Lake and in new developments. Comments also recommended developing additional trail systems through Deer Valley and between Suntree and West Haven.

The TMP provides a high-level framework for guiding the City's transportation network. As such, more detailed or localized feedback was considered and, where possible, integrated into the planning process. This theme was clearly understood as a community priority. As one outcome of this feedback, significant coordination with the Recreation and Community Development department was integrated into the project work. The City's multiway network was reviewed extensively to provide a plan forward for a well connected active transportation network.

SURFACE TRANSPORTATION NOISE & SPEEDING

Speeding was one of the most discussed concerns among respondents. Complaints focused on residential areas and were not specific to any particular neighbourhood. Speeds along major corridors were noted such as on Black Gold Drive and Bridgeport Boulevard, and near playgrounds, schools, and other designated 'slow' areas. Where speeding is a concern, some respondents encourage traffic calming improvements like road narrowing, sidewalk extensions, and raised crossings.

Comments concerning noise focused on residential connector roads, and in many cases, the same roads that also received speeding complaints. Comments specifically mentioned larger passenger vehicles and motorbikes, especially during late night hours. Some of the roadways where noise was noted as a concern, were near partially developed areas of the city, such as 38 Avenue, where low traffic volumes and limited adjacent residences were present.

As a result of this outcome, extensive noise monitoring was completed as well as providing support to the implementation of residential speed reduction to 40 km/h. During the course of this project, the speed reduction was successfully implemented. Further discussion on the outcomes of the noise monitoring scope of work can be found in Section 5.5.

OVERALL TRANSPORTATION CORRIDOR COMMENTS

Several comments were also provided on various specific transportation corridors. Some of the comments were for the planning of future roadways, which was consistent with the City's future plans, such as construction of additional roadways in the growth areas west of Highway 2. Residents indicated the need for additional connections to Highway 2 by way of 65 Avenue, Discovery Way and Grant MacEwan Boulevard, which was all part of the 65 Interchange project, showing alignment with the City's transportation investments. Other comments surrounded the safety of the Highway 2 and Highway 2A interchange, which became a focal point of the transportation modelling efforts to support the City's advocacy with the province for improvements to these corridors and interchanges.

BIKE TOUR

Participants joined a 14 km bike tour starting and ending at Telford House. The route passed through South Telford, the Leduc Recreation Centre, Caledonia Park, Southfork, Corinthia Park, Leduc Estates, and Downtown, providing an opportunity to identify active transportation challenges.

During the bike tour, attendees provided feedback on ways to improve active transportation. While their comments reflected unique geographic context, they collectively emphasized key themes centered on improving safety, supporting amenities, wayfinding and network connectivity. As a result of the feedback provided, the TMP provides strategic directions to support inclusive, connected and accessible active transportation networks. This information was also passed along to other departments to prioritize areas where many concerns were noted. In addition to the information sharing and strategic directions, a clear multiway network was established to prioritize investment and ensure the safe travel of all modes of transportation across the community.

PLAN OBJECTIVES

3. PLAN OBJECTIVES

The updated TMP includes a robust decision-making framework that identifies transportation investment priorities over the long-term horizon. This framework builds on the *Transportation and Mobility* goal identified in the MDP, as well as the four main goals of the Strategic Plan.



"The City of Leduc will provide safe and reliable multi-modal transportation to the region and all parts of the city for all users." (Municipal Development Plan, 2022)

Strategic Plan Goals



A collaborative community-builder and regional partner. The following objectives were identified to ensure this TMP provides the framework to achieve the City's vision and meet the City's transportation needs. While not every MDP policy is highlighted below, several of the policies directly linked to the transportation network are identified. Where relevant, this TMP aims to align and comply with the MDP and its overall policy direction.

ENHANCED CONNECTIVITY

This objective focuses on creating a well-connected transportation network that links residents, businesses, and regional destinations. By improving connectivity within the city and with the surrounding area, the City can:

- Encourage the provision of choice between active transportation modes, the private automobile, and transit.
 >> MDP Alignment MDP Policy 2.5.1.11
- Encourage connectivity between the EIA, Highway 2, the CPKC Rail (formerly CP Rail) and industrial and business park areas. >> MDP Alignment - MDP Policy 2.5.1.12
- Support economic development by ensuring logistic hubs and businesses are easily accessbile.

EFFICIENT AND SUSTAINABLE GROWTH

Efficient and sustainable growth ensures that transportation infrastructure aligns with the City's land-use goals and environmental priorities. Key elements include:

- Encourage the development of a more compact mixed use urban form in order to efficiently utilize existing transportation infrastructure. >> MDP Alignment - MDP Policy 2.5.1.10
- Encourage the use of active transportation and transit through the integration of multi-modal infrastructure into the overall transportation network. >> MDP Alignment - MDP Policy 2.5.1.8
- Prioritize infrastructure projects that are cost-effective, and balances growth and environmental preservation.
- Support long-term growth by anticipating future demands and integrating innovative solutions.

OPTIMIZED TRANSPORTATION SYSTEMS

This objective emphasizes the development of a transportation network that is safe, reliable and user-friendly. Strategies include:

- Optimize the use of existing municipal infrastructure and plan for future growth through timely maintenance and renewal programs.
- Implement physical and operational measures that enhance safety and accessibility for all users.
- Leverage emerging technologies to improve traffic flow, reduce congestion and provide real-time information to users.

EFFECTIVE NETWORK MANAGEMENT

Effective network management ensures the City's transportation system is maintained, operated, and upgraded efficiently. This involves:

- Continue to implement proactive maintenance programs to extend the lifespan of transportation
 infrastructure and reduce lifecycle costs.
- · Strategic prioritization of investments based on data-driven assessments of current and future needs.
- Ensure the network is resilient to changing conditions, such as population growth, climate impacts, and technological advancements.

RELEVANT PLANS AND INITIATIVES

4. RELEVANT PLANS AND INITIATIVES

The TMP provides a holistic and integrated vision for the transportation system within the City. It must align with current and ongoing City and regional plans, initiatives and policies to ensure that future transportation planning supports the broader goals and priorities of Leduc.

A consistent and coordinated approach will lead to better resource allocation, stakeholder and community support, integration of land use and transportation, and long-term success in meeting the community's transportation needs. The following sections highlight the key City and Regional plans and initiatives that inform the TMP.

4.1. CITY PLANS AND INITIATIVES

There are several documents that have an important relationship with a TMP. Beginning with the Municipal Government Act, most planning documents fall under a document hierarchy as shown in Figure 1. It is important to recognize that many of these documents were completed and approved based on the best known information at the time of creation. In particutlar, transportation planning documents often rely on assumptions that may change as new information becomes available—such as updated traffic forecasts, population and employment projections or other emerging development plans in the region. The relationship between each plan and the TMP is further discussed within this section.



AND PRELIMINARY / DETAILED ENGINEERING PLANS

Figure 1: Hierarchy of City Statutory and Non-Statutory Plans

MUNICIPAL DEVELOPMENT PLAN (MDP) 2020

The City's most recent MDP, approved in 2020 (and amended in 2022), is a statutory plan adopted by bylaw. It is a high-level, long-range planning document used by Leduc City Council and City administration, and provides policies and objectives for how the City will achieve it's goals through land use decisions (see Figure 2), development management and investment in infrastructure and programs.

The MDP's policies and assumptions were incorporated into the technical analysis to identify the City's long-range transportation needs. As provided in the previous chapter, several of the policies directly informed the technical efforts of the TMP, however, it is recognized that several additional policies may indirectly influence the transportation network. These policies were also considered in shaping the overall direction of this plan to ensure overall alignment with the MDP.

While mode shift can be difficult to predict and plan for on a technical level, this TMP complies with the MDP's direction by promoting a multimodal network that helps reduce greenhouse gas (GHG) emissions and encourages economic development through enhanced transportation options.

CITY BYLAWS

Several City bylaws, including the traffic bylaw, speed bylaw, land use bylaw, and offsite levy bylaw, establish the regulatory framework for traffic, zoning, and development. The technical information within the TMP, transportation technical documents and other master plans provides important background information for the creation of these bylaws. The TMP update is guided by these bylaws and complies with their direction while verifying that these bylaws are up to date and achieving the City's transportation vision. While the TMP may identify potential changes to the road network based on technical recommendations, any such recommendation could be subject to further review and considered through bylaw amendment processes and Council approval.

AREA STRUCTURE PLANS (ASP) & OUTLINE PLANS

The City has approved multiple ASPs and Outline Plans that are statuary plans adopted by bylaw and must be followed for subdivision development. During the completion of these ASPs and Outline plans, technical information is used from the current TMP or other transportation technical documents. For example, often citywide traffic information is required to develop the transportation network and ensure safe and fluid transportation systems. As these plans are adopted by Council, the information from these neighbourhood level planning documents is retained when updating the TMP or other Master Plans. The TMP is a citywide plan therefore it must not only consider ASPs on an individual level, but also on an overall network level. This ensures the transportation network can support the development of these new and redeveloped areas.



Figure 2: MDP Land Use Policy Areas

2023 – 2026 STRATEGIC PLAN

The Strategic Plan sets out the framework to achieve the City's vision for 'A great life. A caring community. A thriving region.', and provides guidance for governance, community development, infrastructure, and program and service delivery. The direction of the TMP builds on the four main goals and corresponding strategies outlined in the Strategic Plan.

The Strategic Plan outlines several strategies that are relevant to the TMP, including:

- Enhance citizen engagement to shape the community
- Enhance community safety and well-being
- Optimize the use of existing municipal infrastructure and plan for future growth
- Ensure that the City of Leduc has clear plans and strategies, supported by emerging technologies, to improve the efficiency and effectiveness of services and programs
- Develop complete communities that are affordable, accessible and diverse as a means of promoting community vibrancy and reducing municipal costs
- Increase economic growth and diversification by leveraging partnerships and opportunities
- Build community capacity and improve the efficiency and effectiveness of municipal programs, services and infrastructure by working collaboratively with other stakeholders
- Identify and implement innovative initiatives by leveraging new and existing partnerships

2018 TRANSPORTATION MASTER PLAN

The City's 2018 TMP is the overarching plan that provides strategic direction for achieving a multi-modal transportation system through integration with land use planning, local social / environmental / economic initiatives and regional initiatives. The 2018 TMP recommended several short-, medium- and long-term network improvements to address future needs and the City has implemented some of these improvements, including the widening of Grant MacEwan Boulevard and the new 74 Street connection. The TMP update builds upon the 2018 TMP recommendations and identifies new and/or revised strategies and programs that are reflective of the City's evolving growth, changing mobility landscape, and economic direction. The 2018 TMP also included several corridor functional planning studies including:

- 42/43 Street from 70 Avenue to 82 Avenue
- Grant MacEwan Boulevard from Southwest Boundary Road to 65 Avenue
- Black Gold Drive from Grant MacEwan Boulevard to 50 Street
- Southeast Boundary Road (Pioneer Road) from Highway 2A to C.W. Gaetz Road
- Southwest Boundary Road from 74 Street to Grant MacEwan Boulevard
- 65 Avenue East from 45 Street to Spine Road
- 65 Avenue West from 74 Street to Discovery Way

PARKS, OPEN SPACE & TRAILS (POST) MASTER PLAN

Updated in 2020, the POST Master Plan provides an updated vision and framework to direct the planning, design and operations of the City's parks, open space and trails network over the next 10 years. The plan reflects updated community engagement, future development and current City strategies, policies and plans. An implementation plan was also developed to guide the City in achieving the vision for POST and is reflective of seven strategies established for the POST plan, including: Access and Connectivity, Nature and Environment, Facilities, Amenities, Safety, Management & Maintenance and Programming. To build complete communities, it is critical that parks, open spaces and trails are integrated in the planning process for transportation infrastructure and vice versa. The recommendations and strategies identified in the POST plan are considered and/or incorporated into the strategies and policies developed as part of this TMP update. This is to ensure that the programs and initiatives related to active modes are aligned between both plans.

CITY OF LEDUC NOISE SURVEY

The City regularly conducts noise monitoring studies in residential areas adjacent to major roadways to determine whether noise mitigation measures such as noise fencing are required to bring down sound levels in the backyards. A noise study was conducted as part of this TMP update and is further discussed in Section 5.5.

2021-2025 CULTURAL DEVELOPMENT STRATEGY: BUILDING THE FOUNDATION

The Cultural Development Strategy establishes a shared mission and vision for culture in Leduc and provides a set of guiding values that are used to foster cultural participation, sustainability, identity, and representation. The TMP plays a pivotal role in shaping the physical and social environments in which culture thrives. Therefore, the policies developed as part of this TMP update aim to contribute to the preservation, development and promotion of cultural expression and inclusion.

CITY OF LEDUC ENVIRONMENTALLY SIGNIFICANT AREA STUDY (JUNE 2017)

A study that allows the City to identify areas with high ecological value and provide an opportunity for land managers to target these areas for retention and sustainable management through the development of municipal tools and policies. The study noted that placement of roads near natural areas and the importance of ensuring wildlife movement and habitat connectivity should be considered as part of the roadway design. Any road improvement recommendations from this TMP update were developed with consideration for potential environmentally significant areas in the city.

CITY OF LEDUC ENVIRONMENTAL PLAN (FEBRUARY 2024)

This plan builds on the original environmental plan completed in 2012 and provides a framework to guide sustainability actions over a 10-year horizon. The updated plan outlines five topic areas: Waste, Water, Ambient Impacts, Energy and Climate Resiliency, and Land. 40 actions were identified within these categories and prioritized to create an implementation strategy. Specific goals within this plan that are relevant to the TMP include: encouraging active transportation and reduce personal vehicle use, improving accessibility of public transportation, and continued monitoring and action related to ambient noise. While the TMP does not directly address each action as it relates to the environment, overall alignment for the direction of the environmental and transportation plans was considered to support responsible long term growth of the transportation network.

URBAN CENTRE REDEVELOPMENT PLAN (UCRP)

The UCRP is a long-term statutory land use plan aimed at revitalizing and redeveloping the City's central neighborhoods, including the Alexandra Park Neighbourhood, Central Business District, and Telford House area. Initiated in February 2023, the UCRP seeks to create a vibrant, mixed-use urban environment that aligns with the City's growth initiatives and community aspirations and is intended to be adopted by bylaw as a statutory plan. The applicability of the UCRP to the TMP is limited to transportation elements within the downtown core, such as cross-sections and multiways. Both plans prioritize investments in infrastructure that support diverse transportation options, ensuring that the evolving urban landscape meets the current and future mobility needs of residents and visitors.



4.2. REGIONAL PLANS AND INITIATIVES

EDMONTON METROPOLITAN REGION GROWTH PLAN (EMRGP)

The EMRGP was a regional statutory plan that provided a coordinated vision for growth across the Region. It offered population and employment projections to 2044, anticipating Leduc to grow between 55,000 (low projection) and 73,000 (high projection) residents and between 22,000 (low projection) and 30,000 (high projection) jobs. While the EMRB dissolved as of April 1, 2025, the EMRGP no longer has legal standing. However, the projections and general direction established by the plan offer historical context for regional growth expectations. The TMP has considered these projections and regional priorities where relevant, but recognizes that future growth and planning will be led by the City in alignment with applicable statutory plans and evolving local needs.

INTEGRATED REGIONAL TRANSPORTATION MASTER PLAN (IRTMP)

The IRTMP outlines a blueprint for creating an economically competitive Region while being sustainable, protecting the natural environment, providing well connected multi-modal options, supporting compact and walkable neighborhoods, and ultimately serving to improve the quality of life for the growing number of residents, visitors and industries. Policies evaluated in the IRTMP included a possible regional transit extension to the Airport and Leduc, as well as the implementation of a dedicated truck lane in each direction on Highway 2 between Leduc and Anthony Henday Drive. These policies were considered in establishing priorities and the future transportation network in Leduc.

The IRTMP was completed in May 2021 and outlines the direction for creating an economically competitive Region while maintaining a liveable and vibrant Region for residents, visitors and industries. The IRTMP supports the EMRGP through four key strategies: *Connecting Goods to Market, Getting People to Jobs and Services, Optimizing the use of Existing Corridors and Infrastructure, and Connecting Modes and Supporting Modal Shift.* The policies in the TMP update were guided by the IRTMP wherever deemed appropriate.

ALBERTA TRANSPORTATION AND ECONOMIC CORRIDORS (TEC)

The City's road network is connected to two main highways, Highway 2 (QE II) and Highway 2A, which are both operated and maintained by TEC. However, the City is responsible for maintenance of Highway 2A between Pioneer Road and Highway 2. Improvements to either of these highways could impact travel through the city and influence the development of the TMP, including potential partnership and funding opportunities. The new 65 Avenue interchange—including a new Highway 2 overpass, on-off ramps, intersection upgrades at 65 Avenue and 50 Street, and other network improvements—will enhance the safe movement of people and goods while fostering economic development in Leduc and the surrounding region. This project is a joint effort between the City, TEC and the EIA.

Highway 2 and Highway 2A within the city are vital connections at the local, regional, and national level. TEC have ongoing planning and design initiatives for these two highways to ensure the safe and reliable movement of people and goods. Over the past 15 years, numerous planning and design studies have been completed for the longrange planning of Highway 2 between Calgary and Edmonton. The Highway 2 Corridor Improvement Strategy (CIS), completed in 2018, reviewed the corridor as a whole and recommends highway improvements and municipal connections required to accommodate existing population and future growth of the long-term horizon. In the context of the City, this includes potential BRT/LRT extension, the Spine Road Corridor, and potential locations for a new interchange and/or overpass.

In 2015, the City (with approval from TEC) completed an update of the Highway 2A Realignment Functional Plan to finalize the ultimate alignment developed in previous planning studies based on stakeholder input and updated technical review. The recommendations identified three key stages of construction:

- The first stage of construction, which was completed in 2015, was to shift the previous Highway 2A alignment further from the CPKC Rail (formerly CP Rail) line to meet Transport Canada's intersection and railway crossing offset requirements. A new access to the South Fork development was provided along with a new connection to Pioneer Road to the east.
- 2. The second stage includes twinning Highway 2A and Pioneer Road.
- 3. The third and ultimate stage include the realignment of Highway 2A towards a new interchange at Highway 2. It is anticipated that the existing Highway 2/Highway 2A interchange structure will need to be ultimately replaced and that a new interchange further south on Highway 2 will be constructed followed by the realignment of Highway 2A.

While the study identified the required ROW to support the ultimate alignment, it also indicated that the uncertainty of the future regional network would impact the Highway 2A realignment. It is worth noting that TEC has indicated support for initiating the planning of the realignment in the short-term horizon. The TMP considered these factors and the future traffic projections and transportation network incorporates the planned improvements by TEC.

FUNCTIONAL STUDIES

Other functional planning studies have been completed for several major road network improvements, including Range Road 245 / 250 (Spine Road - Airport Road to Highway 623) and 65 Avenue. For example, the Range Road 245 / 250 functional planning study outlines key details that should be followed when implementing the corridor such as, 800m intersection spacing, access being provided only through collectors or arterials, and overall implementation and phasing details which all have a direct impact on the City's overall transportation network. These improvements are reflected in the traffic forecasts and incorporated into the TMP's implementation strategy so that the City can effectively plan and budget for these upgrades.

OTHER REGIONAL PLANS & INITIATIVES

Leduc's road network supports significant regional travel to, from, and between neighbouring communities such as the City of Edmonton and Leduc County. The transportation direction developed in the TMP update are intended to align with initiatives developed by neighboring municipalities, to provide continuity of a safe and efficient network while promoting growth and economic development.



4.3. EIA PLANS AND INITIATIVES

YEG MASTER PLAN 2048

The YEG Master Plan 2048 guides the development and expansion of the Edmonton airport facilities and services over a 25-year time frame. Development and expansion of the airport directly affect the City's transportation system, given its proximity and the City's role as a regional transportation and logistics hub. Future airport plans, including economic and population forecasts were considered in the TMP update, particularly during the travel demand model update.

Planning for effective airport access must consider the airport site, highway and regional road networks, as well as public transportation modes, to address increasing congestion, environmental and other issues. Most passengers to EIA originate or terminate in the City of Edmonton. With the expected growth in the municipalities surrounding the airport, spatial distribution of airport roadway users is likely to be more dispersed over the next few years.

INTER-JURISDICTION COOPERATION ACCORD

The Inter-Jurisdiction Cooperation Accord between the City, City of Edmonton, Leduc County, and the EIA, establishes a collaborative framework to support the EIA as a vital economic driver for the Region. The accord aims to optimize land use, services, transportation, and economic development through coordinated planning, costbenefit sharing, and protecting the EIA's 24/7 operations. Guided by principles of shared investment, equitable arrangements, and regional growth, the initiative will proceed in three phases: addressing immediate issues, detailed planning, and long-term implementation. Guided by an oversight committee and working groups, the initiative aims to foster regional prosperity through mutual benefit and innovation.

5. LEDUC TODAY AND LOOKING AHEAD

5.1. COMMUNITY CONTEXT

The City has experienced significant growth over the past two decades, more than doubling in population. According to the *2023 Municipal Census*, the City reached a population of just over 36,000 people, marking a nearly 10% increase since 2019. Within the horizon of this TMP, the City anticipates continued growth, driven by the City's proximity to the EIA, making it an attractive hub for transportation, logistics, and warehousing industries. Employment in the City is also projected to increase over the long-term horizon.

A significant portion of the population growth will be a result of new residential development in the west and south quadrants of the city, while employment growth will be concentrated in the City's industrial hub in the north. As one of the fastest growing municipalities in Alberta, the City attracts young families. The average age in Leduc is 36.8 years old, with approximately 79% of the population being 34 and younger. Working-age adults (25 to 64 years old) make up over 50% of the population, while approximately 14% of residents are 65 years and older. As the City grows, it will experience increasing pressure on the local transportation network and key regional connections, as more people travel within the City and across the Region for employment, amenities, and recreation. Future transportation network expansions have also considered anticipated increases in mode share for walking, cycling, and transit to ensure a balanced system that aligns with the City's evolving mobility needs. A mode shift from single user vehicles was considered as part of this study as the desire for alternative modes is expected to continue to increase as the City continues to grow.

While the transportation-technology landscape will continue to evolve, its impact within the TMP's time horizon is expected to be minimal, with the City monitoring changes to adapt as needed.

> The City will need to address future demands by adopting a holistic approach to transportation infrastructure and services, accounting for the unique preferences, lifestyles, and mobility patterns.

5.2. LAND USE AND PLANNED AREAS

The City has a diverse and strategically planned land use that is characterized by an integration of residential, commercial, industrial, and recreational areas.

Residential Areas – A mix of single-family homes, manufactured homes, and mixed-use residential developments, spread out throughout the city. Parks, playgrounds and walking trails are interwoven to foster connectivity and livability.

Commercial Areas – Designated commercial areas in the city serve as hubs for business and commerce, which foster economic growth and provide convenient access to goods and services for both residents and visitors. These areas encompass a mix of retail establishments, office spaces, restaurants, and other commercial services. The Central Business District (CBD) is located along 50 Avenue just east of Highway 2 while general commercial zones are mostly found between Highway 2 and Sparrow Drive in the northwestern part of the city.

Industrial Areas – Found in the northern part of the city, just east of the designated commercial zones. These areas accommodate a wide range of industrial activities, including manufacturing, logistics, warehousing, and light industrial operations. The industrial zones are designed to provide necessary infrastructure, transportation access, and support services to facilitate economic growth and job creation. It also has convenient access to Highway 2, EIA and neighbouring business parks such as the Nisku Business Park located on the northside of Airport Road. **Recreational Areas** – The City places a strong emphasis on recreational spaces and amenities to enhance the quality of life for its residents. It features several parks, green spaces, sports fields, and recreational facilities including Telford Lake, and the Leduc Skateboard Park. William F. Lede Park is also a recreation attraction for the region. These areas provide opportunities for outdoor activities, leisure pursuits, and community gatherings. Additionally, the City boasts an extensive trail network that promotes active transportation and connects various parts of the city.

As illustrated in Figure 3, there are several areas in the city where residential development is ongoing or planned within the horizon of the offsite levy model (25 years). Significant population growth is expected to occur in various parts of the city. The City's industrial hub to the north, including the Leduc Business Park, will also experience employment growth through these developments. A proactive approach is essential in planning effective connections to and within these highgrowth areas to ensure that residents and businesses have easy access to homes, jobs and services. This involves planning an efficient and well-connected transportation network that supports current and future growth.




5.3. TRAVEL PATTERNS

Like most communities in Alberta, the City is primarily auto-oriented, with around 86% of commuters driving to work, 6% of carpooling, and 2% walking. Public transit and cycling each account for less than 1%. Most work trips are made either within the city (approximately 45%) or to the Region (over 50%). Approximately 40% of commuters have a travel time of 15 minutes or less while almost 30% of commuters have travel time between 15 and 30 minutes. With these travel patterns, it is critical that the TMP balances local and regional transportation priorities that addresses specific local needs while enabling efficient regional connectivity.

Overall, shorter commute times at the local level can justify transportation planning that minimizes travel times, such as exploring alternative transportation choices that are attractive for short commutes. Shorter commute times can improve well-being of a community by reducing stress, improving physical health, promoting social connections and contributing to environmental sustainability.

To better understand how people move throughout the city, mobility data was collected and analyzed using StreetLight. It is an on-demand mobility analytics platform that uses big data to provide insights into travel patterns and traffic volumes on a transportation network. Typical travel patterns within Leduc over a two-month period was captured and reviewed. The resulting analysis provides a snapshot of observed travel behaviour during that time and is intended to reflect existing conditions only. A total of 206,000 trips were captured during this timeframe and the following travel patterns were determined:

- On a daily basis, 50% of all trips were made entirely within the city. The remaining 50% of travel was made with an external origin or destination.
- 42% of the external travel from the city was made to the Region to the north via Highway 2. The Highway 2 and Highway 2A corridor to the south served 22% of the external travel trips. The remaining external travel is served by several roadways to the east and west of the city.
- The morning and evening peak periods have higher concentrations of trips to residential areas and the commercial areas surrounding the airport and east of Highway 2 had a higher proportion of commuter activity.

These findings reflect typical patterns during the review period and serve as a foundation for understanding baseline travel patterns within and around Leduc. It also guides the development of future traffic forecasts as the City continues to grow.



5.4. ROAD NETWORK

The City has a well-connected and developed road network system that efficiently serves the city and its surrounding areas. Strategically located near major transportation corridors, including Highway 2 and Highway 2A, the City enjoys convenient access to EIA and neighbouring municipalities.

Highway 2 is a major north-south corridor through the city, providing access via four grade-separated access points – Airport Road, 65 Avenue, 50 Avenue and the Highway 2A junction. Highway 2A also serves the southeastern section of the city with two key at-grade intersections – Southfork Road/ Pioneer Road and Southfork Drive/50 Street.

Within the city, there is a grid-like pattern of roads that provide convenient connections. Key arterial roads, such as Airport Road, 65 Avenue, 50 Avenue, Black Gold Drive, Rollyview Road, Grant MacEwan Boulevard, 50 Street, 46 Street, 45/43/42 Street and Spine Road, facilitate commuting and access to neighborhoods. These arterial roads are typically wider and accommodate higher volumes of traffic. The City also has a network of collectors and residential streets that connect various neighborhoods and provide access to local amenities. These streets are generally narrower and designed for lower speed to ensure the safety of pedestrians and residents. Figure 4 illustrates the City's existing road network and the corresponding road classification.

In recent years, the City has made efforts to improve its road infrastructure, including road widening, road maintenance, and upgrades to accommodate the growing population and increasing traffic demands. The City is also continuing to collaborate with the Province on planning for Highway 2 and Highway 2A. These initiatives aim to enhance connectivity and ensure safe and efficient transportation throughout the city and the Region.

RECENT ROAD NETWORK INVESTMENTS & INITIATIVES

- Phase 1 65 Avenue Interchange
- Spine Road & 65 Avenue Corridor Improvements
- Corridor Improvements to Grant MacEwan Boulevard
- Pioneer Road
- 74 Street north of 50 Avenue



Legend

- Arterial
- Collector
- Local Roads
- ----- Railway
- City Boundary

Figure 4: Existing Road Network and Classification

5.4.1. TRAFFIC FORECASTS AND NETWORK PERFORMANCE

CURRENT CONDITIONS

The City's traffic conditions are currently shaped by its role as both a commuter city and an economic hub, with increasing demands on its road infrastructure. Many residents commute to Edmonton for work via Highway 2 and other arterials. Within the city, travel is predominately by private vehicles on the arterial and collector network. Proximity to the Nisku Business Park and the airport generates significant freight traffic in the city resulting in trucks frequently using Highway 2 and connecting arterial roads, contributing to congestion during peak hours. Traffic data was collected at 33 locations across the City (see Figure 5) in 2023 to better understand current daily and peak hour traffic patterns in Leduc. The data was also used as a basis for traffic analysis and travel demand modelling.

Figure 6 illustrates the bi-directional daily link volumes (total vehicles travelling in either direction along a segment of roadway throughout an average day).

The current daily travel patterns and peak hour traffic demands reveal the following:

- Highway 2 serves as the primary north-south commuter route to Edmonton, the EIA and the surrounding area. There is a significant draw to the Highway 2 corridor northbound during the morning peak hour and southbound during the afternoon peak hour.
- 50 Avenue, 65 Avenue, Airport Road and Highway 2A are key feeder routes that provide eastwest connection to Highway 2. These routes accommodate significant volumes of traffic, particularly during the peak hours, and play an essential role in supporting commuter, industrial/ commercial and local travel.
- 46 Street and 50 Street are the City's busiest north-south routes that provide access to a variety
 of key destinations. These corridors provide a continuous connection between the south and
 north of the city, making them a preferred route for commuters.
- Black Gold Drive, Grant MacEwan Boulevard and Rollyview Road capture a major share of residential traffic. These corridors provide local connections to the various neighbourhoods in the city.



Figure 5: TMP Traffic Counts



Figure 6: Existing Daily Traffic Volumes

The majority of peak hour traffic is accommodated on the City's arterial network, leading to increased levels of delays and congestion on some arterial corridors. Figure 7 illustrates the PM peak hour levels of service (LOS) for intersections on an arterial-to-arterial road. The LOS is a measure used to evaluate the operational performance and efficiency of road intersections. It assesses how well an intersection functions in terms of traffic flow, capacity, and delays experienced by vehicles. LOS is typically graded on a scale from A to F, with 'A' representing free-flowing conditions and 'F' indicating severe congestion and significant delays.

The City, intersections performing at a LOS D or better are generally considered to be operating within manageable conditions. Individual movements at LOS E may indicate emerging capacity or operational concerns and could benefit from closer monitoring or potential mitigation. Additionally, a volume-to-capacity (v/c) ratio below 0.85 is typically used as a threshold to help identify intersections where traffic demand remains within the effective limits of the existing infrastructure.

The City's key arterial intersections are generally operating within manageable levels of service today.

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At a signalized intersection that is operating at a LOS D, the average delay or wait time per vehicle is between 36 and 55 seconds.





Figure 7: Existing PM Peak Hour Intersection Level of Service

The City's travel demand model, originally developed as part of the 2018 TMP and underwent a thorough update for this TMP, was used to assess system-wide network constraints and future capacity issues. The model update incorporated current and anticipated land uses and the resulting population and employment projections to reflect Leduc's current and future growth strategies.

Figure 8 illustrates the current PM peak hour, link v/c ratios, which compares the estimated traffic volume on a roadway to its maximum capacity. Different colors indicate the various levels of congestion green for low v/c, more road capacity available, and red for high v/c, maximum or over road capacity. Higher levels of congestion during the PM peak hour are identified along the corridors of 50 Avenue, Highway 2A, 50 Street, and 45 Street/43 Street. These corridors carry higher volumes as they provide direct connections to the highway network or access to the City's main employment hub. It is also noted that the high density of business accesses on 50 Avenue and 50 Street are also contributing to congestion and slower traffic flows on these corridors.

In particular, the roadway segments that connect to the Highway 2 and Highway 2A off-ramps, experience near or at-capacity conditions. The segment of Grant MacEwan Boulevard between Black Gold Drive and Windrose Drive N is also approaching capacity as a two-lane road.

While congestion is currently manageable, proactive planning will be vital to accommodate future growth.

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Typical Capacity per Lane in Leduc

- Arterial, Divided: 1,000 vph
- Arterial, Undivided: 900 vph
- Collector: 600 vph
- Local: 400 vph

Overall, the City's network is generally operating well today, with a few areas experiencing higher levels of congestion and delays during the morning and afternoon peak hours.



Figure 8: Existing Network Capacity – PM Peak Hour

FUTURE CONDITIONS

Future traffic conditions were forecasted through the travel demand modelling undertaken for the long-term horizon. The Future Base scenario assumes all land use growth plans and future network changes identified by the City, including the realignment of Highway 2A and its supporting connections, and the roadways identified in all approved ASPs. The updated model was used to understand potential shifts in travel patterns and traffic volumes, as well as to confirm the need for new connections or road improvements in response to growth. These trends capture future traffic conditions as a result of growth within the City's current boundary.

Figure 9 illustrates the bi-directional daily link volumes projected for the long-term horizon.



Figure 9: Future Daily Traffic Volumes

The future traffic projections indicate the following trends:

- Above average growth is anticipated along 65 Avenue, Grant MacEwan Boulevard, Spine Road, Airport Road, 50 Street, and 46 Street during the peak hours. This aligns with higher population and employment growth utilizing these corridors.
- 65 Avenue, west of Highway 2, is anticipated to be a major growth corridor as development builds out south of 65 Avenue, as well as future EIA development and the connection to Perimeter Road.
- The sections of Grant MacEwan Boulevard south of Windrose Drive and north of 50 Avenue will experience significant growth due to anticipated development to the south and the north.
- 50 Street, south of Rollyview Drive is anticipated to be a high-growth corridor due to continued development in the Southfork area and future connection to the Highway 2A realignment.
- The eastern section of Airport Road will experience higher growth as industrial development continues within the Leduc Business Park and in Nisku/Leduc County.
- The section of Rollyview Road between C.W. Gaetz Road and Range Road 245 (Spine Road) will experience higher than average growth due to the future Spine Road extension as well as employment growth within the East Telford Lake and Eaton Business Park area.
- Steady growth is expected along 50 Avenue, west of Highway 2, as alternative east-west links, such as 65 Avenue and the Southwest Boundary Road are provided.
- On average, the peak-hour traffic demands on the network are expected to grow by 2.4% annually into the long-term horizon. The average traffic growth rate along the key corridors in Leduc ranges from approximately 1.0% to 4.0% during the AM and PM peak hours.

As the City continues to grow, some of the key arterial intersections will experience a significant increase in delays and congestion. The intersections along Grant MacEwan Boulevard, 50 Street, 65 Avenue and Spine Road are estimated to operate near or at failing conditions (LOS E or F) during the PM peak hour without improvements. Key movements at these intersections are expected to experience long delays and queuing, potentially causing downstream impacts on the corridor.

In the long-term, most of the City's key arterials are projected to approach or reach capacity. This includes sections of 50 Avenue, 50 Street, 45 Street/43 Street, 74 Street, Black Gold Drive, 65 Avenue East, and Spine Road. These corridors will experience significant delays and congestion, impeding travel to and from regional connections as well as within the city.

Road capacity and intersection operational constraints along key arterials in Leduc are expected as the City continues to expand, particularly in the areas south of 50 Avenue. To maintain an efficient network over the long-term, additional network improvements from what is already considered in the future base scenario are required. These improvements, which are further discussed in Section 6.2 include corridor widening, improved highway connections and geometric upgrades at major intersections.

5.4.2. TRUCK ROUTES

The City has designated truck routes defined in the 878-2014 Traffic Bylaw and the Dangerous Goods Transportation Bylaw (Bylaw No. 558-2004). These routes facilitate freight movement while minimizing congestion and maintaining safety.

The City's current truck route network (see Figure 10) provides effective connections to key industrial and commercial areas in Leduc and is well-connected to Highway 2, which is part of the National Highway System and serves as a primary route that support inter-provincial and international trade.

Major truck routes include:

- Sparrow Drive: provides direct north-south connections for trucks between the City's industrial area, the Nisku Industrial Park, and Highway 2.
- **65 Avenue East:** provides east-west connection between Highway 2 and the Leduc Business Park.

In addition to these main truck routes, there are other roads within the city that are appropriate for commercial traffic including 46/45/43 Street, 50 Avenue, Highway 2A, Rollyview Road and sections of Black Gold Drive.

Some sections of the heavy truck routes also serve as a dangerous goods route, which are specific routes for transporting hazardous materials. Figure 11 illustrates the designated dangerous goods routes. The following road sections are currently designated as dangerous goods routes in Leduc:

- 50 Avenue from West Corporate Limits to Highway 2
- 65 Avenue from 50 Street to 45 Street
- 64 Avenue from Highway 2 Northbound to 50 Street (East Direction Only)
- 50 Street from 64 Avenue to 65 Avenue (North Direction Only)
- 45 Street from 54 Avenue to 72 Avenue
- 43 Street from 72 Avenue to 81 Avenue
- 42 Street from 81 Avenue to the North Corporate Limits
- Highway 2A from Highway 2 to the South Corporate Limits
- Sparrow Drive from 65 Avenue to North
 Corporate Limits

The City conducts regular reviews and updates its truck route network to align with changing traffic patterns and economic development. These efforts aim to optimize freight movement, minimize congestion, maintain road safety and support the growth of the local economy. It is also important for truck drivers to be aware of local bylaws and restrictions regarding truck routes, weight limits, and other regulations to ensure compliance and safety.

Future network changes including the Highway 2A realignment and upgrade of the 65 Avenue interchange along with changing economic conditions may impact how trucks move through the city. It is critical the truck network is planned and incorporated into these improvements to ensure efficient and safe freight movement in and around the city.

Goods movement throughout the city is well supported by the existing truck and dangerous goods route network. In general, the truck route network in the long-term will remain largely the same as today. Future changes to the City's truck routes will depend on the following network changes:

- The City plans to upgrade 65 Avenue in the short-term, following completion of Phase 1 of 65 Avenue Interchange project. Once the project is implemented, 65 Avenue from Grant MacEwan Boulevard to 74 Street, and 74 Street from 65 Avenue to 50 Avenue, will be designated as a new truck route.
- The completion of Phase 2 of the 65 Avenue interchange will create an opportunity to expand the truck route network west of Highway 2 along 65 Avenue, providing an alternate route to 50 Avenue. The new interchange will also modify the truck routes by removing 50 Street as a truck route in either direction.
- Should future network changes occur south of the city, and Spine Road connects outside of existing neighbourhoods towards Highway 2, there is an opportunity to establish a truck or dangerous goods route east of the city towards the industrial areas. However, due to the surrounding land uses and the at-grade rail crossing near Pioneer Road, this is not the preferred route connection to Spine Road. As a result, future growth considerations outside the current City boundary should be monitored to identify potential alternatives for a new truck route.







Legend Truck Route

Figure 10: Existing Truck Routes



Figure 11: Existing Dangerous Good Routes

5.5. ROADWAY NOISE ASSESSMENT

As part of the TMP, environmental noise monitoring and reporting was completed. Noise monitoring locations were selected based on previous work completed in previous years, dating back to 2009. The primary focus of this noise monitoring was to assess residential locations adjacent to major roadways within the city to determine if noise mitigation would be required on key roadways throughout the transportation network.

Noise monitoring was completed at 29 locations throughout the community, primarily on highways/ arterials but also near collectors in some cases. The results of each of these locations was compared against the existing City of Leduc's Surface Transportation Noise Guideline, which indicates that the 24-Hour Energy Equivalent Sound Level (Leq(24)) should not exceed 65 dBA in residential developments. 65 dBA can qualitatively be described as a normal conversation, ambient noise from a typical office or background music several meters away. If the Leq(24) exceeds 65 dBA, the City should consider noise attenuation measures to reduce the noise level in the residential area. In all cases, the noise level was below the threshold for noise attenuation. The areas in the City where the highest noise levels were above 60 dBA but less than 65 dBA include: Linsford Park near Highway 2, Corinthia Park near Highway 2A, Alexandra Park near Black Gold Drive and Leduc Estates near Black Gold Drive.

It was noted that at some locations, short-term loud burst of noise from engine exhausts, large trucks, etc. were observed. These types of noise events are difficult to mitigate with noise attenuation, however the impact on residents can still be significant. In such cases, enforcement becomes a critical tool to address excessive vehicle noise and support a more liveable community.

As a result of the study findings, the Surface Transportation Noise Policy was updated to include five categories with more details on the threshold for noise attenuation and the mechanisms to implement such measures.

Category	Threshold for Noise Attenuation	
1 – New Residential Development	55 dBA – Developers will be required to ensure that the modeled maximum outdoor amenity noise level does not exceed 55 dBA.	
2 – Existing Residential Development	65 dBA – If outdoor amenity noise level exceeds 65 dBA on existing corridors, the City may implement noise attenuation when technically and economically feasible.	
3 – Upgraded Transportation Facility	65 dBA – If projected noise level as a result of a road widening exceeds 65 dBA noise attenuation may be included in the overall project cost where technically and economically feasible.	
4 – Highways Under Provincial Jurisdiction	Provincial Policy Guidelines per TEC	
5 – Local Improvement	Residents may request and fund noise attenuation regardless of observed noise level through a local improvement tax in accordance with the Municipal Government Act RCA 2000, M-26.	

The City of Leduc Surface Transportation Noise Policy is available on the City's website and provides more detailed information on this subject.

5.6. RAIL

The City is served by two CPKC lines that facilitate the movement of freight and goods to Leduc and across the Province and beyond.

- CPKC Leduc Subdivision Track Runs in the north-south direction on the east side of Highway 2. The line is a single track with spur lines and accommodates 10 trains per day between Edmonton and Black Gold Drive.
- CPKC Breton Subdivision Runs in the eastwest direction and connects Sunnybrook to Leduc. The rail line is located immediately to the south of Black Gold Drive and transitions on to the Leduc Subdivision north of Black Gold Drive.

The City's direct connections to these rail lines provide local businesses and industries with access to efficient rail transportation for their goods. While rail lines provide vital freight connectivity and contribute to the overall economic development, they also present challenges. As illustrated in Figure 12, there are currently 14 at-grade rail crossings in the city, with six of the crossings located on a multiway. At-grade crossings can be found on key arterials and collectors: 65 Avenue, 50 Avenue, Black Gold Drive, Rollyview Road, Pioneer Road, Grant MacEwan Boulevard, Alton Drive, 50 Street, 48 Street, and 47 Street. While most of the crossings are equipped with gates and bells and are constructed to meet the latest Transport Canada Rail Guidelines, some of the crossings on the pathways lack these safety measures. The at-grade crossings limit road and trail connections, creating a barrier for connectivity and posing risk to vulnerable users. Delays caused by rail crossings are particularly noticeable along Black Gold Drive, where two crossings are located within 200 m of each other.

Regionally, the IRTMP reviewed some rail implications to the Region and generally supports the continued investment in rail as a means of conveying goods and people throughout the network.

RAIL STRATEGIC DIRECTIONS

The City should continue to monitor rail crossings from a safety and traffic operations perspective. Should safety incidents or unacceptable delays be noted, the City shall coordinate with the Rail Authority to determine suitable improvements to prevent future safety incidents or mitigate delays.





Legend Railway At-Grade Railway Crossing City Boundary

Figure 12: Existing Rail Crossings

5.7. TRANSIT

Transit service in Leduc is operated by Leduc Transit, which is an inter-municipal transit partnership between the City and Leduc County. While this TMP does not include a full transit technical analysis, it is important that key routes and corridors consider transit accessibility and overall connections between various modes of transportation. This ensures that appropriate road ROW can be protected for future transit needs, such as BRT.

ON-DEMAND TRANSIT

Leduc Transit offers on-demand transit service, providing the City's residents with convenient access to shopping centers, schools, recreational facilities, healthcare services, and employment areas. This service operates Mondays to Fridays from 4:40 a.m. to 11:00 p.m. throughout the city and a significant portion of Nisku Industrial Park.

FIXED-ROUTE TRANSIT

Leduc Transit also operates a fixed commuter route (see Figure 13) that is designed to accommodate peak commuting hours, as well as a fixed local route to provide reliable transportation for residents traveling to key employment areas and the airport.

- Route 1 Leduc to Edmonton and Nisku Operates on weekdays during peak hours; no weekend service.
- Route 10 Leduc to Nisku and the EIA Operates daily once per hour between 7:20 a.m. and 10:17 p.m., including weekends and most statutory holidays. This route also connects to:
 - $\,\circ\,\,$ EIA's fare-free airport service that stops at various businesses on airport lands.
 - $\,\circ\,$ ETS Route 747 that runs to the Century Park Transit Centre in Edmonton.

LEDUC ASSISTED TRANSPORTATION SERVICE (LATS)

LATS is a door-to-door, driver assisted transportation service for seniors (65+) and for persons with cognitive and/or physical disabilities within the city. LATS is available daily with varying operating hours depending on the day of the week. Registered LATS users must pre-book their trips.

BUS RAPID TRANSIT (BRT)

A BRT corridor is being protected to convey traffic from Highway 2 to 65 Avenue, continuing along the collector travelling through the NW 34 and NE 33 quarter sections between Discovery Way and 74 Street. The corridor will initially be constructed as a 4-lane collector, with adequate ROW protected for a future BRT route when warranted by regional transit demand. Within the city, transit users can also use the free Park 'n Ride lots at the Alexandra Arena and the Leduc Recreation Centre, with a third Park 'n Ride lot located in Nisku, Leduc County.

Leduc Transit offers various fare options, including cash, single-ride tickets, day passes, monthly passes (local and commuter), discounted rates for lowincome individuals (as assessed by the City of Leduc Family and Community Support Services (FCSS)), and free fare for the Canadian National Institute for the Blind cardholders and children aged 5 and under. It also participates in the regional U-Pass Program and Arc system, the Edmonton region's electronic fare payment system.

Overall, Leduc Transit plays a vital role in providing accessible and sustainable transportation, enhancing connectivity within the City, and reducing reliance on private vehicles. Furthermore, Leduc Transit has implemented features to enhance user experience and accessibility. This includes the use of buses equipped with ramps or lifts for passengers with mobility challenges, real-time bus arrival information for On-Demand and LATS services, route maps on the City's website, at various locations throughout Leduc, and at the Leduc County Centre, or through mobile apps for efficient trip planning.

Leduc Transit continually evaluates community needs, making adjustments to its services accordingly. This includes reviewing route efficiency, considering new routes or expansions, and seeking feedback from residents. To ensure the transit system meets the City's evolving transportation needs, transit infrastructure and amenities must be integrated into the planning and design of the overall transportation network.



Shown here is the planned BRT route for the northwest area of the City.



Legend

- ★ Points of Interest Recreation
- Transit Bus Routes
- Schools

Recreation Amenities

City Boundary

Figure 13: Existing Transit Routes



5.8. EXISTING ACTIVE TRANSPORTATION NETWORK

The City features a well-developed trail and sidewalk network that offers opportunities for outdoor recreation, walking, cycling, and enjoying nature. Recognizing the importance of active transportation, the City has invested in a range of facilities to support and promote active modes not only for the summer months, but for the year as a whole.

The Multiway Trail System provides safe and scenic pathways for pedestrians and cyclists, connecting neighborhoods, parks, and amenities. William F. Lede Park is a key regional attraction along with key city destinations such as Telford Lake and Fred John's Park/Leduc Reservoir. These destinations are important locations that should be connected to the overall multiway network. The multiway network is primarily paved and accessible, making it suitable for people of all ages and abilities. Nature trails meander through parks and green spaces such as the Leduc Reservoir, Leduc Lions Park and the stormwater pond in the Southfork neighbourhood.

The multiway network also forms part of the Trans-Canada Trail (The Great Trail), the longest recreational trail network in Canada. Within the City, the trail loops around Telford Lake, runs along 50 Avenue to the west, continues south along Grant MacEwan Boulevard, Suntree Promenade and Sheridan Way, and extends west along 38 Avenue. The City also boasts an extensive sidewalk network serving residential neighborhoods and main streets but currently lacks coverage in the industrial area. To address this gap, engineering standards were updated to include sidewalks provisions to improve development in the industrial areas where logical extension of existing links can be made. Numerous mid-block pathways are provided for pedestrians and cyclists within the neighbourhoods to shorten walking distances to parks and streets. Bus stops are accessible via the multiway network or existing sidewalks.

The implementation and construction of multiways, trails and sidewalks are outlined in the City's Engineering Design Standards. The standards, briefly highlighted on the following page, indicate that a multiway is required adjacent to all collector and arterial roadways, ensuring the City stays connected as growth continues.

MULTIWAY

Multiway development is the responsibility of developers and are located within the collector road or arterial road ROWs. Each subdivision should be connected east/west and north/south. Residents should be within 400m of a multiway and the multiway should be provided along 50% of the perimeter of storm ponds. They are also located within Community or Regional Parks. The engineering design standards for multiways is a 3.0m wide asphalt path. The construction detail is provided in the latest edition of the Engineering Design Standards.

NATURE TRAILS

Nature trails can have variable widths depending on their location and type of use. The construction detail for nature trails (called gravel or granular pathways) is provided in the latest edition of the Engineering Design Standards.

SIDEWALKS

Sidewalks as defined in the Engineering Design Standards are as follows:

- All sidewalks in the City of Leduc shall be designed to a minimum clear width of 1.5m as outlined in the City of Leduc Engineering Design Standards.
- Monolithic sidewalks should be provided only on local roads and adjacent to a school site (minimum width is 2.0m for school sites).
- Separate sidewalks (minimum 1.5m width) should generally be provided on the rest of the road network or walkway lot.
- Monolithic sidewalks along arterial streets are permitted only as a last resort in constrained situations where the construction of a separate walk is not possible, however, minimum width is 2.0m.

There are opportunities to enhance the safety and accessibility of active transportation infrastructure by:

- Providing multiways on either side of arterial and collector roadways through new neighbourhood development or road upgrades, connecting people across the city to key destinations.
- Upgrading portions of the multiway and sidewalk network that are substandard or do not meet the minimum width requirements.
 Additionally, address inefficient connections to enhance network continuity.

As a result of this review, recommendations to provide a better connected network are provided in Section 6.1. The focus of these recommendations is to improve and define the existing network-wide multiway network. A well connected multiway network is essential for effective city-wide wayfinding, ensuring active modes users are not inadvertently directed towards disconnected sidewalk that do not link back to the broader multiway network. Multiways are also utilized by a wide range of active users, such as recreational cyclists, skateboarders, and other wheeled active transportation users. Therefore a wider path, separated from the roadway, is essential to providing a safe user experience for all people.

6. CONNECTING

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6. CONNECTING LEDUC

Strategic transportation planning is vital to managing traffic, supporting new developments, and fostering sustainable urban growth. Investments in transportation infrastructure will mitigate congestion, enhance safety, and improve local and regional connectivity between neighbourhoods, employment centres, and regional hubs. The following section highlights the recommended transportation initiatives and investments that address the objectives of this TMP and align with the City's vision of a connected and liveable community.

6.1. ACTIVE TRANSPORTATION NETWORK

To support the continued growth of the active transportation network, missing links and substandard links have been identified on Figure 14. Future links are also shown, illustrating a vision for a well-connected active transportation network throughout the City over the long-term. During the review of the existing network, it became clear that the definition of "multiway" varied across different City sources (e.g. planning documents, design standards, etc.). Inconsistencies in surface types, widths, alignments, and other design features made it difficult to clearly define the multiway network. This was consistent with the outcomes of the Bike Tour during the public engagement activities where wayfinding between communities and throughout the multiway network proved to be challenging.

The following steps were taken to establish a clear and consistent definition of a multiway:

The first step in defining the multiway network was to identify key routes between neighbourhoods and key activity nodes throughout the city. Once the key routes were defined, redundancies were reviewed to determine the most efficient and effective connections throughout the city.

A review of the design features was completed to understand whether the constructed infrastructure met design specifications for a multiway (3.0m wide asphalt trail). Any links that did not meet these specifications were identified as "substandard". Any links that did not meet the specifications of a multiway - 3.0m wide asphalt trail - were identified as "substandard" in Figure 14. Two "substandard" exception were the 3.0m wide concrete sidewalk on 46 Street from Black Gold Drive to 50 Avenue, and the section along the north side of Telford Lake. Both these sections were evaluated to be adequate for classification as a multiway.

Upgrades to the substandard links should be addressed through the City's annual Capital Engineering Road Program where feasible. While some may require significant investment, other upgrades may be achieved more easily through regular active transportation improvements.

The POST plan also highlights opportunities to improve multiways in recreational areas, primarily in parks, which should be implemented when possible. The future links shown reflect proposed development plans available to the City, while missing links identify key gaps in the multiway network that are not yet built or planned. As these areas are developed, regular review of the network should be conducted to ensure multiway connections meet the City's Engineering Design Standards.

The TMP also supported ongoing active transportation efforts during the course of its development. For example, the multiway on 47 Street and the Southfork connection were identified as needing upgrades and were completed as of completion of this plan. In addition, a multiway along Grant MacEwan Boulevard, from Suntree Promenade to Black Stone Boulevard, was planned and is scheduled for construction in 2026.





Table 1: Summary of Missing and Substandard Multiway Links

Roadway	Description	Notes	
Missing Links			
52 Street/49 Avenue (East and North Sides)	52 Street (East): From 50 Avenue to 49 Avenue 49 Avenue (North): From 52 Street to 47 Street Length: 820m	High Priority, providing a safer active transportation alternative to 50 Avenue sidewalk and should be completed along with neighbourhood roadway renewal efforts.	
Corinthia Park Alley (East Side)	From Existing Paved Kinsmen Park Multiway to Black Gold Drive / Railway Crossing Length: 100m	Medium Priority, connection still possible by way of the alleyway, connection through paved multiway in the park to the northwest corner recommended.	
49 Street/51 Avenue (East and South Sides)	49 Street (East): From 50 Avenue to 51 Avenue 51 Avenue (South): From 49 Street to 47 Street Length: 290m	Medium Priority, exact alignment to be confirmed with UCRP. Should be completed near the same timeline as 52 Street/49 Avenue if possible however other priorities could expedite the implementation of this improvement.	
46 Street (East Side)	From Telford House Park Parking Lot to 56 Avenue Length: 860m	Low Priority, provides additional connections to the northeast area of the city and future development areas.	
43 Street (East Side)	From 53 Avenue to 56 Avenue Length: 340m	Low Priority, link provides direct access to major recreational node from the existing multiway network.	
Black Gold Drive (South Side)	From Grant MacEwan Boulevard to William Bell Drive Length: 65m	Low Priority, only to be completed if major construction intervention at this location is required.	
45 Street/65	45 Street (West) / 43 Street (Unpaved ROW): From 63 Avenue to Allard Avenue	Low Priority, potential future regional multiway or industrial connections as needed based on future development.	
43 Street/Allard Drive (West and South Sides)	65 Avenue (South): From 45 Street to 43 Street Allard Avenue (South): From 43 Street to Range Road 250/ Spine Road Length: 3410m		
Substandard Links			
50 Avenue/49 Street (South and East Side)	50 Avenue (South): From Highway 2 Southbound Ramp to 49 Street 49 Street (East): From 50 Avenue to City of Leduc Civic Centre	Medium to High Priority, variety of surface types and widths make this a substandard multiway. Some sections require minor intervention while others may be addressed by providing alternate connections (i.e., 52 Street/49 Avenue)	
West Haven Boulevard (West Side)	From 50 Avenue to West Haven Drive Length: 100m	Medium Priority, existing sidewalk to be upgraded to multiway when possible, if intersection or corridor upgrades are completed this project should also be addressed.	
Corinthia Park Alleys	From Black Gold Drive to 50 Street Length: 2,380m	Medium Priority, road shoulder currently used for multiway, multiway alignment preferred on 50 Street. If 50 Street upgrade is completed, this connection would be removed.	
Sheppard Boulevard (West Side)	From Southfork Drive to McHardy Park Length: 75m	Low Priority, sidewalk connection effective based on available cross section but does not meet multiway surfacing standards.	
50 Street (West and East Side)	50 Street (West): From Bella Coola Drive to Rollyview Road 50 Street (East): From Rollyview Road to Black Gold Drive Length: 1,260m	Medium Priority, currently a sidewalk connection that should be upgraded to an asphalt multiway. ROW to be protected for this upgrade.	
56 Avenue (North Side)	From 45 Street to 43 Street Length: 335m	Medium Priority, as development continues in the north east part of the city, this connection will be important to provide a consistent alignment to/from the City's downtown to/from Telford Lake and other developments.	
Black Gold Drive (South Side)	From 46 Street to East of South Park Drive Length: 170m	Low Priority, existing sidewalk connection to be upgraded to asphalt multiway when feasible.	
53 Avenue (South Side)	From 43 Street to 45 Street Length: 200m	Low Priority, effective sidewalk connection is available and should only be upgraded to asphalt surface if major intervention along the corridor occurs.	
William F. Lede Park Trails	From Black Gold Drive to William F. Lede Park Baseball Diamonds Length: 125m	Timelines dependent on other parks work. As development in the park area continues, key connections and wayfinding should be confirmed to determine the best multiway investment.	

ACTIVE TRANSPORTATION NETWORK STRATEGIC DIRECTIONS

- The City should update all publicly available multiway maps to reflect the information included within this TMP to allow residents to have a clear understanding of multiway standards.
- The City should invest in the multiway network and ensure facilities meet typical design standards and are accessible by all transportation network users.
- All active transportation network facilities should be well supported with amenities that ensure safe and efficient flow of people throughout the network. This may include wayfinding signage, rest areas, bike racks, protected crossings or other infrastructure that enhances the safe utilization of the active transportation network.
- The City should consider opportunities to address substandard or missing links when planning
 or undertaking roadway rehabilitation projects to maximize efficiency and improve overall
 connectivity.

6.2. ROAD NETWORK

Figure 15 illustrates the recommended road network to support future development and growth in Leduc over the long-term. This robust network is intended to enhance connectivity and mobility, and foster economic development and community well-being.

The City's road network will require major upgrades and new connections to keep pace with the anticipated traffic demands due to local and regional development. These improvements are further identified in the following subsections and the timeline for implementation is also identified.

As shown in Figure 16, the recommended improvements provide significantly more capacity on the road network, ensuring that traffic congestion can be more efficiently managed and reducing delays for commuters. The proposed upgrades on the arterial and collector network aim to alleviate bottlenecks, improve traffic flow and facilitate better connectivity between neighbourhoods, key employment areas and regional destinations. By addressing critical points and enhancing key corridors, the plan not only improves mobility within the existing road network but also prepares the system for future demands.

The expansion of the network allows the City to accommodate more development and growth, supporting an efficient transportation system that meets the evolving needs of residents and businesses alike. These upgrades also help improve safety, reduce travel times, and make the overall transport infrastructure more resilient to disruptions or unforeseen increases in traffic volume.



Figure 15: Future Road Network



v/c >= 0.9

6.2.1. HIGHWAY CONNECTIONS

The highway network through the city is critical in facilitating commuter travel, the movement of goods and services, and providing gateway access through the EIA. Maintaining effective connections to this network is essential to ensure residents and businesses have convenient, efficient and safe access. Building from the recommendations identified in the 2018 TMP, the following improvements are intended to address future network constraints near the highway network and enhance regional connectivity as Leduc grows.

HIGHWAY 2A REALIGNMENT

As the City continues to expand towards the south, there will be an increasing need for efficient access and connections to and from the provincial network. The planned realignment of Highway 2A and a new interchange at Highway 2 will serve to improve access for the new residential communities adjacent to the City's southern boundary and provide efficient connections for regional travel between Highway 2A and Highway 2. Traffic operational pressures on the City's network will also be reduced as highway traffic no longer needs to enter the city. Implementation of the Highway 2A realignment is anticipated in the long-term horizon but will depend on several factors, including the rate of development, regional priorities, and available funding from TEC.

HIGHWAY 2/65 AVENUE INTERCHANGE (PHASE 2)

The Highway 2/65 Interchange project is a multi-phase improvement intended to improve access and enhance connections between Leduc, the EIA, and the Highway 2 corridor. The first phase of improvements is anticipated to be completed in 2025, and includes a new overpass to facilitate east-west connectivity, improved highway on- and off-ramps, intersection upgrades at the 65 Avenue / 50 Street intersection, and completion of Perimeter Road to 65 Avenue.

The second phase of improvement includes a new interchange, connecting 65 Avenue across Highway 2 through an overpass. Highway on- and off-ramps would also be provided. The timing of this phase is dependent on several factors including regional priorities and availability of funding. This TMP assumes that the Highway 2A realignment will be completed prior to the second phase of improvements. As a result, these improvements may be deferred should the realignment proceeds as anticipated. Therefore, Phase 2 of the Highway 2/65 Avenue interchange is anticipated to occur beyond the long-term horizon.
6.2.2. MAJOR CORRIDOR ENHANCEMENTS

Arterial roadways form the backbone of Leduc's road network, providing high-capacity routes that connect major areas of the city. They play a critical role in linking residential, commercial and industrial hubs while supporting local and regional traffic. Several corridors across the city will require corridor enhancements to support anticipated growth and/or other major road upgrades. The warrant for improvements is primarily driven by projected growth, which will lead to roadway capacity constraints, increased congestion and/or developments that require new connections. In general, limited congestion is typically observed at v/c ratios up to 0.75, from 0.75 to 0.90, delays will increase and begin to cause some congestion and then as v/c ratios exceed 0.90, significant congestion will occur and delays should be addressed where feasible. The following discussion highlights the recommended corridor enhancements along the arterial network.

MAJOR ROAD NETWORK ACTIONS & DIRECTIONS

- The City shall protect adequate ROW for future arterial roadways per the City's Engineering Design Standards and functional planning studies to ensure responsible long range planning of the community.
- The City shall limit direct business access to all arterial where possible to maintain fluid traffic operations and provide safe cross-community corridors.
- Transportation safety should be considered a priority on both existing and future road corridors. The City should continue to review transportation safety concerns through the TAC and provide recommendations to address concerns and identify opportunities for a safer transportation network.
- The City should conduct functional planning for arterial roadways to ensure the design criteria aligns with the surrounding context, existing constraints and adjacent land uses. While arterial roads should be designed in accordance with City standards, their complexity and long-term significance necessitate the development of a functional plan.



50 AVENUE

West of Highway 2

50 Avenue is generally a six-lane roadway between the Highway 2 interchange west terminal and Bridgeport Crossing. It then transitions to a four-lane roadway west of Bridgeport Crossing to Hawthorn Way. The section of 50 Avenue between Hawthorn Way and 74 Street is currently a two-lane roadway.

Several corridor upgrades are required to accommodate continued development in the areas north and south of 50 Avenue, particularly the Deer Valley and Woodbend neighbourhoods. The upgrades and the anticipated timeframe for improvements are outlined below.

- > 74 Street to 69 Street Maintain as a two-lane road and upgrade the 74 Street/50 Avenue intersection a single-lane roundabout in the short-term horizon. This section should be protected for future upgrades, however, it is not anticipated to be required until outside the horizon of this TMP.
- > Highway 2 West Off-Ramp to Discover Way Provide an additional westbound lane in the mediumterm horizon so that the Highway 2 westbound off-ramp is continuous and transitions to a dedicated right-turn lane at Discovery Way. This would provide additional through capacity on 50 Avenue and alleviate some of the congestion due to traffic weaving.
- > Bridgeport Crossing to Deer Valley Drive/West Haven Boulevard Upgrade from a four-lane road (rural standard) to a divided six-lane road in the long-term horizon to provide additional lane capacity. This would alleviate delays at the intersections and congestion along 50 Avenue.
- Deer Valley Drive to 69 Street Maintain as a four-lane divided road in the long-term horizon, and as development progresses, monitor this section of the corridor to determine whether further upgrades are required. Upgrades to a six-lane roadway will be required beyond the long-term horizon or as warranted by development and should be coordinated with improvements on the section between 74 Street and 69 Street.

By adopting the best practice of regularly monitoring and adjusting signal timings to align with changing traffic patterns, the City can optimize corridor efficiency, and enhance safety for all users.

• East of Highway 2

Capacity constraints leading to increased delays and congestion are noted on 50 Avenue, east of Highway 2, particularly the section approaching the Highway 2 interchange. However, the ROW constraints provide no opportunities to add travel lanes. Minor operational and safety improvements should be implemented instead to help improve traffic flow. Further discussion on the potential improvements to this downtown corridor are discussed in Section 6.3.

65 AVENUE

Effective east-west connections through the city will be increasingly essential as the City develops towards its northern boundary along 65 Avenue and with continued industrial development west of Highway 2. Improvements on the 65 Avenue corridor will play a key role in supporting the City's continued growth and enhanced local and regional connections, including the EIA.

West of Highway 2

65 Avenue, west of Highway 2, is designated as an arterial roadway and is planned ultimately as a six-lane roadway. It is intended to function as a higher-level, regional arterial with limited development access. The section between Grant MacEwan Boulevard and Discover Way will be completed as a two-lane road as part of the Phase 1 65 Avenue Interchange project, while the remaining section west of Grant MacEwan Boulevard will be upgraded to a two-lane roadway in the short-term. This section of 65 Avenue can be maintained as two-lane roadway until the long-term horizon, when the corridor should be widened to four-lanes to meet projected traffic demands. It should be noted that future improvements on Discovery Way are driven by development, and the phasing of upgrades along 65 Avenue should proceed independently of any improvements on Discovery Way.

Should Phase 2 of the 65 Avenue Interchange project advances (likely beyond the long-term horizon), the widening between Discover Way and Highway 2 to six-lanes will be required, otherwise, this section can function as a four-lane road over the long term.

East of Highway 2

The recent upgrades on 65 Avenue, east of Highway 2 (east of CPKC corridor to 45 Street), and the section between 35 Street and Spine Road, will provide sufficient capacity to accommodate traffic demands over the short- to medium-term horizon. Operational improvements can also be implemented during this timeframe to manage congestion and defer the need for additional lanes.

In the long-term horizon, the section of 65 Avenue between 45 Street and 43 Street will require widening from two to four-lanes to address capacity constraints. Future widening along the section between 43 Street and 39 Street, from two to four-lanes is also anticipated in the long-term horizon.

Beyond the long-term horizon, or as warranted by development, the section of 65 Avenue between 39 Street and Spine Road should be upgraded to a four-lane road. Should Phase 2 of the 65 Avenue Interchange project advances, 65 Avenue, east of CPKC corridor to 45 Street be upgraded to a six-lane roadway to support efficient connections to the interchange.

50 STREET

Overall, a key priority along 50 Street should be to limit direct access onto this arterial roadway. This will reduce interruptions to traffic flows, providing a more efficient corridor.

• Bella Coola Drive to Highway 2A

The section of 50 Street between Bella Coola Drive and Highway 2A transitions to a two-lane road today. With the continued development in the Southfork area, the remaining two-lane section of 50 Street should be widened to four-lanes in the medium-term horizon to address anticipated congestion and road capacity. This would also support future implementation of the Highway 2A realignment.

61 Avenue to 64 Avenue

There are currently some capacity constraints due to the number of accesses along the stretch of 50 Street between 61 Avenue and 64 Avenue. Providing optimized or coordinated signal timings along this section in the interim could help reduce delays. This section of 50 Street should ultimately be upgraded from a fourlane to a six-lane arterial, which is anticipated to be beyond the long-term horizon. This widening would also support the completion of the Phase 2 65 Avenue Interchange project.

74 STREET

Roadway upgrades on 74 Street will be required to support access to future development along the City's western boundary. Projected traffic demands indicate that 74 Street can remain as a two-lane roadway over the long-term and should be upgraded to rural standards as development occurs. The timing of improvements will depend on the rate of development, however, roadway upgrades are anticipated to occur within the short-term and medium-term horizons.

In the short-term horizon, the section of 74 Street between 50 Avenue and Crystal Creek Collector should be upgraded to a rural two-lane road. The second phase of upgrades to a rural two-lane road, anticipated to be in the medium-term horizon, should be split into two segments – Crystal Creek Collector to Banks of Crystal Creek Collector N, and Banks of Crystal Creek Collector N to Southwest Boundary Road.

AIRPORT ROAD – SPARROW DRIVE TO SPINE ROAD

Increased delays are expected along Airport Road as industrial development continues in Leduc and Nisku, and in combination with the Spine Road upgrades. Ultimately, Airport Road should be upgraded to a six-lane roadway between Sparrow Drive to Spine Road. Operational improvements can be implemented in the interim to defer the widening, however, the corridor widening is expected to be required beyond the long-term. It is recognized that Airport Road is within the Leduc County's jurisdiction, therefore, the phasing and implementation of improvements are ultimately the responsibility of Leduc County.

COADY BOULEVARD

The extension of Coady Boulevard from Meadowview Boulevard to Pioneer Road will be required to support continued development in the Meadowview Park neighbourhood. This extension, anticipated to be required in the short-term horizon, will enhance connectivity for the area, particularly when the Highway 2A realignment is complete. This connection will also alleviate future pressures along Rollyview Road and 50 Street as residents can travel south (rather than north) to access Highway 2 and Highway 2A.

GRANT MACEWAN BOULEVARD

North of 50 Avenue

The City has invested in upgrading the section of Grant MacEwan Boulevard from Bridgeport Gate to 65 Avenue to a two-lane, rural standard roadway. This section has adequate capacity to accommodate traffic demands up to the medium-term horizon. However, as development builds towards the City's northern limits and to encourage the use of 65 Avenue, this section should be widened to four-lanes and an urban standard. The widening, anticipated to be in the medium-term horizon, can be split into two phases – 50 Avenue to Bridgeport Gate, and Bridgeport Gate to 65 Avenue. The section from 50 Avenue to Bridgeport Gate can be further staged from 50 Avenue to Ameena Drive, then from Ameena Drive to Bridgeport Gate. This provides an opportunity to address the first section north of 50 Avenue should safety concerns be noted due to operational delays and close proximity of intersections.

As development progresses along Grant MacEwan Boulevard, the remaining sections should be completed in response to traffic growth along the corridor.

South of 50 Avenue

South of 50 Avenue, Grant MacEwan Boulevard is a four-lane road that transitions to a two-lane road just south of Black Gold Drive. Widening the section between Black Gold Drive and Spruce Boulevard/ Windrose Drive South is needed within the short-term horizon to address current capacity constraints and support continued development in the south. This is considered one of the top priorities in the short-term horizon.

The section between Blackstone Boulevard and the future Southwest Boundary Road should be upgraded to a two-lane urban road to accommodate future development and connections to Southwest Boundary Road. While this upgrade would be warranted by development, it is anticipated to occur in the medium-term horizon.

Beyond the long-term horizon, the two-lane section of Grant MacEwan Boulevard (38 Avenue to Southwest Boundary Road) will need to be widened to four-lanes to support further growth.

PIONEER ROAD

Pioneer Road is currently completed as a four-lane roadway between Highway 2A and Meadowview Way. The future extension of Pioneer Road to the east will provide access to future development in the Meadowview Park neighbourhood, and serve as an alternative east-west connection to the Highway 2 corridor via the new Highway 2A interchange for the developments south of Rollyview Road. Pioneer Road is planned to have a nearby connection to the Highway 2/2A interchange, which is expected to reduce the peak hour demands along 50 Street and 50 Avenue, east of Highway 2.

Pioneer Road should be extended at minimum as a two-lane roadway to Coady Boulevard in the short-term horizon to support continued growth in the Meadowview Park area. If feasible, completing the four-lane roadway may be appropriate, especially if continued growth to the south of the City boundary is anticipated in the short-term horizon. Near the same time horizon, the extension between Coady Boulevard and C.W. Gaetz Road should be completed to support further development and the realignment of Highway 2A and its supporting connections.

SOUTHWEST BOUNDARY ROAD

The Southwest Boundary Road, connecting 74 Street to the future Highway 2A interchange, will be a critical link to the southwest area as it fully builds out. It would provide an alternative east-west connection to the Highway 2 corridor (via the new Highway 2A interchange) and alleviate pressures along 50 Avenue, west of Highway 2 and Grant MacEwan Boulevard. The completion of this roadway between Grant MacEwan Boulevard to 74 Street (two-lane road) is anticipated to be in the long-term horizon. The new Highway 2A interchange will be the trigger for this improvement and should be the indicator for project timing. The supporting intersection configurations on Southwest Boundary Road should be further defined as more information regarding the new interchange becomes available. At this time, it is assumed that intersection of Grant MacEwan Boulevard / Southwest Boundary Road would be a roundabout.



SPINE ROAD SOUTH EXTENSION

The continued expansion of the logistics and industrial / commercial hub within EIA and Nisku will inherently increase freight movement in and around the city. An alternative north-south connection, such as Spine Road is essential to reducing anticipated pressures along 50 Street and 46 Street in the future.

This corridor is a key step in improving goods movement access between Leduc, the EIA and the Region. Further upgrade and extension of Spine Road to the south from 65 Avenue to Range Road 250 then to Rollyview Road will provide effective connections between the industrial area and the City's southern boundary and ultimately, to the highway network.

The Spine Road improvements should be completed in multiple phases to ensure future needs are met while optimizing resources.

In the medium-term horizon, Spine Road should be extended as a two-lane road over several phases - from 65 Avenue to 56 Avenue, to Telford Lake and from Telford Lake to Rollyview Road. A multi-phase upgrade will be required in the long-term horizon, which includes the widening from two to four-lanes from Airport Road to the first Saunders Access, first Saunders Access to Allard Avenue (second access), and from Allard Avenue (second access) to 65 Avenue.

Beyond the long-term horizon and as warranted by growth and development, Spine Road will need to be upgraded to a four-lane roadway between 65 Avenue and Rollyview Road and a six-lane road between Airport Road and the first Saunders Access.

Project timing for Spine Road is heavily dependent on the development of the Telford ASP area as well as potential future growth to the south of the City Limits. Should growth to the south of the City Limits occur, Spine Road will be an important connection through the expanded road network and should be protected for at minimum, a four-lane arterial standard. If this growth occurs, Spine Road is also anticipated to draw traffic away from other areas of the network such as Rollyview Road, therefore the four-laning between 65 Avenue and Rollyview Road will become an important upgrade to maintain fluid traffic operations.

ROLLYVIEW ROAD

The section of Rollyview Road between C.W. Gaetz Road and the City Limits is currently a two-lane rural road. Traffic projections indicate that this configuration will be sufficient to meet future demand through the long-term horizon. Beyond that timeframe, however, upgrades to a four-lane cross-section may be required to enhance connectivity with the realigned Spine Road, and to support the anticipated development in the area.

6.2.3. INTERSECTION OPERATIONS

Traffic patterns evolve over time due to population growth and new developments. As Leduc expands and traffic volumes shift, the City's major intersections must adapt to these changing patterns to remain efficient, safe and responsive. Optimizing signal timings on a regular basis can minimize delays and queuing, particularly during peak hours, improving overall travel efficiency. Additionally, enhanced signal coordination along major corridors allows traffic to move more smoothly and reduces stop-and-go conditions.

In addition to signal optimization, several intersections on the arterial network will require improvements to address anticipated delays and congestion. These improvements aim to enhance the overall operations of the road network and complement the proposed roundabouts and new intersections planned to support future development access. Ø

By proactively optimizing signal timings, the City can better manage growing traffic demands while ensuring a safer and more efficient transportation system.

Table 2 and Table 3 identifies key intersections throughout the network that will experience congestion in the future and require intervention to maintain acceptable operating conditions. Most of the arterial-to-collector intersections identified, primarily serve to facilitate access to developing areas. As such, it is typically the responsibility of the developer to undertake a TIA or similar traffic study to identify the appropriate configuration, which is then subject to review and approval by the City.

Table 2: Summary of Intersections for Signalization or Signal Modification

Intersection	Road Classification	Responsible for Improvement	Operational Details
Grant MacEwan Boulevard & Bridgeport Gate	Arterial to Collector	Developer - New Development	Anticipated congestion in short-term horizon as development progresses surrounding the intersection. It is recommended turn bays are added in all directions.
Grant MacEwan Boulevard & Collector (BRT Route through NE33/NW 34)	Arterial to Collector	Developer - New Development	Signalization required as development progresses and intersecting legs are completed in the medium- to long-term horizon.
Grant MacEwan Boulevard & Windrose Drive South	Arterial to Collector	City - Network Growth	As traffic on Grant MacEwan Boulevard continues to grow, cross- street delays will become significant. Continue monitoring of this intersection is recommended with signalization being required in the medium- to long-term horizon.
Coady Boulevard & Pioneer Road	Arterial to Arterial	Offsite Levy - New Development	Signalization to be completed as development progresses and Coady Boulevard and Pioneer Road are constructed. Signalization anticipated to be required in mmedium- to long-term horizon.
Black Gold Drive & Leduc Recreation Centre (LRC) East Access	Arterial to Local/Collector	Developer - New Development	With future development planned east of the LRC, this roadway will see an increase in travel demands. As development progresses in the short-term horizon and this becomes the primary ingress/ egress node signalization should occur.
Black Gold Drive & Leduc Recreation Centre (LRC) West Access	Arterial to Local	City - Network Growth	This intersection is anticipated to become congested in the medium- to long-term horizon. Continued monitoring of this intersection should occur with signalization expected to address operational delays. A fully-actuated or semi-actuated signal is recommended to minimize delays on Black Gold Drive while still permitting acceptable operations on the minor legs.
65 Avenue & 39 Street	Arterial to Collector	Developer - New Development	As development in the industrial area continues and Spine Road traffic increases, this intersection will begin to fail - likely in the medium-term horizon. The timing of this projects should consider the overall corridor improvements, however, it is anticipated that this intersection will fail before road widening is required on 65 Avenue East (beyond the long-term horizon).
42 Street to 82 Avenue	Arterial to Collector	City - Network Growth	This intersection is anticipated to fail in the long- to beyond long- term horizon. Periodic monitoring of intersection operations should occur and signalization may be required in the long-term horizon.
Spine Road & Allard Avenue	Arterial to Collector	Developer/ County - Network Growth and New Development	As Spine Road traffic volumes continue to grow and additional sections are constructed, some existing intersections will begin to see congestion. This intersection will likely maintain acceptable operations until, at minimum, the sections from 65 Avenue to Rollyview Road are completed (anticipated in medium-term horizon), then signalization in the medium- to long-term horizon.

Table 3: Summary of Intersections for Operational Monitoring

Intersection	Road Classification	Responsible for Improvement	Operational Details
Black Gold Drive & Southpark Drive East	Arterial to Collector	N/A	Access to/from Southpark Drive is anticipated to see increased delay times as volumes on Black Gold Drive continue to grow. Due to the proximity of adjacent major intersections, no improvements are recommended.
Grant MacEwan Boulevard & Ravine Villas	Artierial to Local	Offsite Levy - New Development	Convert to Right-in/Right-out as delays become significant and vehicles are unable to enter Grant MacEwan Boulevard traffic flow. Anticipated to reach this level in the medium- to long-term term horizon as Grant MacEwan Boulevard is completed as four-lanes to 65 Avenue, increasing the arterial road's overall traffic volume.
Grant MacEwan Boulevard & Ameena Drive	Arterial to Collector	Offsite Levy - New Development	This intersection is expected to fail in the long-term horizon. Continue monitoring of this intersection is recommended to determine whether improvements are required in advance of the four-laning of Grant MacEwan Boulevard. Signal timing modifications may be adequate to extend the life of the intersection into the long-term horizon, where the four-laning is anticipated to be required and intersection upgrades are completed as part of the overall corridor upgrade.
51 Street & 50 Avenue	Arterial to Local	City - Network Growth	Additional discussion available in section 6.3.1. Anticipated to be converted to Right-in/Right-out in the medium-term horizon, where travel demands on 50 Avenue continue to increase.
Black Gold Drive & 50 Street	Arterial to Arterial	City - Network Growth	Continued monitoring of this intersection is recommended as travel patterns change. Limited improvement options are available due to geometric constraints, however, signal timing updates or other minor upgrades may preserve the life of the intersection. Any upgrades required would be funded through the offsite levy.
65 Avenue & 45 Street	Arterial to Arterial	Offsite Levy - New Development	Congestion anticipated to continue to increase as the City continues to grow. Significant delays anticipated as four-laning of 65 Avenue continues towards the east. Potential minor realignment to improve intersection leg angles, addition of dedicated turn bays and overall intersection configuration upgrades recommended along with the four-laning of 65 Avenue. Should failing LOS be observed (LOS E/F), then this intersection upgrade may need to be advanced before the four-laing of 65 Avenue.
65 Avenue & 43 Street	Arterial to Local	Offsite Levy - New Development	As four-laning of 65 Avenue is completed this intersection should be limited to a Right-in/Right-out. Volumes on 65 Avenue (an arterial roadway) will likely prohibit cross street traffic from safely exiting/entering the flow of traffic for left turning movements. Due to the number of signalized intersections on the corridor, this intersection is not considered to have high enough volumes to warrant signalization.

 74 Street / 50 Avenue Roundabout – Intersection upgrades are required in the short- to medium-term horizon. As recommended in the functional plan, a single-lane roundabout can be maintained until 50 Avenue is upgraded to four-lanes which is not anticipated until beyond the long-term horizon. The roundabout can then be modified to accommodate the four-lanes on the east and west legs to align with the anticipated corridor expansion. This upgrade will provide better access to/from the snow storage facility, as well as to/from the growing developments to the south while still maintaining efficient traffic operations along Highway 39/50 Avenue.



Figure 17: 74 Street & 50 Avenue Roundabout Concept

 Rollyview Road / C.W. Gaetz Roundabout – Intersection upgrades are required in the short-term horizon. A single lane roundabout can be maintained well into the long-term horizon with proposed slip turn bays to accommodate turning movements as required based on traffic growth and development in the area. As shown in Figure 18, the functional plan outlines detailed traffic operations and proposed improvements.



Figure 18: Rollyview Road / C.W. Gaetz Road Roundabout Concept

6.3. DOWNTOWN CORRIDOR ENHANCEMENTS

Through public and stakeholder engagement, as well as the technical analysis, it was identified that the main downtown arterial corridors - 50 Street and 50 Avenue - are experiencing traffic congestion today. Additionally, concerns were raised about limited pedestrian and alternative modes connectivity within the downtown area.

To help improve these connections, the TMP proposes an alternative multiway connection that links 50 Avenue near Highway 2 to 50 Street by way of 49 Avenue (see Figure 14). This alternative route supports the development of a primary pedestrian route, shifting it away from 50 Avenue, which does not currently have adequate ROW to accommodate proper multiway infrastructure while maintaining the existing traffic lanes. The following subsections highlights the strategies to manage growth and access managment through the downtown area.

6.3.1. DOWNTOWN GROWTH MANAGEMENT

Key downtown transportation corridors such as 50 Street and 50 Avenue, face significant constraints in expanding roadway capacity or enhancing active transportation facilities. These limitations are primarily due to the physical limitations of the current cross-sections and the presence of adjacent permanent structures. As a result, should travel demand in the downtown area increase due to overall population growth, higher residential or employment density, or new developments and redevelopments, significant congestion will be observed.

This congestion will be observed by way of lower levels of service at intersections, longer queue times entering and exiting corridors, and other operational delays. Where redevelopment occurs, transportation corridor ROWs should be reviewed for opportunities to improve infrastructure for all modes of travel. Specifically, as population and employment density increase near the downtown area, supporting mode shift through improved and attractive alternative transportation options will be essential to provide convenient access to where residents live, work and play.

6.3.2. 50 AVENUE SAFETY REVIEW

The existing and long-term safety of 50 Avenue was also identified as a concern by both the public and City Administration. Further technical analysis was completed for the corridor between Highway 2 and 50 Street to determine long-term solutions that can maintain fluid traffic operations and maximize corridor safety. The following subsections provide a more detailed discussion on corridor and access management enhancements along 50 Avenue. The concept plans presented in this section will require further engagement and design efforts to refine the proposed improvements.

AREAS OF ACCESS MANAGEMENT CONCERNS ON 50 AVENUE:

- 50 Avenue North Access, 100m east of Highway 2
 - > Proximity to the Highway 2 entrance ramp (northbound) can make movements to/from this access a concern, especially during congested periods.
- Multiple accesses south of 50 Avenue between Highway 2 and 52 Street
 - > Several accesses close to the Highway 2 exit ramps are a concern on the south side of the corridor. This section of the corridor experiences high congestion, and the presence of multiple accesses contributes to the disruption of traffic flow on 50 Avenue. There is also an eastbound lane that terminates at an access, which poses a major safety risk. Drivers may not be anticipating the lane to end and may make dangerous maneuvers to weave back onto 50 Avenue. Ideally, the eastbound lane drop should occur at an intersection, as opposed to an access.

50 AVENUE

Effective access management within the downtown area is essential for supporting efficient and safe connectivity for all users. As 50 Avenue is designated as an arterial roadway, direct business access should be limited in accordance with the City's Land Use Bylaw and Engineering Design Standards. While it is recognized that existing accesses are present along the corridor, the number of direct accesses should be minimized wherever feasible. Strategies could include relocating accesses to adjacent minor streets, such as 52 Street or 51 Street, closing redundant access points, or consolidating accesses that are in close proximity to reduce conflict and improve overall corridor performance.

A centre median could also be considered along 50 Avenue to prevent left turning traffic across multiple lanes. This area has a significant portion of traffic changing lanes, which makes left turn movements even more dangerous as vehicle paths are difficult to predict, making safe gap acceptance challenging (adequate space between vehicles in oncoming traffic to make a left turn across traffic flow).

To address the concerns on 50 Avenue and through the downtown corridor, a phased implementation approach with continuous review of traffic operations is recommended.

As a short-term recommendation, it is recommended that one of the three accesses in proximity on the south side of 50 Avenue between Highway 2 and 52 Street be closed. The number of accesses in close proximity can create safety issues and sideswipe collisions as traffic weaves between lanes and enters/exits the flows of traffic. Based on the alignment of the accesses, the middle access is recommended to be closed. The following figure outlines the recommended short term improvements.



Figure 19: 50 Avenue Access Consolidation Concept

Benefits	Impacts
 Minimizes access points in close proximity. Access still provided to east and west of this access. Improves pedestrian safety. Improves clear ingress and egress out of development. 	 One access removed from development. Some private property impacts.

As a long-term recommendation, additional access points along the corridor should be removed and left-turn movements restricted. This is driven by safety concerns related to vehicles crossing multiple lanes of traffic accelerating or decelerating to and from Highway 2. As the City grows and congestion increases, the risk of collisions will also inherently rise at the access points.



Figure 20: 50 Avenue Corridor Access Management Concept

Benefits	Impacts
 Minimizes access points. Access still provided to all developments. Limits left turns across multiple lanes to improve safety on traffic flow. Allows for longer dedicated eastbound left turn bay. 	 Property impacts to the lots north of 50 Avenue. Access relocation and cross access agreements required.
at 52 Street.	

51 STREET

As traffic volumes along 50 Avenue continue to grow, delays for vehicles accessing the corridor from 51 Street may begin to increase. When these delays become lengthier, safety concerns may arise as drivers start accepting smaller gaps to turn to/from 51 Street. This intersection should be regularly monitored for safety incidents, near misses, and overall traffic operations. If concerns arise, this intersection is recommended to be modified to a right-in/right-out configuration for the following reasons:

- Limits dangerous left turn movements across congested traffic lanes where visibility can be limited due to queued traffic.
- Limits short-cutting through residential neighbourhoods with drivers aiming to avoid congestion on 50 Avenue. This can also become a safety concern for all modes of travel, including school aged children travelling to/from schools and parks throughout the residential neighbourhoods.
- Maintains some access to/from the neighborhoods, preventing significant traffic buildup at adjacent intersections.

While signalization could also be considered to address cross-street delays and safety concerns, this will significantly impact traffic flows on 50 Avenue due to existing signals located one block east and west of the intersection. Therefore, signalizing the 51 Street intersection is not recommended.

Converting 51 Street to a right-in/right-out intersection would be a longer-term solution. This would remove the turning movements across multiple lanes and provide more fluid traffic operations along 50 Avenue. This improvement should be completed if safety concerns are observed or reported at the intersection, interruptions to traffic flows along 50 Avenue become significant, and operational concerns are noted, or significant short-cutting is being observed throughout the neighbourhoods to the north and south.

Figure 21 illustrates a right-in/right-out concept plan for 51 Street.



Figure 21: 51 Street Right-in/Right-out Concept

Benefits	Impacts	
 Minimizes access points onto congested arterial roadway providing more fluid 50 Avenue traffic operations. Removes safety concern of left turns to/from minor legs across multiple lanes of traffic. Allows for longer eastbound left turn bay at 50 Street. Discourages shortcutting throughout the neighbourhood local network. 	 One full access intersection removed moving some traffic onto 50 Street or 52 Street. Some impact to business access on northeast quadrant. 	

DOWNTOWN CORRIDOR ACTIONS & DIRECTIONS

- The City should consider formal conflict analysis along 50 Avenue. This may provide empirical evidence to the safety risks on 50 Avenue east of Highway 2. This can be achieved by the use of video-based conflict analysis, an innovative data-driven safety analysis that is readily becoming more accurate and available to municipalities.
- The City should limit direct business access to all arterials where possible to maintain fluid traffic operations and provide safer cross-community corridors.
- Transportation projects in the downtown area should be reviewed with the UCRP to ensure alignment with redevelopment plans. A balanced approach that considers all modes of transportation—alongside overall network performance—should guide project design, with arterial roadways prioritizing network continuity and collectors or cross-streets allowing for more flexible, multimodal corridor treatments.



6.4. ACCESS MANAGEMENT

Through the TMP process, it was recognized that access management is an important factor in maintaining efficient traffic operations on both existing and future roadways. While it is important to set reasonable access management guidelines to encourage development, it is noted that many of the existing major roadways have an excessive number of direct business access. This can disrupt traffic flow and create safety concerns due to the frequent acceleration and deceleration of vehicles entering and exiting the roadways at various points along a corridor. While existing constraints may not be able to be addressed due to the orientation of development or adjacent roadways, the following principles should be applied wherever possible in new construction or where redevelopment occurs:

- Direct business access should not be provided onto arterial roadways.
- Access widths should be minimized to create a clearly defined turn path for one lane of entry and exit.
- Accesses should be constructed with up-to-date regulatory signage and pavement markings.

In addition to the principles above, it is recommended that the access management spacing in the Engineering Design Standards be updated as follows:

Higher Order Roadway	Roadway / Access Crossing Higher Order Roadway	Minimum Spacing from Nearest Existing or Planned Arterial Intersection
Arterial	Collector (All Directional)	400m
Arterial	Collector (Right-in/Right-out)	200m
Collector	Collector	100m
Collector	Local	70m
Collector	Alleyway / Private Access	70m

Table 4: Access Management Recommendations

Any deviations will be further reviewed by the City. To avoid future conflicts, discretionary access will be reviewed for businesses requesting a connection to a collector roadway in close proximity to a future signalized arterial intersection.

7. TRANSFORMING TRANSFORMING TRANSPORTATION IN LEDUC

7. TRANSFORMING TRANSPORTATION IN LEDUC

As a vital hub along major transportation corridors, Leduc relies on an efficient and adaptable network to facilitate the movement of people and goods. With ongoing urban development and increasing regional demands, investing in modern infrastructure, active transportation options, and enhanced highway access is key to fostering economic prosperity and ensuring seamless mobility.

The TMP has identified several transportation initiatives that will transform transportation in Leduc. These projects are essential to support the City's growth, enhance



The Implementation Plan outlines a projected approach based on development progress, with the prioritization plan subject to change.

connectivity, and improve the quality of life for residents and businesses. This TMP highlights an implementation plan for the long-term horizon that includes the realignment of Highway 2A interchange, which will play an integral part in supporting growth in the city.

The following phasing and implementation plan outlines the recommended capital project improvements and the corresponding timelines required to achieve it. These timelines are generally reliant on the rate of development and timelines may change based on development progress.

7.1. SHORT-TERM PLAN

A summary of key projects anticipated in the short-term horizon is presented in Table 5 and are listed in order of priority, which is based on the anticipated rate of development. Figure 22 illustrates the location of the recommended short-term improvements.

Corridor	Segment	Recommended Short-Term Action
74 Street and 50 Avenue	-	Intersection Upgrade - Roundabout
74 Street	50 Ave to Crystal Creek Collector	New Rural 2-Lane Undivided
65 Avenue West	74 Street to Grant MacEwan Boulevard	New Rural 2-Lane Undivided
Coady Boulevard	Meadowview Boulevard to Pioneer Road	New Urban 4-Lane Undivided
Pioneer Road, Stage 2	Meadowview Way to Coady Boulevard	New First Half of Urban 4-Lane Divided
Pioneer Road, Stage 3	Coady Boulevard to C.W. Gaetz Road	New First Half of Urban 4-Lane Divided
Grant MacEwan Boulevard	Black Gold Drive to Spruce Boulevard/Windrose Drive South	Upgrade Rural 2-Lane Undivided to urban 4-Lane Divided
C.W Gaetz Road and Rollyview Road	-	Intersection Upgrade - Roundabout *Timeline contingent on development progress in surrounding neighbourhoods.

Table 5: Recommended Short-Term Improvements



City Boundary

Figure 22: Short-Term Network Improvements

7.2. MEDIUM-TERM PLAN

Table 6 outlines the recommended projects to be implemented within the medium-term horizon. It is noted that some of the short-term projects may be delayed due to evolving development patterns; therefore, a regular review of these projects should be completed to ensure timelines are still appropriate.

Figure 23 illustrates the location of the recommended medium-term improvements.

Corridor	Segment	Recommended e i -Term Action
74 Street	Crystal Creek Collector to Banks of Crystal Creek Collector N	New Rural 2-Lane Undivided
74 Street	Crystal Creek Collector N to Southwest Boundary Road.	New Rural 2-Lane Undivided
Spine Road	65 Avenue East to 56 Avenue	New Rural 2-Lane Undivided
Spine Road	56 Avenue to Telford Lake	New Rural 2-Lane Undivided
Spine Road	Telford Lake to Rollyview Road	New Rural 2-Lane Undivided
50 Avenue	From Highway 2 West Ramp Terminal to Discovery Way	Widening North Side to 4 Westbound Lanes
Coady Boulevard and Pioneer Road	-	Signalize Intersection – As warranted based on traffic delays.
Grant MacEwan Boulevard South	Blackstone Boulevard to Proposed South Blackstone Collector	Upgrade Gravel Road to 2-Lane Urban Undivided
Grant MacEwan Boulevard North, Stage 1a/1b	1a - 50 Avenue to Ameena Drive 1b - Ameena Drive to Bridgeport Gate	Upgrade Urban 2-Lane Undivided to Urban 4- Lane Divided
50 Street	Bella Coola to Highway 2A	Upgrade Rural 2-Lane Undivided to Rural 4-Lane Undivided
Grant MacEwan Boulevard North, Stage 2	65 Avenue West to Bridgeport Gate	Upgrade Rural 2-Lane Undivided to Urban 4-Lane Divided
Grant MacEwan Boulevard and 65 Avenue West	-	Intersection Configuration Upgrade – Westbound Left Turn Bay. Additional upgrades may be required in response to development north of 65 Avenue. *North leg of intersection within EIA jurisdiction, improvements to be coordinated with EIA.

Table 6 Recommended Medium-Term Improvements



7.3. LONG-TERM PLAN

Table 7 outlines the recommended projects to be implemented within the long-term horizon. Some of the medium-term projects may be delayed due to evolving development patterns; therefore, a regular review of these projects should be completed to ensure timelines are still appropriate.

Figure 24 illustrates the location of the recommended long-term improvements

Corridor	Segment	Recommended n Term Action
45 Street/43 Street	175 m North of 70 Ave (Spur Oilfields Services Access) to Allard Avenue	Upgrade Urban 2-Lane Undivided to Urban 4-Lane Undivided
Southwest Boundary Road	Grant MacEwan Boulevard to Proposed Highway 2A interchange project limits	New Rural 2-Lane Undivided
Southwest Boundary Road	74 Street to Grant MacEwan Boulevard	New Rural 2-Lane Undivided
Southwest Boundary Road and Grant MacEwan Boulevard	-	Intersection Upgrade - Roundabout
Spine Road	Airport Road to 1st Saunders Access	Upgrade Rural 2-lane Undivided to Rural 4-lane Divided
Spine Road	1st Saunders Access to Allard Ave (2nd Saunders Access)	Upgrade Rural 2-lane Undivided to Rural 4-lane Divided
Spine Road	Allard Ave (2nd Saunders Access) to 65 Avenue East	Upgrade Rural 2-lane Undivided to Rural 4-lane Divided
Spine Road and 65 Avenue	-	Signalize as intersection LOS reaches failing conditions or once 4-lane corridor upgrades are completed
65 Avenue East	45 Street to 43 Street	Upgrade Rural 2-lane Undivided to Urban 4-lane Undivided
65 Avenue East	43 Street to 39 Street	Upgrade Rural 2-lane Undivided to Rural 4-lane Undivided
65 Avenue West	Grant MacEwan Boulevard to Discovery Way	Upgrade Rural 2-lane Undivided to Rural 4-lane Divided
50 Avenue	From Bridgeport Crossing to Deer Valley Drive/West Haven Boulevard	Upgrade 4-Lane Rural to 6-Lane Divided Urban

Table 7: Recommended Long-Term Improvements



7.4. BEYOND LONG-TERM IMPROVEMENTS

Leduc will experience ongoing growth and development over the next 25 years and beyond. Along with the network upgrades outlines in the Recommended Future Road Network, the City will need to safeguard rightsof-way for potential future road connections or widenings. The following key network upgrades beyond the long-term horizon have been identified through previous planning and re-evaluated through this TMP.

- Spine Road is anticipated to be a four-lane cross section within the City Limits in the long-term horizon. Beyond the long-term horizon, this corridor may require six-lanes, therefore, the ROW should be protected for this ultimate cross-section. Should continued growth occur south of the existing City Limits, Spine Road should continue to be protected as a four-lane roadway further south and connect into the expanded transportation network as a key arterial. While the four-lane cross section is expected to be constructed from Airport Road to 65 Avenue in the long-term horizon, the remaining sections are anticipated to be not required until outside the horizon of this TMP. Should rapid/slower development and build-out of the Telford ASP area occur, timelines for this upgrade will need to be modified to respond to development rates.
- Phase 2 of the 65 Avenue Interchange project is anticipated to be constructed beyond the long-term horizon. With a variety of key stakeholders in this project (EIA, City, Province) timelines may evolve as regional priorities shift. Development on the EIA lands will be a key driver for this improvement to facilitate east/west movements across Highway 2. This project will also modify truck routing within the city. With the first phase of this project being completed in 2025, traffic patterns should be closely monitored along 65 Avenue, Airport Road and Airport Perimeter Road over the medium-term horizon to determine the appropriate timelines for Phase 2 of the interchange construction.

Table 8 also outlines other roadway upgrades to facilitate growth beyond the long-term horizon.

Table 8: Summary of Beyond Long-Term Horizon Improvements

Corridor	Segment	Recommended Beyond Long-Term Action
65 Avenue East	39 Street to Spine Road	Upgrade Rural 2-lane Undivided to Rural 4-lane Undivided
50 Street	64 Avenue to 47 Street/61 Avenue	Upgrade Urban 4-Lane to Urban 6-Lane Divided
50 Avenue	74 Street to 69 Street	Upgrade Rural 2-Lane Undivided to Rural 4-Lane Divided
Grant MacEwan Boulevard South	Spruce Boulevard to Southwest Boundary Road	Upgrade Rural 2-Lane Undivided to Urban 4-Lane Divided
65 Avenue West and 74 Street	-	Signalization, monitor corridor upgrades and align projects if near the same horizon.
Southwest Boundary Road and 74 Street	-	Signalization, monitor corridor upgrades and align projects if near the same horizon.
65 Avenue West	Discovery Way to Highway 2	Upgrade 2-Lane Rural Undivided to 6-lane Rural Divided
Airport Road	42 Street to 36 Street/7 Street	Upgrade Rural 4-lane Divided to Rural 6-lane Divided
Airport Road	36 Street to Spine Road	Upgrade Rural 4-lane Divided to Rural 6-lane Divided
Airport Road	Sparrow Drive to 43 Street	Upgrade 5-Lane Divided Urban/Rural to 6-Lane Divided Urban/Rural
Spine Road	Airport Road to 1st Saunders Access	Upgrade Rural 4-lane Divided to Rural 6-lane Divided
65 Avenue East	West of CPKC Rail Corridor to 45 Street	Upgrade Rural 4-lane Undivided to Urban 6-lane Divided *Project contingent on 65 Avenue Phase 2 timing and likely not required until well beyond the long-term horizon

7.5. POTENTIAL FUTURE REGIONAL IMPROVEMENTS

The TMP also considers potential future regional transportation upgrades that may influence the long-term connectivity, mobility, and growth across the broader Region. These projects include:

- Highway 2 will continue to see growth throughout the TMP horizon. As Highway 2 becomes more congested, additional lanes as well as potential realignment of certain parts of the corridor/interchanges is expected. While these major improvements are expected outside the TMP horizon, they should still be continuously reviewed with the Province to ensure appropriate timing of both provincial and municipal projects.
- Township 510 Interchange will be a new interchange on Highway 2 north of the city. A functional plan has been completed, however, no timeline is associated with the project at this time. Industrial development within the city and Leduc County, along with Provincial and Regional priorities will be the driving factors behind this interchange.
- Possible reconfiguration of the existing Highway 2A interchange is being reviewed as part of the Highway 2A interchange realignment project. This configuration would provide a flyover of Highway 2, creating an additional east/west connection from the existing Highway 2A to 38 Avenue. Ramps connecting to Highway 2 would not be included. While the flyover was excluded from the long-term modelling scenario, it is anticipated that this connection would reduce some traffic demands along the new interchange and 50 Avenue. The existing Highway 2A, east of the proposed flyover, will be adequate to carry the anticipated traffic volumes. However, west of the flyover, significant investment would be required to construct a new roadway connecting the existing bridge structure to 38 Avenue. Further analysis is required as part of the Highway 2A interchange realignment project to determine the constructability and functionality of this solution.

