IRTMP Regional Transportation Prioritization Process

EMRB Integrated Regional Transportation Master Plan

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Edmonton Metropolitan Region Board
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1 Introduction

Member municipalities of the Edmonton Metropolitan Region Board have collaboratively generated annual regional transportation project priority lists since 2013. These lists have been used to help inform Alberta Transportation's capital planning and support provincial funding for projects within the Edmonton Metropolitan Region.

With the adoption of an updated growth plan in 2017, the Board emphasized the need to review and update the Integrated Regional Transportation Master Plan (IRTMP). The prioritization process has been updated to reflect the new plans.

1.1 2021 Update

The IRTMP establishes a policy framework and transportation priorities to plan and seek funding for the Region's transportation network for the next 25 years.

Traditionally, a transportation master plan includes a set of projects to be implemented, often covering 20 years or more of anticipated funding and allocation of transportation dollars. The IRTMP moves away from this static model of planning and moves toward a growing trend of plans that are able to adapt over time and in response to changing circumstances. The prioritization process assesses an individual project's ability to improve regional transportation mobility.

The updated prioritization process for the IRTMP builds upon historic prioritization practices and will be used annually to update the Regional Transportation Priorities report. The annual process allows the Region to be more flexible and dynamic in responding to changing funding and technologies.

The IRTMP also introduces a new regional travel model. The model is a valuable tool for the prioritization process as it allows many of the criteria that were previously based solely on judgement to now be supported by data and accurate mapping generated through modelling, and in some cases replacing the judgement-based criteria completely with a data-based criteria approach. In particular, the updated prioritization process includes monetization of travel time and vehicle operating benefits based on system-wide savings generated with the model, as an example.

This document outlines the updated prioritization process to support the implementation of the 2021 IRTMP.

1.2 Purpose of Prioritization

A prioritization process is a tool to assist decision-makers in identifying those projects that best align with a set of objectives. The EMRB Regional Transportation Prioritization Process groups regionally significant transportation projects based on their alignment with the IRTMP goals and policies. Prioritization is an important input to capital budgeting.

A prioritization process is an important decision-support tool, it should inform decisions, not make them. Other factors need to be considered beyond IRTMP goals and policies

that may impact regional transportation projects and budgeting decisions. For example, urgent infrastructure rehabilitation or repair could result in a project being advanced earlier than the prioritization process would suggest. While the prioritization process considers value for money, it does not consider available funding on a year-by-year basis. Available funding may affect the final initiatives for the Region.

Historically, the regional transportation priorities have been used primarily to influence Alberta Transportation's three-year capital plan with EMRB needs and priorities. This remains a primary goal of the prioritization process. However, the IRTMP has highlighted the importance of an integrated and multi-modal transportation system that extends beyond the provincial or provincially-funded roadway network. Research will be required into other sources of funding since the traditional levels of provincial funding are becoming less certain and cover a wider range of programs.

The updated prioritization process therefore serves several purposes, including:

- communicating the unified priorities of the Region for projects funded and delivered by Alberta Transportation;
- supporting other senior government grant and funding applications;
- guiding regional advocacy to senior government around infrastructure priorities and regulatory change;
- helping to inform local transportation infrastructure planning; and
- providing direction on what is important to the Region to allow projects to be developed and/or refined to better align with policies and goals of the 2021 IRTMP.

2 Methodology

The proposed prioritization process uses the previous approach as a basis and includes refinements to align with the updated IRTMP and includes a more rigorous evaluation of projects as a project moves further along the planning process and more information is known and project readiness and value-for-money components can be assessed.

2.1 Process Overview

The prioritization process was developed with the input of the IRTMP Working Group, Alberta Transportation, IRTMP Task Force, and EMRB administration.

An important change from the previous prioritization process is the application of project phases. In the previous process, the project phases (referred to as project status) were established after the scoring process to further inform the process. In this updated process, the projects are categorized by project phase ***before*** the scoring is completed.

The project phases are:

- Advance to Planning
- Ready for Design
- Ready for Construction

Each of these three categories has a different set of evaluation criteria, with the level of evaluation detail increasing with the level of project development, i.e., a project that is Ready for Construction will be more rigorously evaluated than one that is ready to Advance to Planning. This reflects the higher level of information and certainty for the more advanced projects, and the higher level of investment required.

The process is dynamic. The annual update will refine priorities as projects move through the project development phases and as funding and technology changes. This means a project that is categorized as Advance to Planning in one year could move to the Ready for Design category in a subsequent year once planning has occurred, and the project could be redefined based on the outcomes of the planning study.

2.1.1 Project Outcomes

The project outcomes are derived from the 2017 Edmonton Metropolitan Region Growth Plan, which is also the basis for many of the policies and goals of the 2021 IRTMP.

The prioritization process groups evaluation criteria into four project outcome categories from the growth plan and reinforced in the IRTMP, plus a fifth category based on value and readiness as follows:

- Economic Competitiveness
- Sustainable and Resilient Communities
- Health and Environment
- Serving the Diverse Needs of the Region
- Value and Readiness

2.1.2 Process Summary

Figure 1 summarizes the process and provide a general outline of the evaluation.

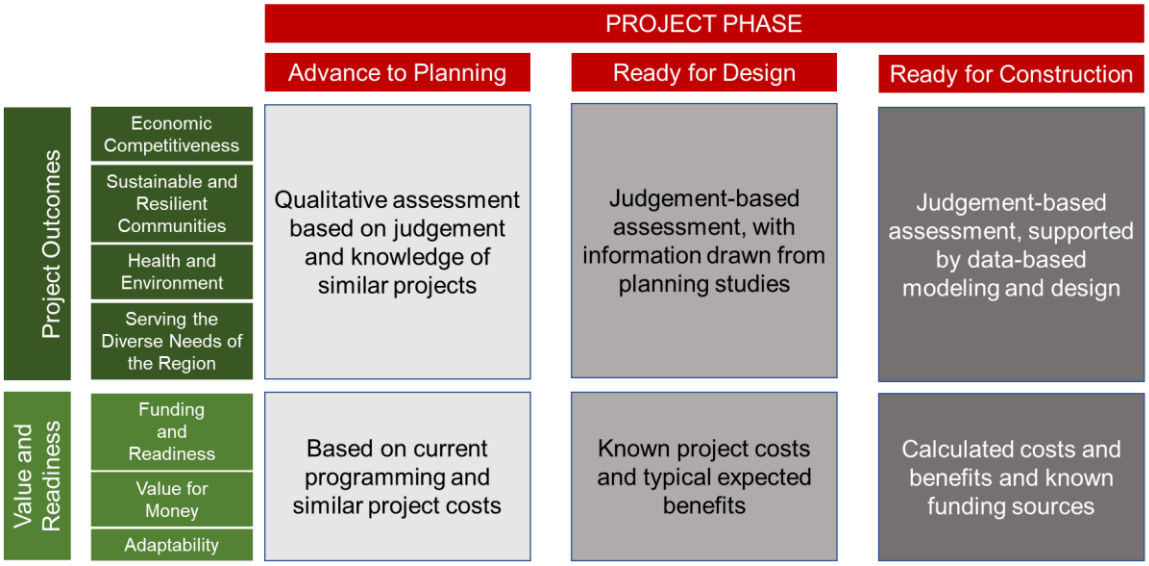


Figure 1: Regional Transportation Priorities Process

2.2 Regionally Significant Projects

Only regionally significant projects should be brought forward to the prioritization process. The definition of regionally significant is intentionally vague. Where there is doubt about the regional significance of a project, it should be included in the "Advance to Planning" phase and evaluated as part of that list of projects. If the project does not have strong regional significance, it will not advance beyond this list. A low ranking in the "Advance to Planning" list may suggest a lack of regional significance.

Projects that meet some or all of the following criteria may be considered regionally significant:

- Project on a Level 1 or 2 provincial highway;
- Higher-order transit project;
- All age-and-abilities (AAA) intermunicipal active transportation facility;
- Roadways that provide access to major employment areas in the Metropolitan Area or the Rural Area;
- Any crossing of the North Saskatchewan River;
- Roadways that are forecasted to carry more than 2,000 trucks/day;
- Road-rail grade separation;
- Projects on any arterial roadway where traffic is comprised of more than 25% with an origin or destination outside the municipality the project is located in; or

- Other project that connects major regional destinations.

The project list was established from three primary sources:

- the 2019 prioritization list;
- the current Alberta Transportation long-range planning list to 2045; and
- other projects identified by the Working Group as being regionally significant.

The initial project phase determinations were made based on discussions with Working Group members and Alberta Transportation staff. Some projects that had previous planning or even design completed were moved to an earlier project phase if the planning or design was deemed to be too old to still be relevant.

The list and assignment of project phases should be reviewed on an annual basis. As projects move through the various project phases, they may need to be disaggregated or otherwise redefined. For example, a project in the Advance to Planning stage may involve several potential interchanges. Based on the functional planning study, it may be appropriate for the project to be split into several new projects based on project phasing.

2.3 Evaluation Overview

The process involves three separate prioritization lists based on the phase of project development. This approach allows for more detailed information to be considered in the prioritization of the larger investments. Therefore, as the project moves from the "Advance to Planning" list to the "Ready for Design" list, then "Ready for Construction", the prioritization process moves from a primarily subjective evaluation based on judgement to an increasingly data-based evaluation; even for those criteria based on a subjective evaluation.

2.3.1 Advance to Planning

These projects have been identified as regionally significant, but no substantive planning has been completed. Initially, all new projects should be subject to this initial prioritization to confirm regional significance.

2.3.1.1 Project Outcomes

The evaluation will be judgement-based, using knowledge of the Region and understanding of the effectiveness of similar projects to generate scores.

2.3.1.2 Value and Readiness

This step will be of lesser importance to the Advance to Planning list as cost estimates or calculation of benefits will not be available. Therefore, the primary focus for Advance to Planning will be the current programming status, funding availability or other documented support. For example, a project that is in the 2030 capital program will score higher than one in the 2030 to 2045 program.

2.3.2 Ready for Design

Project design represents a notable investment, often in the order of 10% of the total project cost. Therefore, more rigour is applied in the prioritization process for Ready for Design projects as compared with Advance to Planning and will help direct investment to those projects that are ready for advancement.

2.3.2.1 Project Outcomes

Prioritization will be similar to the previous prioritization methodology and will be primarily judgement-based but supported with more data. Results from planning studies may be used to support the evaluation.

2.3.2.2 Value and Readiness

Presumably, there will be reliable cost estimates generated from the planning effort, and there may be some indication of the performance benefits of the project. The identified performance benefits and understanding of typical user benefits associated with the specific type of project will help to inform the expected value of the project. However, at this stage, it is unlikely that a common and comparable approach to quantifying user benefits will be feasible, therefore, the value evaluation will be judgement-based, but supported by reliable cost data and more general benefit information. Like the evaluation of projects in the Advance to Planning list, funding and readiness will be evaluated based on programming status, funding availability or other documented support.

2.3.3 Ready for Construction

The Ready for Construction prioritization process will have the greatest effect on upcoming capital planning.

2.3.3.1 Project Outcomes

With a smaller number of projects considered, a more detailed analysis can be undertaken to support the process, including modelling of various indicators to support the evaluation of specific criteria. The Regional Transportation Model is used to add rigour to the evaluation of these projects and incorporate data-based tools to the project outcomes. The model estimates and provides absolute values to support the decision making while determining scores for respective criterion. For roadway projects, the model is used to help identify project influenced changes in network hours, vehicle kilometers travelled (VKT), person trips, and intermunicipal use of links. This provides additional confidence in determining the scores for the Ready for Construction phase and the overall prioritization process, as quantified effects are generated by the model. For transit projects, the monetized values for network hours and VKT reductions are calculated manually using the project business case for guidance.

2.3.3.2 Value and Readiness

Since these projects will have advanced through the design phase, they will be well-developed with detailed cost estimates. It will be possible to estimate user benefits using the regional model so that benefits are comparable between projects. Unlike the Advance to Planning and Ready for Design phases, this phase includes calculation of a

benefit-cost index that takes advantage of the model outputs to generate travel time and vehicle operating cost benefits associated with the project being evaluated.

2.4 Scoring and Weighting

A scoring and weighting system allows for various criteria (described in the next section) to be applied to each Project Outcome category plus Value and Readiness. Four points are available within each category. Most criteria can receive a score of 1 or 0, although there is some variation in the Value and Readiness category.

Weightings for each category are:

Economic Competitiveness	28%
Sustainable and Resilient Communities	28%
Health and Environment	11%
Serving Diverse Needs of the Region	18%
Funding and Value	15%

The same weightings are applied to all project phases.

The scores for each project are determined by multiplying the score out of four in each category by the weighting, then summing the total.

Evaluation Scores	Weighting		Final Score
Each criteria is scored as 1 or 0 Each category has 4 available points	Economic Competitiveness	28%	Score out of 4 for Category *multiplied by* Weighting
	Sustainable and Resilient Communities	28%	
	Health and Environment	11%	
	Serving Diverse Needs of the Region	18%	
	Funding and Value	15%	

There is an exception for Value and Readiness in the Ready for Construction phase where two of the four points are calculated based on a benefit-cost index described in the next section.

3 Evaluation Criteria

Economic Competitiveness: Alignment with economic transportation policies and objectives.

Criteria	Description
Improves a congested goods movement route	Does the project improve a congested goods movement route, defined as arterial, freeway and expressway roadway links with greater than 200 trucks per hour and volume to capacity ratio > 0.85 in the 2045 Delayed Investment scenario?
Improves a congested commuter route	Does the project improve a congested commuter route, defined as arterial, freeway and expressway roadway links with a volume to capacity ratio > 0.85 in the 2045 Delayed Investment scenario?
Improves first / last mile connections to major employment areas, including industrial areas	Does the project improve infrastructure within and around major employment areas, including industrial areas?
Improves connection between modes (Road/Air/Rail) for goods movement	Does the project improve ease of access for intermodal hubs and Edmonton International Airport?

Measurement – Advance to Planning

Criteria	Measure
Improves a congested goods movement route	Judgement-based measure using the "**Congested Truck Corridors**" map, which identifies roads with high truck volumes and constrained by congestion.
Improves a congested commuter route	Judgement-based measure using the "**Congested Commuter Routes**" map, which identifies arterials and expressways constrained by congestion.
Improves first / last mile connections to major employment areas, including industrial areas	Judgement-based measure using the **EMRGP Schedule 3A: Major Employment Areas**, which identifies roadway links that provide access to employment areas, for areas outside of the metropolitan core.
Improves connection between modes (Road/Air/Rail) for goods movement	Judgement-based measure using the "**Mobility Hubs and Intermodal Yards**" map, which identifies locations of intermodal yards / hubs. It improves ease if the project directly connects to the intermodal yard / hubs. For e.g., a road improvement project next to an intermodal yard.

Measurement - Ready for Design

Criteria	Measure
Improves a congested goods movement route	Judgement-based measure using the "**Congested Truck Corridors**" map, which identifies roads with high truck volumes and constrained by congestion, informed by the regional model. In some cases, additional information like Vehicle Hours Travelled may be provided from the model.
Improves a congested commuter route	Judgement-based measure using the "**Congested Commuter Routes**" map, which identifies arterials and expressways constrained by congestion, informed by the regional model. In some cases, additional information like Vehicle Hours Travelled may be provided from the model.
Improves first / last mile connections to major employment areas, including industrial areas	Judgement-based measure using the **EMRGP Schedule 3A: Major Employment Areas**, which identifies roadway links that provide access to employment areas, for areas outside of the metropolitan core.
Improves connection between modes (Road/Air/Rail) for goods movement	Judgement-based measure using the "**Mobility Hubs and Intermodal Yards**" map, which identifies locations of intermodal yards / hubs. It improves ease if the project directly connects to the intermodal yard / hub.

Measurement - Ready for Design

Criteria	Measure
Improves a congested goods movement route	Data supported measure using the "**Congested Truck Corridors**" map, which identifies roads with high truck volumes and constrained by congestion, informed by the regional model. Vehicle Hours Travelled by trucks confirms the score.
Improves a congested commuter route	Data supported measure using the "**Congested Commuter Routes**" map, which identifies arterials and expressways constrained by congestion, informed by the regional model. Vehicle Hours Travelled confirms the score.
Improves first / last mile connections to major employment areas, including industrial areas	Judgement-based measure using the **EMRGP Schedule 3A: Major Employment Areas**, which identifies roadway links that provide access to employment areas, for areas outside of the metropolitan core.
Improves connection between modes (Road/Air/Rail) for goods movement	Judgement-based measure using the "**Mobility hubs and Intermodal Yards**" IRTMP map, which identifies locations of intermodal yards / hubs. It improves ease if the project directly connects to the intermodal yard / hub.

Sustainable and Resilient Communities: Alignment with land use and infrastructure policies.

Criteria	Description
Supports intensification within the Built-Up Urban Area	Does the project support intensification within the Built-Up Urban Area?
Improves multimodal choice or connections (Road/Rail/Air/Transit/Active) for people movement	Does the project improve multimodal choice or connections (Road / Rail / Air / Transit / Active) for people's movement by providing access to more than one mode?
Optimizes person carrying capacity or efficiency on existing roadway or transit infrastructure	Does the project optimize person carrying capacity or efficiency on an existing roadway or transit infrastructure?
Minimizes fragmentation of agricultural land in the Rural Area by utilizing existing facilities/ROW	Does the project avoid fragmentation or a barrier effect or restrict access or operational capabilities of agricultural land in the Rural Area?

Measurement - Advance to Planning

Criteria	Measure
Supports intensification within the Built-Up Urban Area	Judgement-based using the **EMRGP Schedule 2: Edmonton Metropolitan Regional Structure to 2044**. The project supports the intensification if it is located within the Built-Up Urban Area as defined in the EMGRP Schedule 2.
Improves multimodal choice or connections (Road/Rail/Air/Transit/Active) for people movement	Judgement-based measure using the "**Mobility Hubs and Intermodal Yards**" map. It improves if then project facilitates the connection between two or more modes and enhances the mobility of people.
Optimizes person carrying capacity or efficiency on existing roadway or transit infrastructure	Judgement-based measure indicating optimization potential. The project optimizes if it will reduce congestion and/or bottlenecks or add person carrying capacity without widening the infrastructure.
Minimizes fragmentation of agricultural land in the Rural Area by utilizing existing facilities/ROW	Judgement-based measure. It avoids or minimizes fragmentation if it is a new link using existing road ROW or improves an existing road in the Rural Area. The project also scores zero if it is in a Metropolitan Core or Area.

Ready for Design

Criteria	Measure
Supports intensification within the Built-Up Urban Area	Judgement-based using the **EMRGP Schedule 2: Edmonton Metropolitan Regional Structure to 2044**. The project supports the intensification if it is located within the Built-Up Urban Area as defined in the EMGRP Schedule 2.
Improves multimodal choice or connections (Road/Rail/Air/Transit/Active) for people movement	Judgement-based measure using the "**Mobility Hubs and Intermodal Yards**" map. It improves if then project facilitates the connection between two or more modes and enhances the mobility of people.
Optimizes person carrying capacity or efficiency on existing roadway or transit infrastructure (e.g., HOV Lane/Transit Priority, ITS, etc.)	Judgement-based measure indicating optimization potential. The project optimizes if it will reduce congestion and/or bottlenecks or add person carrying capacity without widening the infrastructure.
Minimizes fragmentation of agricultural land in the Rural Area by utilizing existing facilities/ROW	Judgement-based measure. It avoids or minimizes fragmentation if it is a new link using existing road ROW or improves an existing road in the Rural Area. The project also scores zero if it is in a Metropolitan Core or Area.

Ready for Construction

Criteria	Measure
Supports intensification within the Built-Up Urban Area	Judgement-based using the **EMRGP Schedule 2: Edmonton Metropolitan Regional Structure to 2044**. The project supports the intensification if it is located within the Built-Up Urban Area as defined in the EMGRP Schedule 2.
Improves multimodal choice or connections (Road/Rail/Air/Transit/Active) for people movement	Judgement-based measure using the "**Mobility Hubs and Intermodal Yards**" map. It improves if then project facilitates the connection between two or more modes and enhances the mobility of people.
Optimizes person carrying capacity or efficiency on existing roadway or transit infrastructure (e.g. HOV Lane/Transit Priority, ITS, etc.)	Judgement-based measure indicating optimization potential. The project optimizes if it will reduce congestion and/or bottlenecks or add person carrying capacity without widening the infrastructure.
Minimizes fragmentation of agricultural land in the Rural Area by utilizing existing facilities/ROW	Judgement-based measure. It avoids or minimizes fragmentation if it is a new link using existing road ROW or improves an existing road in the Rural Area. The project also scores zero if it is in a Metropolitan Core or Area.

Health and Environment: Alignment with environmental and health priorities/policies, air quality and GHG Impacts, and safety impacts.

Criteria	Description
Avoids, minimizes or mitigates the impacts to natural living system features as identified in EMRGP	Does the project avoid, minimizes or mitigates the impacts to natural living system features as identified in EMRGP?
Improves active transportation for all ages, abilities and purposes	Does the project improve access and encourage active transportation modes for all ages, abilities and purposes?
Air and GHG Impacts; reduction in CAC, GHG	Does the project reduce CAC and GHG emissions?
Addresses a known safety issue	Does the project address a known safety issue?

Measurement - Advance to Planning

Criteria	Description
Avoids, minimizes or mitigates the impacts to natural living system features as identified in EMRGP	Judgement-based measure using the **EMRGP Schedule 4 Natural Living Systems.** It minimizes if there is no interaction with living systems.
Improves active transportation for all ages, abilities and purposes	Judgement-based measure. It improves access and encourages mode shift if it is an active transportation project or there is an active transportation component involved in the project.
Air and GHG Impacts; reduction in CAC, GHG	Judgement-based measure for potential to reduce Vehicle Kilometers Travelled, which is approximately proportional to emission reduction.
Addresses a known safety issue	Judgement-based measure based on identified and documented safety issues.

Measurement - Ready for Design

Criteria	Measure
Avoids, minimizes or mitigates the impacts to natural living system features as identified in EMRGP	Judgement-based measure using the **EMRGP Schedule 4 Natural Living Systems**. It minimizes if there is no interaction with living systems or if mitigation is identified in a planning report.
Improves active transportation for all ages, abilities and purposes	Judgement-based measure. It improves access and encourages mode shift if it is an active transportation project or there is an active transportation component involved in the project.
Air and GHG Impacts; reduction in CAC, GHG	Judgement-based measure for potential to reduce Vehicle Kilometers Travelled, which is approximately proportional to emission reduction.
Addresses a known safety issue	Judgement-based measure based on identified and documented safety issues.

Measurement - Ready for Construction

Criteria	Measure
Avoids, minimizes or mitigates the impacts to natural living system features as identified in EMRGP	Judgement-based measure using the **EMRGP Schedule 4 Natural Living Systems**. It minimizes if there is no interaction with living systems or if mitigation is identified in a planning report.
Improves active transportation for all ages, abilities and purposes	Judgement-based measure. It improves access and encourages mode shift if it is an active transportation project or there is an active transportation component involved in the project.
Air and GHG Impacts; reduction in CAC, GHG	Data supported measure for potential to reduce Vehicle Kilometers Travelled, which is approximately proportional to emission reduction.
Addresses a known safety issue	Judgement-based measure based on identified and documented safety issues.

Serving Diverse Needs of the Region: Alignment with community support and connection goals, and equity and inclusion goals.

Criteria	Description
Improves transportation access and facilities for the agricultural sector outside of the Built-up Urban Area	Does the project improve transportation access and facilities for the agricultural sector outside of the Built-up Urban Area?
Supports the development of Multi-use corridors (utilities, pipelines, etc.)	Does the project support development of multiple infrastructure uses?
Provides infrastructure connection to multiple jurisdictions	Does the project provide or improve infrastructure connection between multiple jurisdictions?
Provides service/connection to neighborhoods with a large share of proportion of low-income household (greater than 30% of households with a high prevalence of low income as defined by Statistics Canada)	Does the project improve transportation access by providing service/connection to neighborhoods with a large share of proportion of low-income households?

Measurement - Advance to Planning

Criteria	Measure
Improves transportation access and facilities for the agricultural sector outside of the Built-up Urban Area	Judgement-based measure. It improves access if the project improves a regional road connecting agricultural lands in rural areas.
Supports the development of Multi-use corridors (utilities, pipelines, etc.)	Judgement-based measure based on the location. The project supports development if other forms of regional linear infrastructure are to be supported within the corridor right-of-way, or the project overlaps with infrastructure/energy corridors in the **EMRGP Schedule 8A and 8B**.
Provides infrastructure connection to multiple jurisdictions	Judgement-based measure using the "**External Traffic**" map. The project provides or improves connection if it is located on a roadway that constitutes more than 25% trips from more than one jurisdiction.
Provides service/connection to neighborhoods with a large share of proportion of low-income household	Judgement-based measure based on potential improvements for traffic zones, shown in the "**Low Income Neighbourhoods**" map.

Measurement - Ready for Design

Criteria	Measure
Improves transportation access and facilities for the agricultural sector outside of the Built-up Urban Area	Judgement-based measure. It improves access if the project improves a regional road connecting agricultural lands in rural areas.
Supports the development of Multi-use corridors (utilities, pipelines, etc.)	Judgement-based measure based on the location. The project supports development if other forms of regional linear infrastructure are to be supported within the corridor right-of-way, or the project overlaps with infrastructure/energy corridors in the **EMRGP Schedule 8A and 8B**.
Provides infrastructure connection to multiple jurisdictions	Judgement-based measure using the "**External Traffic**" map. The project provides or improves connection if it is located on a roadway that constitutes more than 25% trips from more than one jurisdiction.
Provides service/connection to neighborhoods with a large share of proportion of low-income household	Judgement-based measure based on potential improvements for traffic zones, shown in the "**Low Income Neighbourhoods**" map.

Measurement - Ready for Construction

Criteria	Measure
Improves transportation access and facilities for the agricultural sector outside of the Built-up Urban Area	Judgement-based measure. It improves access if the project improves a regional road connecting agricultural lands in rural areas.
Supports the development of Multi-use corridors (utilities, pipelines, etc.)	Data supported measure based on the location. The project supports development if other forms of regional linear infrastructure are to be supported within the corridor right-of-way, or the project overlaps with infrastructure/energy corridors in the **EMRGP Schedule 8A and 8B**.
Provides infrastructure connection to multiple jurisdictions	Judgement-based measure using the "**External Traffic**" map. The project provides or improves connection if it is located on a roadway that constitutes more than 25% trips from more than one jurisdiction.
Provides service/connection to neighborhoods with a large share of proportion of low-income household	Judgement-based measure based on potential improvements for traffic zones, shown in the "**Low Income Neighbourhoods**" map.

Value and Readiness: Consideration of project adaptability, value for money and readiness for implementation.

Criteria	Description
Adaptability - Ability for the project to be adapted over time to remain relevant with emerging technology and trends	Does the project have the ability to be adapted over time to remain relevant with emerging technology and trends to minimize throwaway?
Project Readiness - Assessment of the current funding and/or programming status of a project reflecting its readiness to be advanced to the next project phase	Is the project ready to be advanced to the next project phase?
Benefit Cost Index	What is the ratio hours vehicle operating benefit relative to cost?

Measurement - Advance to Planning

Criteria	Measure
Adaptability - Ability for the project to be adapted over time to remain relevant with emerging technology and trends	Judgement-based measure. Typically, a project will be deemed to be adaptable if it incorporates the ability to implement managed lanes in the future or will include communications infrastructure to support ITS and other technology.
Project Readiness - Assessment of the current funding and/or programming status of a project reflecting its readiness to be advanced to the next project phase	Judgement-based score out ranging from 0 to 3: 0 - Not listed in any current Long term capital plan or past 2030 1 - Currently programmed but beyond the year 2030 2 - Programmed but no identified funding source by the year 2030 or partial funding identified 3- If programmed with funding available prior to 2030
Benefit Cost Index	Not applicable

Measurement - Ready for Design

Criteria	Measure
Adaptability - Ability for the project to be adapted over time to remain relevant with emerging technology and trends	Judgement-based measure. Typically, a project will be deemed to be adaptable if it incorporates the ability to implement managed lanes in the future or will include communications infrastructure to support ITS and other technology.
Project Readiness - Assessment of the current funding and/or programming status of a project reflecting its readiness to be advanced to the next project phase	Judgement-based score out ranging from 0 to 3: 0 - Not listed in any current Long term capital plan or past 2030 1 - Currently programmed but beyond the year 2030 2 - Programmed but no identified funding source by the year 2030 or partial funding identified 3- If programmed with funding available prior to 2030
Benefit Cost Index	Not applicable

Measurement - Ready for Construction

Criteria	Description
Adaptability - Ability for the project to be adapted over time to remain relevant with emerging technology and trends	Judgement-based measure. Typically, a project will be deemed to be adaptable if it incorporates the ability to implement managed lanes in the future or will include communications infrastructure to support ITS and other technology.
Project Readiness - Assessment of the current funding and/or programming status of a project reflecting its readiness to be advanced to the next project phase	Project scores 1 if ready to be tendered; 0 otherwise.
Benefit Cost Index	Benefits calculated as the present value of network travel time and vehicle operating cost savings over a 25-year benefit period. Cost are capital cost plus estimated present value of operating / maintenance costs over 25 years Benefit-Cost index is the ratio of benefits to cost. Score is calculated as the project benefit-cost index, divided by the highest benefit-cost index, then multiplied by 2 (to make a score out of 2)

Benefits and cost calculations are based on Alberta Transportation benefit-cost assessment guidelines prescribed in the Benefit Cost Model and User Guide.[1] The methodology determines whether the project benefits exceed the costs (capital, operating and maintaining).

All annual benefits and costs (minus capital costs) are calculated as the present value over 25 years with a discount rate of 4%, assuming benefits are accrued in year 1.

Revenues (e.g., transit fares) are estimated using high level estimates of annual revenue per kilometer in the Region. Similarly, operating and maintenance costs are also calculated using high level estimates of operating and maintenance costs per kilometer in the Region. These estimates were sourced from the City of Edmonton annual financial statements and Canadian Urban Transit Association research papers.

Benefits are estimated using the network hours and vehicle kilometers travelled (VKT) as outputs from the regional travel model. These network hours and VKT values were multiplied with blended average cost rates, shown below, to calculate annual hours savings and vehicle operating savings. The network hours are typically used as the proxy for person trips and the value of time (travel time below) is calculated as the average value of time of all users. Similarly, vehicle operating costs are the average operating costs for all types of vehicles in the province. Since these values are provided by Alberta Transportation, they are representative of the value of time and vehicle operating costs specific to Alberta.

- Travel time:
    - Passenger Cars: $13/hour
    - Trucks: $26/hour
- Vehicle operating:
    - Passenger Cars $0.231/km
    - Trucks: $0.50/km

For roadway projects, the Regional Travel Model (model) is used by determining the difference in the overall network performance with and without the project being evaluated. This is achieved by either adding or removing the project from the Delayed Investment scenario, then undertaking a reassignment of traffic, but not a full model run. While a full model run would provide new mode split and distribution, it would complicate the calculation by introducing multiple factors that may be affecting changes in results rather than isolating effects of the project. From a practical perspective, full model runs require significant time for execution and interpretation and would not substantially improve the ability to assess the effects of a single project.

Because benefits associated with transit projects rely on an assessment of mode split, a full model run would be required to assess travel time and VKT reduction. For the 2021 evaluation, a manual method is used, using ridership estimates from the project's business case. For new trips to transit resulting from the LRT extension as reported in

[1] Benefit cost model and user guide | Alberta.ca

the business case, the estimated average difference in travel time by vehicle and LRT to downtown Edmonton is estimated, as well as the reduced kilometers by vehicle due to the transit trip. For the remaining ridership (those that are already using transit), the average difference in travel time by bus versus LRT is estimated. No VKT reductions are estimated. All values are annualized and monetized in the same way as roadway projects.

In future years, a full model run for transit projects should be considered to also account for network travel time savings that may occur due to reduced congestion resulting from the transit project (although, from experience elsewhere, these savings are typically small).

4 Priority Grouping

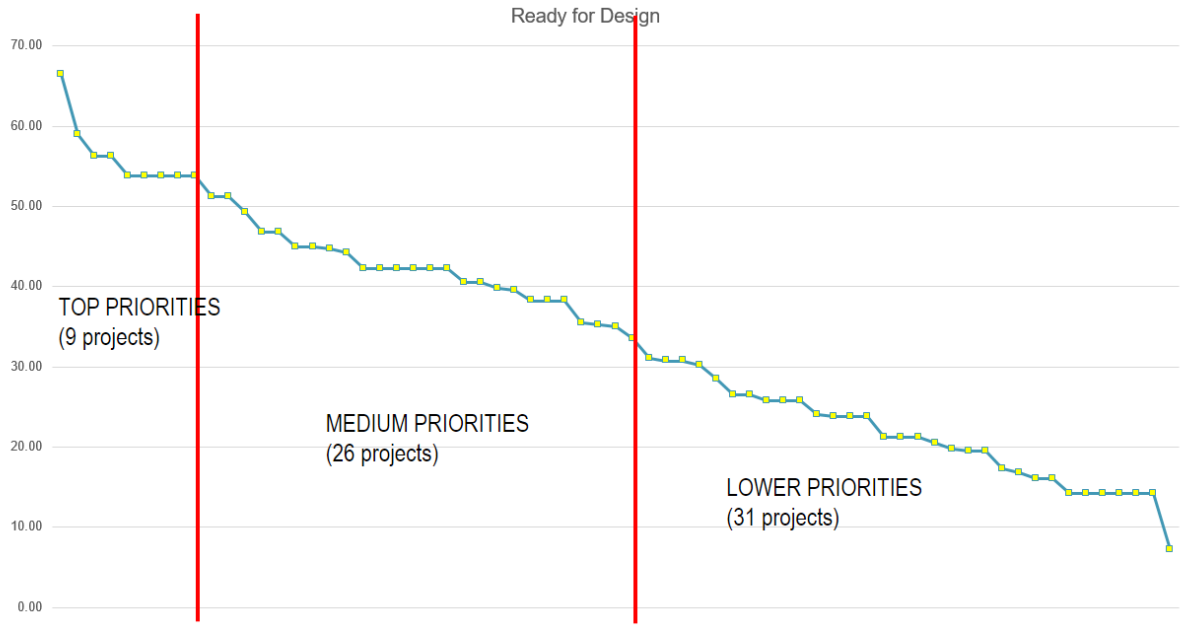
Within each project phase, the projects are sorted by score and divided into three priority groups, using natural breaks in the scoring (i.e., where the score drops notably from one project to the next), while keeping in mind a reasonable number of projects in each category as discussed below. Within each project phase and priority group, projects are split into Transit, Active Transportation and Roadway projects.

Table 1 summarizes the approximate number of projects that would typically be expected in each group. The total number of projects may vary from year to year, but the number of top and medium priorities should remain approximately the same as shown in the table.

Table 1: Approximate Number of Projects by Priority Group

Priority Group	Ready for Construction	Ready for Design	Advance to Planning
Top Priority	3-5	8-12	10-20
Medium Priority	3-5	20-30	20-30
Lower Priority	Remainder	remainder	remainder

The chart below is an example of how projects are grouped.



5 Annual Updates

5.1 New Projects and Project Refinement

Each year, the project list will need to be assessed and changes made as necessary to reflect advancements in the previous year and new regionally significant projects that may emerge.

As functional or other plans are completed for projects identified as Advance to Planning, the planning report should be reviewed with the lead agency, the project description refined based on the report recommendations and advanced to the next phase for evaluation, or remain in Advance to Planning if there is insufficient information.

Similarly, once a project is substantially into detailed design, it should be reviewed and moved to the Ready for Construction list. At a minimum, there should be a design cost estimate available to allow the project to be evaluated. Modeling and other analysis will be required to prepare new Ready for Construction projects to be evaluated.

New regionally significant projects may be added each year. A recommendation to include a project in the prioritization process should be made by a Working Group member from the Region. It is recommended that a project be run through the Advance to Planning evaluation to assess regional significance even if planning has been completed. If the evaluation reflects regional significance, the project could immediately be advanced to the appropriate project phase.

An updated Regional Transportation Priorities Report should be produced annually.

5.2 Annual Model Updates

As noted in the IRTMP, the regional travel model should be updated by EMRB a minimum of once per year to reflect all new infrastructure assumptions. Annual updates keep the model current, relevant and applicable to strategic decision making. Maintaining a current model is important for running the prioritization process and for other project or program evaluation purposes. Land use updating will follow a five-year cycle to implement updates to demographics and land use inputs to the model to reflect growth plan updates.

On an annual basis, the model should be reviewed and all projects completed in the previous year should be updated in the model, including updates to the forecast scenarios. Any “top priority” Ready for Construction project that is not already in the Delayed Investment scenario should be added.

5.3 Five-Year Refresh

Every five years, or when the growth plan and/or IRTMP are updated, a significant update will be required to the model and prioritization process and at a minimum should include:

- Reset the model horizon year to maintain a 25 year planning horizon
- Update the employment and population data at the traffic zone level
- Redefine the forecast scenarios in the model based on current capital planning
- Update the prioritization methodology to reflect changes in the growth plan and/or IRTMP

Appendix A: Example Ready for Construction Calculation

Benefit-Cost Factor:

PV of Benefits: $145.5M
Project Cost: $75.3M
B/C Index: 1.93

Highest B/C Index: 3.11

Score out of 2: 1.24
(1.93/3.11 x 2 = 1.24)

		Evaluation Scores	Total Evaluation Score	Weighting	Final Score
Economic Competitiveness	Improves a congested goods movement route	1	4	28%	1.12
	Improves a congested commuter route	1			
	Improves first / last mile connections to major employment areas, including industrial areas	1			
	Improves connection between modes (Road/Air/Rail) for goods movement	1			
Sustainable and Resilient Communities	Supports intensification within the Built-Up Urban area	1	3	28%	0.84
	Improves multimodal choice or connections (Road/Rail/Air/Transit/Active) for people movement	1			
	Optimizes person carrying capacity or efficiency on existing roadway or transit infrastructure (e.g. HOV Lane/Transit Priority, ITS, etc.)	0			
	Minimizes fragmentation of agricultural land in the Rural Area by utilizing existing facilities/ROW	1			
Health and Environment	Avoids, minimizes or mitigates the impacts to natural living system features as identified in EMRGP	1	2	11%	0.22
	Improves active transportation for all ages, abilities and purposes	0			
	Air and GHG Impacts; reduction in CAC, GHG	0			
	Addresses a known safety issue	1			
Serving Diverse Needs of the Region	Improves transportation access and facilities for the agricultural sector outside of the Built-up Urban Area	0	1	18%	0.18
	Supports the development of Multi-use corridors (utilities, pipelines, etc.)	0			
	Provides infrastructure connection to multiple jurisdictions	1			
	Provides service/connection to neighborhoods with a large share of proportion of low-income household	0			
Funding and Value	Ability for the project to be adapted over time to remain relevant with emerging technology and trends	0	2.24	15%	0.34
	Assessment of the tender readiness of a project reflecting its readiness to be advanced to the next project phase	1			
	Assessment of the benefit cost ratio	1.24			
				Score	**2.70**

Appendix B: Evaluation Criteria Log

The annual prioritization process often results in interpretation and clarification of criteria to support project evaluations. In many cases, these evaluation clarifications represent very specific situations, or situations that may occur in future evaluations. The Evaluation Criteria Log is intended to be a "living" table to record criteria clarifications and foster consistency from year to year. The Log will be provided as supporting documentation to the Board with each annual Transportation Priorities Report to ensure transparency in prioritization methodology. (Note: the original is in an Excel format and is sortable and searchable)

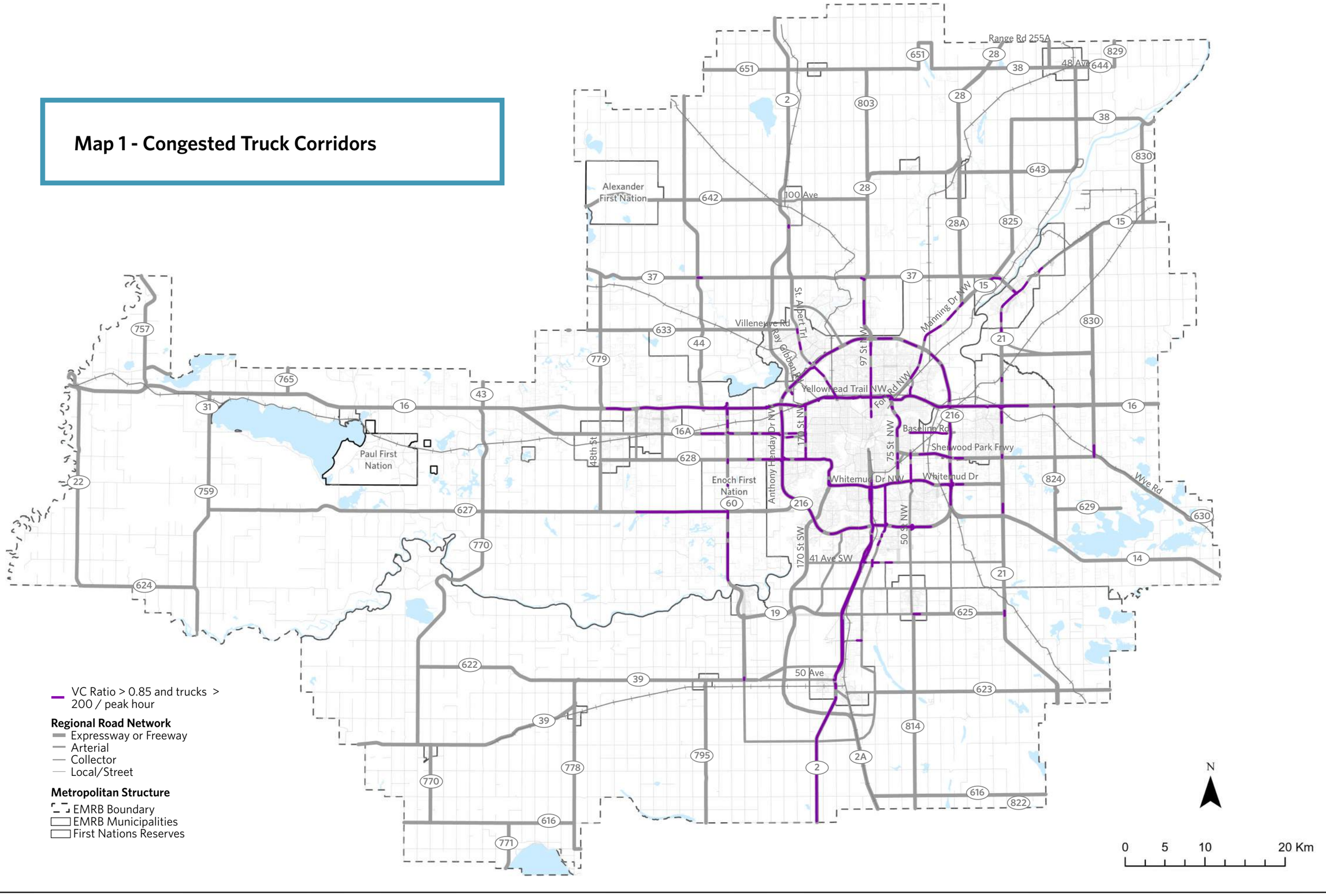
Project Outcome Category	Criteria	Project Phase(s)	Clarification
General	General	Ready for Construction	Projects that are currently under detailed design have been categorized in the "Ready for Construction" pool, irrespective of actual percentage complete
General	General	All	To reduce subjectivity in certain categories, points are awarded/not awarded only if the project is directly connected or passes through the following as identified in the maps Congested Goods Movement, Congested Commuter Routes, Major Employment areas, Intermodal hubs and EIA, Built-up Urban area, Natural living systems, Multiple Infrastructure uses, and Low Income Households.

Project Outcome Category	Criteria	Project Phase(s)	Clarification
Economic Competitiveness	Improves a congested goods movement route	Advance to Planning, Ready for Design	If the project falls on a corridor with some congestion shown on "Congestion maps," a point is awarded, irrespective of what proportion of the corridor shows congestions.
Economic Competitiveness	Improves a congested commuter route	Advance to Planning, Ready for Design	If the project falls on a corridor with some congestion shown on "Congestion maps," a point is awarded, irrespective of what proportion of the corridor shows congestions.
Sustainable and Resilient Communities	Supports intensification within the Built-Up Urban area	All	Park and Ride (P&R) projects are scored 1 for this category only if they are in close vicinity of TOD Centres as identified in the EMRGP. Built-up Urban Areas and Intensification are defined below: Built-up Urban Areas (EMRGP) - are defined as all lands located within the limits of the developed urban area within plans of subdivision that were registered as of December 31, 2016. Built-up urban areas are shown conceptually on Schedule 2 and will be delineated in detail by member municipalities as part of the implementation of this Plan. Intensification (EMRGP) – Development at a higher density than currently exists in built-up urban areas, major employment areas and local employment areas through: redevelopment; the development of underutilized lots within previously developed areas; infill development; or the expansion or conversion of existing buildings P&R projects are typically contrary to urban intensification, as defined above, and this is addressed through the scoring methodology discussed above.
Sustainable and Resilient Communities	Improves multimodal choice or connections for people movement	All	Transit to transit connections are scored 0.

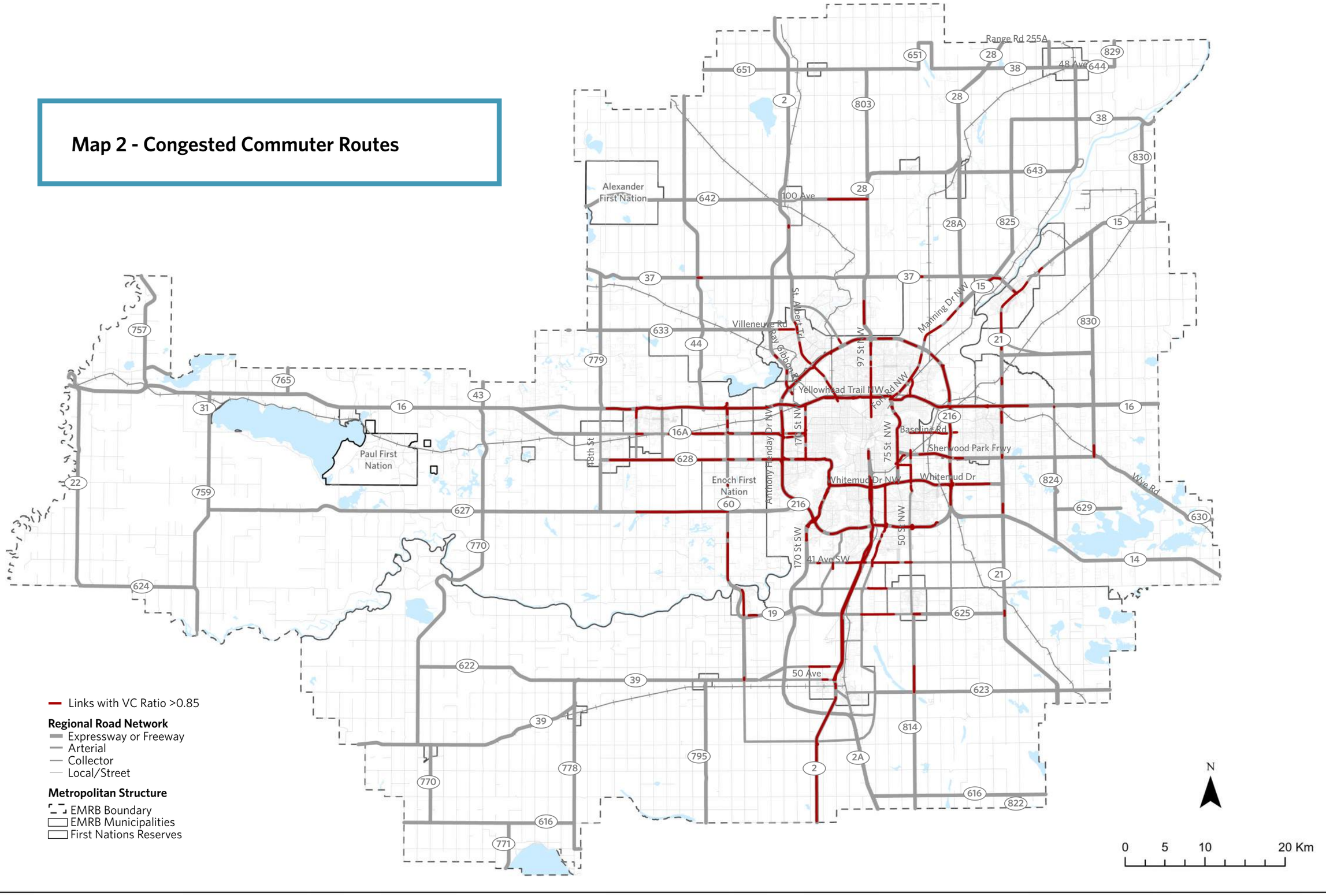
Project Outcome Category	Criteria	Project Phase(s)	Clarification
Sustainable and Resilient Communities	Minimizes fragmentation of agricultural land in the Rural Area by utilizing existing facilities/ROW	All	Points are scored 0 only if the project cuts through agricultural lands or creates a significant barrier effect between agricultural lands. Projects in urban areas score 1 by default, even if there is no interaction with agricultural lands.
Health and Environment	Air Quality and GHG Impacts	Advance to Planning, Ready for Design	Projects that reduce congestion by enabling freeflow do not score a point on this category – e.g., signalized intersection to freeflow interchange.
Health and Environment	Addresses a known safety issue	All	There needs to be evidence of safety incidences or safety concerns (including substandard design, etc.) that the project addresses explicitly to score a point, except for railroad grade separation crossings. Railroad grade separation crossings score a point by default.

Appendix C – Maps to Support Prioritization

Map 1 - Congested Truck Corridors

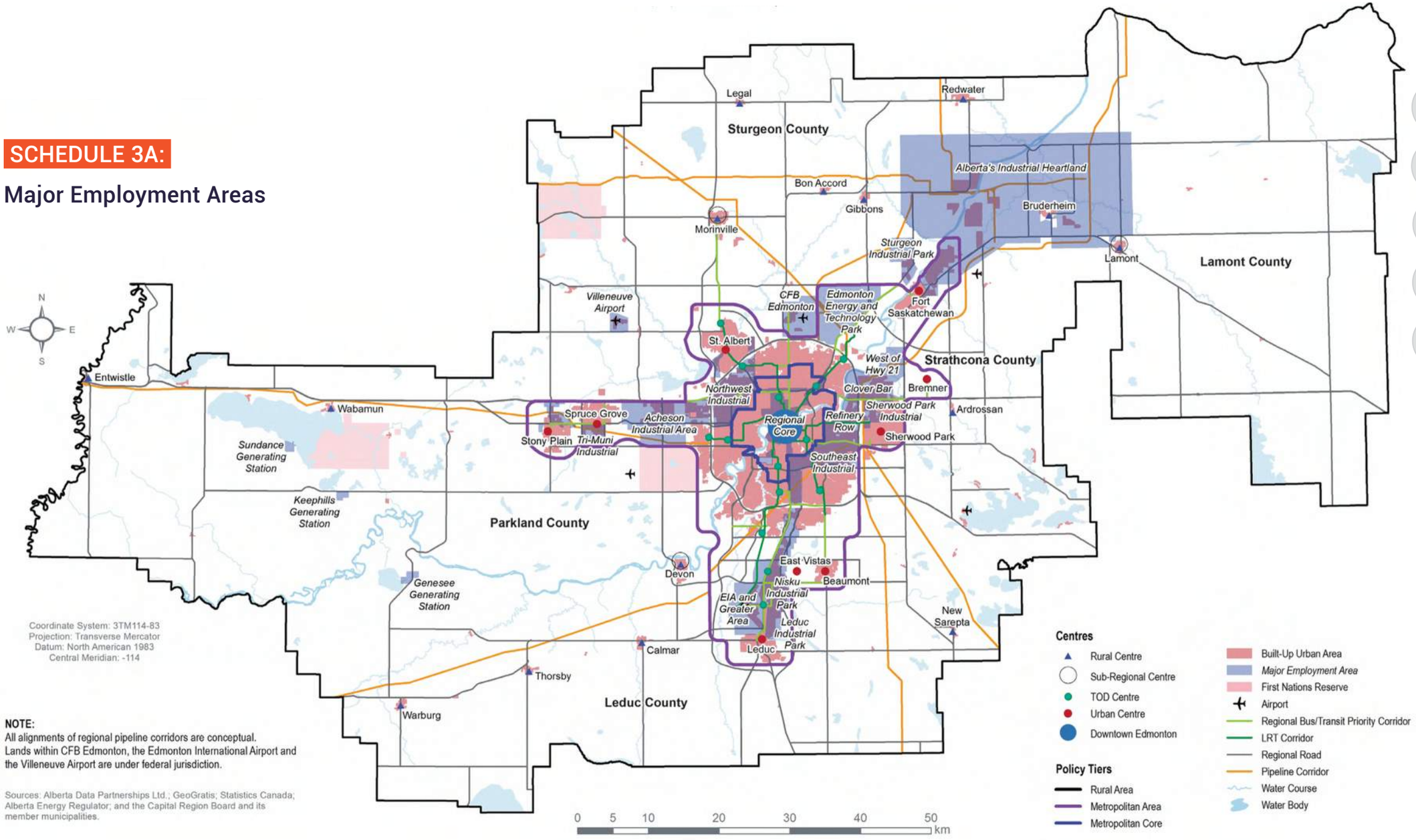


Map 2 - Congested Commuter Routes

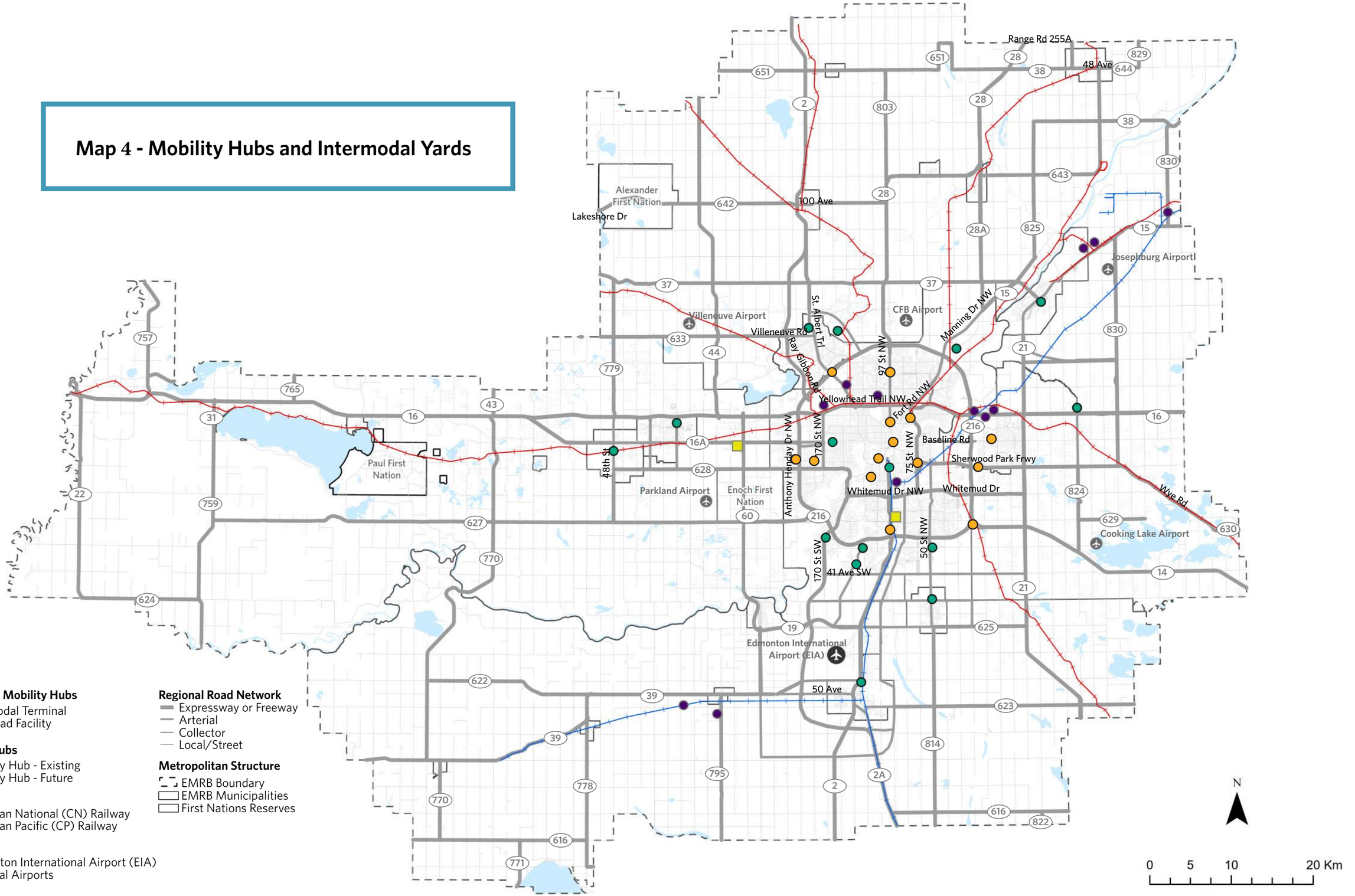


SCHEDULE 3A:

Major Employment Areas

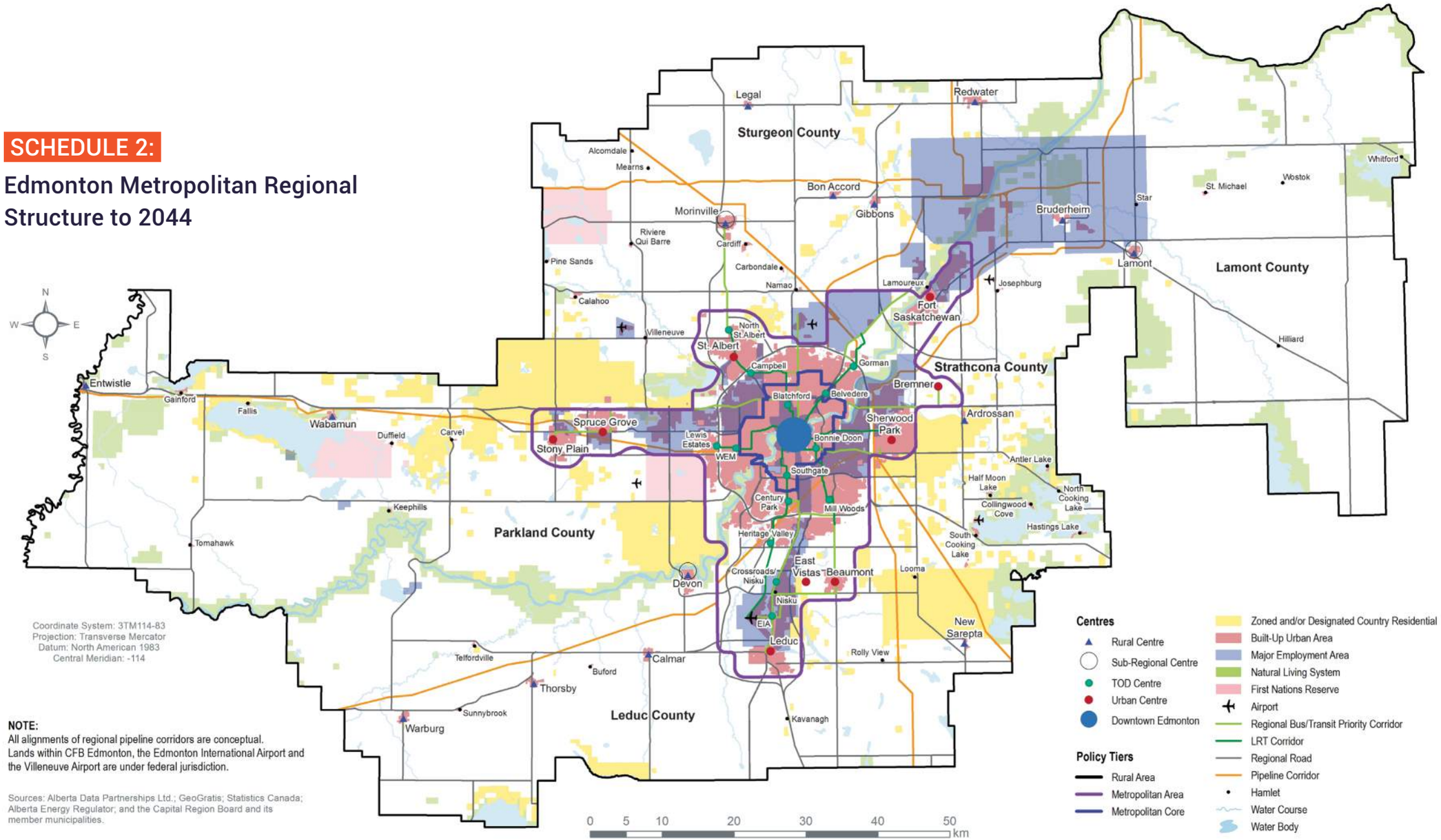


Map 4 - Mobility Hubs and Intermodal Yards



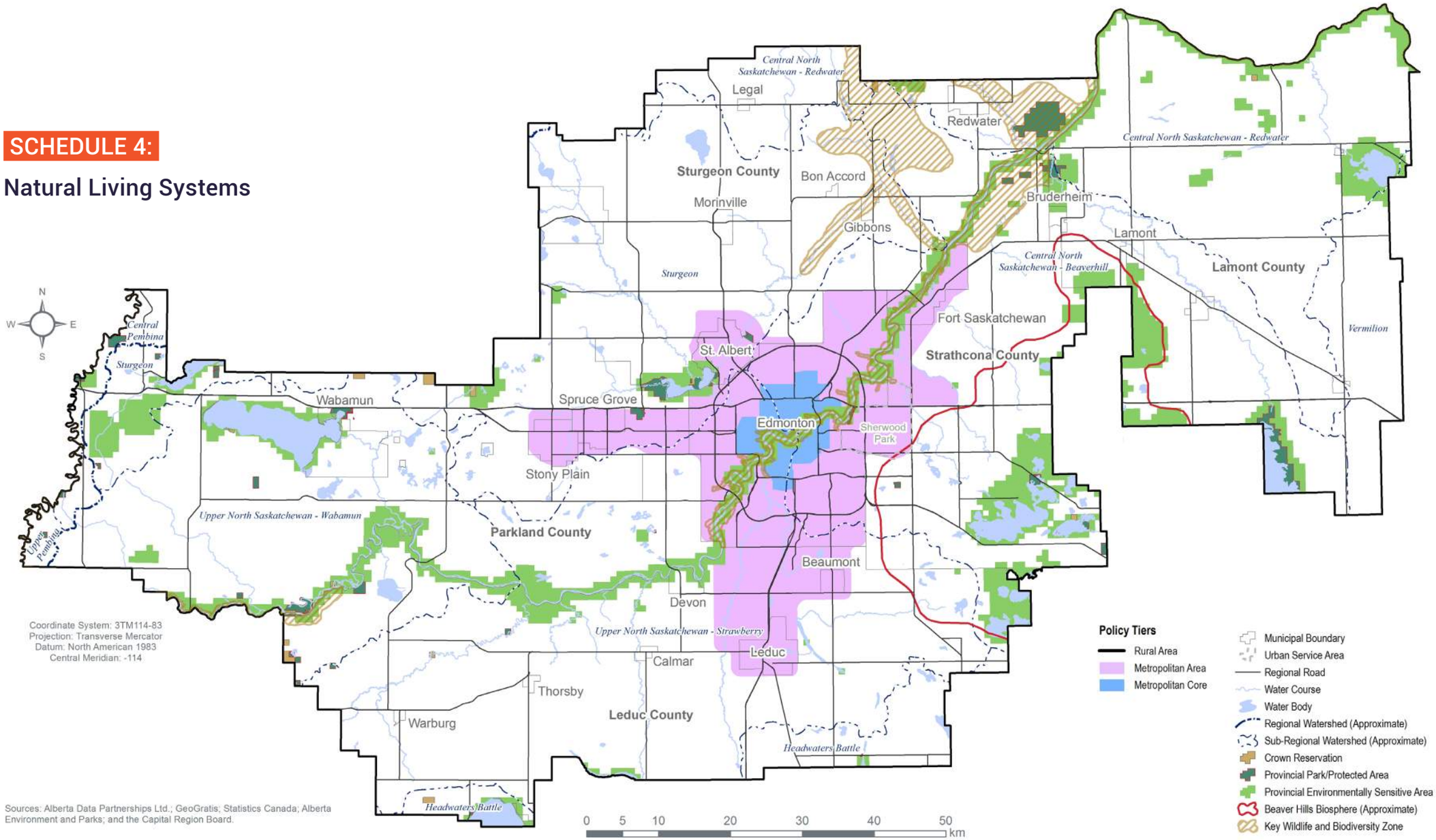
SCHEDULE 2:

Edmonton Metropolitan Regional Structure to 2044



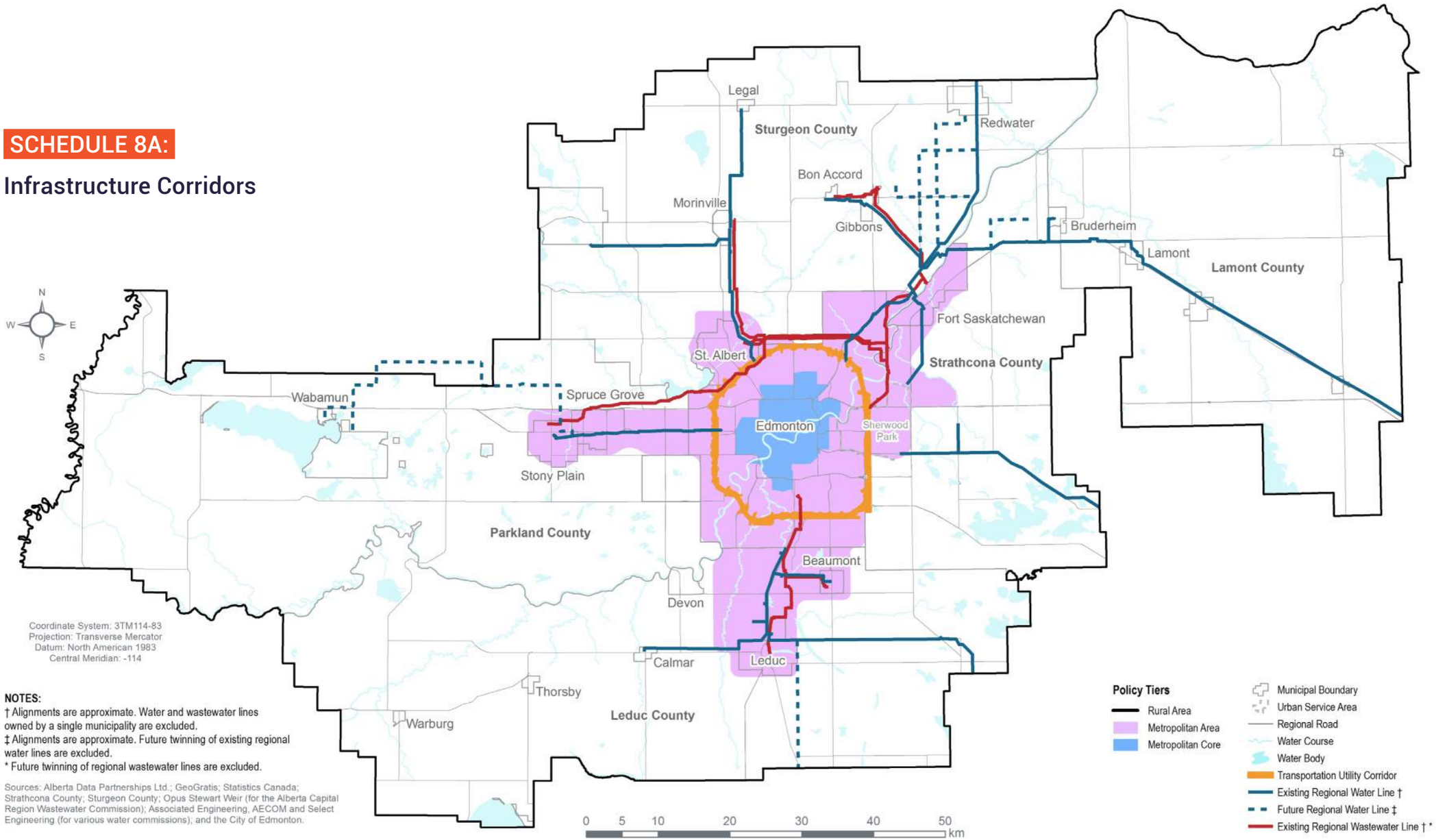
SCHEDULE 4:

Natural Living Systems



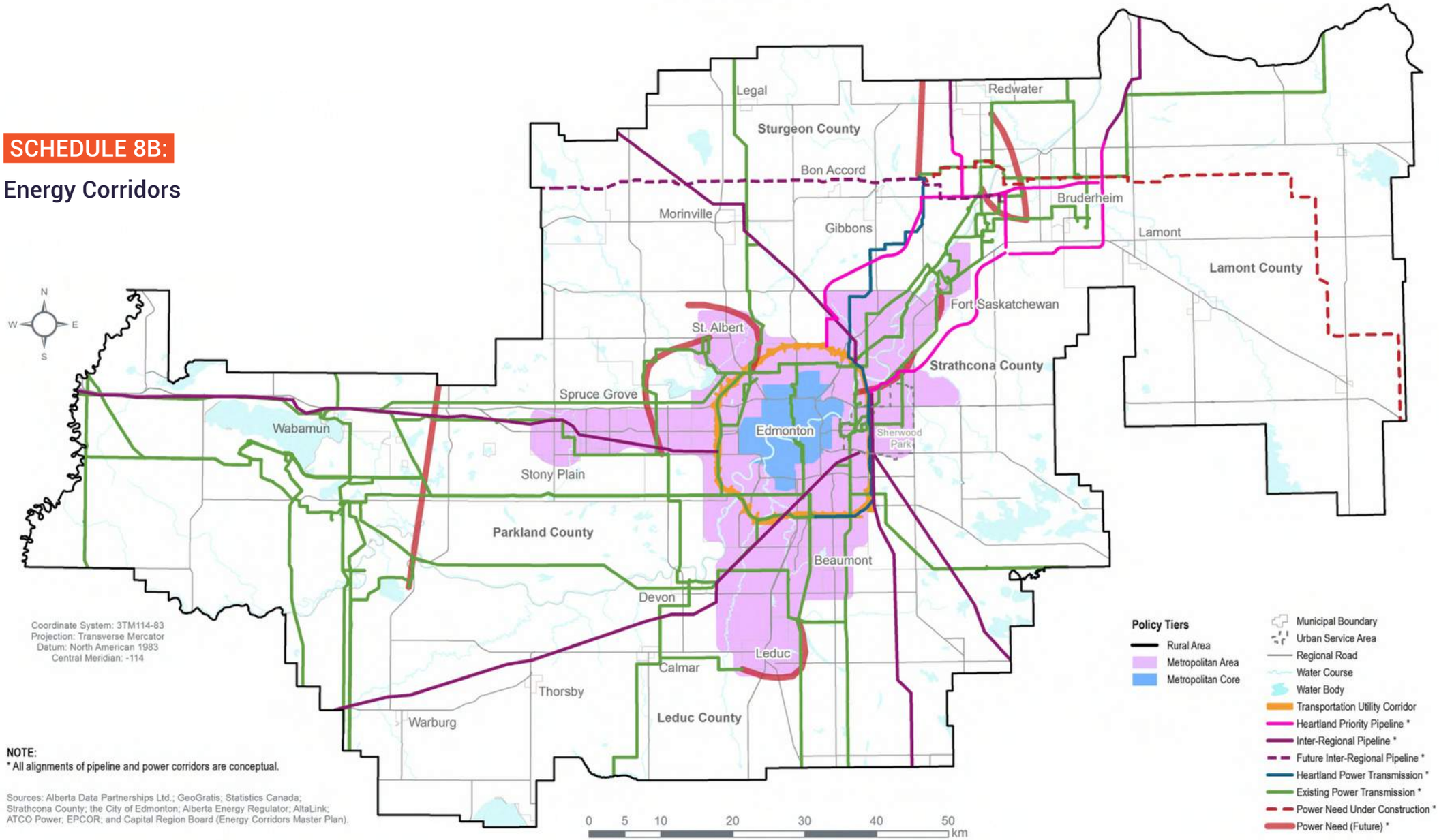
SCHEDULE 8A:

Infrastructure Corridors

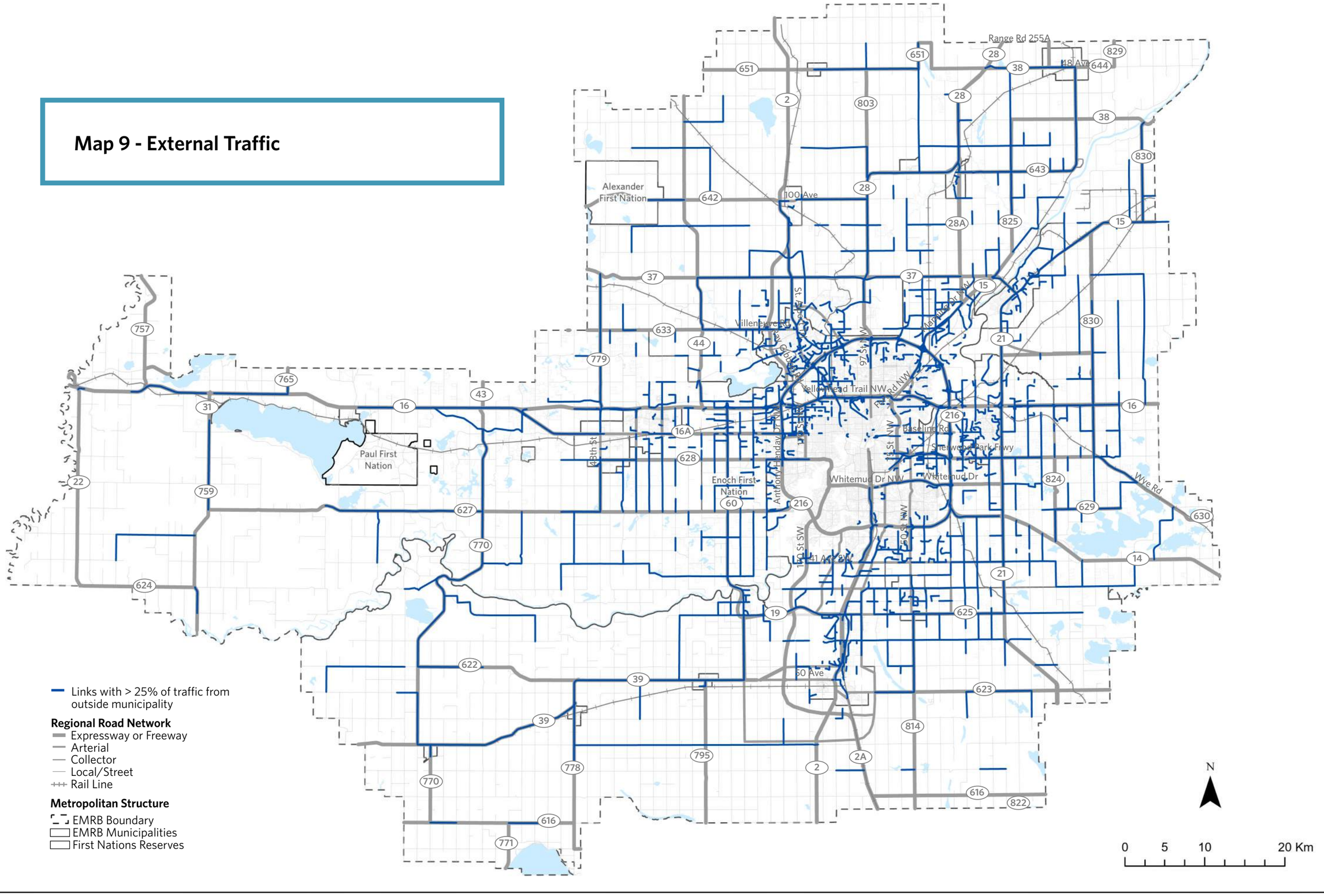


SCHEDULE 8B:

Energy Corridors



Map 9 - External Traffic



Map 10 - Low Income Neighbourhoods