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Metropolitan Region Servicing Plan Environmental Scan

Edmonton Metropolitan Region Board
Final Technical Report
ISL Engineering and Land Services

Edmonton Metropolitan Region Board
Regional Action. Global Opportunity.

February 2019

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Glossary of Terms

ACRWC	Alberta Capital Region Wastewater Commission
ACRWWTP	Alberta Capital Region Wastewater Treatment Plant
AEP	Alberta Environment & Parks
CRNWSC	Capital Region Northeast Water Services Commission
AHS	Alberta Health Services
AVS	Aerotropolis Viability Study
Arterial Roads	Arterial roads are primarily designed to respect the context and environment within which they exist. Arterial roadways vary across the Region, and setting a single regional design standard for arterials across the Region is contradictory to their intention. These roads serve to carry relatively high numbers of people and goods across a single municipality or between two or more municipalities. Spacing of intersections along arterials can vary widely, but generally falls in within 250 – 400 m depending on the adjacent development. For dense and diverse land uses, a high level of multimodal accessibility is desirable, with intersections spaced more closely. Arterial roads should include elements that cater to vehicles, buses, pedestrians and bicycles.
C & D	Construction and Demolition Waste
CN	Canadian National railway
CP	Canadian Pacific railway
CRPWSC	Capital Region Parkland Water Services Commission
CRSWSC	Capital Region Southwest Water Services Commission
CSO	Combined Sewer Overflow
CST	Clareview Sanitary Trunk
DATS	Disabled Adult Transit Service
EIA	Edmonton International Airport
EMRB	Edmonton Metropolitan Region Board
EMS	Emergency Medical Services
ERAA	Edmonton Regional Airports Authority
ESRD	Environmental and Sustainable Resource Development
ETS	Edmonton Transit System
EWMC	Edmonton Waste Management Centre
Expressways	A form of arterial road that operates at a higher speed limit (70 – 100 km/h). Intersections are further apart (800 – 1600 m) and can be at-grade or grade-separated. Expressways have lower speeds in urban environments with closer intersection spacing. Expressways cater to transit, including transit priority measures on roadways and intersections within the expressway. Expressways connect between commercial and industrial areas and handle a higher proportion of commercial vehicles.
FST	Fort Saskatchewan Transit
Freeways	Freeways focus on connecting people and goods over longer distances at relatively higher speeds (80 – 110 km/h) and are considered a form of rapid, uninterrupted movement with no at-grade intersections. Interchange spacing is 1600 – 3200 m depending on adjacent development patterns.
H14RWSC	Highway 14 Regional Water Services Commission
I/I	Inflow/Infiltration
IPTF	Integrated Processing and Transfer Facility

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IRTMP	Integrated Regional Transportation Master Plan
IWMG	Intermunicipal Watershed Management Group
Inflow	Stormwater entering the wastewater collection system directly
Infiltration	groundwater entering the wastewater collection system
L/C/D	Litres per Capita per Day
LDRWMA	Leduc and District Regional Waste Management Authority
L/S/HA	Litres per Second per Hectare
MacEwan U	MacEwan University
MAP	Million Annual Passengers
MGA	Municipal Government Act
MLD	Million Litres per Day
MRF	Material Recovery Facility
NAIT	Northern Alberta Institute of Technology
NERTS	Northeast Regional Transmission System
NorQuest	NorQuest College
NSR	North Saskatchewan River
NSWA	North Saskatchewan Watershed Alliance
POC	Paid-On-Call
PS	Pump Station
PST	Pilot Sound Trunk
PSTS	Parkland Sanitary Transmission System
RRWMSC	Roseridge Regional Waste Management Services Commission
RTSC	Regional Transit Services Commission
RWCG	Regional Water Customers Group – purchases water from EPCOR
SERTS	Southeast Regional Transmission System
SRWA	Sturgeon River Watershed Alliance
SWMF	Stormwater Management Facility
StAT	St. Albert Transit
START	St. Albert Regional Trunk
STS	Specialized Transit Service
TUC	Transportation Utility Corridor
U-PASS	Universal Transit Pass
U of A	University of Alberta
WILD	West Inter-Lake District
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant

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1.0
Introduction and Background

1.1 Edmonton Metropolitan Region Board and the Growth Plan

The Edmonton Metropolitan Region Board (EMRB) is tasked with preparing a Metropolitan Region Servicing Plan (MRSP) pursuant to the Edmonton Metropolitan Region Board Regulation. The first step for the Task Force appointed to undertake the Plan is to understand and evaluate the current state of servicing within the Region. In this regard, the Task Force approved moving forward with an Environmental Scan to research and inventory current regional, municipal, and interjurisdictional plans, services, and agreements. This Environmental Scan will be used to determine the scope of the Plan with regard to each Service Area, and establish a baseline of information that will inform future phases of the project.

1.1.1 Edmonton Metropolitan Region

The Edmonton Metropolitan Region is 9,879 km^2, has a population of 1.3 million people and is home to 725,000 jobs representing 30% of Alberta's GDP. The Region is expected to reach 2.2 million people and 1.2 million jobs in the next 30 years. Intermunicipal planning and coordination of services will be vital to deliver efficient, cost-effective services and infrastructure that meet the needs of the current and future residents of the Region.

1.1.2 Edmonton Metropolitan Region Board
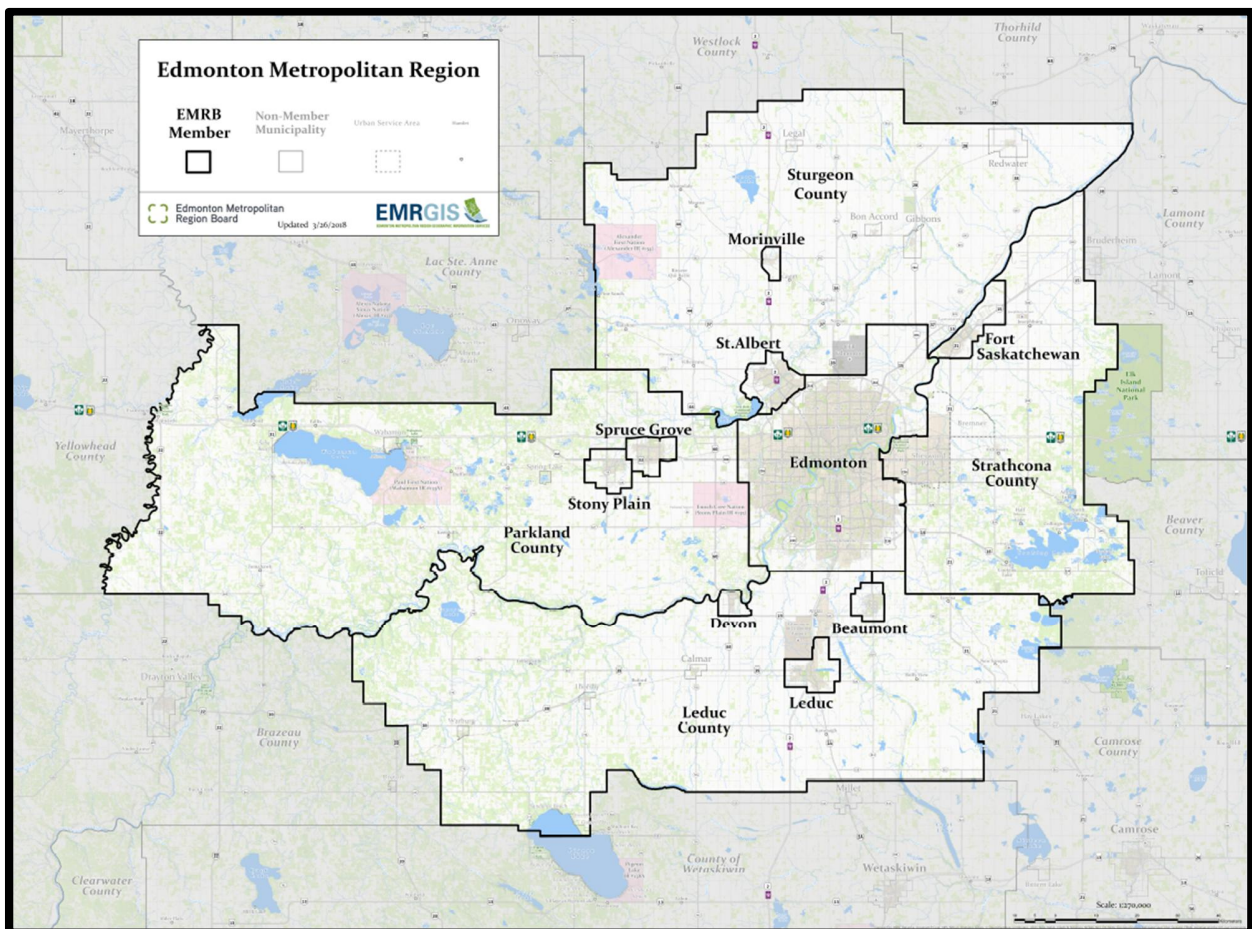
Figure 1.1: Edmonton Metropolitan Region Map

The EMRB is a growth management board mandated under the Municipal Government Act (section 708.02). In October 2017, the Government of Alberta passed the Modernized Municipal Government Act and transitioned the Capital Region Board (CRB) to the EMRB through approval of the Edmonton Metropolitan Region Board Regulation (189/2017). In the transition from CRB to EMRB, the new Regulation reduced the membership from 24 to 13 municipalities and expanded the mandate to include a servicing plan.

The EMRB is comprised of a mix of both rural and urban municipalities including four Counties (Leduc, Parkland, Strathcona, and Sturgeon), five Cities (Edmonton, Fort Saskatchewan, Leduc, Spruce Grove, and St. Albert) and four Towns (Beaumont, Devon, Morinville, and Stony Plain). The Regulation directs the Board to prepare and oversee the implementation of the Edmonton Metropolitan Region Growth Plan and a Metropolitan Region Servicing Plan to address future growth challenges in the Region.

1.1.3 Edmonton Metropolitan Region Growth Plan

The EMRB completed the preparation of the Edmonton Metropolitan Region Growth Plan (EMRGP) in 2016. The Province approved the EMRGP on October 26, 2017 in conjunction with the EMRB Regulation. The EMRGP provides an integrated policy framework to plan for and manage the multifaceted components of growth through a holistic approach. The Plan includes a 50-year vision, guiding principles, a framework for responsible growth, an Edmonton Metropolitan Regional Structure, six interconnected policy areas, and an implementation plan, all working to achieve the following Board identified outcomes:

- A diversified, globally competitive economic region;
- A smaller more compact urban footprint;
- Coordinated regional land use and infrastructure decisions;
- Resilient, adaptable and complete communities;
- An interconnected multi-modal transportation system;
- Enable the growth and sustainability of the Agriculture Sector; and,
- Protecting the environment.

A key component of the Growth Plan implementation will be through the regional servicing plan.

1.2 Metropolitan Region Servicing Plan

The Regulation directs the EMRB to prepare a Metropolitan Region Servicing Plan to aid the implementation of the Edmonton Metropolitan Region Growth Plan. The Province further defines within the EMRB Regulation, the objectives and contents of the MRSP:

Objectives of Servicing Plan

15   The objectives of the Servicing Plan are as follows:

    (a)   to identify the services required to support the goals of, and to implement, the Growth Plan;

    (b)   to support the optimization of shared services to enhance use of ratepayer dollars;

    (c)   to facilitate orderly, economical and environmentally responsible growth in the Edmonton Metropolitan Region;

    (d)   to coordinate planning and decisions regarding services among member municipalities to ensure the optimization of ratepayer dollars.

Contents of Servicing Plan

16   The Servicing Plan must:

    (a)   list the servicing required to support the development outlined in the Growth Plan, which may include:

        (i)   transportation, including regional transit,

        (ii)   water, waste water, and storm water,

        (iii)   solid waste,

        (iv)   emergency services, and

        (v)   any other services, identified by the board which benefit residents in more than one of the municipalities that are parties to the Servicing Plan,

    (b)   for services to be provided on an intermunicipal basis, outline how each service will be

        (i)   intermunicipally delivered, including which municipality will lead delivery of the service, and

        (ii)   intermunicipally funded,

    (c)   set the timeframe for implementing services to be provided on an intermunicipal basis,

    (d)   contain other matters necessary to support the Growth Plan, and,

    (e)   contain any other matter the Minister considers appropriate.

Earlier this year, the Board approved a MRSP Project Charter and appointed an elected official Task Force to oversee the preparation of the Plan. The MRSP Task Force approved proceeding with Phase 2 Environmental Scan in order to set the foundation for the rest of the project. The Scan will ensure that the Task Force members have access to the same regional information and a shared understanding of the state of servicing in the Region.

1.2.1 MRSP Project Schedule

1.3   Environmental Scan

An integrated and coordinated approach is needed to address the future growth and long-term sustainability of the Edmonton Metropolitan Region. An Environmental Scan is critical to understanding the current level of servicing throughout the Region before initiating the development of the Metropolitan Region Servicing Plan.

The Service Areas subject to the Environmental Scan include the following:

- Water;
- Wastewater;
- Stormwater;
- Transportation;
- Regional Transit;
- Solid Waste; and,
- Emergency Services (Fire).

1.4   Context

The Environmental Scan is a snapshot in time to better understand the identified regional service areas to be included in the MRSP. The Environmental Scan will be used for discussion purposes to determine the scope of the MRSP and the next steps for each Service Area. The Scan establishes a baseline of information that will inform future phases of the project.

2.0
Methodology

The methodology used to prepare the Environmental Scan is outlined below.

2.1   Background Reports

The EMRB collected background reports from member municipalities, which were provided at the start of the study. These included master plans, strategies, design guidelines, design standards, and plans. The documents that were most relevant to the Environmental Scan included:

- Capital Region Growth Plan Update
- Blackmud/Whitemud Creek Surface Water Management Study
- Sanitary Servicing Strategy Fund Integrated Study
- Various Water Commission Master Plans
- Capital Region Board – 30 Year Transit Service Plan
- Integrated Regional Transportation Master Plan
- Capital Region Waste Minimization Study
- 2018 Regional Emergency (Fire) Services Report

2.2   GIS

Spatial data was obtained and developed in collaboration with the Edmonton Metropolitan Region Geographic Information Services (EMRGIS), primarily from previous transportation and servicing studies. Additional GIS data was obtained from municipalities and commissions as needed. Open source GIS data was also utilized. NAD 1983 3TM114-83 was used as a coordinate system.

2.3   Survey Data

The project team prepared a survey that was issued to EMRB municipalities and water/wastewater commissions. The survey included opportunity for those who operate the various service areas to document the current capacity and utilization of their infrastructure. The returned surveys were amalgamated, synthesized, and documented by the project team.

2.4   Meetings/Communications

Meetings with EMRB municipalities, the water and wastewater commissions, and the Fire Chiefs were held to review the background materials, confirm, and clarify the results of the survey. Follow-up communication with these stakeholders was conducted on an as-needed basis.

2.5   Acknowledgments

The following individuals provided invaluable time and input including, but not limited to:

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Barry Belcourt	City of Edmonton
Fire Chief Ken Block	City of Edmonton
Fire Chief Brad Boddez	Town of Morinville
Deputy Chief of Operations Devin Capcara	Strathcona County
Fire Chief George Clancy	City of Leduc
Lyle Clarke	Capital Region Northeast Water Services Commission (CRNWSC)
Fire Chief Everett Cooke	Town of Beaumont
Fire Chief Brian Cornforth	Parkland County
Michael Darbyshire	Alberta Capital Region Wastewater Commission (ACRWC)
Paresh Dhariya	Town of Devon
Kevin Glebe	Strathcona County
Thomas Goulden	Town of Stony Plain
Fire Chief Bernd Gretzinger	City of St. Albert
Fire Chief Robert Kosterman	City of Spruce Grove
Fire Chief Keven Lefebvre	Leduc County
Corey Levasseur	City of Spruce Grove, Capital Region Parkland Water Services Commission (CRPWSC)
Fire Chief Pat Mahoney	Sturgeon County
Fire Chief Robert Main	Town of Devon
Rob McGowan	Parkland County
Ian McKay	City of St. Albert
Fire Chief Shawn McKerry	City of Fort Saskatchewan
Fire Chief Trevor Mistal	Town of Stony Plain
Eleanor Mohammed	Town of Beaumont
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Travis Peter	Sturgeon County
Janel Smith	City of Fort Saskatchewan
James Tan	EPCOR
Claude Valcourt	Town of Morinville

All photos and maps are produced by EMRB Administration.

3.0
Water Servicing

3.1   Overview – Water Servicing

Potable water is supplied to 12 of the 13 EMRB municipalities by EPCOR Water Services (EPCOR). EPCOR treats water from the North Saskatchewan River at its E.L. Smith and Rossdale Water Treatment Plants (WTP) and pumps treated water to its customers in the City of Edmonton and to its regional customers. The regional customers include the Capital Region Southwest Water Services Commission (CRSWSC), the Capital Region Parkland Water Services Commission (CRPWSC), the Capital Region Northeast Water Services Commission (CRNWSC), Strathcona County, the City of St. Albert, Sturgeon County, and the Town of Morinville. The regional customers are collectively known as the Regional Water Customers Group (RWCG). The relationship between EPCOR and the RWCG is regulated by the Alberta Utilities Commission.

The RWCG members convey treated water to the downstream EMRB and non-EMRB municipalities and other water commissions in north-central Alberta. Each municipality is responsible for its own water storage reservoir and operating the water distribution system.

Devon is the only EMRB municipality (apart from Edmonton) that owns and operates its own water treatment plant. The Devon WTP currently services only the Town of Devon.

The water commissions are made up of multiple municipalities which are governed by a board of directors from each municipality. The water commissions typically have only part-time staff with the operation of facilities contracted out.

3.2   Current Water Servicing Agreements and Collaboration

There are numerous water servicing agreements currently in place within the Region. These agreements are shown schematically in Figure 3.1. Some of the agreements include:

- City of Edmonton and EPCOR: EPCOR has a franchise within the City of Edmonton for the exclusive right to provide water services to the customers within the City;
- RWCG Services Agreement: defined between members of Regional Water Customers Group;
- RWCG Members and RWCG Inc.: membership and trust agreement includes allocation of future water;
- EPCOR and RWCG;
- Morinville, Sturgeon County, and Legal: for shared ownership and allocation of the "Morinville Line" from St. Albert to Legal;
- Morinville and St. Albert: for operating the Morinville booster station;
- City of Edmonton, Sturgeon County, and CFB Edmonton: for water servicing to CFB Edmonton; and,
- Devon and Leduc County: for Devon to supply water to adjacent areas in Leduc County.

The water agreements include a number of non-EMRB members as well as water commissions servicing areas well beyond the Edmonton Metropolitan Region. Each commission and municipality contained within the RWCG has separate servicing agreements with EPCOR. Recently, agreements have been brought into sync for timing and overall agreement with unique servicing standards contained within schedules. The intent is to have all of the servicing agreements end at the same time so that negotiations can occur at the RWCG table.

The Regional Water Customers Group meets monthly as a technical committee to review regional issues including management of the transmission systems. In addition, another sub-committee that includes representatives of the customer groups and EPCOR, meets quarterly to deal with issues such as the need for additional pumping capacity, how the transmission system will work with individual reservoirs, management of water during peak demand periods, and coordinated planning between EPCOR/commissions/municipalities.

The RWCG is currently (fall 2018) in the process of obtaining a water diversion license from Alberta Environment and Parks to become one customer class for the purpose of obtaining water as a wholesale customer. Also, the RWCG did not want to be restricted in growth based on how much the City of Edmonton/EPCOR Water would allocate from their water diversion licenses as the RWCG now supplies water to about 60 municipalities across north-central Alberta.
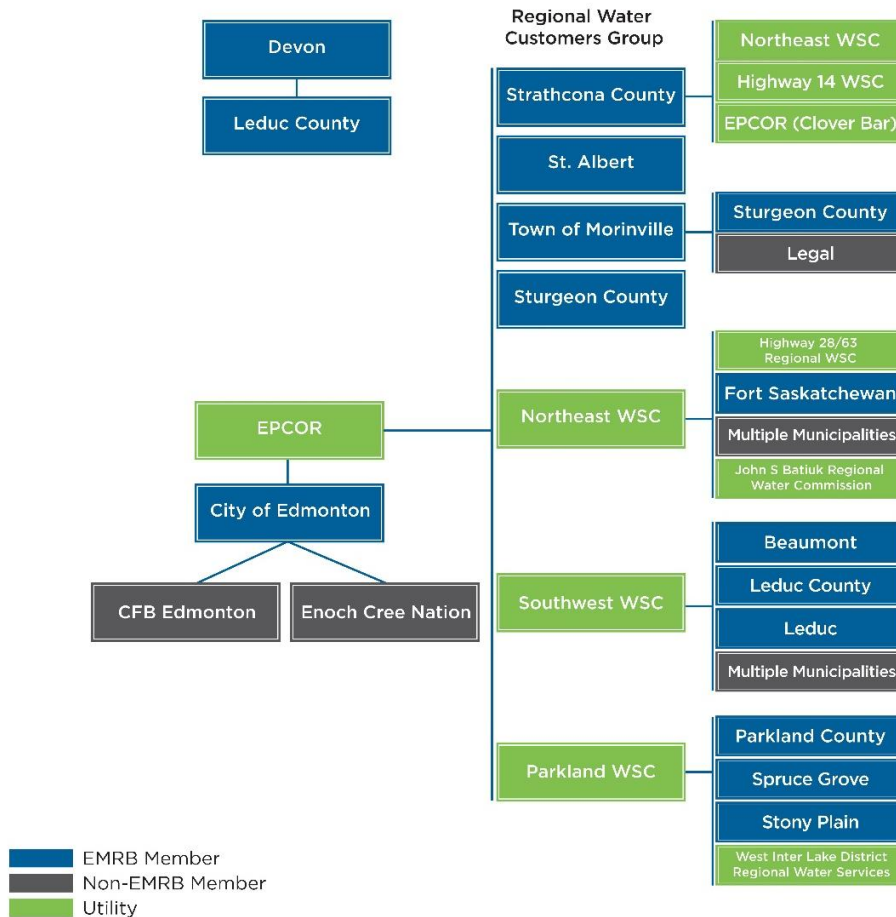
Figure 3.1:   Water Servicing Agreements

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3.3   Regional Map

The following (Figure 3.2) Regional Map has been prepared and illustrates known regional water infrastructure in the Region.
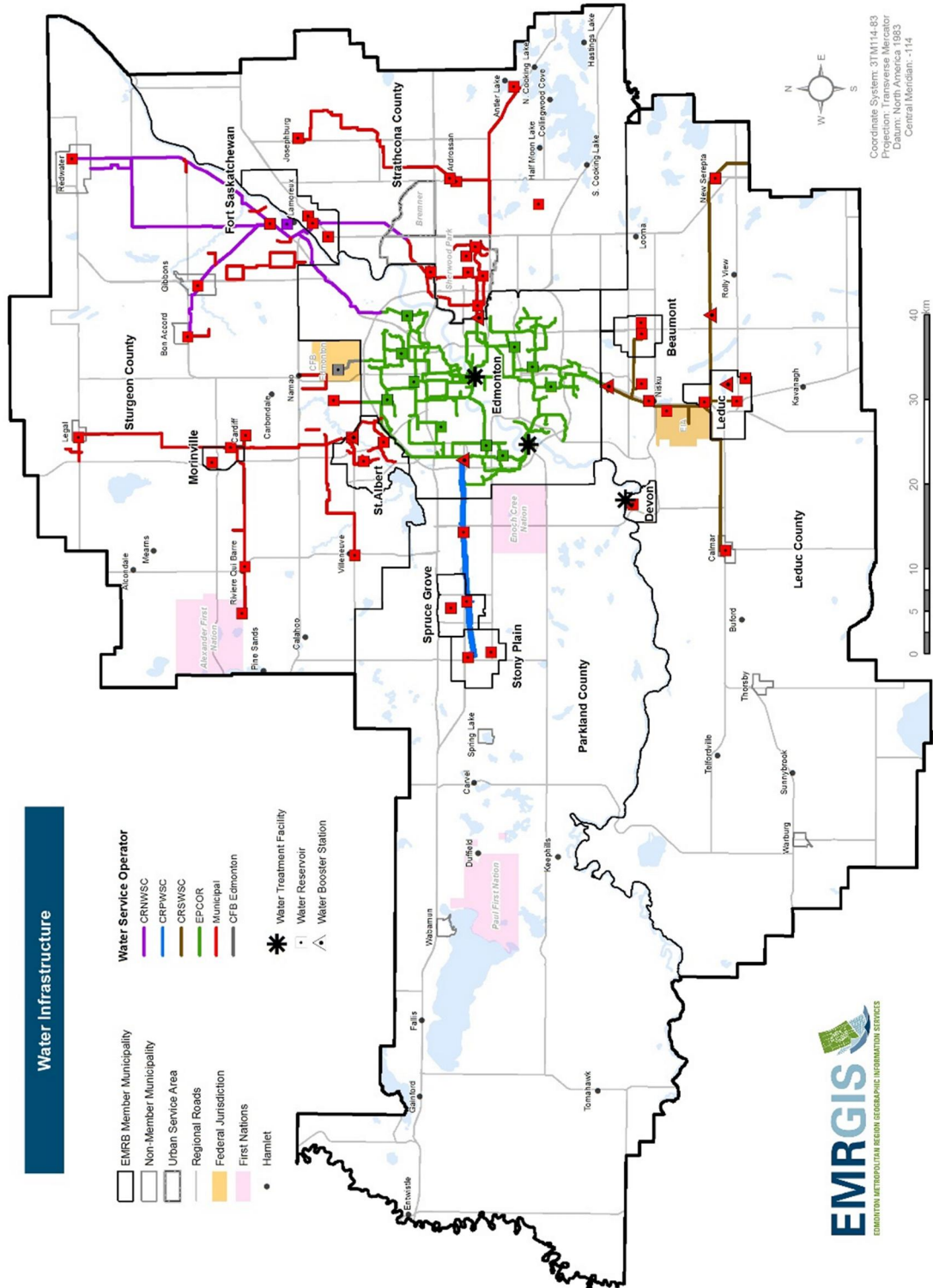

Figure 3.2:   Water Infrastructure

3.4 Existing Water Infrastructure and Current Service Capacity

The existing water infrastructure in the Region is shown on Figure 3.2 and described below.

3.4.1 Water Treatment Plants

There are three water treatment plants in the Region, EPCOR's E.L. Smith and Rossdale WTPs, and the Devon WTP. The current plant capacities and demands are listed in Table 3.1. As the E.L. Smith and Rossdale WTPs operate together to service Edmonton and the Region, their demands are lumped together. As the total capacity exceeds the peak day demands for the WTP, the existing plants can provide the treated water needed in the Region. Water conservation measures are implemented across the Region to minimize the peak water treatment demands, thereby deferring WTP capacity upgrades.

Table 3.1: Water Treatment Plants

Owner	WTP	Current Capacity (MLD)	Current Service Population	Existing Demands (MLD)	
				Average Annual (2017)	Peak Day (2017)
EPCOR	E.L. Smith	340			
	Rossdale	263			
	Total	603	1,276,871	364	498
Devon	Devon	6	6,650	2.4	5
Total		609	1,283,521	366	503

Notes:
1. Demands include entire service area including connections beyond EMRB municipalities.
2. EPCOR WTP Production is based on maximum capacity which is achieved in summer months when demand is high.

3.4.2 Pumping and Transmission

Table 3.2 lists the pumping capacity for the three water treatment plants plus each of the regional water commission pumphouses. Local reservoir pumping capacity is generally not included in this table as it typically provides local distribution pumping and thus does not provide a regional function. The Strathcona County 17 Street pumphouse provides both local and regional servicing.

Regional water transmission mains are listed in Table 3.3, including the EPCOR transmission mains supplying the RWCG. The capacities of the regional transmission mains is dependent on the upstream pumping capacity. The pumping and transmission system capacities can be increased by adding pumps and/or twinning the transmission mains.

Table 3.2: Water Pumping Facilities – WTP & Regional Systems

Owner	Pumphouse	Current Capacity (L/s)	Current Service Population	Existing Demands (L/s)	
				Average Annual (2017)	Peak Day (2017)
EPCOR	E.L. Smith WTP	4,167			
	Rossdale WTP	3,819			
	Total EPCOR	7,986	941,871	4,213	5,764
Devon	Devon WTP	67	6,650	27	56
Morinville/Sturgeon/Legal	Morinville Booster	100	17,445	49	88
CRPWSC (Parkland)	CRPWSC	363	66,768	189	340

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Owner	Pumphouse	Current Capacity (L/s)	Current Service Population	Existing Demands (L/s)	
				Average Annual (2017)	Peak Day (2017)
CRSWSC (Southwest)	CRSWSC	679	65,879	175	315
CRNWSC (Northeast)	CRNWSC	256.5	68,782	212	381
Strathcona County	17 Street	2,180	70,618	359	606

Notes:

1. Demand/Capacity includes connected regional systems outside EMRB.

2. Where peak day demands are not available, they were estimated based on 1.7 times average day.

Table 3.3:   Water Transmission Mains Servicing Regional Systems

Owner	Transmission Main	Section	Current Capacity (L/s)	Current Service Population	Existing Demands (L/s)	
					Average Annual (2017)	Peak Day (2017)
EPCOR	NE 900 mm	CRNWSC	380	n/a	193	329
	Calgary Tl. 750 mm	Leduc CRSWSC	443	n/a	179	305
	92 Avenue. 750 mm	Strathcona County	674	n/a	318	541
	1067 mm	St. Albert - Oakmont	331	n/a	172	293
	1067 to 450mm	St. Albert - Sturgeon County	95	n/a	42	71
	300 mm	Sturgeon County	23	n/a	10	18
	600 mm	Parkland County	397	n/a	170	289
Morinville/Sturgeon/ Legal	Morinville	St. Albert to Morinville	100	17,445	48.7	87.6
CRPWSC	CRPWSC	Edmonton to Stony Plain	363	66,768	189	340
CRSWSC	CRSWSC	Edmonton to Nisku	679	65,879	20	36
		Nisku to Leduc	491	34,703	88	158
		Nisku to Beaumont	188	17,396	41	73
CRNWSC	CRNWSC	Northside	n/a	43,249	212	381
		Southside	n/a	25,533	80.8	145
		Redwater/AIH	161.7	n/a	34.9	62.8
Strathcona County	Clover Bar	17 Street to CRNWSC	n/a	n/a	11.1	20
Strathcona County	Hwy 14	Highway 630	76	n/a	50	n/a

Notes:

1. Demand/Capacity includes connected regional systems outside EMRB.

2. Where peak day demands are not available, they were estimated based on 1.7 times average day.

3. Existing capacity is based on existing pumping capacity (pipe capacity in several cases could be higher with upgraded pumping).

4. Populations for EPCOR transmission mains not available.

5. Redwater/AIH per capita use not applicable due to large industrial demands.

6. Current capacity for EPCOR owned transmission mains are based on the 5-year forecast provided by the RWCG members times a 1.8 peaking factor (estimate is for 2022).

3.4.3 Reservoirs

There are 37 treated water reservoirs that service the primary residential and industrial developments in the Region (excluding smaller reservoirs servicing hamlets and country residential areas). The available reservoir capacities, service population, and required storage capacities are listed in Table 3.4.

Table 3.4:   Water Reservoirs

	Reservoir	Current Capacity (ML)	Current Service Population	Total Required Storage per Servicing Standards (ML)
Beaumont	Main	7.2		
	St. Vital	10.0		
	Total	**17.2**	**18,800**	**9.2**
CRNWSC	CRNWSC On-Line Storage	6.8	n/a	n/a
Devon	Devon WTP	5.0		
	Total	**5.0**	**6,650**	**5.0**
Edmonton/EPCOR	Castledowns	22.7		
	Clareview	50.5		
	E.L. Smith	95		
	Kaskitayo	21.8		
	Londonderry	39.1		
	Mill Woods	47		
	North Jasper Place	29.7		
	Ormsby	37.4		
	Papachase	66.8		
	Rossdale	80		
	Rosslyn	97.5		
	Thorncliff	37.1		
	Total	**624.6**	**941,871**	**235**
Fort Saskatchewan	Main	13.6		
	Water Tower	0.9		
	Westpark	10.0		
	Total	**24.5**	**26,328**	**22.8**
Leduc	North Reservoir	13.6		
	South Reservoir	6.8		
	Total	**20.5**	**29,993**	**20.3**
Leduc County/EIA	Total Nisku	13.3		
	EIA	0.5		
	Total	**13.8**	**3,000**	**8.6**
Morinville	North	2.3		
	South	14.3		
	Total	**16.6**	**9,848**	**4.3**
Parkland County	Acheson	9.3		
	Hamlet of Entwistle	0.6	389	3.25
	Total	**9.9**	**n/a**	**Not available**
Spruce Grove	Zone 1	41.5		
	Zone 2	6.8		

	Total	48.3	34,880	(2035) 46.9
St. Albert	Lacombe Park	23.0		
	Oakmont	10.0		
	Sturgeon Heights	22.8		
	Total	**55.8**	**65,589**	**51**
Stony Plain	High Park	4.5		
	Meridian	14.6		
	Total	**19.2**	**17,189**	**Not available**
Strathcona County	17th Street	75.1		
	Glen Allen	9.3		
	Mills Haven	5.4		
	Southeast	20.0		
	Ardrossan	6.1		
	Total	**115.9**	**71,864**	**65**
Sturgeon County	Allin Ridge	5.0		
	Morinville Line (all)	5.7		
	Sturgeon Industrial Park	5.0		
	Total	**15.6**	**6,450**	**19.4**

Notes:

1. CRNWSC On-Line storage is for emergency supply only and does not have a dedicated service area.

3.5 Existing Service Level

3.5.1 Per Capita Consumption

The average annual per capita water for the Region is 285 Litres per capita per day (L/c/d). This includes both residential and non-residential water use. The average annual residential water use is estimated to be approximately 200 L/c/d. Water conservation, and specifically the use of low flow plumbing fixtures, has reduced the residential water use significantly over the past 20 years.

3.5.2 Non-residential Water Use

Non-residential water use includes commercial, industrial, and institutional developments. Water use is typically measured in L/ha/d (Litres per hectare per day). There are several commercial and industrial areas throughout the Region, however a detailed breakdown of non-residential water use was not available for the Environmental Scan. The industrial water use within the large industrial parks (Nisku, Acheson) tends to be low on a per hectare basis due to the types of industries located in these parks.

The heavy industries within the Alberta Industrial Heartland and in Strathcona County's Refinery Row can require large volumes of process water. These heavy industries are using non-potable water for their process water needs, including recycled wastewater from Gold Bar WWTP and raw water from the North Saskatchewan River. These heavy industries also purchase large quantities of potable water for specific events such as plant shut downs and for firefighting. These events can have negative impacts on the municipality's water system.

3.5.3 Fire Protection

Almost all developments within the Region utilize their water distribution system for fire protection. This includes dedicated storage in water reservoirs for fire storage, high capacity "fire pumps", and larger diameter distribution mains. The amount of dedicated storage and the size of the pumps and distribution mains varies based on the size and type of developments. Low density residential developments typically require a fire flow of 100 L/s (litres per second) for 2 to 3 hours, while high value properties (schools, large commercial) typically require 225 to 300 L/s for 3 hours. All new urban developments will have fire protection to the municipality's servicing standards. However, older developments will have fire protection but it may not be to current standards.

The developments that do not have fire protection include hamlets, country residential, and some rural industrial developments. In some cases, the developments are retrofitted to include fire protection.

3.6 Current Service Costs

3.6.1 Water Rates

Water is measured on a cubic metre basis, with unit costs including the cost for treatment, transmission, and (typically) storage and distribution. When water is sold from one utility or municipality to another, it is on a wholesale basis and excludes storage and distribution system costs. The costs for additional transmission is added when water is re-sold, as evidenced when water commissions sell water to individual EMRB municipalities.

Retail customers (residential and non-residential) pay for the costs for operating the local storage and distribution system as part of the water unit costs. They also incur the billing and other costs as fixed price on their utility bills.

Each municipality sets its own water rates, which typically include both fixed and variable costs based on its cost of service. It is not practical to provide a meaningful comparison of the water rates due to the range in accounting inputs used by the various municipalities.

3.6.2 Funding Sources

The municipal water utilities and commissions operate on a full cost recovery basis, where the cost of providing water servicing is recovered through the utility rate payers. New water transmission and distribution infrastructure is typically funded by the developer and/or the utility, with larger transmission mains and reservoirs being funded by the utility. All distribution mains are funded by the developer.

The only exception to this is new regional water systems that are partially funded through the Province of Alberta's Water for Life Strategy. One example of this is the recently completed West Inter-Lake District (WILD) which services villages, hamlets, and country residential areas in Parkland and Lac St. Anne Counties.

3.7 Summary Observations

1. The overall potable water treatment and transmission system is performing well and there does not appear to be any significant constraints to growth within the Region.
2. Several entities (EPCOR, the various water commissions, and municipalities) are planning and/or constructing new infrastructure capacity to meet forecast growth in their service area.
3. There is good sharing of regional water infrastructure (e.g. pumping and transmission mains within water commissions).
4. Potable water reservoirs tend to be municipally owned and used to supply local distribution systems; it is therefore not effective to share reservoir capacity on a regional basis.
5. There are numerous agreements between the various utility/commissions and EMRB members and non-members; it is understood that these agreements have been created over time when potable water was extended to municipalities and developments based on business cases and/or available grant funding.
6. Based on discussions with RWCG representatives, the current administrative level cooperation between the RWCG members and with downstream municipalities and commissions is well grounded but there may be opportunities for improved efficiencies. As the RWCG now supplies water to about 60 municipalities across north-central Alberta, trying to bring all parties together under a new governance structure will be challenging.

3.8 For Discussion

The EMRB may wish to work with the RWCG to identify ways to improve operating efficiencies at the administrative level. This could include working with the ACRWC in procurement of materials and services, and reviewing long-term carrying capacity.

4.0
Wastewater Servicing

4.1   Overview – Wastewater Servicing

Wastewater servicing in the Region comprises the local collection system, with gravity sewers and local pump (lift) stations, and the large diameter transmission system connection to wastewater treatment plants (WWTP). The local collection systems are operated by the municipality or the municipally owned wastewater utility.

The transmission and treatment infrastructure is generally operated by either EPCOR Drainage Services (City of Edmonton) or the Alberta Capital Region Wastewater Commission (ACRWC). Wastewater from Beaumont, Leduc County, and the City of Leduc is conveyed through ACRWC Trunks to the EPCOR transmission system in south Edmonton and is treated at the Gold Bar WWTP. Wastewater from the other EMRB/ACRWC municipalities (Fort Saskatchewan, Morinville, Parkland County, Spruce Grove, St. Albert, Stony Plain, Strathcona County, and Sturgeon County) plus two non-EMRB municipalities (Bon Accord and Gibbons) utilize the ACRWC transmission to convey flows to the ACRWC WWTP.

Almost all of the City of Edmonton's wastewater is conveyed to the Gold Bar WWTP for treatment. A small part of northeast Edmonton is conveyed to the ACRWC WWTP. The only local wastewater trunk servicing more than one municipality is the 34 Street Trunk which services Strathcona County and Edmonton.

Devon utilizes its own WWTP for treating its wastewater. It is currently upgrading its WWTP to accommodate growth including adjacent developments in Leduc County. Devon did investigate the potential for connecting to the ACRWC system, but it was determined to be more cost effective to upgrade its WWTP.
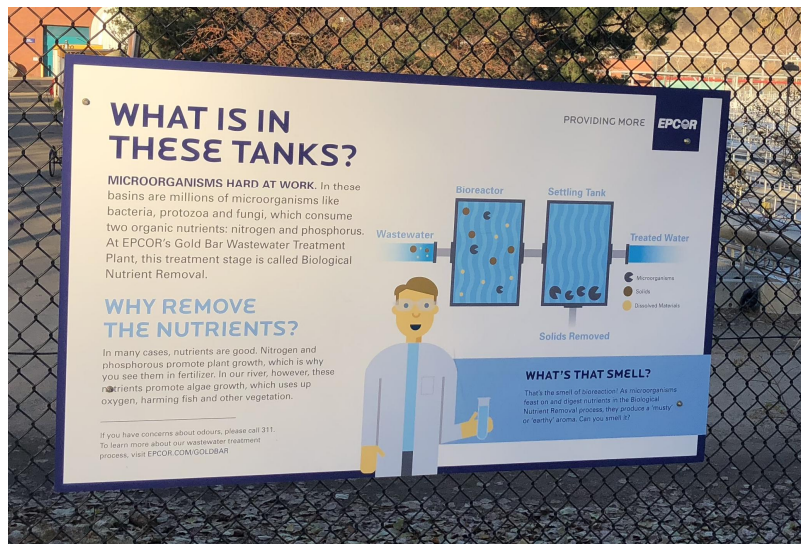
4.2   Current Wastewater Servicing Agreements and Collaboration

As the ACRWC provides wastewater transmission services to 11 of the 13 EMRB municipalities, the number of wastewater agreements is limited. The wastewater agreements are:

- City of Edmonton and EPCOR: EPCOR has a franchise within the City of Edmonton for the exclusive right to provide drainage services to the customers within the City;
- City of Edmonton and ACRWC: Wastewater Exchange Agreement for sharing wastewater transmission and treatment services (note: this agreement is being transferred from the City of Edmonton to EPCOR);
- City of Edmonton and Enoch Community Development Corporation: Enoch Servicing Agreement;
- City of Edmonton, EPCOR and Strathcona County: 34 Street Trunk Agreement for shared use of the 34 Street Trunk and treatment at the Gold Bar WWTP;
- Devon & Leduc County: Devon to provide wastewater servicing to adjacent areas in Leduc County; and,
- City of Edmonton and ACRWC: Biosolids Management Agreement.

A schematic of the wastewater agreements is shown in Figure 4.1.

The key agreement to this study is the Wastewater Exchange Agreement between the City of Edmonton and the ACRWC. Some of the pertinent terms of this agreement are:

- Peak wastewater flows discharged from one party's facilities to the other party's is to be in compliance with the Level of Service, which is calculated based on the contributing area and population (generally similar to the capacity a new sewer would be designed to);
- Joint planning of shared use infrastructure, including annual joint planning meetings to review changes to the contributing areas, update capital plans, and review any operational planning issues;
- Payment terms for wastewater exchanged; and,
- Wastewater over strength limits and enforcement.
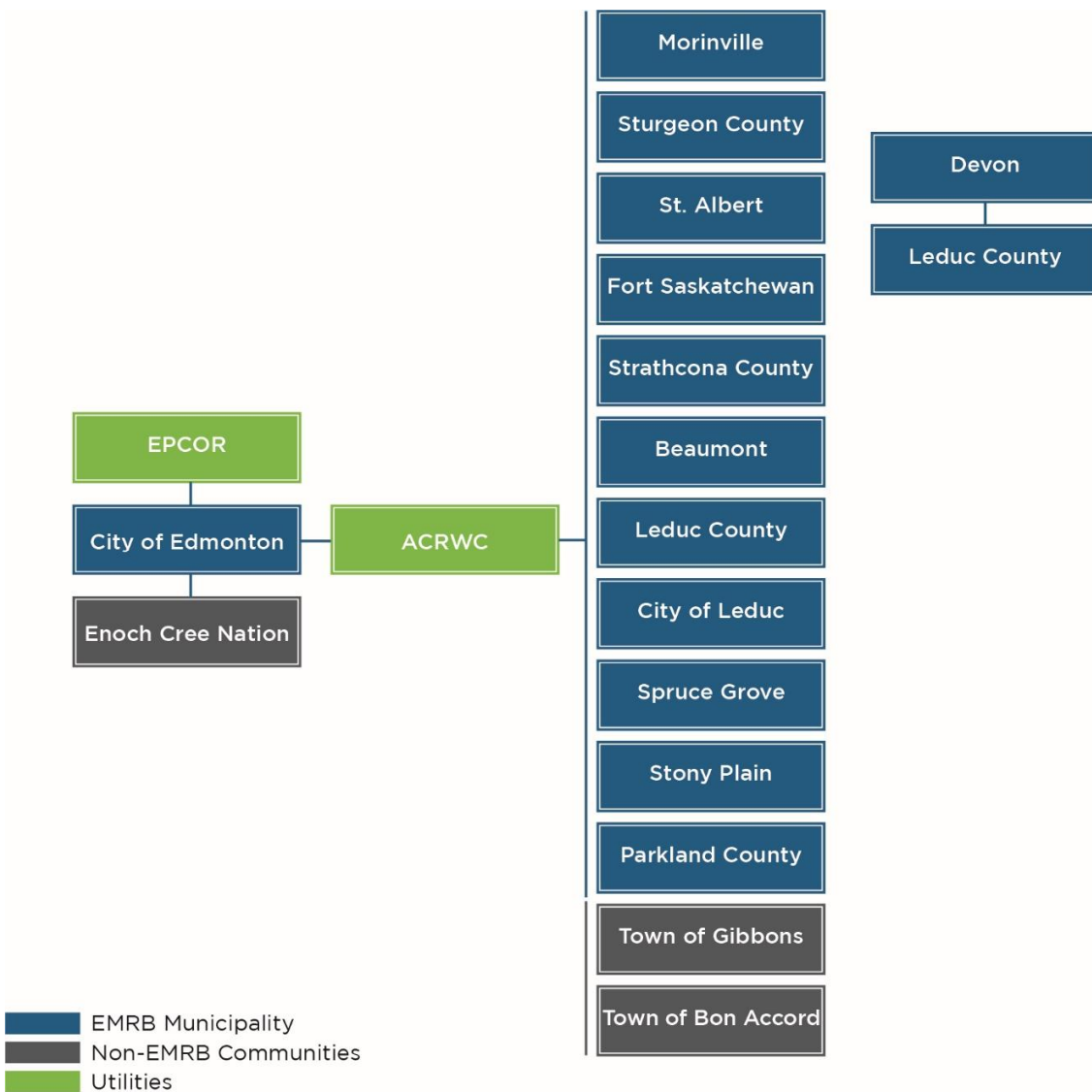
Figure 4.1:   Wastewater Agreement Schematic

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4.3   Regional Map

The following (Figure 4.2) Regional Map has been prepared and illustrates known regional wastewater infrastructure in the Region.
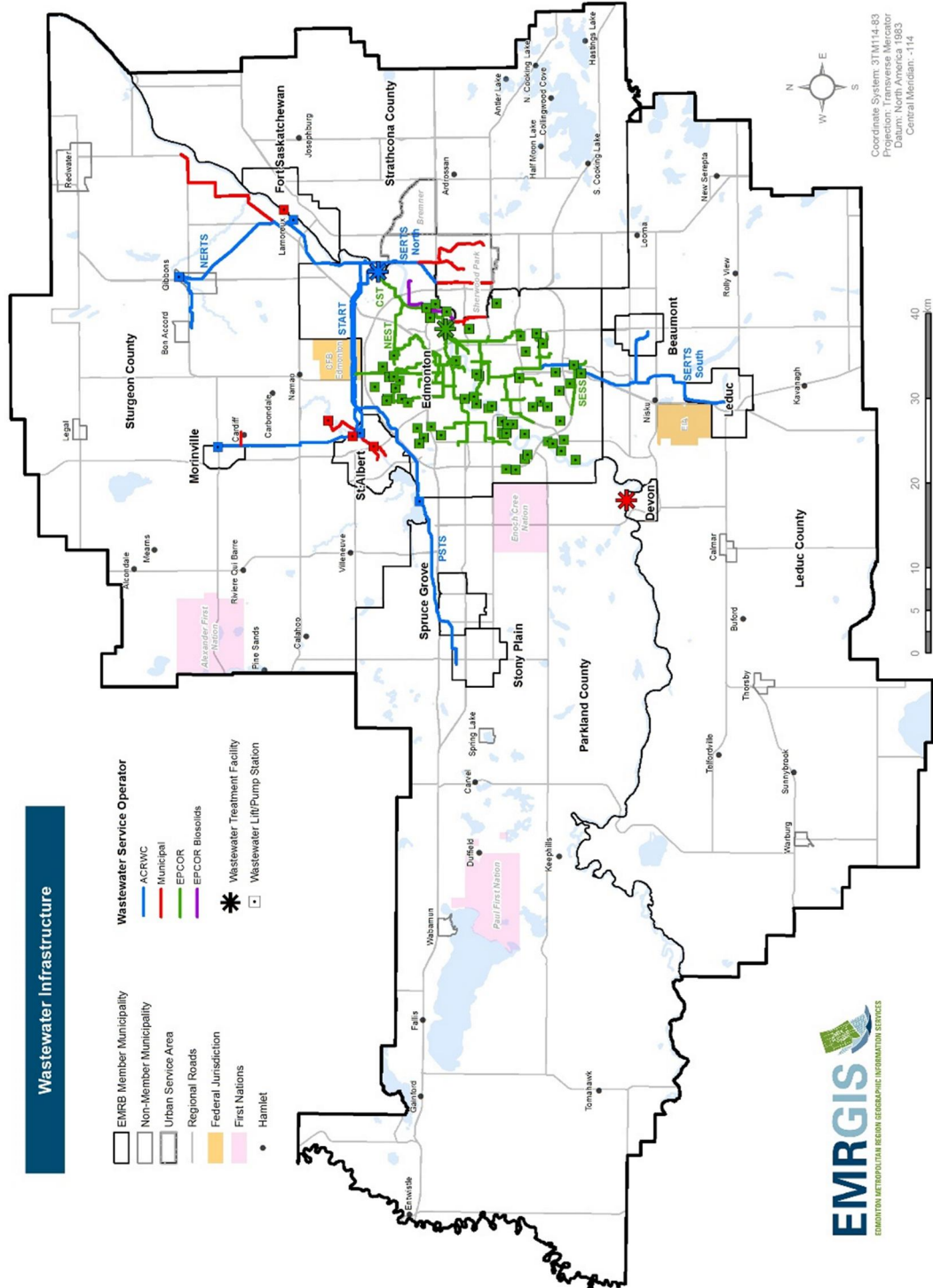

Figure 4.2:   Wastewater Infrastructure

4.4 Existing Wastewater Infrastructure and Current Service Capacity

The existing wastewater infrastructure in the Region is shown on Figure 4.2 and described below.

4.4.1 WWTP

There are three wastewater treatment plants in the Region:

- EPCOR's Gold Bar WWTP;
- ACRWC's WWTP; and,
- Devon WWTP.

Pertinent plant capacities and flows are listed in Table 4.1. The capacity of WWTP are a combination of hydraulic flow capacities and wastewater treatment processes (chemical and biological), and the data presented in this table includes a number of assumptions for simplicity.

The ACRWC WWTP has a large footprint that will allow the plant to be expanded to several times its current capacity. The Gold Bar WWTP has a limited footprint to expand outward but, with new wastewater treatment technologies, its capacity can be increased significantly. In a recent joint planning study for the City of Edmonton and ACRWC, the decision was made to utilize the Gold Bar WWTP to accommodate future growth in south Edmonton and the ACRWC south municipalities.

The central part of the City of Edmonton utilizes a combined sewer system (wastewater and stormwater in the same pipe) that was constructed prior to the 1950s. This results in diluted wastewater being discharged to the North Saskatchewan River during larger rainfall events (combined sewer overflows or CSOs). The City (now EPCOR Drainage) has been working to reduce the environmental impacts of CSOs since the 1990s by increasing the conveyance capacity to the Gold Bar WWTP and increasing the Plant's wet weather treatment capacity. In spite of the Gold Bar WWTP experiencing peak inflows above its wet weather flow treatment capacity, the plant as a whole does have capacity to accept additional wastewater flows and accommodate growth.

EPCOR pumps the Gold Bar WWTP biosolids to the Clover Bar Lagoons through a pipeline, refer to Figure 4.2.

The Devon WWTP is currently being upgraded and the capacities presented in Table 4.1 represents the design values for the upgraded WWTP.

Table 4.1:   Wastewater Treatment Plants

Owner	Wastewater Treatment Plant	Current Capacity (MLD)	Current Service Population	2017 Average Annual Flow (MLD)
EPCOR	Gold Bar WWTP	420	952,200	277
ACRWC	ACRWC WWTP	105	280,800	81
Devon	Devon WWTP	4.4	6,500	2.5
Total/Average		529.4	1,227,500	357.5

Notes:

1. Wastewater treatment rates include non-EMRB municipalities (Bon Accord, Enoch Cree Nation, Gibbons).
2. Devon WWTP is being upgraded and current capacity shown in the upgraded plant capacity.

4.4.2 Pumping and Transmission

The ACRWC has four wastewater pump stations servicing EMRB municipalities: Parkland County, St. Albert, Morinville, and Fort Saskatchewan Pump Stations. Pertinent design information and current flows for these stations are listed in Table 4.2. A new St. Albert Pump Station was constructed about 5 years ago with capacity for over 30 years of growth. The Fort Saskatchewan Pump Station capacity was recently increased with the twinning of its forcemain. The Morinville

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Pump Station was recently modified to divert wet weather flows to a storage facility. A similar wet weather flow diversion is planned for upstream of the Parkland Pump Station to accommodate growth in Spruce Grove and Stony Plain.

Table 4.2: Wastewater Pumping Facilities Servicing Regional Systems

Owner	Pump Station	Current Capacity (L/s)	Current Service Population	Existing (2017) Flows (L/s)	
				Average Annual Flow	Peak Wet Weather Flow - Simulated 1:25 Year Rainfall
EPCOR	None	n/a	n/a	n/a	n/a
ACRWC	Parkland PS	730	51,208	194	905
	St. Albert PS	1200	72,371	232	1119
	Morinville PS	237	11,096	40	237
	Fort Saskatchewan PS	800	29,991	67	710

Notes:

1. EPCOR does not have any pump stations currently providing regional servicing.
2. Fort Saskatchewan Pump Station includes flows from outside EMRB (Bon Accord). and Gibbons)
3. The Morinville Pump Station inflows that are above the ACRWC system capacity are diverted to a wet weather storage facility.
4. Peak wet weather flow from Morinville and Cardiff (Sturgeon County) is higher than ACRWC PS capacity of 237 L/s, but excess wet weather flows are diverted to Morinville wastewater storage facility (former lagoon). The system has capacity for growth in Morinville and Cardiff.
5. The ACRWC is planning to construct a wet weather storage facility at the former Spruce Grove lagoons to accommodate peak wet weather flows. This will address the current capacity issue at the Parkland PS and accommodate several years of growth in Parkland County, Spruce Grove and Stony Plain.

The City of Edmonton (now EPCOR Drainage) has several wastewater pump stations as part of its wastewater collection system. These pump stations do not service lands outside of the City's boundaries and were therefore not considered for this study.

The ACRWC transmission system includes four trunk systems, the Parkland Trunk, St. Albert Regional Trunk (START), Northeast Regional Trunk (NERTS) and the Southeast Regional Trunk (SERTS)(North and South). Design information and current flows in these trunks are listed in Table 4.3. The ACRWC is in the process of upgrading the Parkland Trunk and START in stages to accommodate growth and address high wet weather flow conditions.

There are four wastewater trunks within the City of Edmonton that convey regional flows:

- SERTS (currently owned by ACRWC) which conveys Beaumont, Leduc County and City of Leduc flows;
- 99 Street Trunk which accepts SERTS flows and conveys them to the Gold Bar WWTP;
- 34 Street Trunk, which is shared by Strathcona County and the City of Edmonton; and,
- Clareview Sanitary Trunk (CST) and Pilot Sound Trunk (PST) which convey wastewater flows from northeast Edmonton to the ACRWC WWTP.

Pertinent design information and current wastewater flows in these trunks are also listed in Table 4.3.

Table 4.3:   Wastewater Trunks Servicing Regional Systems

Owner	Trunk	Section	Current Capacity (L/s)	Current Service Population	Existing (2017) Flows (L/s)	
					Average Annual Flow	Peak Wet Weather Flow - Simulated 1:25 Year Rainfall
EPCOR	99 St. Sanitary Trunk	North of Millwoods Double Barrel	1180	110,721	270	797
	Clareview Sanitary Trunk	-	813	39,258	124	253
	34 Street Sanitary Trunk (shared by both Strathcona County and the City)	-	100	n/a	n/a	61
	SERTS (Southeast Regional Service Line)		1220	42,545	189	666
ACRWC	Parkland Sanitary Transmission System (PSTS)	Spruce Grove to Acheson	1010	49,287	189	1010
	St. Albert Regional Trunk (START)	Manning Dr. to River Crossing	2090	137,951	542	2000
	Northeast Regional Transmission System (NERTS)	Fort Sask. FM to River Crossing	900	29,991	150	800
	Southeast Regional Transmission System (SERTS) North	Oldman Creek to WWTP	1780	72,034	207	2130
	SERTS South	Leduc to Nisku	320	28,921	79	319
		Beaumont to Nisku	196	17,638	43	196
		Nisku to Edmonton	1090	46,780	176	969
Sturgeon County	AIH Trunk	AIH to ACRWC	578	n/a	25.9	71

Notes:
1. Populations and flows identified above include connections to the regional system outside of EMRB municipalities.
2. ACRWC trunk capacities shown are individual pipes except for SERTS North; overall system capacity is estimated to be up to 50% higher when operated under surcharge conditions (wastewater at least 1.5m below grade), which is acceptable under 1:25 year wet weather flows.
3. ACRWC is currently addressing capacity constraints in Parkland and START Trunks with staged twinning of these trunks. ACRWC is planning on sealing SERTS North trunk at key locations to convey the 1:25 year wet weather flows. ACRWC does not see any of these trunks as representing constraints to growth.
4. ACRWC is investigating the Edmonton International Airport inflows as the EIA recently upgraded its pumping capacity.
5. EPCOR's current capacity and current service population are taken from the 2016 Global Trunk Model.
6. Both EPCOR's average annual flows and peak wet weather flows are obtained from selected monitoring stations.

4.5   Existing Service Level

As noted in the Wastewater Exchange Agreement description above, the City of Edmonton and the ACRWC have established a Level of Service to dictate the maximum allowable flows points of wastewater exchange. The Level of Service is calculated based on upstream population, residential and non-residential areas, and accepted standards for wastewater flow generation and inflow/infiltration rates. If the City of Edmonton, the ACRWC and/or the ACRWC member municipalities are discharging wastewater at a rate higher than the allowable Level of Service, they would be required to reduce flows by temporarily storing peak flows or reduce the inflow/infiltration at the source. The ACRWC has asked its member municipalities to assess its peak wet weather flows and take corrective action if necessary. It is understood that the City of Edmonton and ACRWC flows are currently below the Level of Service at the exchange locations.

4.6   Current Service Costs

4.6.1   Wastewater Rates

Similar to water, wastewater is measured on a cubic metre basis, with unit costs including the cost for collection, transmission, and treatment. As the ACRWC provides both transmission and treatment services, these costs are consistent for the 11 EMRB municipalities that are members of the ACRWC. The ACRWC uses a "postage stamp" rate for transmission and treatment services regardless of the length of transmission services utilized.

ACRWC municipalities add the cost of local wastewater collection to the ACRWC transmission and treatment costs to determine the retail cost for wastewater servicing. Retail customers (residential and non-residential) also incur the billing and other costs as fixed price on their utility bills.

Each municipality sets its own wastewater rates, which typically include both fixed and variable costs based on its cost of service. It is not practical to provide a meaningful comparison of the water rates due to the range in accounting inputs used by the various municipalities.

4.6.2   Funding Sources

The municipal wastewater utilities and commissions operate on a full cost recovery basis, where the cost of providing wastewater servicing is recovered through the utility rate payers. New wastewater transmission and distribution infrastructure is typically funded by the developer and/or the utility. The ACRWC is responsible for upgrading its transmission system (pump stations and trunks) through ACRWC rates. Local wastewater sewer are funded by the developer. Larger trunk sewers and pump stations are funded by developers in a variety of ways, typically through some type of off-site levy charge on a per hectare basis.

4.7   Summary Observations

1. The Regional Wastewater Exchange Agreement between the City of Edmonton and the ACRWC is servicing the Region well.
2. The ACRWC's mandate is to provide service to its members as required, thus they do not use infrastructure capacity to regulate growth.
3. The ACRWC is upgrading its transmission system to accommodate growth in its member municipalities (most are EMRB members). This upgrading is being staged based on upgrading priorities and ACRWC financial constraints.
4. The ACRWC is requiring its members to manage the wet weather flows reaching the ACRWC transmission system through inflow/infiltration reduction and/or wastewater storage. This will result reserve capacity in the ACRWC transmission system and treatment plant to accommodate additional growth.
5. The recent decision to connect the South Edmonton Sanitary Sewer to the Gold Bar WWTP will result in a lower overall servicing costs by eliminating over $100M in planned capital expenditures. This will also provide predictable wastewater system flows to both the Gold Bar and ACRWC WWTPs.

4.8   For Discussion

The wastewater systems in the Region are working well, with very good collaboration between EPCOR and the ACRWC. Continued collaboration, including regular joint planning meetings, will be important moving forward.

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5.0
Stormwater Servicing

5.1   Overview – Stormwater Servicing

Stormwater servicing in the Region comprises a combination of local storm sewers, trunks, and ditches connecting to a stormwater management facility (SWMF), which discharges to a receiving water body (lake, creek, or river) via storm trunk or major ditch. Areas developed prior to the 1980s would typically not have a SWMF based on the design standards at that time. SWMF store peak flows from rainfall or snowmelt events and release them at pre-development rates to mitigate the impacts of development on the downstream receiving water bodies.

Overland flow paths to the SWMF or receiving water body, were incorporated into design standards in the 1980s. The overland or major drainage system manages the depth of ponding in urban areas to minimize flooding risks.

As stormwater runoff from development is generally discharged to the same receiving water body as under pre-development conditions, stormwater servicing tends to be localized. As a result, there is a relatively limited amount of stormwater infrastructure that could be considered regional in nature.

The key issue for stormwater servicing in the Region is the cumulative effect of development on the existing creeks and on the Sturgeon River. The North Saskatchewan River has a large assimilative capacity and thus can accept large volumes of stormwater runoff (controlled to pre-development rates). However, cumulative effects of development on the creeks and Sturgeon River is an increase in erosion, even with SWMF controlling discharges to pre-development rates. This is due to the increase in annual runoff volume with urban development. The increase in erosion is exacerbated by the development that occurred in the Region prior to the 1980s where stormwater was discharged uncontrolled to the creeks, which resulted in much higher peak flows. The downstream reaches of Whitemud/Blackmud, Mill, Fulton, and Gold Bar Creeks have well documented erosion issues.

Stormwater quality is another area of concern across the Region. Stormwater runoff is known to have a number of contaminants that affect the aquatic habitat of receiving water bodies, including total suspended solids (TSS). SWMF (wet ponds and constructed wetlands) provide most of the stormwater treatment needed, if properly designed. Current provincial design guidelines require new developments to manage stormwater quality to protect downstream receiving water bodies. Several municipalities are proactively upgrading their stormwater drainage systems to minimize the stormwater quality impacts from previous developments.

Alberta Environment and Parks (AEP) is the regulator for stormwater discharges to receiving water bodies. This includes working with municipalities to establish pre-development discharge rates from SWMF and management of stormwater quality. Municipalities work towards compliance with this regulation.

The only area of federal jurisdiction for stormwater is near existing airports where stormwater management facilities need to be designed so as to not attract birds. This is a significant constraint within the Edmonton Energy and Technology Park which is adjacent to CFB Edmonton. This presumably will be an issue as development occurs in the vicinity of the Edmonton International Airport.

5.2   Current Stormwater Servicing Agreements and Collaboration

There are no known intermunicipal stormwater agreements in the Region. This is likely due to the local nature of stormwater drainage and the role that AEP plays in regulating stormwater. There are, however, agreements between AEP and municipalities, and one potential future agreement between AEP and a group of EMRB municipalities. These agreements are shown schematically in Figure 5.1.

Parkland County has a "fenceline" agreement with AEP under the Water Act that grants the County the right to plan, design, construct, and operate stormwater drainage facilities within the fenceline boundary.
The Blackmud/Whitemud Surface Water Management Group was recently formed by the Cities of Edmonton and Leduc, the Town of Beaumont, Strathcona and Leduc Counties, and the North Saskatchewan Watershed Alliance (NSWA). The group commissioned a hydrologic, hydraulic, and environmental study of the Blackmud Creek and Whitemud Creek watersheds to develop a stormwater management strategy to accommodate future development in the basin. The Group has approached AEP about setting up a Fenceline Agreement for the Blackmud/Whitemud watershed that will establish consistent SWMF release rates that will address erosion and flooding issues.

Sturgeon River Watershed Alliance (SRWA) is an intermunicipal group working in collaboration with the North Saskatchewan Watershed Alliance and Alberta Environment and Parks to build on the findings of The Sturgeon River State of the Watershed Report (2012). This group will oversee the development of a watershed management plan for the Sturgeon River watershed and work collaboratively on an ongoing basis to implement the management plan recommendations.
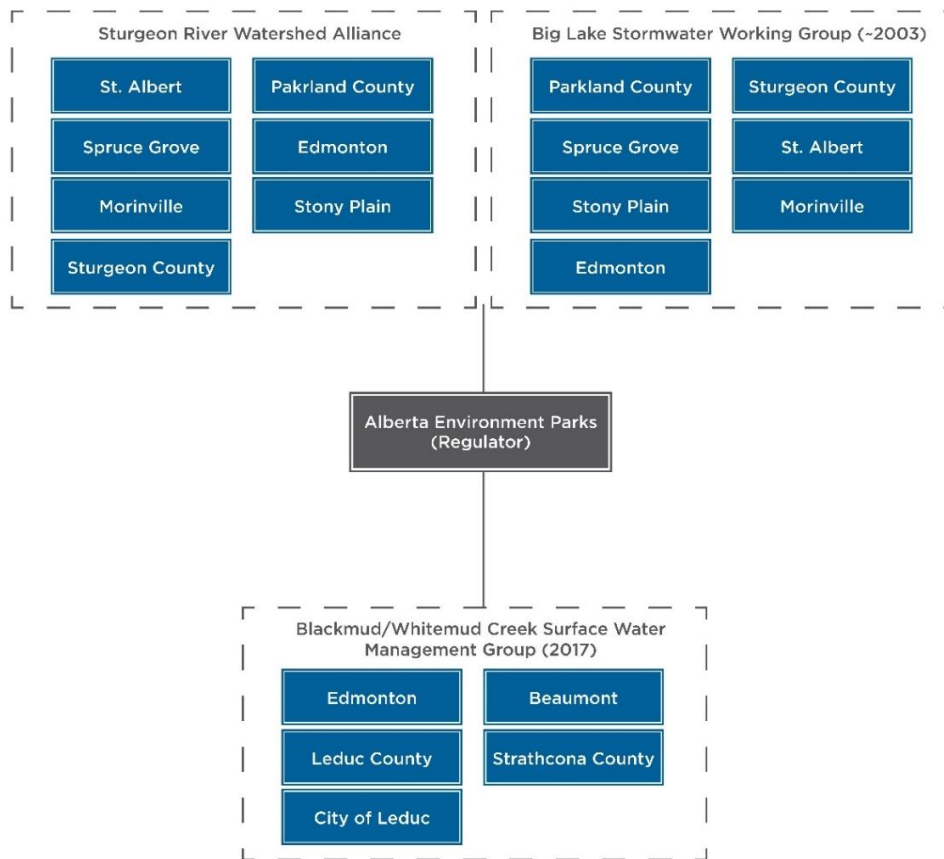
Figure 5.1:   Stormwater Agreement Schematic

Strathcona County and the City of Edmonton created an Intermunicipal Watershed Management Group (IWMG) in 2009 to establish and implement agreements and processes regarding their shared watersheds. Mill, Fulton, Gold Bar, Clover Bar, and Aurum Creeks all originate within Strathcona County and flow in a northwest direction through the City of Edmonton to the North Saskatchewan River. The IWMG commissioned a joint Trans-Boundary Watershed Management Development Plan to develop a better understanding of watercourse erosion, water quality and conveyance capacity issues, and develop a watershed plan for each of the five creeks.

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It is understood that the Big Lake Water Management Study (2004) was commissioned jointly by the Cities of Edmonton, St. Albert, and Spruce Grove, the Town of Stony Plain, and Parkland and Sturgeon Counties. The objective was to determine the optimal SWMF release rate to Big Lake and its tributaries (Atim Creek, upstream Sturgeon River, Carrot Creek) so as to minimize flooding of Big Lake and the downstream Sturgeon River. These municipalities worked with AEP to establish the release rate for this watershed.

5.3 Regional Map

The following (Figure 5.2) Regional Map has been prepared and illustrates known regional stormwater discharge in the region.
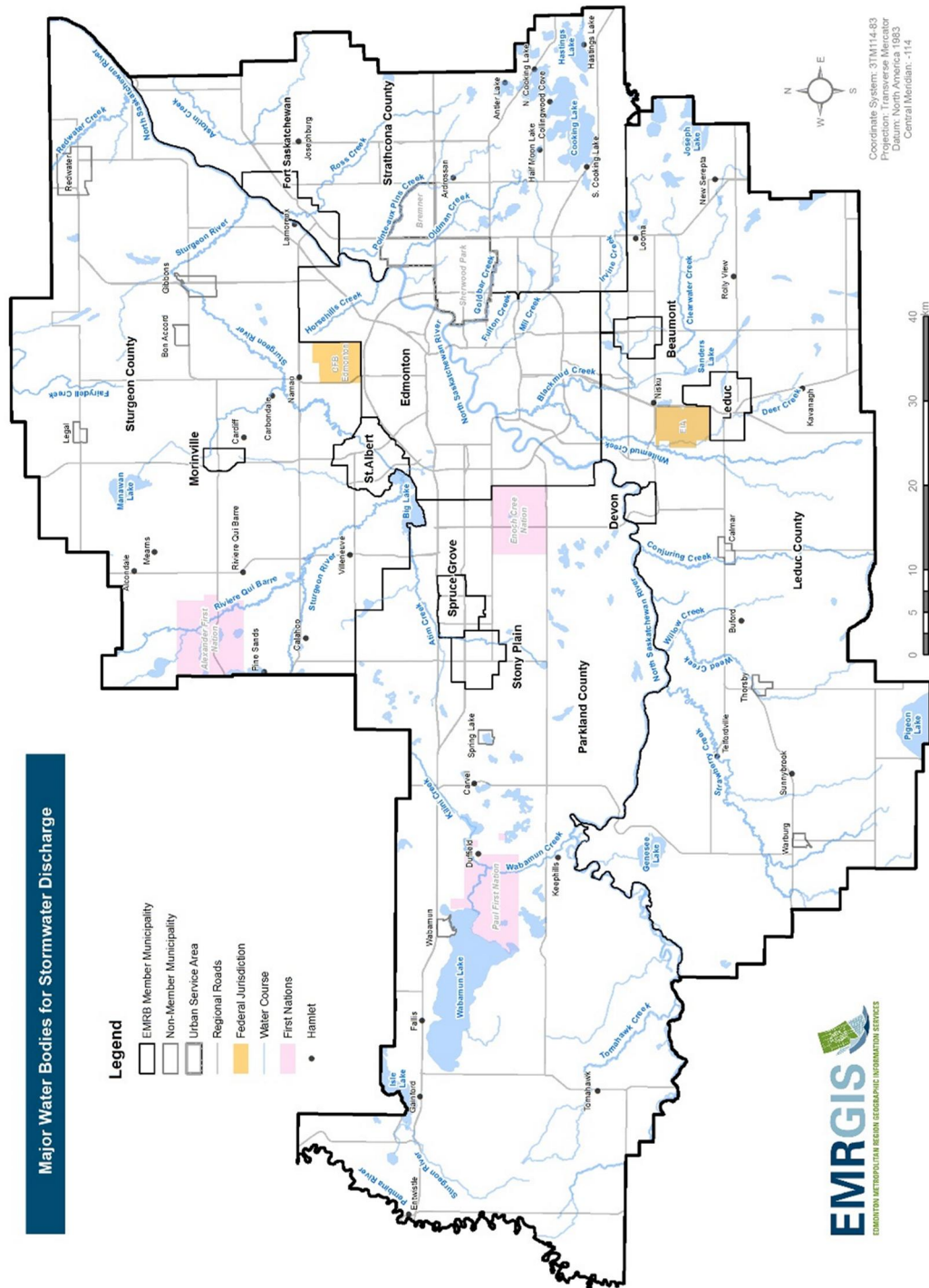
Figure 5.2:   Major Water Bodies for Stormwater Discharge (Lakes, Creeks, and Rivers)

5.4   Existing Stormwater Infrastructure and Current Service Capacity

5.4.1   SWMF

There are no regional SWMF that service multiple municipalities in the Region. The City of Edmonton has constructed in-stream SWMF on Mill Creek (Roper Pond) and Fulton Creek (Fulton Wetland) to provide storage and water quality treatment. While these creeks originate within Strathcona County, their upstream basins are largely undeveloped and thus did not require storage. The primary reason for the construction of these SWMF was due to the limited downstream capacity in the Mill Creek and Fulton Creek Tunnels.

Alberta Transportation constructed a SWMF on a Gold Bar Creek tributary within the Transportation Utility Corridor as part of the Northeast Anthony Henday Drive project. The primary driver for this SWMF was inadequate storage capacity for developed areas within Strathcona County and limited hydraulic capacity in the downstream reaches of Gold Bar Creek. This SWMF is not considered to be a regional facility as it was not constructed to provide stormwater servicing to multiple municipalities.

The Blackmud/Whitemud Surface Water Management Group is considering a regional SWMF along the Irvine Creek branch of Blackmud Creek. This potential SWMF would store urban runoff from the upstream part of the watershed to offset the flooding and erosion impacts due to the increase in runoff volume from development and to offset the loss of overbank storage along Irvine Creek.

5.4.2   Regional Trunks & Ditches

There are no regional stormwater trunks servicing multiple municipalities in the Edmonton Metropolitan Region. The Fulton and Mill Creek Tunnels within the City of Edmonton do convey flows from Strathcona County to the North Saskatchewan River, but these trunks were not installed to provide stormwater servicing for the County.

There are a few drainage ditches that service multiple municipalities:

- LeBlanc Canal in Beaumont and Leduc County, servicing urban development in Beaumont and agricultural development in the County;
- Carrot Creek ditch in St. Albert between Highway 2 and Carrot Creek, servicing parts of St. Albert, Sturgeon County (undeveloped) and Morinville;
- Moyer Ditch in Fort Saskatchewan, servicing a portion of Strathcona County (agricultural);
- O'Donnell Drainage Course in Enoch First Nation servicing an undeveloped part of Parkland County;
- Rolling Meadows Ditch in Parkland County, servicing a portion of Spruce Grove; and,
- Manawan Canal in Sturgeon County, servicing a portion of Morinville and agricultural lands with Sturgeon County.

The only drainage ditch that could be considered regional in nature is the LeBlanc Canal as it services both Beaumont and Leduc County, however the Leduc County portion is agricultural drainage only.

5.4.3   Lakes, Creeks, and Rivers

While lakes, creeks, and rivers are not necessarily considered to be stormwater infrastructure, they are critical components of the overall stormwater drainage system. The key lakes, creeks, and rivers that impact regional stormwater servicing include:

- The North Saskatchewan River;
- The Sturgeon River drainage system, including Big Lake, Atim Creek and Carrot Creek;
- The Whitemud Creek drainage system, including Blackmud Creek, Irvine Creek, LeBlanc Canal, and Deer Creek;
- Mill Creek;
- Fulton Creek;
- Gold Bar Creek;
- Clover Bar Creek;

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- Aurum Creek;
- Ross Creek; and,
- Horsehills Creek (small part of Sturgeon County drains through City of Edmonton).

The existing lake, creeks, and rivers are shown in Figure 5.2.

The downstream reaches of the Whitemud, Blackmud, Mill, and Gold Bar Creeks currently have erosion issues, due to uncontrolled stormwater discharges from development prior to the 1980s and increased annual runoff volumes from lands developed since the 1980s. A number of creeks in the Region are prone to flooding during large storm events, again due to the combination of uncontrolled discharges and an increase in the runoff volumes.

Recent studies have indicated that the optimal way to address erosion and flooding issues is to utilize a very low release rate from SWMF. In addition to lowering downstream peak flow rates, these very low release rates also reduce the duration of moderate to high flows, which reduces the erosion potential on the bed and bank of creeks.

5.5   Existing Service Level

As noted above, several of the creeks in the Region currently have erosion and flooding issues and further upstream development could exacerbate the situation. The use of very low SWMF discharge rates combined with downstream erosion and flood mitigation measures will allow future development to occur utilizing the creeks to convey stormwater flows to the North Saskatchewan River.

The current SWMF release rates for new developments discharging to creeks in the Region are:
- Big Lake and tributaries and downstream Sturgeon River – 2.5 L/s/ha north of Highway 16A and 1.8 L/s/ha south of Highway 16A;
- Whitemud/Blackmud Creek watershed – 3.0 L/s/ha proposed in joint submission to AEP;
- Irvine Creek (Beaumont discharges) – 1.8 L/s/ha;
- Gold Bar Creek – 4.0 L/s/ha in Strathcona County, 3.0 L/s/ha in City of Edmonton;
- Clover Bar Creek – 1.6 L/s/ha;
- Ross Creek – 3.5 L/s/ha (Strathcona County through Fort Saskatchewan);
- Carrot Creek – 0 L/s/ha within City of St. Albert (current plans are to divert new developments away from creek due to erosion concerns); and,
- Downstream Horsehills Creek – 0 L/s/ha (current plans are to divert new developments away from creek due to erosion concerns).

5.6   Current Service Costs

5.6.1   Metrics

As stormwater is not a commodity that is used or generated by customers, it is not measured on a cubic metre basis. Stormwater runoff volumes and discharge rates are proportionate to the annual precipitation (rainfall and snowmelt), the surface area being drained, and the imperviousness of the area (percent that runs off versus infiltrates). As the amount of precipitation is not controllable, stormwater costs can be measured based on the drainage area and percent imperviousness.

5.6.2   Funding Sources

The majority of the funding for stormwater infrastructure in the Region is from private development, either with the developer front-ending construction costs or through an off-site levy or similar system. This includes the local storm sewers, SWMF, stormwater trunks, and outfalls. Larger stormwater projects are occasionally constructed by the municipality or stormwater utility, with costs recovered from development through off-site levies, and other mechanisms.

The City of Edmonton, City of St. Albert, and Strathcona County have stormwater utilities that use utility revenue to operate, maintain, and upgrade their stormwater drainage systems. Other municipalities use general revenue for operation, maintenance, and upgrading.

Grant funding is frequently used for special projects. The Blackmud/Whitemud Surface Water Management Study was 70% funded through the Alberta Community Partnership grant. Other grant programs used in the Region for stormwater projects include the Alberta Community Resilience Program Fund and the Building Canada Fund.

5.7 Summary Observations

1. There are no stormwater drainage facilities (SWMF, trunks, and major ditches) within the Region that can be considered to be regional in nature.

2. The key aspect for regional stormwater servicing are the natural drainage systems, including Big Lake, the Sturgeon and North Saskatchewan Rivers, and approximately 10 to 15 key creeks that drain to them.

3. There does not appear to be a strong need for developing regional stormwater infrastructure to facilitate development. The only exception to this would be portions of the Whitemud/Blackmud Creek system where existing creeks (e.g. Irvine and Deer Creeks) are very shallow and prone to extensive overbank flooding which could severely impact the developable lands.

4. Stormwater system planning in the Region has historically been done on an ad hoc basis, typically focusing on a specific development area or individual creek watershed. As a result, the various municipalities have developed a range of stormwater design criteria (e.g. SWMF release rates) and service levels.

5. Intermunicipal cooperation for stormwater system planning has improved in recent years, and there are a number of examples where joint planning studies have developed consistent design criteria across municipal boundaries. This includes the Big Lake watershed (Edmonton, Parkland County, Spruce Grove, St. Albert, Stony Plain, and Sturgeon County) and the Whitemud/Blackmud Creek watershed (Beaumont, Edmonton, Leduc, Leduc County, and Strathcona County), and the Mill, Fulton, Gold Bar, Clover Bar, and Aurum Creek watersheds (Edmonton and Strathcona County).

6. Several creeks in the Region have erosion issues due to uncontrolled stormwater discharges from development and an increase in the annual runoff volume. This may include considerations for climate resiliency and risk mitigation.

7. Stormwater runoff tends to deteriorate water quality in the receiving water bodies. Some monitoring of water quality in the creeks has been carried out, primarily by the City of Edmonton (now EPCOR Drainage). Properly designed SWMF can provide effective treatment for stormwater runoff.

5.8 For Discussion

Potential discussion for water servicing within the context of the MRSP are listed below.

- Stormwater drainage planning should consider SWMF release rates and other design criteria, erosion and sedimentation, flooding, protection of riparian areas, establishing environmental reserves, and stormwater quality monitoring.

- Coordinated drainage system planning across the entire Region should be considered (limited to lake, river, and creeks where watershed boundaries cover multiple municipalities).

- Joint stormwater drainage planning across municipal boundaries should become standard practice across the Region at a watershed level.

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6.0
Transportation – Roads

6.1   Overview – Regional Transportation Network

Transportation networks in the Region comprise of several regionally significant roads classified as either arterial, expressway, or freeway, and are identified in the Edmonton Metropolitan Region Board's (EMRB) Integrated Regional Transportation Master Plan (IRTMP). The EMRB's IRTMP identifies regionally significant roads as linking municipalities, major destination centres, and employment centres as well as providing access to air and rail. By definition in the IRTMP, regionally significant roads are:

"Any arterial or higher order roadway that, regardless of jurisdiction, serves to connect EMRB (formally CRB) municipalities with each other and with other regions in Alberta and Canada".

The province owns and operates the majority of regionally significant roadways in the Region, but often works with EMRB municipalities in completing planning studies for future roadways.

The IRTMP regional roadway classifications system serves to respect the correlation between moving people and reflecting the nature and character of the surrounding land uses and development patterns. The classifications system includes arterials, freeways, and expressways, briefly described as follows:

Arterial Roads: Arterial roads are primarily designed to respect the context and environment within which they exist. Arterial roadways vary across the Region, and setting a single regional design standard for arterials across the Region is contradictory to their intention. These roads serve to carry relatively high numbers of people and goods across a single municipality or between two or more municipalities. Spacing of intersections along arterials can vary widely, but generally falls in within 250 – 400 m depending on the adjacent development. For dense and diverse land uses, a high level of multimodal accessibility is desirable, with intersections spaced more closely. Arterial roads should include elements that cater to vehicles, buses, pedestrians and bicycles.

Expressways: A form of arterial road that operates at a higher speed limit (70 – 100 km/h). Intersections are further apart (800 – 1600 m) and can be at-grade or grade-separated. Expressways have lower speeds in urban environments with closer intersection spacing. Expressways cater to transit, including transit priority measures on roadways and intersections within the expressway. Expressways connect between commercial and industrial areas and handle a higher proportion of commercial vehicles.

Freeways: Freeways focus on connecting people and goods over longer distances at relatively higher speeds (80 – 110 km/h) and are considered a form of rapid, uninterrupted movement with no at-grade intersections. Interchange spacing is 1600 – 3200 m depending on adjacent development patterns.

Regional implementation of the IRTMP is challenging where roadway classifications from the IRTMP differ from roadway classifications designated by Alberta Transportation, as there are different access management requirements by each jurisdiction.

Regionally significant roadways and existing roadway classifications are presented in Figure 6.1.

Goods Movement

The Region encompasses a number of areas with significant industrial and commercial development that depend on the transport of raw materials and or finished products to internal and external markets. Significant demands for goods movements include Alberta's Industrial Heartland (Strathcona County and Sturgeon County), Nisku Industrial Park (Leduc County), Acheson Industrial Park (Parkland County), Edmonton International Airport, Strathcona County's petrochemical sites and other significant industrial and commercial sites in southeast, central, north and northwest Edmonton. Significant future areas include the Edmonton Energy and Technology Park in northeast Edmonton and Aerotropolis Developments (EIA, City of Leduc, and Leduc County). Serving these major areas of economic activity with appropriate transportation infrastructure requires the provision of adequate routes for movement of heavy vehicles and adequate provision of access off these routes to allow efficient access to the industrial and commercial sites. All provincial highways, which form part of the regional network in Figure 6.2, are designated as truck routes and dangerous goods route. Each municipality typically regulates truck routes and dangerous goods routes within urban municipalities through a bylaw. The high load corridor, which also serves heavy loads, accommodates heights up to 9 m, and weights up to 156 tonnes. Heavy loads travelling between the north and south of the Region require an approximate 400 km detour as the closest North Saskatchewan River Bridge able to accommodate heavy loads is located 200 km to the east, near Two Hills, Alberta. The Region would benefit from the implementation of the north/south high load route proposed in the IRTMP, reducing north/south haul routes over the North Saskatchewan River by approximately 400 km.

Air

Air Transportation facilities in the Edmonton Metropolitan Region are under the jurisdiction of Edmonton Regional Airports Authority (ERAA), which in turn is subject to federal regulations. ERAA currently operates two airports in the Region, Edmonton International Airport (EIA), and Villeneuve Airport in the best interests of the Edmonton Metropolitan Region.

Edmonton International Airport is the Region's primary air passenger and air cargo link that currently serves almost 8 Million Annual Passengers (MAP). EIA's 2010 – 2035 Master Plan outlines plans for expansion of the airport's facilities in anticipation of an annual passenger traffic load of 13 MAP by 2035. The EIA Master Plan is intended to clarify the airport's growth and development plans to handle the expected high growth in passenger and cargo traffic. The airport's plans include significant expansion of passenger terminals, airside systems including a third runway, business aviation facilities, cargo facilities as well as parking and ground transportation services. The EIA's future success in sustaining its growth and profile in a highly competitive global marketplace requires coordination of the airport's plans and aspirations with regional transportation initiatives.

Recently, the City of Leduc, Leduc County and the EIA completed the Aerotropolis Viability Study (AVS). Aerotropolis is a land use strategy that focuses on economic development around the airport, leveraging the strength of existing

businesses on airport lands and surrounding areas to encourage further economic diversification and job growth. The study identified four priority areas within the study area to consider their Greenfield Aerotropolis development potential. Furthermore, the AVS identified opportunities to facilitate and leverage considerable economic growth and diversification, if planned, marketed, and implemented as a cohesive singular economic unit.

The Villeneuve Airport located along Highway 633, 18 km northwest of Edmonton is a general aviation airport, not currently serving regularly scheduled passenger flights. The Villeneuve Airport is thought to absorb some of the air transportation capacity with the closure of the City Centre Airport, growing from 16 to 23 businesses, since 2011. The Villeneuve Airport includes 12 hangers and two paved 3,500-foot runways. It is the only general aviation airport in the Region with a NAV Canada Air Traffic Control Tower. The airport focuses on aircraft flight training, fixed-wing aircraft maintenance as well as helicopter maintenance and aviation operations. The Villeneuve Airport Master Plan (2006) identified the potential for an airport Business Park on the southeast quadrant of the airport property. Current runway limitations present aircraft limitations unless expansion were to occur. Villeneuve Airport is and will continue to be served by good highway connections through Highway 633 and Highway 44.

Strathcona County owns and operates the Warren Thomas (Josephburg) Aerodrome. This airfield is located 1.6 kilometers north of Josephburg on secondary highway 830, and is approximately 5 kilometers south of the Heartland Industrial area. The aerodrome is used for privately owned and commercial aircraft. The lands around the property are primarily used for agricultural purposes. The Warren Thomas Aerodrome has one 4,560-foot runway, 28 bare land lease sites and 12 aircraft tie-downs. Strathcona County is also home to the South Cooking Lake private airport, including floatplane-landing facilities.

Rail

An extensive network of railway facilities serve passenger and cargo needs in the Edmonton Region. Passenger rail service is currently provided by VIA Rail operating on Canadian National's east-west mainline, which runs parallel to Highway 16/Yellowhead Trail. The Region's only VIA Rail station is currently located off 121 Street, just south of Yellowhead Trail.

Plans for development of High Speed Passenger Rail service serving the Edmonton/Calgary corridor has been continually on the radar in the past by the Alberta government and other parties. Conceptually, the corridor could connect downtown Edmonton with downtown Calgary with potential stops at the two cities' international airports. A funding model, detailed engineering studies outlining alignments, right-of-way and integration with other regional transportation facilities have not been carried out.

Rail based cargo transportation in the Edmonton Metropolitan Region is provided by the Canadian National (CN) and Canadian Pacific (CP) railways. Figure 6.3 indicates the existing and future rail infrastructure in the Region. CN has the most extensive trackage, which provides connections to continental ports at Vancouver, Prince Rupert, Halifax and New Orleans. CP Rail on the other hand provides direct connections between Alberta's Industrial Heartland and Asian markets through Vancouver, B.C. and U.S. markets through Coutts, Alberta and Kingsgate, B.C.

6.2 Current Transportation Agreements and Collaboration

The EMRB has recently signed a Memorandum of Understanding to collaborate with Alberta Transportation within the Region. In addition, there may be some shared maintenance partnerships for adjoining roadways between adjacent municipalities. Overall, Alberta Transportation owns and operates most highways that are outside of cities within the Region. Through cities, the relevant municipality owns and operates the highway.

The EMRB 2018 Regional Transportation Priorities was approved on June 14, 2018 by the EMRB and identified the following:

Table 6.1:   Projects Ready for Construction

Rank	Project Name	Project Type	Score	#
1	QE2/65 Avenue (Leduc) Interchange & Arterial	Interchange	204.0	S4
2	West LRT (Downtown to Lewis Estates)	LRT Extension	169.9	T5
3	Highway 19 (QE2 Highway to Highway 60)	Twinning	165.4	S1

4	Highway 60 (Highway 16A to Highway 16)	Twinning & Rail-Grade Separation	161.6	W1
5	75 Street (Argyll Road to Whitemud Dr)	Widening	109.0	C3
6	Nisku Spine Road (Twp Rd 510 to 25 Ave)	New Link	105.5	S5A
7	NW LRT (NAIT to Blatchford)	LRT Extension	103.9	T7
8	Highway 643 (Highway 28A to Agrium)	Signals & Intersection Upgrades	76.3	NE9
9	Highway 28 (Highway 28A to Highway 63)	Twinning	70.8	NE2
10	Highway 628 (Anthony Henday Dr. to Highway 21)	Twinning	53.3	E6
11	Highway 2 at Cardiff Rd	Interchange	35.9	NW1
12	Hwy 779 (Highway 16A to Highway 628)	Upgrade existing road	26.1	W2

Table 6.2:   Projects Ready for Design

Rank	Project Name	Project Type	Score	#
1	Yellowhead Trail (50 Street to 97 Street)	Upgrade to Free Flow	129.5	C5
1	Yellowhead Trail (156 Street to St Albert Trail)	Upgrade to Free Flow	129.5	C4
3	Fort Road (Yellowhead Trail to 66 St)	Widening/Intersection Upgrades	122.0	C16
4	Highway 28A (Highway 15 to Highway 28)	Twinning	114.4	NE3
5	Highway 625 (Nisku to Range Road 241 Beaumont)	Twinning	112.2	S7
6	Ray Gibbon Drive (Anthony Henday to Villeneuve Road)	Twinning	104.5	C9
7	NW LRT (Blatchford to Campbell Rd Transit Centre)	LRT Extension	103.9	T16
8	Yellowhead Trail (Victoria Trail to 50 Street)	Widening	101.2	C6
9	South LRT (Century Park to Ellerslie)	LRT Extension	94.4	T6
10	Highway 16 (Interchange at 830)	Interchange	90.5	E1
11	NE LRT (Clareview to Gorman)	LRT Extension	90.4	T8
12	50 Street (Ellerslie Road to 41 Avenue SW)	Widening	80.6	S6
13	QE2 Highway/Ellerslie Rd. Interchange Upgrading	Upgrade Existing Interchange	80.5	S8
14	Terwillegar Drive (Whitemud Drive to Anthony Henday Drive)	Upgrade to Free Flow	79.5	C17
15	Anthony Henday Drive (SW River Xing to QE2)	Widening	78.4	C20
16	Highway 15 (Manning Dr.) near Meridian Street	Interchange	74.8	NE10
17	Nisku Spine Road (Highway 625 to Airport Road)	Upgrade existing road	70.3	S9
17	Nisku Spine Road (25 Ave to Highway 625)	Twinning	70.3	S5B
19	170 Street (Ambleside Dr (s/b AH) to 41 Avenue SW)	Widening	63.9	C14
20	Highway 16 (Highway 824 to Elk Island Park)	Access management	63.8	E2

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Rank	Project Name	Project Type	Score	#
21	Nisku Spine Road (Allard Ave to 65 Ave)	Upgrade existing road	60.9	S3B
22	170 Street CN Grade Separation	Grade Separation	51.5	C15
23	41 Ave (91 St to 50 St)	Upgrade existing road	50.2	S21
23	Highway 625 (Range Road 241 to Highway 21)	Twinning	50.2	S12
25	Nisku Spine Road (65 Ave to Highway 623 (Rollyview rd.))	New Link	49.4	S10
26	New Northeast River Crossing (Highway 21/Twp Rd 540 to Highway 28A)	New Link	48.8	NE4
27	127 Street (Edmonton City Limit to St. Albert Trail/Highway 2)	New Link	48.7	NW4
28	Highway 628 (Highway 60 to Highway 779)	Reconstruct and Surface	48.0	W3
29	Highway 627 (Anthony Henday Dr. to 199 St)	New Link	45.8	W6
30	NW LRT (Campbell Rd TC to North St. Albert Park n Ride)	LRT Extension	45.2	T14
31	Highway 642 (Highway 2 to East Boundary Road)	Intersection Improvements	42.8	NW10
32	Twp Rd 510 (QE2 to 50 Street)	Upgrade existing road	40.8	S19
33	Anthony Henday Drive (50 St. Northeast Overpass)	Interchange	36.3	C18
34	91 Street (Ellerslie Road to 41 Avenue SW)	Widening	35.2	C25
35	Whitemud Drive/Highway 628 (231 Street to Highway 60)	Twinning	34.8	W4
35	Whitemud Drive/Highway 628 (Anthony Henday Dr. to 231 Street)	Upgrade existing road	34.8	W5
37	41 Ave (127 St to170 St)	Upgrade existing road	31.3	S20
38	Manning Drive (137 Avenue - Anthony Henday Drive)	Widening	31.2	C8
39	QE2 Highway/Highway 2A Interchange	New Interchange	28.0	S11
40	Anthony Henday Drive (Add 137 Ave Ramps)	Interchange	26.8	C22
40	Anthony Henday Drive (135 St Overpass SW)	Interchange	26.8	C19
42	Ray Gibbon Drive (Villeneuve Rd. to Highway 37)	Extend-first 2 lanes	24.4	NW3
43	Anthony Henday Drive (109/111 Ave Overpass)	Interchange	22.1	C21
44	Ray Gibbon Drive (Highway 37 to Highway 2)	Extend-first 2 lanes	15.3	NW2

Table 6.3:   Project Functional Planning or Study

Rank	Project Name	Project Type	Score	#
1	Regional HOV Transit Priority Study (Hwy 16, Baseline Rd./98 Ave, Wye Rd./ Sherwood Pk Fwy./ QE2 Hwy to Leduc)	HOV Lane/ Transit Priority	144.8	T1
2	Airport Accord Transit Study	Transit Service Study	143.6	T3
3	Yellowhead Trail (97 Street to St Albert Trail)	Upgrade to Free Flow	129.5	C7
4	Acheson Industrial Area Transit plus Park & Ride	New Service & Park n Ride Study	118.6	T4

Rank	Project Name	Project Type	Score	#
5	Twp Rd 534/Aurum Rd (Anthony Henday Dr. to Highway 21)	Realignment of Road + New Interchange on Hwy 21	112.7	E7
6	Airport LRT (Heritage Valley to EIA)	LRT Extension	110.7	T15
7	Strathcona County High-Speed Transit (LRT)	LRT Extension Study	99.9	T2
8	170 Street Extension (Highway 19 to Highway 39)	New Link	89.4	S13
8	170 St Corridor Study (Terwillegar to QE2 south of Leduc)	Corridor Study	89.4	S22
10	Highway 16 (Sherwood Drive to Highway 824)	Widen to 6 lanes and build interchanges	84.2	E5
11	St. Albert Trail (North City Limit to Boudreau Rd)	Widening/Intersection Upgrades	82.1	NW6
12	Highway 15/37/825 Intersection - Interchange	Interchange	82.0	NE1A
13	Highway 16 (Anthony Henday Dr. to Highway 779)	Widening	80.5	W8
14	Highway 21 (Highway 16 to Ft Sask)	Upgrade to Freeway; build interchanges	76.2	E4
15	Highway 15 (East of Fort Saskatchewan to Lamont) including Intersection Improvements at Highways 830, 45 and 29	Twinning and Intersection Upgrades	75.5	NE7
16	Highway 21 (Highway 14 to Highway 628)	Twinning	74.1	E3
16	Highway 16 at Highways 43 & 770	Interchange	74.1	W10
18	97 Street (167 Avenue to Anthony Henday Dr.)	Widening	70.5	C23
19	Spruce Grove Regional Park n Ride	New Park n Ride	69.7	T13
20	Highway 21 (Highway 625 to Highway 14)	Twinning	64.6	E9
21	St Albert Trail Intelligent Transportation Systems (North City Limit to AHD)	ITS	61.7	NW9
22	170 Street (41 Avenue SW to Highway 19) Extension	New Link	61.1	S14
23	Hwy 2A extension (QE2 to 170 St /Highway 39)	New Link	45.8	S15
24	Highway 830 (Highway 16 to Highway 15)	Twinning	40.0	E10
25	Nisku Spine Road (Highway 623 to Highway 2A/QE2)	New Link	40.0	S18
26	North St. Albert Regional Park n Ride at the north end of St. Albert Trail	New Park n Ride	34.8	T12
27	Highway 28 (195 Avenue to Highway 28A)	Twinning	28.3	NE8
28	Highway 21 (Highway 628 to Highway 16)	Upgrade to Freeway; build interchanges	28.0	E11
29	Highway 627 (199 St to Highway 60)	Twinning	19.3	W9
30	127 Street (Anthony Henday Dr. to Edmonton City Limit)	New Link	17.4	C24
31	41 Ave/Twp Rd 512 (50 St to Hwy 21)	Upgrade existing road	15.7	E12

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The 2018 Transportation Priorities Report represents the fifth year that priorities have been established. It is important to recognize and celebrate the success of the collaborative effort in attaining funding and completing projects. It has been demonstrated that the Priority Lists are being used by the members and the Province in planning and building future regional transportation infrastructure. Accordingly, some of the regional successes are listed below:

- Campbell Regional Park and Ride;

- Commencement of construction of the SE-LRT (City Centre - Mill Woods);

- Highway 37/825/15 Intersection Improvements to commence;

- Commencement of functional plan for new Northeast River Crossing;

- Twinning of east and west ends Highway 19 commenced;

- Highway 15 bridge twining over North Saskatchewan River commenced;

- Heritage Valley Park and Ride;

- Fort Saskatchewan Park and Ride; and,

- QEII Highway widening on southbound lanes to Highway 19.

6.3 Regional Maps

The following Regional Maps have prepared and illustrates known regional transportation infrastructure in the Region.
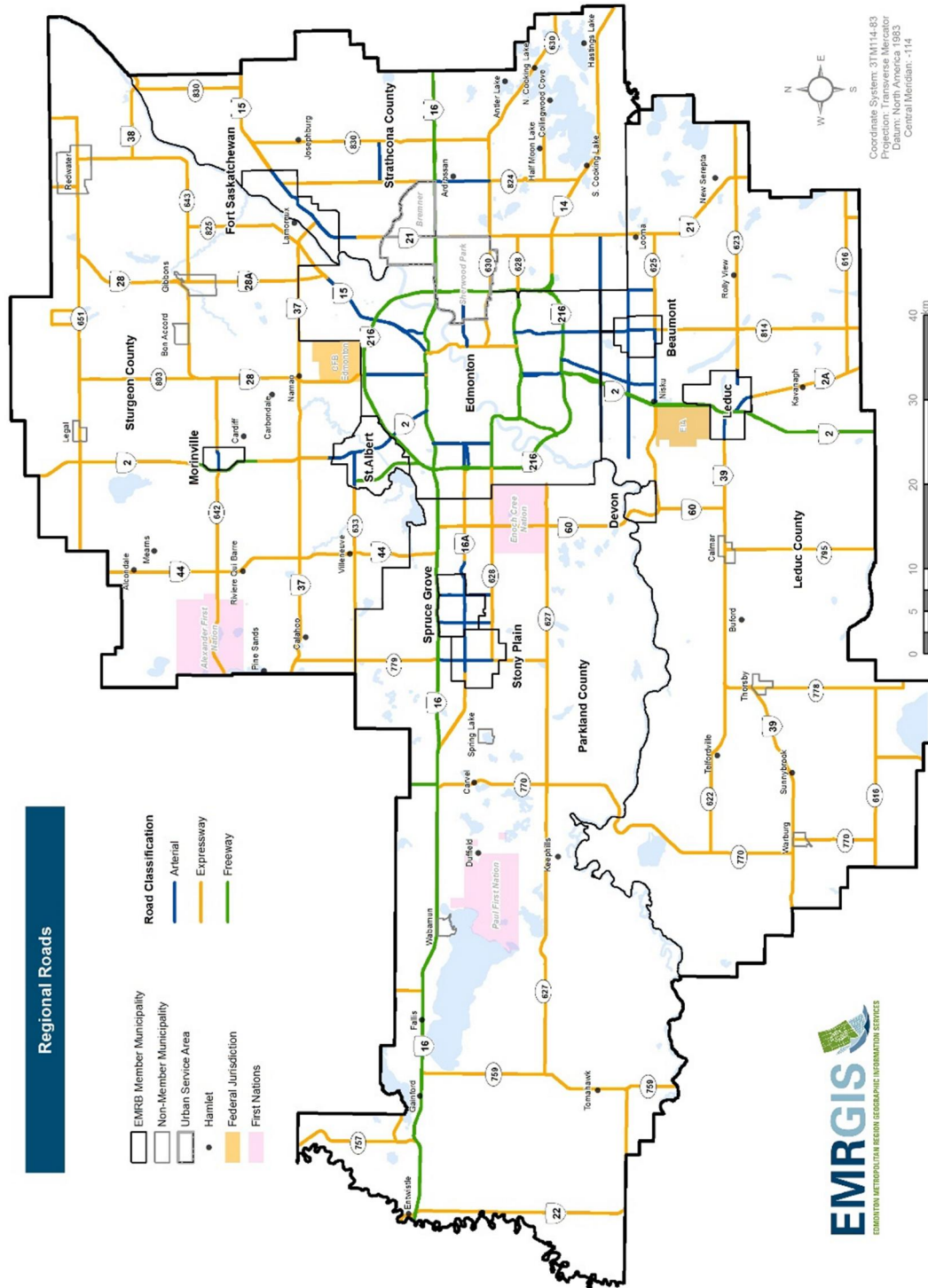
Figure 6.1: Regional Roads
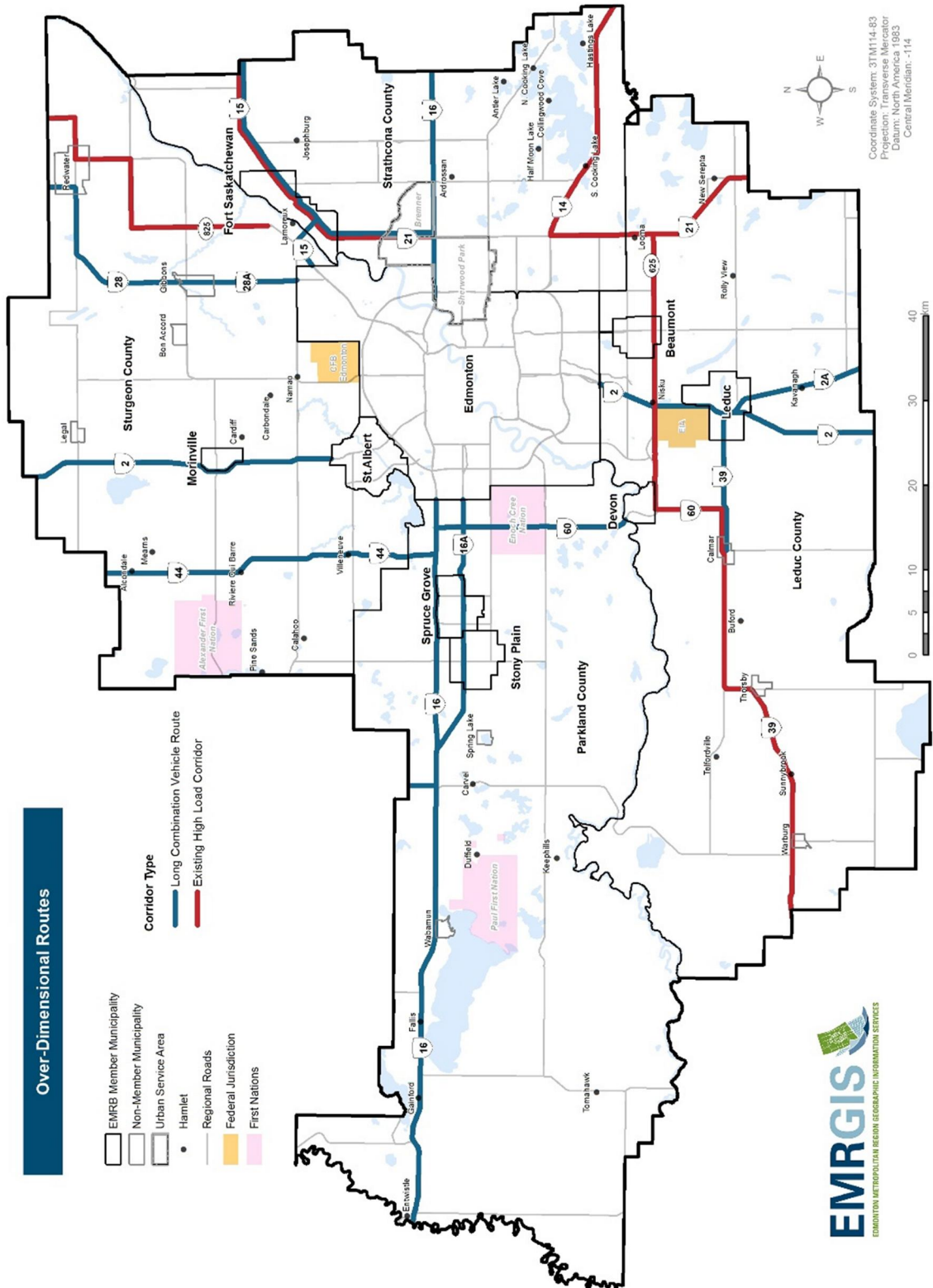
Figure 6.2:   Over-Dimensional Routes
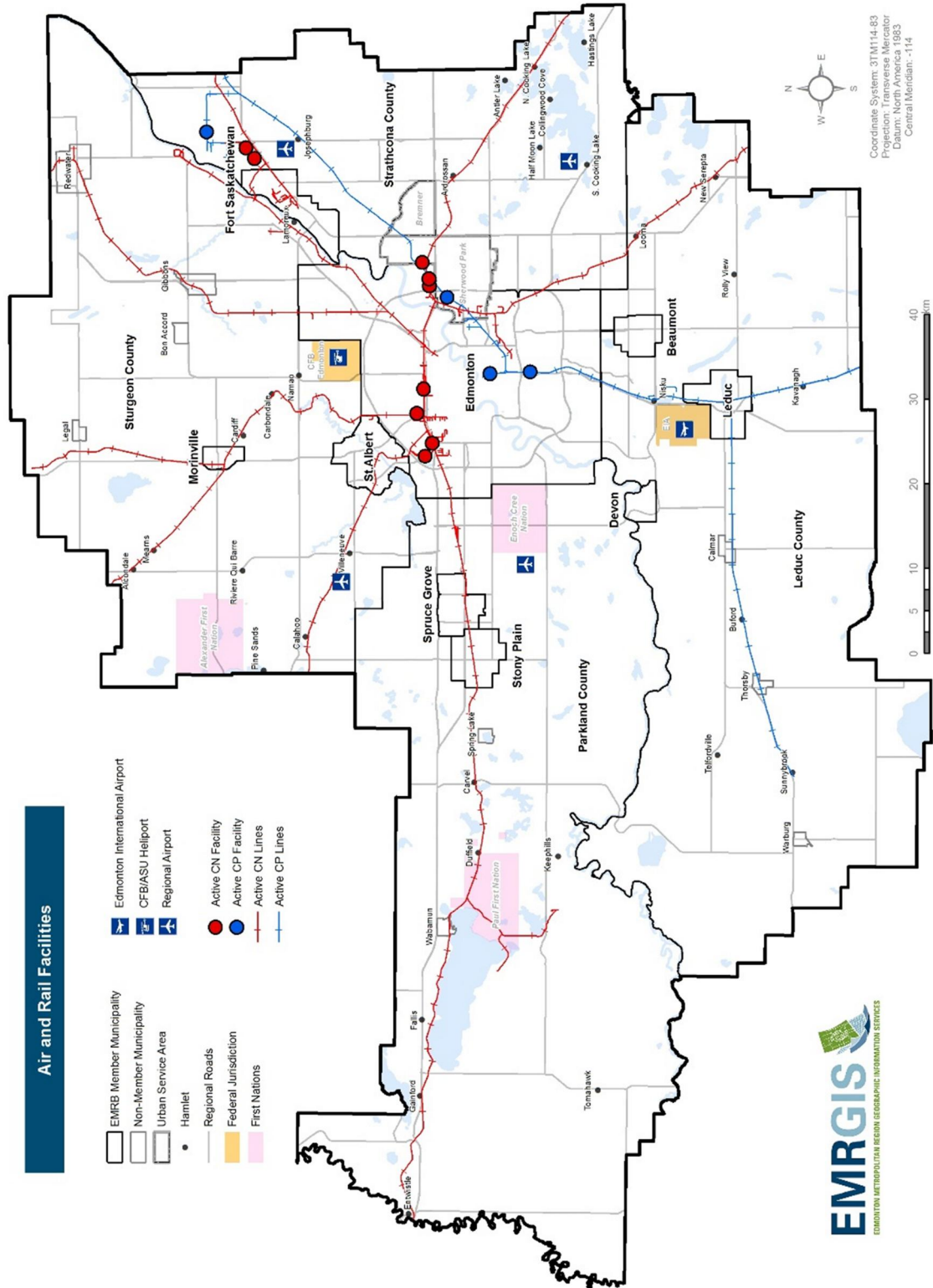
Figure 6.3:   Air and Rail Facilities

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6.4   Existing Transportation Infrastructure and Current Service Capacity

The existing service capacity of transportation infrastructure depends on the roadway classification and number of lanes. The following descriptions and capacities are provided at a high level for discussion purposes. Alberta Transportation, the City of Edmonton, Strathcona County, and several EMRB municipalities have transportation models identifying the capacities in more detail.

Arterial Roadways: Arterials located within urban areas typically have high acceptable thresholds for congestion with intersections tightly spaced and relatively lower travel speeds. Arterials located within rural areas are generally expected to operate as uninterrupted facilities connecting between urban arterials at higher speeds with larger intersection spacing. Urban arterials have a higher capacity than rural arterials for these reasons.

Expressways: Expressways are expected to operate as uninterrupted facilities at higher speeds. Intersections are typically with arterial roadways either at-grade or grade separated. Providing ample passing lanes between intersections increases capacity. Drivers expect a high level of mobility on an expressway, and interruptions to flow are a greater safety risk compared to arterial roads due to higher operating speeds. For this reason, capacities are slightly lower than a two-lane arterial roadway.

Freeways: Freeways operate as uninterrupted expressways with higher speeds and grade separation at all intersections. Freeways have exceptionally more capacity per lane than lower classifications of roadways.

Table 6.4:   Roadway Classification Capacity

Roadway Classification	Speed Limit	Capacity (per two lanes, vehicles per day)
Arterial	50 – 70 km/h	10.000 – 15,000
Expressway	70 – 100 km/h	6,000 – 20,000
Freeway	80 – 110 km/h	15,000 – 30,000

6.5 Existing Transportation Concerns

EMRB municipalities were surveyed to provide their concerns in relation to the existing regionally significant transportation network. The following table summarizes the results of the survey. The purpose of this table is to list roadway concerns currently affecting transportation within the Region; future roadways such as Nisku Spine Road (Leduc) and Fowler Way (St. Albert) are not included. This list is provided as a supplement to the ongoing Regional Transportation Priorities list being tracked by the EMRB.

Table 6.5:   Transportation Concerns

Roadway Name (Jurisdiction)	Describe Constraint and Severity
17 Street (Strathcona County)	Increasing traffic along corridor connecting Strathcona County and CoE. Upgrades within 5 years.
34 Street (Strathcona County)	Increasing traffic along corridor connecting Strathcona County and CoE. Upgrades within 10 years.
41 Avenue SW	(4 Lane Widening) 50 Street to 170 Street (CoE). Capacity constraints due to the on-going development.
50 Street (Beaumont/CoE)	Two-lane section north of 41 Avenue, intersection requires upgrading at 41 Avenue. High priority in 5 years.
65th Avenue/Hwy 2 Interchange (AT)	Access to QE2 (City of Leduc) – economic catalytic project relieves traffic congestion.
75 Street CPR Underpass (CoE)	Existing capacity and delay constraints on key goods movement corridor due to frequent train crossings. Not being improved with widening related to Valley Line LRT.
153 Avenue (CoE)	Capacity constraints due to on-going development in the area.
170 Street/Windermere Drive Interchange (CoE)	Capacity constraints due to the on-going development in the area. This corridor is identified as a future freeway.
Anthony Henday Drive and 127 Street (CoE)	Capacity constraints due to the on-going development in the Heritage Valley area.
Anthony Henday Drive (NW) (AT, CoE, St. Albert)	137 Avenue Ramps provide additional access to NW industrial area and South Riel commercial industrial area.
Aurum Rd (Edmonton)	Medium severity – Construction to close corridor gap and provide access to Anthony Henday. This was expected to be completed in 2017.
Boudreau Road (St. Albert)	East access connecting to Anthony Henday off Campbell Road. Coordination of signals and accommodation of pedestrian movements at Boudreau and Campbell. Impacts of large loads from AGLC on the corridor.
Hwy 15/18 Street (EETP/Horse Hill) Flyover (CoE)	Future capacity and safety constraints due to development/growing volumes in the area.
Hwy 15/21 (Fort Saskatchewan)	Without the NERC or a bypass road, the City will continuously need to upgrade the corridor and perform maintenance, which is costly and slows down the traffic during these periods.
Hwy 16 Cloverbar to Hwy 21 (AT)	Planning to be completed to determine long-term interchange configurations.
Hwy 16 - TWP 225 to Hwy 824 (AT)	Planning to be completed to determine long-term interchange configurations.
Hwy 19 (AT)	Safety, capacity and delay issues.
Hwy 2/Cardiff Rd Intersection (AT)	It is estimated that the demonstrable need to actually install the interchange (which has been fully engineered and ready for construction for a few years now) will begin to manifest within 5-10 years.
Hwy 2A Re-Alignment (AT/Leduc)	Re-aligned E/W movement across QE2, address development access and existing safety issues.
Hwy 39/60 (AT)	Safety issue at this intersection.
Hwy 60, Hwy 16 to Hwy 19 (AT)	The corridor restricts load sizes moving in and out of Acheson. This will complete a major trade corridor, along with alignment to the EIA Aerotropolis.
Hwy 60, Hwy 16A to Hwy 16 (AT)	Twinning and grade separation at CN tracks required. High priority for the County and regional transportation network. Safety and traffic flow issues negatively affect local & regional transport.
HWY 625 (AT)	Medium severity – Currently only 2 lanes, intersections require upgrades to address current volumes and development. It will become a high priority as development continues (5 years).

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Roadway Name (Jurisdiction)	Describe Constraint and Severity
Hwy 627 (AT/Edmonton)	No direct Hwy connection to Anthony Henday constrains traffic flows. Alternate east/west main regional connector if upgraded diverting traffic volumes from Hwy 16 & Hwy 16A.
Hwy 628 West (AT)	Consistent road surface that can handle the commuter and the expected commercial/industrial traffic is required. Alternate east/west main regional connector if upgraded diverting traffic volumes from Hwy 16 & Hwy 16A.
LeClair Way (St. Albert)	Intersection of LeClair Way at Riel Drive (connecting to 137 Avenue in CoE) is reaching capacity. Limited storage capacity between Ray Gibbon Drive and Riel Drive.
Manning Drive- 137 Avenue to TUC (AT)	Anticipated capacity constraints due to the on-going development in the area. Significant regional connections between metropolitan core and northeast region.
Northeast River Crossing (Multiple)	Planning of the corridor is needed to accommodate an estimated 80K daily vehicles in 25 to 35 years, and to protect the lands to construct the corridor.
QE2 and Ellerslie Road Interchange (AT)	Capacity constraints due to the on-going development in the area.
Range Road 224 (Fort Saskatchewan)	High severity – Range Road 224 is experiencing additional traffic due to Fort Saskatchewan growth and needs to be upgraded.
Ray Gibbon Drive (AT/St. Albert)	East access connecting to Anthony Henday off Campbell Road.
Terwilligar Drive (CoE)	Significant capacity constraints due to development as well as barrier for transit and active modes. Improvements are currently in concept planning.
TWP 510 (Beaumont, Leduc County)	Medium severity – Only 2 lanes (substandard) and intersections require upgrading. It will become a high priority as development continues (5 years).
Whitemud Drive Improvements - 207-231 Street (CoE)	Capacity constraints due to the on-going development in the area. Includes widening and realignment to connect to planned AT realignment of Highway 628 west of City limits.
Yellowhead Trail (CoE)	Significant concerns with capacity, delay, safety, and access due to the number of at grade intersections along the corridor.
Yellowhead Trail and 215 Street Interchange Upgrades (AT)	Capacity constraints due to the on-going development in the area.

6.6 Current Service Costs

6.6.1 Metrics

Direct user costs for transportation include taxes collected for fuel and vehicle registration fees. Indirect costs for transportation includes multiple sources, including federal, provincial, municipal taxes and the costs of goods and services. Detailing the breakdown of costs for transportation sourced indirectly is not possible as they vary by jurisdiction and from person to person. Existing fuel excise taxes and other taxes are provided in the following table.

Table 6.6:   Federal and Provincial Fuel Taxes

Fuel Type	Federal excise tax (per litre)	Provincial Excise Tax (per litre)	Carbon tax (per litre)	GST
Gasoline (All Grades)	$0.10	$0.13	$0.0673	5%
Diesel (All Grades)	$0.04	$0.13	$0.0803	5%
Aviation Gas	$0.04	$0.015	$0.0747	5%
Jet Fuel	$0.04	$0.015	$0.0775	5%

Source: Alberta Treasury Board and Finance, Tax, and Revenue Administration.

6.6.2 Funding Sources

Several sources fund transportation costs, including fuel excise taxes, income taxes, general sales taxes and other revenue sources. Federal, provincial and municipal funding programs administer the allocation of funds to infrastructure projects. Some examples include the Building Canada Fund (Federal), Gas Tax Fund (Federal), Municipal Sustainability Initiative Fund (Provincial) and others.

6.7   Summary Observations

Roadway Classifications

- Arterial roadways vary across the Region; setting a single regional design standard for arterials across the Region is contradictory to their intention.
- The EMRB roadway classifications system can be challenging to implement where there is provincial jurisdiction as the province uses different classification systems for the same roads, with different access management requirements.

Air, Rail, and Goods Movement

- The majority of air transportation in the Region includes airports operated by the Edmonton Regional Airports Authority, which operates two airports, the Edmonton International Airport (EIA) and the Villeneuve Airport.
- The Villeneuve airport has seen growth, since 2011, potentially absorbing some of the air transportation demand with the closure of the City Centre Airport.
- The EIA, City of Edmonton, City of Leduc, and Leduc County are jointly pursuing opportunities for Airport City, recently completing a viability study and identifying four priority areas to consider.
- The EIA is expecting to grow from 8 - 13 Million Annual Passengers, by 2035. To support growth, the airport plans significant expansion of passenger terminals, cargo facilities, business aviation facilities, additional parking and ground transportation services and a third runway. The EIA's future success in sustaining its growth requires coordination of their plans and aspirations with regional transportation initiatives.
- Heavy loads travelling between the north and south EMRB areas require an approximate 400 km detour as the closest North Saskatchewan River Bridge able to accommodate heavy loads is located 200 km east, near Two Hills, Alberta. The Northeast River Crossing, planned between Highway 21 and Highway 15, north of Edmonton, would have provided a much closer connection, but was recently cancelled.

Existing Transportation Concerns

EMRB municipalities were surveyed to provide their concerns in relation to the existing regionally significant transportation network. These are provided in the following table.

- The province often works with EMRB municipalities in completing planning studies for future roadways outside of EMRB municipalities.
- There is a lack of safe cycling facilities across the Transportation Utility Corridor (TUC) to connect bedroom and adjacent communities with Edmonton. Basic cycling infrastructure within the Region is largely absent.
- The EMRB has recently signed a Memorandum of Understanding to collaborate with Alberta Transportation within the Region. In addition, there may be some shared maintenance partnerships for adjoining roadways between adjacent municipalities. Overall, Alberta Transportation owns and operates most highways that are outside of cities within the Region. Through cities, the relevant municipality owns and operates the highway.

6.8   For Discussion

- EMRB needs to resolve access management issues between their roadway classification and Alberta Transportation's roadway classifications. Planning roadway access to new growth is challenging with two different jurisdictional definitions of where access is allowed to regional highways
- EMRB requires a substantial improvement to the high/heavy loads routes to allow north/south movement across the Region. The lack of a direct route affects collaboration between industrial, manufacturing and commercial areas north and south of the North Saskatchewan River.
- EMRB should collaborate with the regional partners as there are shared interests with the future development of Airport City.
- EMRB should consider addressing transportation improvements that provide a regional benefit or where improvements benefit several of its members. This may include a discussion of a northeast river crossing for heavy load transport.

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7.0
Transportation – Transit

7.1 Overview – Regional Transit Network

Public transit is expected to play a significant role in servicing the Metropolitan Area (as identified in the Edmonton Metropolitan Region Growth Plan Tiers) and reducing the regional footprint. Understanding existing transit facilities in service, including intermunicipal routes, park and ride facilities and accessible transit helps understand ways to leverage these services to accommodate future growth. Existing transit routes and park and rides are provided in the Regional Map in Section 7.3, and are described as follows for each EMRB municipality.

Note that the information provided in this document is constantly in flux, and the values provided are based on the information available late July 2018.

Beaumont

Beaumont has one intermunicipal transit route that terminates at the Century Park Transit Station. This route is serviced by a park and ride that shares the Ken Nichol Regional Recreation Centre parking lot.

Edmonton

The City of Edmonton has two intermunicipal transit routes: Route 747 that terminates at the Edmonton International Airport and route 599 that serves the Edmonton Garrison. Local transit routes connect riders to intermunicipal transit. The City has seven park and ride locations with another two under construction, Heritage Valley, and Wagner. The Park and

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Ride at Century Park is not included in the seven, as it is transitory and will eventually be replaced by private development.

Fort Saskatchewan

The City of Fort Saskatchewan has one intermunicipal transit route from the Dow Centennial Centre to Clareview Transit Centre. Local transit routes connect riders to intermunicipal transit. The transit route is served with a newly constructed park and ride, replacing the previous bus terminal.

Leduc

The City of Leduc has one intermunicipal route that terminates at the Century Park Transit Centre, and Route 10 terminates at the Edmonton International Airport with the opportunity to transfer to EIA's Route 747 with a monthly commuter pass or U-Pass as of July 2018. Local transit routes connect riders to intermunicipal transit. Leduc has three park and rides at the Alexandra Arena (dedicated), Leduc Recreation Centre (dedicated), and Leduc County Centre (shared).

Morinville

The Town of Morinville will be running a St. Albert-Morinville bus route during the summer of 2018 as a pilot project. Morinville provided this route in the past, previously called the Morinville Interlink; however, the Town council cancelled the service in 2010. The pilot project used a 24-passenger community bus and made two round trips each Monday in July and August. The bus made 12 stops in Morinville and six in St. Albert. Bus tickets were $8 for adults.

Spruce Grove

A Tri-Municipal Regional Transit Plan had been adopted between Parkland County, Town of Stony Plain, and City of Spruce Grove. Spruce Grove operates the current system. There are three intermunicipal transit routes, which connect NAIT, West Edmonton Mall, downtown Edmonton, and South Campus. The City of Spruce Grove has one official lot for park and ride located at the Agrena. A secondary unofficial site is located at the Tri-Leisure Centre. Local transit routes connect riders to intermunicipal transit. The intermunicipal transit routes are currently under contract through Edmonton Transit System (ETS) with a tri-municipal agreement among ETS, the City of Spruce Grove, and Parkland County for service into Acheson Industrial Park.

St. Albert

The City of St. Albert has eight intermunicipal routes. The routes are a combination of regular and express service and go to downtown Edmonton, MacEwan, NAIT, the University of Alberta, West Edmonton Mall, and Government Centre. Local transit routes connect riders to intermunicipal transit. St. Albert has a dedicated park and ride location at Village Transit Station and a shared lot at St. Albert Centre Exchange. A new park and ride, the Campbell Road park and ride, is set to be built by St. Albert with construction to begin spring 2019 and completion in 2020. The Campbell Road park and ride will be located within the City of Edmonton.

Strathcona County

Strathcona County has six intermunicipal transit routes based out of Sherwood Park. The routes connect to downtown Edmonton, MacEwan, NAIT, the University of Alberta, and Government Centre (LRT Station). Local transit routes connect riders to intermunicipal transit. Sherwood Park has two transit centres: Ordze and Bethel.

Fort Saskatchewan Taxi Voucher and Accessible Minivans

Fort Saskatchewan offers two specialized transportation services. The first is the Taxi Voucher Subsidy Program that provides vouchers to senior citizens or those with physical or cognitive disabilities. The vouchers authorize them to use the service provided by Driving Miss Daisy on a subsidized rate. In-City trips are not regulated whereas out of City travel requires the user to submit the date and desired destination ahead of time to receive an out of City voucher. The out of City travel voucher must then be stamped at the community service office before travel. In-City travel with the taxi Voucher Subsidy Program costs one voucher and $5. Out of City travel costs depend on the destination, and parking fees are paid by the user.

Fort Saskatchewan's Accessible Minivan Services provides transportation for those with specialized transit needs related to wheelchair, scooter, or walker use. Any Fort Saskatchewan resident registered with Specialized Transit Service (STS) who is unable to use the aforementioned taxi service due to physical disability may register for this service. The service primarily operates within Fort Saskatchewan; however, out of City trips are available on Tuesdays, Wednesdays, and Thursdays to medical services in Edmonton, Sherwood Park, St. Albert, or Lamont. Cost of out of City trips are dependent on location. Booking must be made at least one day in advance.

Leduc Assisted Transportation Services (LATS)

LATS is a shared-ride service available to permanent residents in the City of Leduc. It is a door-to-door, driver-assisted transportation service for seniors (65+) and for persons with cognitive and/or physical disabilities within the city. Temporary service may be available to individuals with a temporary disability.

Spruce Grove Specialized Transit Service

The Specialized Transit Service (STS) is a non-profit, door-to-door public transportation service for all seniors (55 and over) and persons with mobility challenges available for use by residents of the City of Spruce Grove, Parkland Village, and defined limits of Parkland County. The service is primarily local; however, two to three trips per day are made into Edmonton for medical appointments. Group trips into Edmonton for shopping and special events are also scheduled throughout the calendar year. All eligible riders must complete registration before they can book trips and must make a reservation.

St. Albert HandiBus

The St. Albert Handibus service accommodates the mobility needs of residents 16 years of age and older who cannot use the City's conventional transit due to a physical or cognitive disability. The Handibus seats six passengers and provides door-to-door service from anywhere in St. Albert to 16 destinations in Edmonton. Trip bookings are required due to limited capacity. The City has noted that demand exceeds capacity for this service.

Stony Plain HandiBus

The Town of Stony Plain's Handibus assists in meeting the transportation needs of seniors (65 and older) as well as residents with physical or cognitive disabilities. Trips for shopping or entertainment are allowed; however, medical appointments are prioritized. All customers must be registered with the Town's Handibus Scheduler prior to booking.

Out of Town destinations include Spruce Grove, West Edmonton, South Edmonton, and Devon with one-way fares of $9.00, $31.00, $36.00, and $36.00 respectively. An additional waiting fee of $20.00 per hour is applied after two hours. The 16 passenger Handibus can transport 16 ambulatory passengers and one passenger in a wheelchair or 14 ambulatory passengers with two passengers in wheelchairs. The Handivan can transport up to four passengers or two ambulatory passengers and one passenger in a wheelchair.

Strathcona County Mobility Bus

The Strathcona County Mobility Bus provides a door-to-door, shared ride, accessible public transit for those with a physical or functional limitation who cannot use the fixed-route service. Mobility bus trips must be arranged in advance and users must be registered. Out of City fares vary depending on origin and destination with Sherwood Park to Edmonton costing $6.20 and Rural Strathcona County to Edmonton costing $13.45.

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ETS Disabled Adult Transit Service (DATS) Agreements

Strathcona County has a reciprocal registration agreement with DATS. DATS provides all trip administration services for both St. Albert (local and intermunicipal) and Leduc (local) accessible transit services. DATS only delivers service within the City of Edmonton limits, with no out of town and/or commuter service provided.

7.2   Current Transit Agreements and Collaboration

Intermunicipal agreements generally surround the City of Edmonton as a core destination. Tri-Municipal Regional Transit exists between the City of Spruce Grove, Town of Stony Plain, and Parkland County while the City of Leduc and Leduc County also collaborate to operate transit. Sturgeon County markets transit access through the CFB transit route operated by the City of Edmonton. Assumed transit agreements are provided in Figure 7.1.
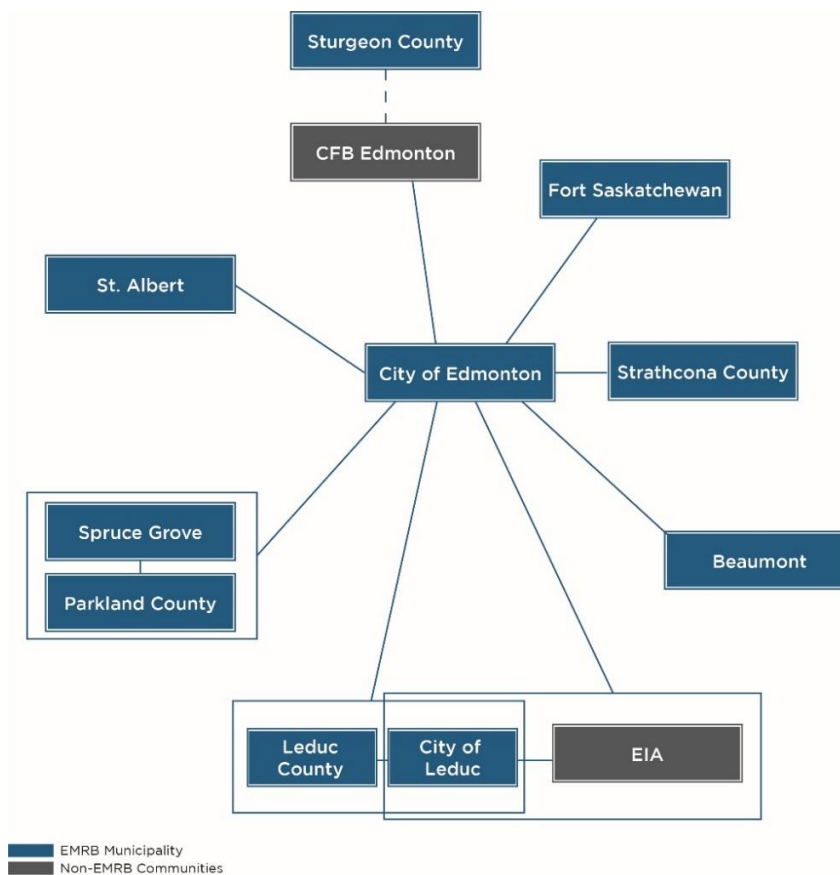
Figure 7.1:   Current Transit Agreements Schematic

Spruce Grove and Edmonton

The City of Spruce Grove's commuter transit service is operated through an annual contract agreement with the City of Edmonton and Edmonton Transit System (ETS). While Spruce Grove determines the bus route and stops, ETS is contracted to provide service between the two cities. Fare revenue goes to Spruce Grove and is used to help fund the commuter service. A cost-sharing program is in effect for an integrated pass sold which combines the ETS with Fort Saskatchewan Transit (FST) monthly pass.

Leduc and Edmonton

Edmonton and Leduc share an access agreement for the Leduc Route 1 to utilize ETS facilities as well as an access agreement for Route 3 and Route 10 to access EIA lands.

Leduc, Leduc County, EIA, and Edmonton

Enabling interjurisdictional collaborating and cooperation on the airport accord agreement. The Accord aims to create conditions that will allow the Edmonton International Airport to achieve its potential as a key economic driver and contributor to the Edmonton Metropolitan Region's sustainability and success.

St. Albert and Edmonton

The St. Albert Transit and Edmonton Transit Operating Agreement guides St. Albert Transit usage in Edmonton and cooperative fare policies. St. Albert Transit Handibus and DATS Trip Booking Service Agreement.

Sturgeon County and Edmonton (CFB)

Sturgeon County has access to transit services between Lancaster Park (CFB Edmonton) and Eaux Claires Transit Station in Edmonton as a park and ride service. Fares are consistent with those of Edmonton Transit. Sturgeon County is invoiced a fee per service day by Edmonton Transit.

7.2.2   Regional Transit Services Commission (RTSC)

All 13 EMRB municipalities have agreed to enter the Regional Transit Services Commission. The RTSC is a non-EMRB initiative that aims to help the Edmonton Metropolitan Region by increasing the connectivity between the communities and help ensure the efficient movement of goods, services, and people across the Region. The province has awarded $3.7 million as part of an Alberta Community Partnership Grant to aid the Commission through Phase 2.

In Phase 1, the RTSC created a memorandum of understanding (MOU) and invited other municipalities to approve it and participate as a part of Phase 2. Phase 2 will finalize the Commission's direction on scope and delivery, funding and fiscal management, administration and logistics management, and integrated planning and municipal functions. The financial commitments required from each municipality will also be determined in Phase 2 with an opportunity to opt out at the end of the phase. Phase 3 is Service Operation and is slated to commence in 2020 with formal agreements in place and the Commission in operation.

7.2.3   The Universal Transit Pass (U-Pass)

The Universal Transit Pass (U-Pass) program provides eligible students at participating institutions including University of Alberta, MacEwan, NAIT and NorQuest College campuses unlimited travel on regular Edmonton, St. Albert Transit (StAT), Strathcona County Transit, Fort Saskatchewan Transit, Spruce Grove Transit and Leduc Transit services. The U-pass cost is built into the student's tuition and is valid during the fall (September – December) and winter (January – April) academic terms. The University of Alberta and MacEwan University also offer a U-Pass for students enrolled in the spring/summer term (May – August). The U-Pass program is a partnership between local municipalities, post-secondary institutions, and their student governments.

7.3   Regional Map

The following (Figure 7.2) Regional Map has been prepared and illustrates known regional transit in the Region.
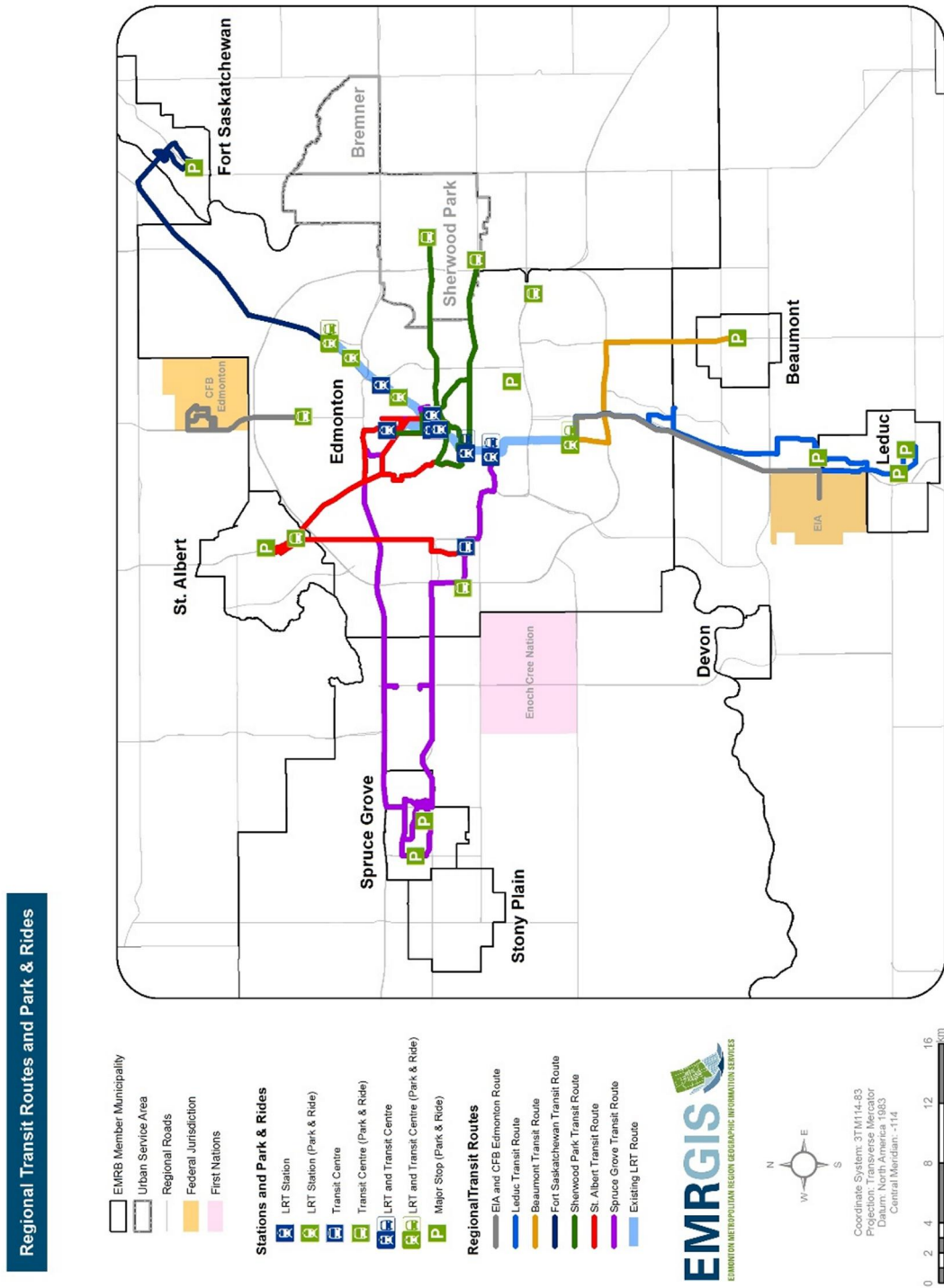
Figure 7.2:   Regional Transit Routes and Park and Rides

7.4   Existing Regional Transit Infrastructure and Current Service Capacity

The information provided in the following tables includes descriptions of existing intermunicipal transit routes and park and rides. The applicable EMRB municipality in the initial stakeholder surveys provided the numbers of buses, peak passenger capacities, park and ride lot capacities, origins and destinations.

Table 7.1:   Existing Bus Routes

Municipality	Intermunicipal Transit Route	Origin	Destination	Number of Buses	Route Length (km)	Peak Passenger Capacity
Beaumont	Beaumont Transit Service	Centennial Garage (15520 Ellerslie Road SW, Edmonton)	Century Park Transit Station	2	19.2	400
Edmonton	Route 747	Century Park LRT / Transit Centre	Edmonton+E11 International Airport	4	22.6	315
	Route 599	Eaux Claires Transit Centre	Edmonton Garrison	1	8.4	180
Fort Saskatchewan	Route 580	Clareview Transit Centre, Edmonton	Dow Centennial Centre, Fort Saskatchewan	2	25.6	42
Leduc	Route 1	Leduc	Century Park Transit Centre (Edmonton)	3	25.6	507
	Route 10	Leduc	Edmonton International Airport	1	27	270
Spruce Grove	Spruce Grove Transit Route 560	Spruce Grove	Downtown Edmonton	7	27.8	320
	Spruce Grove Transit Route 561	Edmonton	Acheson Industrial	Route 560 buses	30.8	120
	Spruce Grove Transit Route 562	Spruce Grove	South Campus	2	31	130
St. Albert	StAT Route 201	St. Albert Centre Exchange Downtown Edmonton/MacEwan	Downtown Edmonton/MacEwan St. Albert Centre Exchange	6	12.9	300
	StAT Route 202	St. Albert Centre Exchange NAIT/Kingsway TC	NAIT/Kingsway TC St. Albert Centre Exchange	6	13.7	300
	StAT Route 203	St. Albert Centre Exchange University of Alberta	University of Alberta St. Albert Centre Exchange	6	28.4	300
	StAT Route 204 *EXPRESS*	St. Albert Centre Exchange University of Alberta	University of Alberta St. Albert Centre Exchange	4	28.4	200
	StAT Route 205	Village Transit Station West Edmonton Mall TC	West Edmonton Mall TC Village Transit Station	2	12	64
	StAT Route 207 *EXPRESS*	Downtown Edmonton	St. Albert Centre Exchange	3	12.9	150
	StAT Route 208 *EXPRESS*	St. Albert Centre Exchange Gov't Centre	Gov't Centre St. Albert Centre Exchange	6	15.2	300
	StAT Route 211 *EXPRESS*	St. Albert Centre Exchange Downtown CBD	Downtown CBD St. Albert Centre Exchange	2	14.7	100

Municipality	Intermunicipal Transit Route	Origin	Destination	Number of Buses	Route Length (km)	Peak Passenger Capacity
Strathcona County	Route 401	Ordze Transit Centre	Edmonton Downtown	3	13.4	1232
	Route 403	Ordze Transit Centre	Edmonton – Government Centre	1	13.8	114
	Route 404	Ordze Transit Centre	Edmonton – U of A	3	14	1232
	Route 411	Bethel Transit Terminal	Edmonton Downtown	7	14.3	2112
	Route 413	Bethel Transit Terminal	Edmonton – Government Centre	6	13.9	1408
	Route 414	Bethel Transit Terminal	Edmonton – U of A	7	15.9	2112
Total Regional Capacity:				83	422.3	11938

Table 7.2:   Existing Park and Ride Inventory

Municipality	Park and Ride Lot Name	Location	Parking Lot Capacity	Parking Lot Description
Beaumont	Ken Nichol Regional Recreation Centre	5303 50 Street, Beaumont	234	Asphalt, Shared Lot with the Recreation Centre
Edmonton	Clareview	48 Street & 139 Avenue	1393	Asphalt, paid and free parking, shelter, public washrooms, seating
	Belvedere	62 Street & 129 Avenue	761	Asphalt, paid and free parking, shelter, public washrooms, WiFi, heated area, elevator, escalator, seating
	Stadium	84 Street & 111 Avenue	520	Asphalt, paid and free parking, elevator, escalator, pubic WiFi, seating
	Davies	86 Street & 61 Avenue	456	Unpaved
	Century Park	111 Street & 23 Avenue	1083 (future up to 1125 with development)	Asphalt, paid and free parking, shelter, public washrooms, seating
	Meadows	17 Street & 40 Avenue	254	Asphalt, shelter, public washrooms, seating
	Lewis Farms	87 Avenue west of AHD	613	Asphalt, shelter, public washrooms, seating
	Eaux Claires	97 Street & 157 Avenue	391	Asphalt, shelter, public washrooms, seating
	Wagner (under construction)	75 Street & Davies Road	1300	Asphalt, paid and free parking, public washrooms, public WiFi, elevator, escalator, seating
	Heritage Valley (under construction)	Ellerslie Road & 135 Street	1100 (first phase only, under construction. eventually ~2000 stalls)	Asphalt, paid and free parking, shelter, heated area
Fort Sask	Fort Saskatchewan Park and Ride Facility	201 Town Crest Road, Fort Saskatchewan	TBD	Proximity to washrooms for drivers
Leduc	Alexandra Arena	47 Avenue/49 Street	42	Asphalt, free parking, shelter (heated), seating
	Leduc Recreation Centre	Black Gold Drive	48	Asphalt, free parking, shelter, seating
	Leduc County Centre	11 Avenue/5 Street Nisku	50	Gravel, free parking, shelter (heated), seating

Municipality	Park and Ride Lot Name	Location	Parking Lot Capacity	Parking Lot Description
Spruce Grove	Spruce Grove Agrena	9 Agrena Road.	120	Asphalt, shared parking with the Agrena
	Tri Leisure Centre (East lot – Informal Park & Ride)	221 Jennifer Heil Way	120	Asphalt, shared parking with the Tri leisure Centre (no official agreement in place)
St. Albert	Village Transit Station	20 Gate Avenue St. Albert	350	Asphalt, paid and free parking, shelter
	St. Albert Centre Exchange	375 St. Albert Trail	140	Asphalt, shared with mall parking
	Campbell Road	East of St. Albert Trail and west of Campbell Road (in Edmonton)	800	Paved and gravel, shelter, seating, public washrooms
Strathcona County	Bethel Transit Terminal	650 Bethel Dr	1200	Asphalt, paid and free parking, shelter, public washrooms, WiFi, heated area, seating
	Ordze Transit Centre	970 Ordze Road	200	Asphalt, paid and free parking, shelter, public washrooms, WiFi, heated area, seating
Total Regional Park and Ride Capacity:			11175	

7.5   Existing Service Level

Transit and Park and Ride service levels provide information on the condition of the routes for information, discussion and comparison. The quality of a transit service reflects passenger's perception of performance, including the availability, comfort and convenience. Additionally, transit service operator's perception of success is having a route that is used by many passengers and operating near capacity. The following service levels are based on the Transit Capacity and Quality of Service Manual by the Transportation Research Board.

EMRB municipalities provide transit services as an affordable and accessible transportation option for their citizens. The measures of success of a transit system vary greatly between municipalities as each has differing goals and resources. The service levels provided are tools for members to understand how their transit services are operating. The letter grade assigned to each route or service is meant to help members understand the services they offer and not indicate improvements should be made. A service level of A is not necessarily the level to strive for; it is simply the upper limit of the criteria being measured.

7.5.1   Transit Frequency and Scheduling Service Levels

The transit frequency and scheduling service levels of each intermunicipal transit route was evaluated based on the peak hour bus frequency and hours of operation, respectively. Transit information was taken from each municipality's website.

Transit Frequency Service Level: A bus frequency service level of A signifies a peak hour bus frequency of more than six per hour resulting in users not needing schedules, whereas an F indicates a frequency of less than one per hour rendering the service unattractive to all riders. Headway is the time between buses. Service levels for transit frequency is provided as follows.

Table 7.3:   Frequency Service Levels

Service Level	Headway* (min)	Buses/hour	Comments
A	< 10	> 6	Passengers do not need schedules
B	10 – 14	5 – 6	Frequent service, passengers consult schedules

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C	15 – 20	3 – 4	Maximum desirable time to wait if bus/train missed
D	21 – 30	2	Service unattractive to choice riders
E	31 – 60	1	Service available during hour
F	> 60	<1	Service unattractive to all riders

*Time duration between buses

Transit Scheduling Service Level: Bus routes that have numerous trips per day receive a scheduling service level of A, whereas routes with only one roundtrip per day receive a scheduling service level of F. Transit that operates for more hours of the day provides riders a level of comfort that transit will be available in cases of emergency or if their daily schedule changes. Service levels for transit scheduling are provided as follows.

Table 7.4: Daily Schedule Service Levels

Service Level	Hours of Operation	Comments
A	> 16 – 24	Numerous trips per day
B	> 12 – 16	Peak, midday, and evening trips
C	> 8 – 12	Peak hour, midday, and evening trips
D	> 4 – 8	Peak hour and limited midday only
E	> 2 – 4	Peak hour only
F	< 2	Limited peak hour trips, round trip in one day is difficult

An example is a service with a level of service A for frequency and level of service E for schedule, operates with over six buses per hour, but only for up to four hours per day.

Table 7.5: Frequency and Scheduling

Municipality	Intermunicipal Transit Route	Origin	Destination	Peak Hour Bus Frequency (Minutes)	Daily Scheduling (Hours Operating)	Bus Frequency Service Level	Schedule Service Level
Beaumont	Beaumont Transit Service 540	Centennial Garage (15520 Ellerslie Road SW, Edmonton)	Century Park Transit Station	30	5	D	D
Edmonton	Route 747	Century Park LRT/Transit Centre	Edmonton+E11 International Airport	30	19	D	A
	Route 599	Eaux Claires Transit Centre	Edmonton Garrison	45	4	E	E
Fort Sask	Route 580	Clareview Transit Centre, Edmonton	Dow Centennial Centre Fort Saskatchewan	33	9	E	C
Leduc	Route 1	Leduc	Century Park Transit Centre	30	8	D	D
	Route 10	Alexandra Arena	EIA Terminal	60	13	E	B
Spruce Grove	Route 560	Spruce Grove	Downtown Edmonton	15	13	C	B
	Route 561	Edmonton	Acheson Industrial	40	4.5	E	D
	Route 562	Spruce Grove	South Campus	27	6.5	D	D
St. Albert	Route 201	St. Albert Centre Exchange Downtown Edmonton/MacEwan	Downtown Edmonton/MacEwan St. Albert Centre Exchange	15	19	C	A
	Route 202	St. Albert Centre Exchange NAIT/Kingsway TC	NAIT/Kingsway TC St. Albert Centre Exchange	30	14	D	B
	Route 203	St. Albert Centre Exchange University of Alberta	University of Alberta St. Albert Centre Exchange	15	12	C	C

Municipality	Intermunicipal Transit Route	Origin	Destination	Peak Hour Bus Frequency (Minutes)	Daily Scheduling (Hours Operating)	Bus Frequency Service Level	Schedule Service Level
	Route 204 *EXPRESS*	St. Albert Centre Exchange University of Alberta	University of Alberta St. Albert Centre Exchange				
	Route 205	Village Transit Station West Edmonton Mall TC	West Edmonton Mall TC Village Transit Station	60	11.5	E	C
	Route 207 *EXPRESS*	Downtown Edmonton	St. Albert Centre Exchange	30	1.5	D	F
	Route 208 *EXPRESS*	St. Albert Centre Exchange Gov't Centre	Gov't Centre St. Albert Centre Exchange	15	4.5	C	D
	Route 211 *EXPRESS*	St. Albert Centre Exchange Downtown CBD	Downtown CBD St. Albert Centre Exchange	20	4	C	E
	Handibus	St. Albert 18 Edmonton Destinations	18 Edmonton Destinations – St. Albert	30	5	D	D
Strathcona County	401	Ordze Transit Centre	Edmonton – Downtown	30	13	D	B
	403	Ordze Transit Centre	Edmonton – Government Centre	60	2	E	F
	404	Ordze Transit Centre	Edmonton – U of A	30	12.5	D	B
	411	Bethel Transit Terminal	Edmonton – Downtown	15	18	C	A
	413	Bethel Transit Terminal	Edmonton – Government Centre	15	5.5	C	D
	414	Bethel Transit Terminal	Edmonton – U of A	15	13	C	B

Results

The majority of intermunicipal routes have a peak hour frequency of 15 to 30 minutes giving them a level of service of C or D. The majority of intermunicipal routes operate between 4 and 12 hours daily giving them a schedule level of service of C or D. Express routes such as St. Albert's tend to have less service hours giving them an E or F rating. This is slightly misleading because express routes often work in tandem with the regular route schedule to accommodate peak demands. Municipalities that are further from Edmonton such as Beaumont and Leduc have lower service hours.

7.5.2   Transit to Auto Time Service Levels

The transit to auto time service levels compare the time it would take a user to reach their destination using a personal vehicle versus transit. Transit times for each route were gathered from the municipality's website. Automobile times were determined by inputting the transit route origin and destination into Google Maps and recording the automobile travel time during AM and PM peak hours. Google Maps provides users a range of automobile times because it is unable to predict the exact transit conditions at the time of departure, consequently the automobile time recorded in the tables is not exact but an average of the range provided. Increased construction during the summer months when the times were recorded may inflate the automobile time.

A transit to auto time service level of A indicates it is faster to travel to the desired destination by transit rather than automobile, whereas a service level of F signifies travel time difference of more than an hour, which is unacceptable for most riders.

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Table 7.6:   Transit to Auto Time Service Levels

Service Level	Travel Time Difference (min)	Description
A	≤0	Faster by transit than by automobile
B	1 – 15	About as fast by transit as by automobile
C	16 – 30	Tolerable for choice riders
D	31 – 45	Roundtrip at least an hour longer by transit
E	46 – 60	Tedious for all riders; may be possible in small cities
F	>60	Unacceptable to most riders

Table 7.7:   Peak Transit to Auto Time

Municipality	Intermunicipal Transit Route	Origin	Destination	Peak AM (7:30)				Peak PM (4:30)			
				Bus Travel Time (minutes)	Vehicle Travel Time (Minutes)	Travel Time Difference (minutes)	Transit to Auto Travel Time Service Level	Bus Travel Time (minutes)	Vehicle Travel Time (Minutes)	Travel Time Difference (minutes)	Transit to Auto Travel Time Service Level
Beaumont	Route 540	Centennial Garage (15520 Ellerslie Road SW, Edmonton)	Century Park Transit Station	23	23	0	A	25	25	0	A
Edmonton	Route 747	Century Park LRT/Transit Centre	Edmonton+E11 International Airport	24	24	0	A	22	22	0	A
	Route 599	Eaux Claires Transit Centre	Edmonton Garrison	25	17	8	B	25	17	8	B
Fort Saskatchewan	Route 580	Clareview Transit Centre, Edmonton	Dow Centennial Centre Fort Saskatchewan	30	22	8	B	30	27	3	B
Leduc	Route 1	Leduc	Century Park Transit Centre	27	24	3	B	25	28	3	B
Spruce Grove	Route 560	Spruce Grove	Downtown Edmonton	52	28	25	C	64	48	17	C
	Route 561	Edmonton	Acheson Industrial	31	26.5	4.5	B	38	30	8	B
	Route 562	Spruce Grove	South Campus	35	31	4	B	44	31	13	B
St. Albert	Route 201	St. Albert Centre Exchange Downtown Edmonton/MacEwan	Downtown Edmonton/MacEwan St. Albert Centre Exchange	53	25	28	C	61	35	26	C
	Route 202	St. Albert Centre Exchange NAIT/Kingsway TC	NAIT/Kingsway TC St. Albert Centre Exchange	32	30	2	B	50	32	19	C
	Route 203	St. Albert Centre Exchange University of Alberta	University of Alberta St. Albert Centre Exchange	40	35	6	B	50	43	8	B
	Route 204 *EXPRESS*	St. Albert Centre University of Alberta	University of Alberta St. Albert Centre	30	30	0	A	32	32	0	A
	Route 205	Village Transit Station West Edmonton Mall TC	West Edmonton Mall TC Village Transit Station	25	17	8	B	30	23	7	B

Municipality	Intermunicipal Transit Route	Origin	Destination	Peak AM (7:30)				Peak PM (4:30)			
				Bus Travel Time (minutes)	Vehicle Travel Time (Minutes)	Travel Time Difference (minutes)	Transit to Auto Travel Time Service Level	Bus Travel Time (minutes)	Vehicle Travel Time (Minutes)	Travel Time Difference (minutes)	Transit to Auto Travel Time Service Level
	Route 207 *EXPRESS*	Downtown Edmonton	St. Albert Centre Exchange	-	-	-	-	46	35	11	B
	Route 208 *EXPRESS*	St. Albert Centre Exchange Gov't Centre	Gov't Centre St. Albert Centre Exchange	40	34	7	B	48	40	9	B
	Route 211 *EXPRESS*	St. Albert Centre Exchange Downtown CBD	Downtown CBD St. Albert Centre Exchange	48	34	15	B	50	41	9	B
Strathcona County	401	Ordze Transit Centre	Edmonton – Downtown	20	20	0	A	24	18	6	B
	403	Ordze Transit Centre	Edmonton – Government Centre	27	20	7	B	27	26	1	B
	404	Ordze Transit Centre	Edmonton – U of A	25	25	0	A	30	30	0	A
	411	Bethel Transit Terminal	Edmonton – Downtown	27	26	2	B	38	30	8	B
	413	Bethel Transit Terminal	Edmonton – Government Centre	27	26	1	B	33	30	3	B
	414	Bethel Transit Terminal	Edmonton – U of A	30	30	0	A	35	30	5	B

Results

The majority of intermunicipal transit routes have a transit to auto service level of A or B. This is generally expected given intermunicipal routes tend to have fewer stops than municipal transit. The greatest time travel difference is half an hour, which is tolerable for most users.

7.5.3   Park and Ride Service Levels

The park and ride service levels have been determined based on the peak utilization rate, indicating how "full' the parking lot is from the information provided by EMRB municipalities.

A letter grade from A to F has been assigned based on the criteria in the following table. A level of service of A indicates the park and ride users can expect to find parking at all times, whereas a level of service of F indicates the parking demand exceeds capacity and users must arrive early to guarantee a spot.

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Table 7.9:   Park and Ride LOS Tables

Service Level	% Occupied	Comments
A	< 70	Users expect to find parking all the time.
B	70 – 75	Users expect to find parking, with limited circulation of the parking lot.
C	76 – 85	Users expect to find parking, but circulating the parking lot is expected, some users arrive earlier to find parking.
D	85 – 95	Users expect to find parking, circulating the parking lot is required, some days of the year parking lot is full, arriving earlier is common, parking starts to spill on to adjacent streets and/or business.
E	96 – 100	Users must arrive early to guarantee a spot, parking spills on to adjacent streets and/or businesses.
F	> 100	Users must early arrive to guarantee a spot, parking demand exceeds capacity, spilling into adjacent streets and/or businesses, residential parking permit program may be in effect.

As previously stated, these service levels are a simple way to categorize and summarize utilization. These service levels were created to reflect the user's perspective where it is generally desirable for a park and ride to be less utilized during the peak hour to getting a parking spot easier. Municipalities should not strive for park and rides with a service level of A, as that would likely lead to overbuilding. The service levels would be reversed when reflecting the provider's perspective where generally high utilization is desirable.

Table 7.10:   Park and Ride Service Levels

Municipality	Park and Ride (name or NA)	Park and Ride Peak Utilization (%)	Park and Ride Service Level	Notable Comments (from EMRB Survey)
Beaumont	Ken Nichol Regional Recreation Centre	15	A	This is a shared parking lot with a recreation centre.
Edmonton	Century Park	79	C	Currently being redeveloped as a TOD. Private development will provide park and ride in a shared parking arrangement.
	Eaux Claires	91	D	
	Clareview	90	D	Overspill parking in neighbourhoods. Under current discussions for relocation within station area subject to council approval. Demand is expected to maintain in long term.
	Belvedere	95	D	
	Stadium	80	C	TOD development, currently the Muttart Crossing is being constructed that reduces the capacity to park vehicles and impacts the ETS Eskimos Park and Ride operation.
	Davies	31	A	The new Wagner Park and Ride will replace the commuter use of this lot. The lot may continue to provide special event park and ride (i.e. Heritage Festival, Eskimos games, etc.) subject to future discussions.
	Meadows	76	C	
	Lewis Farms	73	B	Expansion expected with West Valley Line LRT construction.
Fort Saskatchewan	NA			
Leduc	Alexandra Arena	100	E	
	Leduc Recreation Centre	35	A	Routing has changed and therefore capacity will increase in September 2018.
	Leduc County Centre	20	A	
Spruce Grove	Spruce Grove Agrena	10	A	
Spruce Grove	Tri Leisure Centre (east lot - informal Park & Ride)	40	A	No agreement in place with Tri Leisure Centre.
St. Albert	Village Transit Station	110	F	Demand exceeds capacity. Bus circulation constraints.

Municipality	Park and Ride (name or NA)	Park and Ride Peak Utilization (%)	Park and Ride Service Level	Notable Comments (from EMRB Survey)
St. Albert	St. Albert Centre Exchange	110	F	Demand exceeds capacity.
Strathcona County	Ordze Transit Centre	100	E	Parking is at capacity during peak times. This facility is a two-storey parking structure, which impacts the mobility of double deck buses due to height restrictions.
	Bethel Transit Terminal	100	E	Parking is at capacity during peak times.

Results

Initial survey results indicate that capacity is reached at the primary park and rides of all municipalities except Edmonton and Spruce Grove. It is difficult to measure park and ride service level when the lot is shared with other businesses.

7.5.4   Transit Utilization Service Levels

This service level was created to help municipalities identify potential changes to route frequency and number of buses based on its utilization. The transit utilization service levels are determined based on the peak passenger to capacity ratio. A transit utilization service level of A indicates that buses are at or near capacity and may require a higher frequency or additional buses. A transit utilization service level of F indicates a peak utilization rate of less than 50 percent. An F rating indicates that the current bus number or frequency is much higher than the peak demand and needs to be reduced if the municipality wants to utilize their transit resources effectively.

Table 7.11:   Peak Utilization Service Levels

LOS	Utilization (%)	Comments
A	95 – 100	Full Buses, may require additional frequency and/or buses
B	85 – 94	Almost full buses, may require additional frequency and/or buses at certain times
C	75 – 84	Full seating, with some passengers standing
D	60 – 74	Full seating some of the time
E	50 – 59	Many empty seats available, may reduce frequency
F	< 50	Many empty seats, need for reduce frequency

Table 7.12:   Transit Utilization Service Level

Municipality	Intermunicipal Transit Route	Origin	Destination	AM			PM		
				Peak Capacity	Peak Passengers	Peak Utilization Service Level	Peak Capacity	Peak Passengers	Peak Utilization Service Level
Beaumont	Route 540	Centennial Garage (15520 Ellerslie Road SW, Edmonton)	Century Park Transit Station	400	16	F	400	15	F
Edmonton	Route 747	Century Park LRT/Transit Centre	Edmonton+E11 International Airport	315	173	E	315	288	B
	Route 599	Eaux Claires Transit Centre	Edmonton Garrison	135	23	F	180	18	F
Fort Saskatchewan	Route 580	Clareview Transit Centre, Edmonton	Dow Centennial Centre Fort Saskatchewan	42	28	D	42	16	F
Leduc	Route 1	Leduc	Century Park	273	155	E	234	144	D

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Municipality	Intermunicipal Transit Route	Origin	Destination	AM			PM		
				Peak Capacity	Peak Passengers	Peak Utilization Service Level	Peak Capacity	Peak Passengers	Peak Utilization Service Level
			Transit Centre						
Spruce Grove	Route 560	Spruce Grove	Downtown Edmonton	360	248	D	320	244	C
	Route 561	Edmonton	Acheson Industrial	120	2	F	120	2	F
	Route 562	Spruce Grove	South Campus	160	34	F	130	90	D
St. Albert	Route 201	St. Albert Centre Exchange Downtown Edmonton/MacEwan	Downtown Edmonton/MacEwan St. Albert Centre Exchange	300	253	C	300	264	B
	Route 202	St. Albert Centre Exchange NAIT/Kingsway TC	NAIT/Kingsway TC St. Albert Centre Exchange	300	177	E	300	151	E
	Route 203	St. Albert Centre Exchange University of Alberta	University of Alberta St. Albert Centre Exchange	300	319	A	300	238	C
	Route 204 EXPRESS	St. Albert Centre Exchange University of Alberta	University of Alberta St. Albert Centre Exchange	200	135	D	200	148	D
	Route 205	Village Transit Station West Edmonton Mall TC	West Edmonton Mall TC Village Transit Station	64	35	E	64	43	D
	Route 207 EXPRESS	Downtown Edmonton	St. Albert Centre Exchange	150	-	-	150	133	B
	Route 208 EXPRESS	St. Albert Centre Exchange Gov't Centre	Gov't Centre St. Albert Centre Exchange	300	372	A	300	257	B
	Route 211 EXPRESS	St. Albert Centre Exchange Downtown CBD	Downtown CBD St. Albert Centre Exchange	100	123	A	100	123	A
	Handibus	St. Albert 18 Edmonton Destinations	18 Edmonton Destinations – St. Albert	6	6	A	6	6	A
Strathcona County	401	Ordze Transit Centre	Edmonton – Downtown	360	200	E	360	180	E
	403	Ordze Transit Centre	Edmonton – Government Centre	40	30	C	40	20	E
	404	Ordze Transit Centre	Edmonton – U of A	360	200	E	360	200	E
	411	Bethel Transit Terminal	Edmonton – Downtown	1080	700	D	1080	800	D
	413	Bethel Transit Terminal	Edmonton – Government Centre	400	300	C	400	150	F
	414	Bethel Transit Terminal	Edmonton – U of A	1080	400	F	1080	400	F

Results

Routes traveling to the University of Alberta or MacEwan have higher peak utilization service levels due to low student vehicle ownership and their need to go to school every day. These types of users are called "captive users". The success of the U-Pass is likely a contributing factor as well. Transit routes that connect with Edmonton's downtown area also tend to have a higher peak utilization service level, likely because it is a dense employment area with local transit connections, high parking costs and/or traffic congestion.

7.6   Current Service Costs

One-way transit fares and accessible transit fare information is provided in the following table.

Table 7.13:   Current Service Costs

Intermunicipal Transit	One-way Fare	Additional ETS Fare	Total Cost
Beaumont	$5.00	$3.25	$8.25
CFB	$3.25	Included	$3.25
EIA	$5.00	$3.25	$8.25
Fort Saskatchewan	$5.00	$3.25	$8.25
Leduc	$5.00	$3.25	$8.25
Spruce Gove	$6.25	$3.25	$9.50
St. Albert	$6.00	Included	$6.00
Strathcona County	$6.20	Included	$6.20
Accessible Transit			
Fort Saskatchewan Voucher	Dependent on destination plus one out of City voucher	N/A	Dependent on destination plus one out of city voucher
Fort Saskatchewan Accessible Minivans	Dependent on destination	N/A	Dependent on destination
Leduc Assisted Transportation Service	$4.00 ($40 for 11 trips or $149 Unlimited Monthly)	N/A	$4.00 ($40 for 11 trips or $149 Unlimited Monthly)
Spruce Grove STS	$15-$25 (Dependent on destination)	N/A	$15-$25 (Dependent on destination)
St. Albert Handibus	$6.00	Included	$6.00
Stony Plain Handibus	$9.00 to $36.00 (Dependent on destination)	N/A	$9.00 to $36.00 (Dependent on destination)
Strathcona County Mobility Bus	$6.20 to $13.45 (Dependent on origin and destination)	Included	$6.20 to $13.45 (Dependent on origin and destination)

7.6.2   Funding Sources

Taxpayers typically subsidize transit-operating costs, as fares collected do not typically cover the entire operating costs required. Each municipality has a varying level of taxpayer subsidy for transit, depending on their ridership, operating and maintenance costs and other factors affecting costs. Capital funding for new transit infrastructure is provided at the federal, provincial and municipal levels.

7.7   Summary Observations

Existing Transit Network

Seven of the thirteen EMRB members operate intermunicipal transit routes.

The most common destinations of the intermunicipal services are the Northern Alberta Institute of Technology (NAIT), Century Park Transit Centre, MacEwan University (MacEwan U), Downtown, University of Alberta (U of A), Government Centre, and Edmonton International Airport (EIA).

All members offering transit connect to at least one City of Edmonton Transit Center. Spruce Grove is the only member providing a transit connection to an area outside of Edmonton (Acheson).

Transit Service Costs

Costs for intermunicipal transit vary from $3.25 to $9.50, depending on the origin. The costs of transit is generally consistent with the trip length, but there are some inconsistencies.

Of the seven members offering intermunicipal transit, St. Albert, and Strathcona County are the only ones that include the costs of Edmonton Transit Services (ETS) fares in their pricing. Not requiring additional ETS fares makes transit more convenient, but adding it into the pricing is potentially more expensive depending on the transit user.

The Universal Transit Pass (U-pass) provides unlimited travel on all regular Edmonton, St. Albert, Strathcona County, Fort Saskatchewan, Spruce Grove, and Leduc Transit Service.

The U-Pass applies to students at participating institutions, including the U of A, MacEwan University, NAIT, and NorQuest College (NorQuest).

Service Levels

EMRB members provide transit services as an affordable and accessible transportation option for their citizens. The measures of success of a transit system vary greatly between members as each has differing goals and resources. Scheduling service level is based on the total hours a transit route is in service. Frequency service level is based on peak hour bus headway (minutes between service).

The majority of transit services operate between 4 and 12 hours daily. Transit that operates for more hours of the day is more convenient for passengers, allowing more flexibility in their daily schedules and provides a level of comfort that transit will be available in emergencies.

Frequency service levels for all intermunicipal routes range 15 – 60 minutes between stops. The average frequency service level is 21 – 30 minutes between transit services.

Higher utilization is on intermunicipal routes that stop at the University of Alberta, MacEwan University, and NAIT, likely due to high student ridership and the success of the U-Pass.

Higher utilization was also observed on intermunicipal routes that stopped in Downtown Edmonton, likely because it is a dense employment area with local transit connections, parking costs and/or traffic congestion.

Intermunicipal routes that operate less than 8 hours per day generally have low utilization.

Ridership is generally higher during the AM peak.

Park and Ride Facilities

Park and ride facilities are an integral part of a transit system as it offers commuters in low-occupancy automobiles a convenient connection to local transit thus increasing the transit mode share.

Park and ride utilization varies greatly within the Edmonton Region. The majority of Edmonton's park and ride facilities are approaching capacity. Strathcona County's and St. Albert's park and ride facilities are at or above capacity.

Accessible Transit

The following EMRB members: Edmonton, Fort Saskatchewan, Leduc, Spruce Grove, St. Albert, Stony Plain, and Strathcona County offer accessible transit.

Accessible transit services includes trips to local and regional destinations.

The costs of an accessible transit trip to a regional destination varies, dependant on the destination, however the logical range in costs appears to be inconsistent with the trip length, in some cases.

Most accessible transit services require some form of pre-registration to be eligible to book a service. Booking a ride varies by municipality and is either by phone and/or email and/or online.

Accessible transit service providers apply different age thresholds for providing their service, ranging from 16 years old and up to 65 years and up.

ETS Disabled Adult Transit Service (DATS) provides all trip administration services for both St. Albert and Leduc (registration, bookings, complaints, scheduling, and dispatch).

Regional Transit Services Commission

Transit is a changing landscape that is building collaboration in the Region. In October 2018, all 13 members agreed to enter the Regional Transit Services Commission and signed a Memorandum of Understanding, which aims to help the EMRB by increasing connectivity between the communities that ensures the efficient movement of people across the Region. The inaugural Regional Transit Service Commission (RTSC) meeting will be held on January 17, 2019.

7.9   For Discussion

The following may apply to the EMRB, but could be offered to the Regional Transit Services Commission for their consideration.

- EMRB should define regional servicing standards for operating transit in collaboration with key stakeholders, transit users and transit operators. Higher servicing standards, with more route frequency and longer operating hours helps make transit a first choice for more users, reducing demands on roadways and supporting growth in the Region.
- EMRB should support service standards with transit priority measures as needed.
- EMRB should also define a standard of service for accessible transit that ensures a consistent approach to booking services, costs and availability for users.
- EMRB should consider implementing a transit fare system allowing transit users to pay for rides more consistently, depending on their origin and destination.
- Park and ride facilities are at or over capacity for certain EMRB members, which is considered good from an operator's perspective but can discourage existing or potential users from using transit. EMRB members should collaborate to provide additional park and ride capacity where needed.

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8.0
Solid Waste

8.1   Overview – Solid Waste Servicing

The following section provides an overview of each municipality's current waste management system.

8.1.1   Town of Beaumont

The Town of Beaumont has a three-container system for residential wastes. Two 240 L carts are provided to each single-family dwelling, a grey one for garbage and a green one for organics. The Town uses blue bags for the collection of recyclables. Residences are also provided with a "kitchen catcher" for storing food wastes prior to transferring to the green cart. All three streams collected by CanPak Environmental Inc. (weekly for both organics and recyclables as well as every other week for garbage). The blue bag recyclables are collected manually, while the two organic and garbage carts are collected using automated equipment.

The Town has two clean-up events (spring and fall) for the collection of a variety of items that do not fit within the existing curbside programs. The event also allows residents to drop off household hazardous and electronic waste.

8.1.2   Town of Devon

The Town of Devon provides curbside programs for three residential waste streams – a black cart for garbage, blue bags for recyclables, and a green cart for organics. All materials are collected by GFL Environmental. Garbage carts are collected weekly using automated equipment. Blue bags are collected weekly by hand. Green carts are collected with automated equipment every week from May through October and every other week from November to April.

In addition to the curbside programs, the Town also operates a recycling depot. Any material that can be collected at the curb can also be dropped off at the depot. Blue bag and green cart materials are accepted free of charge, but there is a fee for garbage and hazardous items. The fee depends on the volume of waste. The depot accepts blue bag materials, green cart materials, electronics, household hazardous waste, scrap metal, tires, used clothing, paint, batteries, propane, bulky items, and white goods. Fees are charged for some items such as vehicle batteries, white goods and bulky objects.

8.1.3   City of Edmonton

The City of Edmonton manages waste from single-family homes and multi-residential units and other sources. Waste is collected by city-owned vehicles and by private haulers such as GFL Environmental, Waste Connections Canada, Waste Management, and Appleton under fixed-term contracts. The City has two streams – garbage and recyclables. There is currently no source separated organics program. The recyclable stream consists primarily of conventional recyclables such as clean paper, cardboard, plastics, glass jars and bottles, and metal containers. All other waste materials are consolidated in a garbage stream. Both streams are collected weekly. For each stream, materials from single-family and duplex units are manually collected through a bag program (e.g. blue bag for recycling and black bag for garbage), while materials from multi-family units and commercial customers are gathered through a bin system (e.g. blue bin for recycling and black bin for garbage) that are collected using front-end loader trucks.

Depending on the condition and type of waste, residents could drop off materials at three facility types that the City operates. Firstly, the City operates four Eco Stations that accept household hazardous waste, electronics, and large bulky objects that cannot be collected at the curbside. The City also operates a Reuse Centre, a facility that accepts various items such as arts and crafts supplies, office and school supplies, and paper and plastics products that could be used by others. The City also has 21 Community Recycling Depots located throughout the City where residents and small businesses could drop off their recyclables. The recyclable materials accepted at the depots are similar to that accepted in the City's blue bag program. The Eco Stations and Reuse Centre are attended by City staff, while the Community Recycling Depots are typically unattended.

The waste managed by the City is processed at the Edmonton Waste Management Centre (EWMC) located on the east side of the City. The primary elements of the EWMC are a material recovery facility (MRF) for recyclables, the integrated

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processing and transfer facility (IPTF), and a co-compost facility, as well as a biofuel conversion plant and a high solids anaerobic digestion facility that are both commissioned (see below). Materials collected through the blue bag/bin program are taken directly to the MRF for sorting, consolidation, and processed, then sold to end-markets. The IPTF is the induction point for the mixed waste stream. At the IPTF, wastes are sorted and separated, manually and mechanically, for a variety of destinations. Food wastes and other biodegradable materials are sent to the composting facility and subsequent cure site. Some of the organic materials are co-composted with biosolids, while some of the biosolids are composted independently. Clean recyclables are diverted to the MRF and processed with material from the blue bag/bin program. Any waste that cannot be processed through EWMC's system is consolidated and shipped to the Beaver Municipal Solutions landfill at Ryley, Alberta.

The City also operates a plant for processing construction and demolition (C&D) waste. This plant processes clean wood and drywall, metals, trees and shrubs, concrete and asphalt shingles. These materials are processed into materials for a variety of other uses.

There are two facilities at the EWMC currently under construction and not yet fully operational. Edmonton's Waste to Biofuel and Chemical Facility is designed to process over 100,000 tonnes of municipal solid waste to produce 38 million litres of biofuel (methanol and ethanol) annually. The proposed anaerobic digestion facility would process the organic fraction materials from commercial businesses and institutions, such as the University of Alberta, as well as some residential waste. The anaerobic digestion facility is expected to process up to 48,000 tonnes of organic waste annually producing electricity, heat, and compost.

8.1.4   City of Fort Saskatchewan

The City of Fort Saskatchewan has three waste streams: green cart organics, blue bag recyclables, and black cart garbage. The organics carts are collected weekly except during the winter when it is collected every other week. The unlimited blue bags of recyclables are manually collected every week. The garbage carts are collected every other week.

Once collected, the organic stream is sent directly to a composting facility. The blue bags from recycling are sent to GFL Environmental's MRF in Winterburn (Edmonton) where the bags are debagged, sorted, and processed for end-markets. The garbage stream is taken to either the Laurin or Winterburn transfer station (both in Edmonton, owned and operated by GFL Environmental) for consolidation and transport to one of two regional landfills – the Waste Management landfill facility in Thorhild or Beaver Municipal Solutions landfill in Ryley. The City also operates a transfer station that accepts household hazardous waste, electronics, and bulky objects. Residential garbage is also accepted at a nominal cost.

8.1.5   City of Leduc

The City of Leduc has a three-stream curbside waste management program for residential units. It consists of a 240 L black cart for garbage, a 240 L green cart for organics, and blue bags for recyclables. The garbage and organics carts are emptied using automated collection equipment while blue bags are collected manually. Residents are limited in the amount of garbage and organics that can be placed at the curb; however, an extra black cart can be obtained for a minimum of six months for an additional $12 per month. Residents also have the option of taking material directly to the regional landfill.

Blue bag material is collected weekly. Green cart material is collected weekly from late April to mid-November, then every other week between November and April. Black cart material is collected every other week.

The City of Leduc has an Eco Station (formerly the Recycling Depot) where residents can drop off various materials: blue bag recyclables, cardboard, organic waste, household waste, household hazardous waste, and electronics. The City also has a Yard Waste Transfer Station that accepts various organic materials such as garden waste, leaves, plant material, tree branches, trimmings, twigs, and weeds.

8.1.6   Leduc County

Leduc County operates eight waste transfer stations at various locations across the County. All transfer stations accept: residential household waste, blue bag recyclables, household furniture, compost and yard waste (from May 15 to October 15), and wood (except Looma transfer station). The transfer stations at Sunnybrook and New Sarepta also accept household hazardous materials, oil product waste, antifreeze, paint, batteries, white goods, metals, construction and demolition waste, tires, and electronics. Residents could also directly drop off materials at the regional landfill at

Leduc. The County's blue bag recycling program accepts plastics, glass jars and bottles, metal cans, and paper and cardboard.

All transfer stations are attended during hours of operations. Residents require an access card to use these facilities as well as the Leduc's regional landfill. Non-residents can use the landfill, but payment is required based on weight and type of material.

Curbside collection is provided to selected rural parts of the County – New Sarepta and East Vistas (Diamond Estates, Lukas Estates, and the Royal Oaks subdivisions). Curbside collection is for garbage cart and blue bag recyclable streams. For residents in New Sarepta, collection occurs weekly from May to October then every other week from November to April. Curbside collection for East Vistas occurs weekly throughout the year. Garbage is collected by Collective Waste Solutions and recycling is collected by GFL Environmental.

8.1.7   Town of Morinville

The Town of Morinville has a three-stream collection system that employs a black cart for garbage, a green cart for organics, and blue bags for recyclable materials. Cart collection is automated while blue bags are collected manually. All materials are collected by GFL Environmental under contract to the Town. Black carts and blue bags are collected weekly throughout the year, while green carts are collected weekly from May to October then once a month (during the third week of the month) from November to April.

Residents may also take material, particularly large objects, directly to the Roseridge Regional Landfill. Morinville residents are billed through the Town for material taken directly to the landfill.

8.1.8   Parkland County

Parkland County does not provide a curbside collection program to its residents except in the hamlet of Entwistle. For residents in the hamlet of Entwistle, curbside garbage collection occurs every week on Wednesday. All other residents are expected to self-haul and drop off their waste at designated facilities.

Parkland County operates six waste transfer stations, three recycling centres, and one household waste and recyclable drop off site that provide waste management services to County residents.

The waste transfer stations are attended and offer a broad range of services to residents. In addition to the typical materials, most transfer stations are equipped to accept: paint, motor oil and containers, household hazardous waste, electronic wastes, batteries, appliances, propane tanks, tires, small furniture, C&D waste, and commercial waste.

County residents with access cards can drop off most of their wastes at transfer stations free of charge. There are some exceptions such as a surcharge for fridges and freezers containing food waste. Non-residents can use the facilities for a fee. There are also fees for construction wastes and accepted commercial wastes.

8.1.9   City of Spruce Grove

The City of Spruce Grove operates a two-cart system in conjunction with a blue bag program for recyclables. Each household is provided with a black 120 L or 240 L cart for garbage and a green 240 L cart for organics. The green organic carts are collected weekly from April to November and monthly from December to March. Curbside recyclables in the blue bag program are picked up weekly and there is no bag limit. The garbage stream is collected weekly on a year-round basis. The carts are collected using automated equipment, but the recyclables are collected manually. Residents are only allowed to put out one black cart full of garbage each week. However, unlike most other municipalities using an automated green cart system for organics, Spruce Grove residents can also put out additional bags of organics, which will also be picked up as part of the organics collection. Currently, all three waste streams are collected by GFL Environmental.

The materials collected through Spruce Grove's organics and blue bag programs are similar to those collected by other municipalities with similar source separation programs. The City also has an Eco Centre that accepts the same items as the curbside programs, as well as household hazardous wastes, electronic waste, tires and scrap metal (including white goods and propane tanks). Fees are charged at the Eco Centre for some items.

8.1.10 City of St. Albert

The City of St. Albert is responsible for the collection and disposal of wastes from single-family units and multi-residential units. The City has a three-part waste stream system: blue bag for recyclables, green cart for organics, and brown cart for garbage. The blue bag is collected weekly by hand by a private hauler (GFL Environmental), while the two cart systems are automated and collected by GFL Environmental and the City for organics and garbage, respectively. The organic stream is collected every week from April to the end of October and every other week from November to the end of March. The garbage stream is collected every other week.

In addition to its curbside programs, the City also has a Recycling Depot and a Compost Depot. The Recycling Depot accepts recyclables as well as household hazardous wastes and some electronics. The Compost Depot accepts yard wastes and larger items such as tree branches and stumps, but it does not accept vegetable and fruit scraps, bones, and dairy products are not accepted.

8.1.11 Town of Stony Plain

The Town of Stony Plain has a three waste streams for its residential waste management. It consists of a black cart for garbage, a green cart for organics (called "Organicart"), and blue bags for recyclables. The cart collection is automated, while blue bags are collected annually. All residential waste is collected under contract by GFL Environmental. Garbage is collected every other week, while recyclables are collected weekly. Organics are collected every week from mid-April to mid-October and every other week from mid-October to mid-April.

The Town also operates the Rotary Recycling Centre. The recycling centre accepts materials collected through the curbside programs as well as electronics, paint products, and batteries. Residents are directed to take household hazardous waste and metal scraps to the local Parkland County Transfer Station and Recycle Centre.

8.1.12 Strathcona County

Strathcona County is unique in that it includes Sherwood Park, the largest hamlet in Alberta with a population over 70,600. The County has a two-cart (organics and garbage) collection system and a "blue bag" program for recyclables.

The County has contracted out waste collection (currently GFL Environmental for all three streams) and material processing for blue bag and organic materials. Organics and recyclables are collected weekly (organics moves to bi-weekly collection in winter months), while garbage is collected every other week.

A black cart is provided for garbage and a green cart is used for organics. Residents are also provided with a smaller "green catcher" bin for collecting food waste in the kitchen. The blue bag program has recently changed the materials accepted in the program to reflect current recycling markets. This new change will come in effect in September 2018. Clean items (e.g. non-food soiled items) accepted in blue bag include: hard plastics containers, tubs, and bottles; aluminum and tin food cans and containers; office paper, envelops, and craft paper; wrapping paper (no foil); magazines, newspaper, and flyers; cardboard; boxboard; and books (with front and back covers removed). All other materials not suitable for inclusion in the organics or recyclables programs are collected in the black carts.

Strathcona County has an Enviroservice Station where residents can drop off household hazardous waste, electronics, and appliances that are not collected at the curbside. The Enviroservice Station also accepts recyclables, yard waste, tires, and reusable clothing. A second similar recycling station is located in Ardrossan, and a recycling outpost is located at South Cooking Lake.

8.1.13 Sturgeon County

Sturgeon County is the largest member of the Roseridge Regional Waste Services Commission. A significant portion of the County's residents live in 11 hamlets and 74 rural subdivisions. Other than its role as a member of the Roseridge Regional Waste Services Commission, the only other waste management service provided by the County is the operation of the waste transfer station at Redwater. Residents in the hamlets and rural subdivisions are responsible for hiring their own waste management service provider.

8.2   Current Solid Waste Agreements and Collaboration

Several initiatives, frameworks, plans and strategy documents have been published on sustainable use of resources. The province has also provided guidance on solid waste initiatives in the province through its Too Good to Waste Provincial Waste Strategy and the Provincial Waste Action Plan. Various municipalities have developed independent solid waste management plans. Some examples are listed in Table 8.1, based on the documents EMRB has provided.

Table 8.1:   Some Policy Summary[1]

Documents	Summary
• City of Edmonton – Bylaw 17555. Waste management Bylaw • City of Fort Saskatchewan – Waste Bylaw Bylaw No. C16-18 • City of Leduc – Waste Bylaw Bylaw No. 800-2012 • Leduc County – Bylaw No. 02-17 • City of St. Albert – Bylaw 17/2018 • Town of Stony Plain – Bylaw 2582/S/17 • Strathcona County - Waste Management Bylaw 39-2014 • City of St. Albert – Environmental Sustainability Policy, Waste management C-EUS-01	• Many of the municipalities have bylaws that set standards for what materials are collected in their communities and how collection and/or drop off takes place.
• City of Edmonton Waste Management Policy, 2007	• City's commitment to leading technology and sustainable waste management services. Supports initiative to move into non-residential waste services area.
• City of Edmonton 2018-2020 Business Plan, 2017	• City of Edmonton Waste Services will focus on: increasing the residential diversion rate; engaging customers to increase program participation and satisfaction; marketing recovered and recycled products to end users; continuously improving the business; and improving financial sustainability.
• City of St. Albert and Roseridge Waste Management Services Commission Solid Waste Disposal Agreement, 2010	• City of St. Albert has an agreement with the Roseridge Waste Management Services Commission, where the Commission will receive and dispose of the solid waste. There is an agreement for the tipping fee for the City of St. Albert.
• City of Fort Saskatchewan and Strathcona County Agreement for Joint Use of the Fort Saskatchewan Solid Waste Transfer Station, 1993.	• City of Fort Saskatchewan and Strathcona County have a Memorandum of Agreement for a joint use of the Fort Saskatchewan solid waste transfer station.

The Leduc and District Regional Waste Management Authority and the Roseridge Waste Services Commission are two regional systems that manage solid waste within the Region.

Solid waste section is the only section that adds notes as footnotes.

Leduc and District Regional Waste Management Authority

The Leduc and District Regional Waste Management Authority (Authority) represents Leduc County, City of Leduc, Town of Beaumont, Town of Devon and Town of Calmar. The municipalities signed an agreement in the 1970s to establish a waste management authority to provide waste management services for the member municipalities. The Authority is essentially a committee acting on behalf of its members. Each municipality appoints a member to the Board that oversees the Authority's business. The Board members elect one member of their group to be Chairman, usually for one year. Authority management and administration is contracted to one of the member municipalities. The City of Leduc currently provides this service.

The Authority does not have any provincially delegated authority. Therefore, it does not have the ability to own property or borrow money. All fiscal responsibility rests with the councils of the member municipalities. Each member municipality

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[1] Note: The documents review is not a comprehensive list as many communities have solid waste management initiatives and policies. This list is a sample of selected documents.

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is required to approve the Authority's capital and operating budgets. Generally, the Authority operates using revenue generated by disposal fees. This includes waste delivered from the member municipalities and other municipal and commercial clients.

The Authority oversees the Leduc and District Regional Waste Management Facility located east of the City of Leduc. The original, east side of the landfill is leased from the Province of Alberta; the newer, west side of the landfill is owned by the Authority and held in trust by Leduc County. Operation of the landfill and associated waste management activities is contracted to GFL Environmental Inc.

Initially established to provide waste disposal services, activities have evolved over time to the point that more emphasis is being placed on waste diversion, including providing a consolidation area for organics from member municipalities.

Roseridge Regional Waste Management Services Commission

The Roseridge Regional Waste Services Commission (Roseridge) was established in 2001 by an Order-in-Council under Part 15 of the Municipal Government Act (MGA). It was preceded by a waste management authority representing the same municipalities. Its members are Town of Morinville, Sturgeon County, and non-EMRB members of Town of Redwater, Town of Legal, Town of Gibbons, and Town of Bon Accord. Each municipality appoints a councillor to be member to the Board of Directors. The Directors are responsible for managing Roseridge. While the Directors are municipal councillors, they report to the Minister of Municipal Affairs with respect to fiscal matters.

As a regional services commission, Roseridge has real person powers and can own property, borrow money, and operate at a deficit within limits established by provincial regulations. Therefore, Roseridge has ownership of its land either through clear title or a Crown lease. Environment and Sustainable Resource Development (ESRD) has issued an approval for the landfill and associated facilities, and Roseridge is wholly responsible for compliance.

Roseridge's waste management facilities include a landfill, recycling areas for metals, batteries, tires, and other similar material. It also includes composting facilities that were expanded and upgraded in 2012 to provide a capability to process food waste in addition to the usual yard and garden waste composted in the past. Operation of the facilities is contracted to MCL Waste Services (now GFL Environmental Inc.). Sturgeon County provides administration and management services for the Commission.

8.4   Regional Map

The following (Figure 8.1) Regional Map has been prepared and illustrates known regional solid waste facilities in the region.
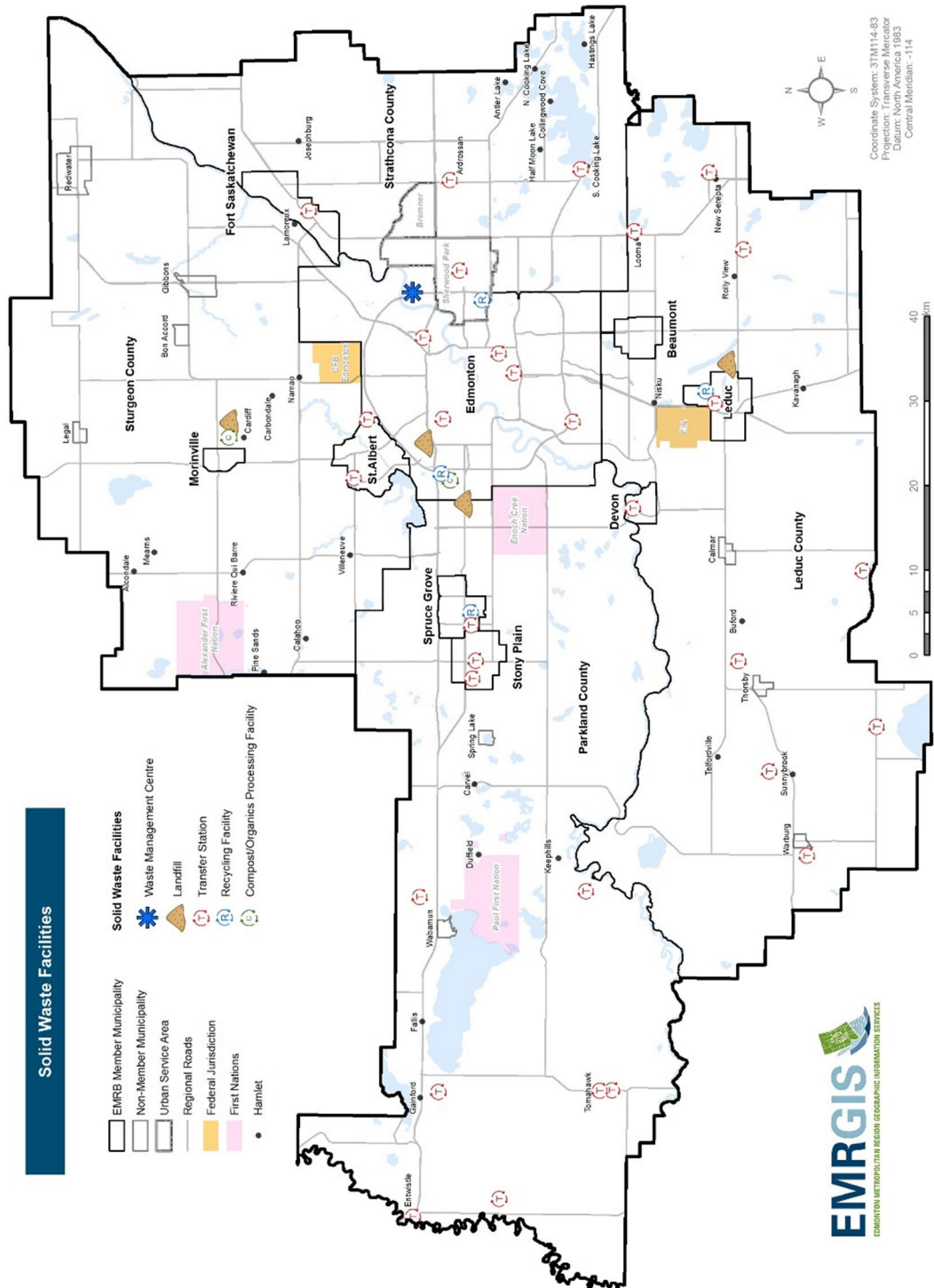
Figure 8.1:   Solid Waste Facilities

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8.5 Existing Solid Waste Infrastructure and Current Service Capacity

Table 8.2 summarizes the various solid waste infrastructure that municipalities own and/or operate as well as nearby regional and private infrastructures. For solid waste disposal to be economical, hauling distances are ideally in the range of 150 km or less to the disposal location. These numbers will vary depending on the efficiency of hauling, but it is well understood that hauling contributes significantly to waste disposal costs, and should be considered an important part of a solid waste management system.

Table 8.2:   Solid Waste Infrastructure

a) Transfer Station and Drop Offs

Facility Type	Status	Location (Municipality)	Name	Address or Legal	Authority
Eco Station	Open	Edmonton	Coronation Eco Station	11440 143 Street Edmonton, Alberta	City of Edmonton
Eco Station	Open	Edmonton	Kennedale Eco Station	5355 127 Avenue Edmonton, Alberta	City of Edmonton
Eco Station	Open	Edmonton	Ambleside Eco Station	14710 Ellerslie Road SW Edmonton, Alberta	City of Edmonton
Eco Station	Open	Edmonton	Strathcona Eco Station	5150 99 Street Edmonton, Alberta	City of Edmonton
Reuse Centre	Open	Edmonton	Reuse Centre	6835 83 Street Edmonton, Alberta	City of Edmonton
Depot - Recycling	Open	Edmonton	Community Recycling Depots	Various location – scattered throughout city	City of Edmonton
Depot - Recycling	Open	St. Albert	Mike Mitchell Recycling Depot	7 Chevigny Street St. Albert, AB	City of St. Albert
Depot - Organics	Seasonal	St. Albert	Compost Depot	Villeneuve Road (between Ray Gibbon Drive and Hogan Road).	City of St. Albert
Transfer Station	Open	Strathcona County (Sherwood Park)	Broadview Enviroservice Station	101 Broadview Road Sherwood Park	Strathcona County
Transfer Station	Open	Fort Saskatchewan	Fort Saskatchewan's Recycle & Transfer Station	8609-111 Street Fort Saskatchewan	City of Fort Saskatchewan
Eco Centre	Open	Spruce Grove	Eco Centre	50 Diamond Avenue Spruce Grove, AB T7X 3S2	City of Spruce Grove
Depot	Open	Stony Plain	Rotary Recycling Facility	4050 50th Avenue Stony Plain	Town of Stony Plain
Transfer Station	Open	Parkland County	Parkland County Transfer Station and Recycle Centre	52514 Range Road. 11 South of Hwy 16A on Range Road. 11	Parkland County
Transfer Station	Open	Parkland County	Kapasiwin Transfer Station	3503 Township Road. 533A Range Road 35 north of Hwy. 16	Parkland County
Transfer Station	Open	Parkland County	Keephills Transfer Station	3331 Township Road. 513 Range Road 35 south of Hwy. 627	Parkland County
Transfer Station	Open	Parkland County	Moonlake Transfer Station	52221 Range Road. 73 Range Road. 73 and Township Road. 523	Parkland County
Transfer Station	Open	Parkland County (Seba Beach)	Seba Beach Transfer Station	53128 Range Road. 61 Range Road. 61 south of Hwy. 16	Parkland County
Transfer Station	Open	Parkland County	Tomahawk Transfer Station	51105 Hwy. 759 Hwy. 759 south of Tomahawk	Parkland County
Depot – Waste and Recycle	Open	Parkland County (Cholla)	Cholla Household Waste and Recyclables Drop Off	26109 HWY 16A (Eastbound)	Parkland County
Depot - Recycle	Open	Devon	Devon Recycle Centre	20 Haven Avenue. Devon, AB	Parkland County & Town of Devon

Facility Type	Status	Location (Municipality)	Name	Address or Legal	Authority
Depot - Recycle	Open	Parkland County (Entwistle)	Entwistle Recycle Centre	4524A - 49 St. Entwistle, AB	Parkland County
Depot - Recycle	Open	Parkland County (Tomahawk)	Tomahawk Recycle Centre	5013 - 50 St. Tomahawk, AB	Parkland County
Eco Station	Open	Leduc	City of Leduc Eco Station	6102 46 St Leduc AB T9E 6T8	City of Leduc
Transfer Station	Open	Leduc County (Looma)	Looma Transfer Station	23058 Township Road 505A	Leduc County
Transfer Station	Open	Leduc County (Rolly View)	Rolly View Transfer Station	49342 Range Road 232	Leduc County
Transfer Station	Open	Leduc County (New Sarepta)	New Sarepta Transfer Station	22241 Township Road 500)	Leduc County
Transfer Station	Open	Leduc County (Wizard Lake)	Wizard Lake Transfer Station	27139 Township Road 481	Leduc County
Transfer Station	Open	Leduc County (Mission Beach)	Mission Beach Transfer Station	1453 Highway 616	Leduc County
Transfer Station	Open	Leduc County (Sunnybrook)	Sunnybrook Transfer Station	49164 Range Road 22	Leduc County
Transfer Station	Open	Leduc County (Thorsby)	Thorsby Transfer Station	28178 Township Road 494	Leduc County
Transfer Station	Open	Leduc County (Warburg)	Warburg Transfer Station	48502 Range Road 32	Leduc County
Depot - Recycle	Open	Strathcona County (Ardrossan)	Ardrossan Recycle Station	80-3 Avenue Ardrossan	Strathcona County
Recycle Location	Open	Strathcona County (South Cooking Lake)	Located in the Fire Station #2	22142 South Cooking Lake Road	Strathcona County
Transfer Station/Processing	Open	City of Edmonton	Edmonton Integrated Processing and Transfer Facility	250 Aurum Road Northeast Edmonton, AB	City of Edmonton

b) Recycling

Facility Type	Status	Location (Municipality)	Name	Address or Legal	Authority
MRF	Open	Edmonton	Evergreen Ecological Services	8815 13 Street NW, Edmonton AB	GFL Environmental
MRF	Open	Edmonton	Edmonton Waste Management Centre	250 Aurum Road Northeast Edmonton, AB	City of Edmonton
MRF	Open	Spruce Grove	Standstone Enviro-Waste Services Ltd	45 Diamond Avenue Spruce Grove, AB	
MRF	Open	Edmonton	Edmonton Winterburn Transfer Station	20204 113 Avenue Edmonton, AB	GFL Environmental
MRF	Open	Red Deer	Can Pak Environmental Inc.	N/A	
MRF	Open	Beaumont	Can Pak Environmental Inc.	N/A	
MRF	Open	Leduc	Evergreen Ecological Services	3905 65A Ave, Leduc, AB	

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c) Organics

Type	Status	Location (Municipality)	Name	Address or Legal	Authority
Composting	Currently limited operation due to structural repairs	Edmonton	Co-composting Facility	13111 Meridian (1st) Street NE	City of Edmonton
Composting	Open	Morinville	Roseridge Compost Class II	Site 1, Box 19, RR1, Morinville, Alberta	Roseridge Waste Management Services Commission
Composting	Open	Edmonton	Cleanit Greenit	20450 113 Ave NW, Edmonton, AB	Cleanit Greenit Composting System Inc.
Composting	Open	Two Hills AB	Growing Power Hairy Hill (GPHH)	142040 Township Road 544 Two Hills AB	Growing Power Hairy Hill
Composting	Open	Fort Saskatchewan	Ft Saskatchewan Compost Pile	8609 111 Street	City of Fort Saskatchewan
Composting	Open	Parkland County	Kapasiwin Yard waste Drop off	N/A	Alberta Environment
Composting	Open	Parkland County	Seba Beach Yard waste Drop off	N/A	Alberta Environment
Composting	Open	Bon Accord		N/A	
Composting	Open	Morinville		N/A	
Composting	Open	Redwater		N/A	
Composting	Open	Penhold, Red Deer County	Stickland Farms	37111 Range Road 285, Red Deer County	Stickland Farms
Anaerobic Digestion	commissioning	Edmonton	Anaerobic Digestion Facility	250 Aurum Road NE, Edmonton	City of Edmonton

d) Garbage

Facility Type	Status	Location (Municipality)	Name	Address or Legal	Authority
Biofuel conversion	Operating	Edmonton	Waste to Biofuel and Chemical Facility	250 Aurum Road NE	Enerkem (@ EWMC)
Class II	Operating	Lamont County	Lamont Area - St. Michel	NW-7-56-18-W4M	Lamont County Regional Solid Waste Commission
Class II	Operating	Leduc County	Leduc and District Regional Landfill	NE 29-49-24-W4M	Leduc and District Regional Waste Authority
Class II	Operating	Sturgeon County	Roseridge Regional Landfill	LSDs 3, 4 and 6 of Section 36-55-25-W4M	Roseridge Waste Management Services Commission
Class II	Operating	Beaver County	Ryley Regional Landfill	NE 10-50-17-W4M	Beaver Regional Waste Services Commission
Class II	Operating	Brazeau County	Drayton Valley Regional Landfill	SE 20-49-7-W5M	Drayton Valley Regional Landfill Authority
Class II	Operating	Lac Ste. Anne County	Highway 43 Landfill	c/o Box 219 Sangudo, AB	Highway 43 East Waste Commission
Class II	Operating	Paintearth County	Coronation Landfill	5006 Royal Street Coronation, AB	BFI
Class II	Operating	Camrose County	West Dried Meat Lake Landfill	SW 14-44-21W4M	West Dried Meat Lake Landfill Authority
Class II	Closed	Edmonton	West Edmonton Landfill	12707 - 170 Street Edmonton, AB	Waste Management of Canada

Facility Type	Status	Location (Municipality)	Name	Address or Legal	Authority
Class II	Operating	Thorhild, operated by WMC		Thorhild, Alberta	Waste Management of Canada
Class II	Operating	Camrose	Camrose Regional Landfill	Camrose, AB	Camrose Regional Waste Management Authority
Class III	Data unavailable	Parkland County	Northland	Highway 16A & 231 Street Parkland Country	Northland Group
Class III	Data unavailable	Parkland County	Cholla Landfill	26109 HWY 16A, Parkland County	Data unavailable

8.6 Existing Service Level

Table 8.3 summarizes curbside collection and hauling services for solid waste from each municipality. The majority of municipalities have adopted a three-stream curbside collection system (green cart for organics, black cart for garbage, and blue bags for recycling). Typically, the carts are picked up with an automated system and the bag manually collected. Collection services are mainly provided by private haulers. The frequency of collection varies between weekly, every other week, and seasonally depending on the material stream. Some municipalities have drop-off areas such as depots and transfer stations.

Table 8.3:   Curbside Collection Programs

a)   Recycling

Municipality	Program Style	Curbside Collection Technique	Recycling Hauler Contractor (s)	Recycling Collection Frequency
Town of Beaumont	Bag	Manual	CanPak Environmental Inc.	Weekly
Town of Devon	Bag	Manual	GFL Environmental	Weekly
City of Edmonton	Bag, Bin, Depot	Hand and bin collections, drop off	Hand Collection - GFL Environmental, WCC, Waste Management Bin Collection - GFL Environmental	Weekly
Strathcona County	Bag	Manual	GFL Environmental	Weekly
City of Fort Saskatchewan	Bag	Manual	Collective Waste Solutions	Weekly
City of Leduc	Bag	Manual	GFL Environmental	Weekly
Leduc County - Rural	Drop-off	NA	GFL Environmental	Weekly
Leduc County - Urban	Bag	Manual	GFL Environmental	Weekly
Town of Morinville	Bag	Manual	GFL Environmental	Weekly
Parkland County	Depot	Manual	GFL Environmental	Weekly
City of Spruce Grove	Bag	Manual	GFL Environmental	Weekly
City of St. Albert	Bag	Manual	GFL Environmental	Weekly
Town of Stony Plain	Bag	Manual	GFL Environmental	Weekly
Strathcona County	Bag	Manual	GFL Environmental	Weekly

b) Organics

Municipality	Program Type	Curbside Collection Technique	Organics Hauler Contractor	Organics Collection Frequency
Leduc County - Urban	None	N/A	N/A	N/A
Leduc County - Rural	None	N/A	N/A	N/A
Parkland County	Depot`	N/A	N/A	N/A
Strathcona County	Cart	Automated	GFL Environmental	Weekly/ Every Other Week *
Sturgeon County	None	N/A	N/A	N/A
City of Edmonton	Organics are collected with waste	N/A	N/A	N/A
City of Fort Saskatchewan	Cart	Automated	Collective Waste Solutions	Weekly/ Every Other Week *
City of Leduc	Cart	Automated	GFL Environmental	Weekly/ Every Other Week *
City of Spruce Grove	Cart	Automated	GFL Environmental	Weekly/ Every Other Week *
City of St. Albert	Cart	Automated	GFL Environmental	Weekly/ Every Other Week *
Town of Beaumont	Cart	Automated	CanPak Environmental Inc.	Weekly/Every other week
Town of Devon	Cart	Automated	GFL Environmental	Weekly/ Every Other Week *
Town of Morinville	Cart	Automated	GFL Environmental	Weekly/ Every Other Week *
Town of Stony Plain	Cart	Automated	GFL Environmental	Weekly/ Every Other Week *

*Weekly/Every Other Week collection varies during the year. Typically collection is weekly and turns every other week during the winter season.

c) Mixed Waste

Municipality	Program Type	Curbside Collection Technique	Waste Collection Contractor	Waste Collection Frequency
Leduc County - Urban	Cart	Automated	Collective Waste	Every Other Week
Leduc County - Rural	Drop-off	N/A	Collective Waste	N/A
Parkland County	Depot	N/A	Transfer Stations	N/A
Strathcona County	Cart	Automated	GFL Environmental	Every Other Week
Sturgeon County	Drop-off	N/A	N/A	N/A
City of Edmonton	Bags and Bins	Hand and bin collections	Hand Collection - GFL Environmental, WCC, WM Bin Collection- GFL Environmental, Appleton	Weekly
City of Fort Saskatchewan	Cart	Automated	Collective Waste Solutions	Every Other Week
City of Leduc	Cart	Automated	GFL Environmental	Every Other Week
City of Spruce Grove	Cart	Automated	GFL Environmental	Weekly
City of St. Albert	Cart	Automated	City of St. Albert	Every Other Week
Town of Beaumont	Cart	Automated	CanPak Environmental Inc.	Every Other Week
Town of Devon	Cart	Automated	GFL Environmental	Weekly
Town of Morinville	Cart	Automated	GFL Environmental	Weekly
Town of Stony Plain	Cart	Automated	GFL Environmental	Every Other Week

8.7 Current Service Costs

8.7.1 Metrics

There are numerous metrics commonly used in solid waste management systems. One common metric in waste management systems is percent diversion. Percent diversion, also known as diversion rate, is the weight of materials diverted from landfills divided by the total weight of all materials disposed of. Most commonly, percent diversion is determined annually as the total weight of the recycling and organics streams divided by the total weights collected (recycling, organics, and garbage streams).

Table 8.4 summarizes the annual weights of material collected from each stream and the percent diversion for each municipality, based on the information provided. The percent diversion ranges from 0% to 60%. The waste disposal data collected and reported by municipalities varies, and may not capture all waste streams accurately.

The diversion rate for the City of Edmonton may be higher as commingled waste is separated and processed at the Edmonton Waste Management Centre where some materials may not be landfilled.

Table 8.4:   Solid Waste – Metrics

Municipality	2017 Collected Recyclables (tonnes)	2017 Collected Organics (tonnes)	2017 Collected Waste (tonnes)	% diversion
Leduc County - Urban	31.5	0	176	15.2%
Leduc County - Rural	259.4	0	2,661	8.9%
Parkland County	176.99	155.5	7,231.53	4.4%
Strathcona County	6,998	12,679	13,011	60%
Sturgeon County	0	0	7,875.23	0.0%
City of Edmonton	46,928	0	264,578	15.1%
City of Fort Saskatchewan	1,104	284	4,947	21.9%
City of Leduc	1,125.82	2,802.28	4,005.43	49.5%
City of Spruce Grove	1,240	2,606	6,460	37.3%
City of St. Albert	3,825	8092	7,953	60.0%
Town of Beaumont	902.7	1,950.6	3,612.4	44.1%
Town of Devon	Data unavailable	532.11	1,672.94	Not Reported
Town of Morinville	Data unavailable	Data unavailable	Data unavailable	Data unavailable
Town of Stony Plain	Data unavailable	Data unavailable	Data unavailable	Data unavailable

8.7.2 Current Solid Waste Rates

Table 8.5 summarizes the annual total number of household services, total annual solid waste expenditures, and the expenditure per household serviced. The total expenditure per household serviced ranged from $30 to $420. The expenditures vary significantly due to the municipality size, service levels, and surrounding infrastructure.

A direct comparison cannot be made between each municipality's expenditure per household. This is because each municipality has a different approach to accounting for its total expenditure (e.g. cost sharing between internal departments), different funding mechanisms (e.g. utility vs. pay-as-you-throw fees) and varying solid waste management systems (e.g. owning and operating a processing facility). Care should be taken when comparing cost data between municipalities.

Table 8.5:   Solid Waste – Expenditures

Municipality	Total # of Households Serviced	Annual Solid Waste Expenditures (Total)	Annual Expenditure per Household ($/household)
Leduc County - Urban	228	$50,820	$220
Leduc County - Rural	5,960	$938,332	$160
Parkland County	12,910	$2,200,000	$170
Strathcona County	28,787	$8,814,000	$310
Sturgeon County	6,870	$192,052	$30
City of Edmonton	386,000	$36,689,264	$100
City of Fort Saskatchewan	10,502	$3,358,000	$320
City of Leduc	8,916	$2,204,580	$250
City of Spruce Grove	10,560	$2,142,523	$200
City of St. Albert	20,100	$6,500,000	$320
Town of Beaumont	5433	$2,089,145	$385
Town of Devon	2,159	$908,892	$360
Town of Morinville	3,780	$799,027	$210
Town of Stony Plain	Data unavailable	Data unavailable	Data unavailable

8.7.3 Funding Sources

Solid waste management funding sources varies from communities depending on the material type program and service levels. Some communities use a utility levy where a flat rate is charged to each household, while others use varying rates depending on the service level (e.g. size of cart, location, and type of household). For some programs, a user pay-as-you-throw payment system is in place, where certain material types (such as tires) are disposed of for a fee.

8.8   Summary Observations

The waste management industry continues to evolve. In order to continue to meet the solid waste needs of the Region, service delivery must be delivered in a way that it remains agile, and can change to meet regulatory changes and market constraints.

- Municipalities have moved towards curbside cart collection for garbage and organics, and typically curbside collection of blue bags for recycling.
- The number of contracted service providers operating in the Region has shrunk significantly since 2013, and the majority of services are now provided by GFL Environmental.
- The majority of municipalities continue to operate either transfer stations or recycling depots as part of the municipal service delivery.
- Recycling infrastructure, in particular Material Recovery Facilities, are typically owned and operated privately, with the exception of the City of Edmonton facility.
- Organics processing facilities are typically privately owned and operated, with some exceptions including the Edmonton, Morinville, Leduc, and Fort Saskatchewan facilities.
- Landfills are owned and operated by a waste Commission or Authority, or are privately owned and operated.

- Recycling collection typically occurs weekly, while organics collection weekly in the summer and bi-weekly in the winter. This collection is mainly contracted to GFL Environmental.
- Garbage collection varies between weekly and bi-weekly collection, primarily contracted to GFL Environmental. Select municipalities are offering depot-style garbage drop-off.
- Several municipalities have current solid waste management plans in place.
- The Leduc and District Regional Waste Management Authority (Authority) represents Leduc County, City of Leduc, Town of Beaumont, Town of Devon and Town of Calmar. The Roseridge Regional Waste Services Commission (Roseridge) members are Sturgeon County, Town of Redwater, Town of Morinville, Town of Legal, Town of Gibbons and Town of Bon Accord. These are the only two bodies currently providing services to multiple communities within the Region.
- There are several metrics commonly used in solid waste management systems:
  - One common metric in waste management systems is percent diversion: Percent diversion, also known as diversion rate, is calculated as the weight of materials diverted from landfills divided by the total weight of all waste materials generated. Commonly, percent diversion is determined annually as the total weight of the recycling and organics streams divided by the total weights collected (recycling, organics, and garbage streams). In this study, the data is collected in different ways in each community and so the diversion rates are not considered to be comparable.
  - The total expenditure per household serviced ranged from $30 to $420. These expenditures vary significantly due to the municipality size, service levels, internal municipal funding mechanisms, and surrounding infrastructure. There is also no common way of accounting for costs related to solid waste services. This is because each municipality has a different approach to accounting for its total expenditure (e.g. cost sharing between internal departments), different funding mechanisms (e.g. utility vs. pay-as-you-throw fees) and varying solid waste management systems (e.g. owning and operating a processing facility). Care should be taken in comparing cost data between municipalities.
- The regional solid waste capacity is difficult to determine, as a significant part of the solid waste management delivery system is privately owned and operated, and is not under the control of the Region. The development or closure of new disposal or processing facilities is determined by the private companies' own business plan, and not coordinated according to regional desires.
- There is a noted lack of landfill capacity for construction and demolition waste in the immediate Edmonton area.
- Solid waste communications strategies are different in each municipality. Messages and branding vary, making it difficult for local residents to interface with the solid waste systems from one community to the next.

8.9 For Discussion

It is recommended that the Region identify fundamental goals for solid waste management in the future. The idea of waste management success may vary drastically between municipalities, and some goals may be mutually exclusive.

Considerations for the Region include:

- What are the regional goals as they related to expenditures, service levels, waste diversion targets, sustainability goals, and regional control over the waste management system? Once goals are prioritized, a regional vision can be established, which will provide direction for long term regional planning.

The following steps have been identified as having the potential in the short term to support a move towards a regionalized solid waste management system:

1. Establishment of a regional waste management forum where waste issues can be discussed collaboratively, and planning can be done regionally.
2. The Edmonton Regional Waste Advisory Committee review and update the Alberta Capital Region Integrated Waste Management Plan completed in 2013. This plan provides a basis for developing a regional approach.
3. Adoption of a common accounting method for waste collection and disposal across the Region to allow for comparison of systems and the adoption of best practices.
4. Agreement on common metrics of success for the solid waste management system.

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5. Identification of duplication of services and effort, as they align with the regional service vision. In the long term, the goal could be the adoption of a regional approach to the delivery of services to ensure that there is no duplication of services and future waste processing facilities are planned with the Region in mind.

The following steps may beneficial in the long term, and could be considered when establishing a regional service:

• Adoption of a common contract for waste collection services to ensure that municipalities get the best service from the private contractors. Examine opportunities for aggregating the Region's contracts and negotiations to get best possible terms for the service.

• Collaboration with private waste operators and landfill owners as part of the regional planning process.

9.0
Emergency Services – Fire

This section of the environmental scan for the Edmonton Metropolitan Region Board (EMRB) Metropolitan Region Servicing Plan (MRSP) is for Emergency Services (Fire), referred to herein as "Emergency Services". The scope of the scan is for member municipalities of the EMRB.

Note that Emergency Services was included within the EMRB Regulation, and as such was one of the service area requirements for the MRSP by the Government of Alberta. Further, there is no advance presumption nor intent for a specific region-wide solution of Emergency Services. Rather, the objectives of the MRSP are as stated in section 1.2. An additional context for this section is that Emergency Services in the Edmonton Metropolitan Region vary significantly and the following data and information may not ensure the full context of any given Emergency Services and its comparison or ranking against another service.

9.1 Overview – Emergency Services (Fire)

9.1.1 Definition

Emergency Services means all fire services (e.g. suppression, alarms, and rescue) and emergency medical aid or services (e.g. known by some as medical first response). For the purposes of this report, emergency management, emergency communications/dispatch and ambulance services are not specifically within the project scope.

9.1.2 Summary of Emergency Services

The 2010 Capital Region Integrated Growth Management Plan "Working Together" identified increasing opportunities for various services including Emergency Services. This plan identified a number of gaps, issues and forecasted needs for these services, some of which have not changed over the last 8-10 years. This plan also characterized the service delivery methods for Emergency Services as varying across the Region. A key aspect of the plan observations about Emergency Services was its relationship to core and social infrastructure (e.g. water infrastructure to support fire suppression). Emergency Services were not discussed or identified as a policy area or service area within the 2017 Edmonton Metropolitan Region Growth Plan "Re-Imagine. Plan. Build".

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There has not been any known comprehensive and validated assessment or study of Emergency Services within the Region; however, there are examples of sub-regional initiatives or reports for Emergency Services including:

- Alberta Capital Region Integrated Fire and EMS Recruitment Process.
- Rural Fire Services Recruitment and Retention Initiatives.
- Capital Region Emergency Preparedness Partnership,
    - An emergency management-oriented initiative.
- Leduc Regional Fire Services Implementation Plans,
    - A sub-regional initiative with the City of Leduc, Leduc County and Edmonton International Airport that did not proceed.
- 2018 Regional Emergency Services (Fire) Report,
    - A student project report was prepared by a team of undergraduates in the University of Alberta (U of A) Planning Program and presented to the EMRB MRSP Task Force. Note: the report was invalidated.

There are two well-known initiatives capturing some benchmarking data for fire services; however, this data tends to be illustrative of urban services versus urban and rural services:

- Alberta Municipal Benchmarking Initiative.
- Canadian Benchmarking Network Canada.

The above benchmarking data and information were reviewed but not used in this section.

The following are some key assumptions and considerations for this service area:

- Emergency Medical Services (EMS) may include medical first response through advanced life support via ambulance or other services; and,
- a few municipalities provide ambulance specifically for Alberta Health Services.

9.1.3   Approach to Data Collection and Data Sources

The approach to data collection was based on the following:

- Review of some publicly available information and documents about EMRB member municipalities Emergency Services;
- Preparation of a structured and consistent MS Excel data collection tool based on the project scope, direction from the MRSP Advisory Committee and input from the EMRB Administration;
- Email correspondence to all EMRB members requesting submission of data; and,
- Email and telephone call validation and clarification with EMRB members based on the submissions, as required.

It is important to note that municipalities did not provide original data source files thus metadata could not be assessed. The use of best practices or benchmarking data for fire services is an exhaustive and process dependent activity outside the scope of this project.

Some of the key challenges anticipated for the environmental scan were:

- Varying terminology about Emergency Services;
- Varying service delivery models;
- Varying service levels; and,
- Varying data and information availability, details, and currency.

The sources of data include the following:

- Edmonton Metropolitan Region Growth Plan (e.g. population projections);
- Alberta Municipal Affairs: Municipal Profiles (e.g. total hectares and equalized assessment); and,
- EMRB member municipalities' data submissions for this project.

A thorough examination of all EMRB member municipalities Bylaws, Fire Master Plans, Annual Reports, Business Plans, Fire Reports, Service Agreements, Mutual Aid Agreements, and/or Bylaws have not been completed given the inconsistency of their availability or having not been provided. This environmental scan has specifically avoided making comparisons or rankings of Emergency Services based on variance in service capacity, service capabilities or other per unit measurements.

9.1.4   Municipal Context

Like much of Canada and Alberta, Edmonton Metropolitan Region municipalities have varying geographic areas, populations and development patterns that impact the delivery of Emergency Services. Service delivery is also influenced and driven by other factors including community risk, growth, service requirements, and resources (i.e. human and financial) and/or ability to pay.

For this report, the following context provides an initial basis for understanding the Region.

Table 9.1:   Fire Services – Municipal Context

Municipality	Total Area (Hectares)	Total Equalized Assessment (2017)	Direct Population (2017)	Population (Low 2044)	Population (High 2044)
Town of Beaumont	1,035	$2,788,194,024	18,320	36,800	59,800
Town of Devon	1,438	$901,793,441	6,578	11,200	13,200
City of Edmonton	69,983	$172,048,181,018	932,546	1,361,700	1,470,800
City of Fort Saskatchewan	4,830	$6,122,040,082	25,533	43,600	63,500
City of Leduc	4,308	$6,198,105,882	31,130	49,600	68,000
Leduc County	265,316	$8,345,773,333	13,780	19,300	23,200
Town of Morinville	1,134	$1,308,150,574	9,893	15,200	17,900
Parkland County	242,585	$10,259,761,272	32,097	42,700	50,000
City of Spruce Grove	3,165	$5,810,065,876	34,881	51,600	69,600
City of St. Albert	4,973	$11,824,198,155	65,589	90,100	118,000
Town of Stony Plain	3,663	$2,722,672,231	17,189	32,200	40,000
Strathcona County	126,620	$33,239,399,025	98,044	138,000	160,000
Sturgeon County	214,425	$6,219,038,449	20,495	31,000	39,200
Total	**943,475**	**$267,787,373,362**	**1,306,075**	**1,923,000**	**2,193,200**

The following should be noted:

- Some data above for 2017 may be based on 2016 or earlier information.
- While an equalized assessment can be defined for each municipality, this scan has not determined the residential, commercial and industrial requirements or implications on Emergency Services for varying properties, buildings, and complexes.
- The impact of future growth (e.g. population, employment) on Emergency Services cannot be solely understood using future targets as there are many considerations in service delivery.

9.2 Current Emergency Service Agreements and Collaboration

The term "agreement" while relatively clear can be found in a variety of forms in Emergency Services (Fire) including fire mutual aid, emergency management mutual aid, fire service agreements (e.g. fee for service). These agreements are typically amongst municipalities, for a select group of municipalities, with the Government of Alberta and/or with other entities. While Alberta Health Services is primarily accountable and/or responsible for emergency communications/dispatch and ambulance services, including some regulations for EMS, only a few member municipalities provide these services within the Region.

The environmental scan sought to collect copies and listings for each member municipality's agreements including the specific number, type, and nature of the agreement, the status of the agreement, and with whom the agreement parties are. Based on the data received, the following table summarizes the estimated number and nature of the agreements for each member municipality:

Table 9.2: Fire Services – Agreements

Municipality	Est. # Agreements	Nature of Agreements
Town of Beaumont	3	Service Agreements, Emergency Management - with other municipalities, and the provincial government
Town of Devon	4	Mutual Aid, Emergency Management, Dispatch services - with other municipalities, and the provincial government
City of Edmonton	22	Not provided
City of Fort Saskatchewan	-	Not provided
City of Leduc	10	Service Agreements, Mutual Aid, Emergency Management, Ambulance services, Dispatch services - with other municipalities and the provincial government
Leduc County	18	Service Agreements, Mutual Aid, Emergency Management, Dispatch services - with other municipalities, other Fire Associations, Edmonton Airport Authority and the provincial government
Town of Morinville	3	Mutual Aid, Ambulance with AHS
Parkland County	12	Service Agreements, Mutual Aid, Emergency Management, Ambulance services, Dispatch services - with other municipalities, and the provincial government
City of Spruce Grove	5	Service Agreements, Mutual Aid, Ambulance services, Dispatch services - with other municipalities and the provincial government
City of St. Albert	2	Emergency Management, Ambulance services - with other municipalities and the provincial government
Town of Stony Plain	4	Mutual Aid, Fire Services, Emergency Management
Strathcona County	12	Service Agreements, Mutual Aid, Emergency Management, Ambulance services, Dispatch services - with other municipalities, commission and the provincial government
Sturgeon County	28	Service Agreements, Mutual Aid, Emergency Management, Ambulance services, Dispatch services - with other municipalities, other Fire Associations, Edmonton Airport Authority and the provincial government

The following should be noted:
- Some municipalities were concerned about the confidentiality and/or competitiveness considerations of agreements as a basis for not providing same.
- Mutual aid agreements may or may not include a fee.
- Service agreements (meaning a fee for service agreement) for the provision of fire/EMS services are by their nature very specific to the partner, the service requirements and funding arrangements.

9.3 Regional Map

The following (Figure 9.1) Regional Map of fire stations illustrates known fire stations in the Region in the Region. The member municipalities' fire stations include those the member municipality specifically owns and operates and thus the illustration may not reflect the specifics of service agreements for and by any member municipality. Some fire stations of industry and other entities (e.g. First Nations) have not been assessed or included within this figure. This illustration reflects the known staffing configurations based on primarily full time versus paid-on-call.

The illustration appears to generally align to the Edmonton Metropolitan Region tier structure (i.e. core, metropolitan area, and rural area) as identified within the Edmonton Metropolitan Region Growth Plan.

Figure 9.1: Fire Stations

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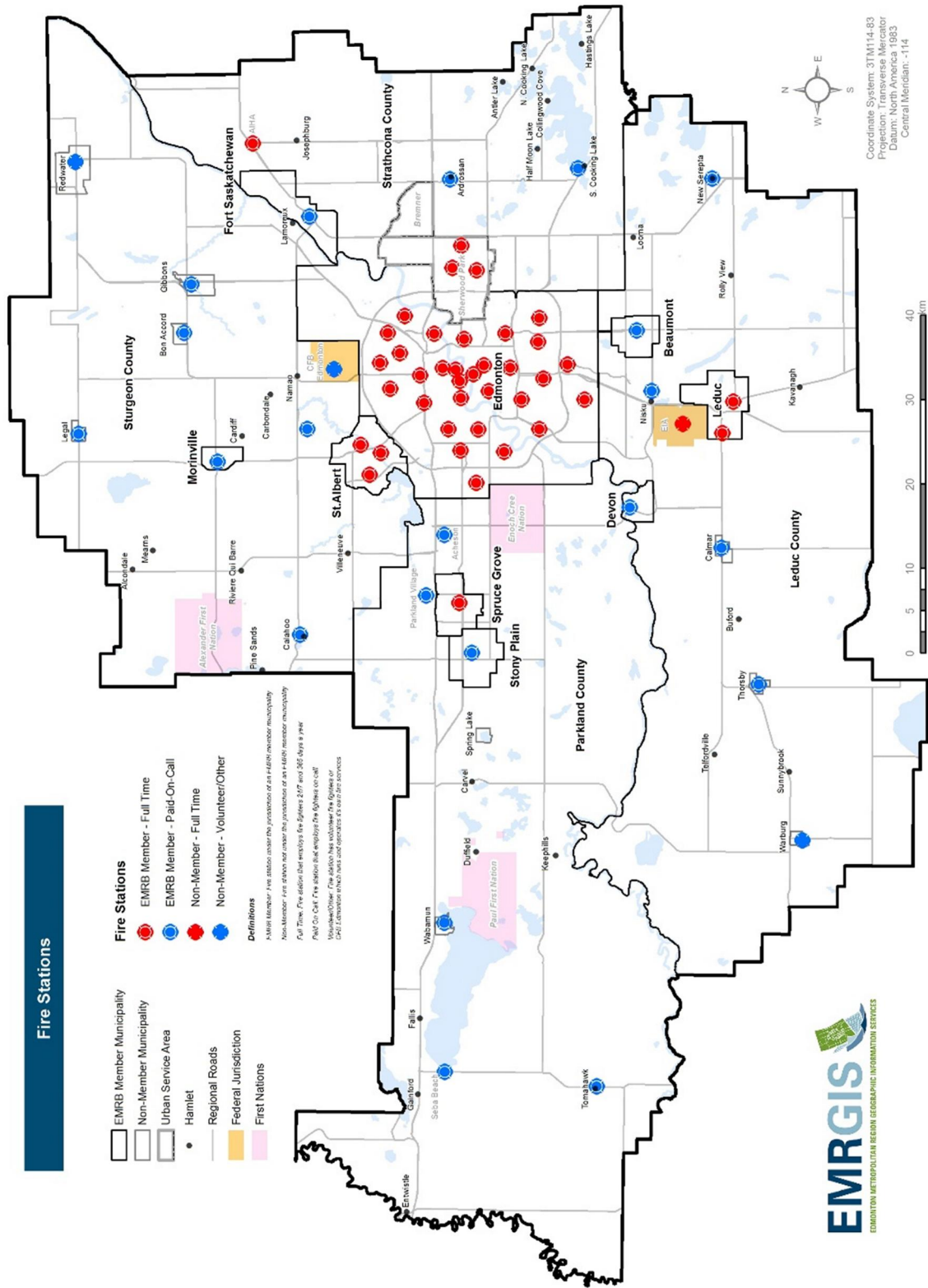
9.4 Existing Emergency Services (Fire) Infrastructure and Current Service Capacity

Service capacity means the volume that a municipal Emergency Services department can handle while maintaining known or defined standards of quality and performance. An example may be that municipality X can achieve an average of 10-minute response time 90% of the time to all life-threatening calls. It may also mean perform to a known standard (e.g. standard first aid).

Service capacity is often interchanged with service capability which means the ability of a municipal Emergency Services to perform a specific function. An example may be only the City of Edmonton has the capability to respond to highly technical dangerous goods and hazardous materials with technical personnel and technical protective equipment.

Service capacity is a complex concept in the provision of Emergency Services given the following influences and factors:

- Service areas (e.g. size, nature and topography of areas);
- Populations served (e.g. direct and indirect populations);
- Regulations, By-laws, Building and Fire Codes;
- Local infrastructure (e.g. water flow);
- Ability or preferences to pay for services;
- Services provided including service levels and/or standards if any; and,
- Staffing model (e.g. full time or paid-on-call) and configuration (e.g. number of firefighters per call).

Service capacity also needs to be understood based on current development and growth, future growth, and requirements or risk related to that growth.

The environmental scan sought to collect data on service response targets, service response times and service staffing configurations as indicators of service capacity and service levels. This scan specifically attempted to understand the context of fire and EMS versus ambulance services data given some of the conclusions within the Regional Emergency Services (Fire) Report in 2018. The data on service capacity is summarized for relative number of staffing at a specific time (i.e. collection of data, submission of data) in Table 9.3.

Table 9.3:   Fire Services – Capacity (Staffing)

Municipality	Management (2017)	Career or Full time Firefighters (2017)	Part-time Firefighters (2017)	Paid-on-call Firefighters (2017)	Total Management and Firefighters (2017)
Town of Beaumont	2	2	0	34	38
Town of Devon	1	0	0	31	32
City of Edmonton	5	1,100	0	0	1,105
City of Fort Saskatchewan	3	3	0	40	46
City of Leduc	4	36	0	60	100
Leduc County	5	4	0	133	142
Town of Morinville	1	0	2	39	42

Municipality	Management (2017)	Career or Full time Firefighters (2017)	Part-time Firefighters (2017)	Paid-on-call Firefighters (2017)	Total Management and Firefighters (2017)
Parkland County	6	0	0	150	156
City of Spruce Grove	5	46	0	0	51
City of St. Albert	4	94	0	0	98
Town of Stony Plain	3	4	0	43	50
Strathcona County	6	152	0	40	198
Sturgeon County	3	6	0	86	95
Total	**44**	**1,445**	**51**	**616**	**2,153**

The following should be noted:
- There are only five municipalities that are considered primarily career or full time departments (see red font above). The City of Fort Saskatchewan is in transition to some form of full time staffing configuration. Several municipalities have some portions of full time staffing on weekdays and other periods during the week.
- Some municipalities reported management staffing numbers inclusive of administration staff.
- Internal dispatch personnel may not be included within the staffing numbers.

The data on service capacity (i.e. stations, units, and staffing specifically) is summarized as following:

Table 9.4:   Fire Services – Capacity Summary

Municipality	Number of Fire Stations	# of Full time Fire Units on Duty 24/7/365	Typical # Firefighters on First Response Pump	Standard # of Full time Ambulance Units on Duty 24/7/365	# Firefighter/ Paramedics on First Response Ambulance
Town of Beaumont	1	0	4	0	0
Town of Devon	1	0	4	0	0
City of Edmonton	29	52	4	0	0
City of Fort Saskatchewan	1	0	4	0	0
City of Leduc	2	2	3	2	2
Leduc County **	5	1	4	0	0
Town of Morinville	1	0	6	0	0
Parkland County	5	0	4	0	0
City of Spruce Grove	1	1	4	2	2
City of St. Albert	3	4	4	2	2
Town of Stony Plain	1	0	4	0	0
Strathcona County	6	4	4	4	3
Sturgeon County	5	0	4	0	0
Total	**61**	**64**			

The following should be noted:
- **Leduc County has one full time unit subcontracted from the Edmonton International Airport to service the Nisku area.
- Strathcona County includes three (3) urban stations and three (3) rural stations.
- City of Spruce Grove staffs a second pump 50% of the time.

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9.5 Existing Service Level

9.5.1 Services

The term "services" has varying interpretations and applications within Emergency Services in the Region. While "fire services" and "Emergency Medical Services" are typical phrases, these may have different interpretations and do not adequately reflect important differences in these services; and certainly, they do not reflect differences in service levels, service capacities nor service capabilities. The following table has been prepared to illustrate some of the Emergency Services while leveraging information available on each member municipality website and/or data previously provided to EMRB.

Table 9.5:   Fire Services – Existing Services

Municipality	Fire Suppression	Rescue	Emergency Medical Services	Specialized Rescue	Fire Prevention and/or Investigations	Emergency Management	Emergency Communications Centre/Dispatch	Ambulance Services
Town of Beaumont	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Town of Devon	Yes	Yes	Yes	Yes	Yes	Yes	No	No
City of Edmonton	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
City of Fort Saskatchewan	Yes	Yes	Yes	Yes	Yes	Yes	No	No
City of Leduc	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Leduc County	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Town of Morinville	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Parkland County	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
City of Spruce Grove	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
City of St. Albert	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Town of Stony Plain	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Strathcona County	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sturgeon County	Yes	Yes	Yes	Yes	Yes	Yes	No	No

The following should be noted:
- Fire suppression may include structure fires, wildland fires, vehicle fires and other fires or alarms (e.g. building alarms). Dangerous goods and hazardous materials basic levels are included in this service type.
- Emergency Medical Services (EMS) may include standard first aid, basic life support, advanced life support but does not include ambulance services.
- Specialized Rescue may include low-angle, high-angle, confined space, swift water, ice, and other technical rescue activities.
- Fire prevention may include fire and EMS education and/or training, fire inspections, and other safety codes activities (e.g. permits, by-law enforcement).
- Emergency Communications Centre/Dispatch means a formal dispatch capability for fire/EMS and/or ambulance services.

9.5.2 Service Levels

Service levels are intended to illustrate the current services, the targets or indicators and metrics for those services (e.g. response times) and the service volumes. Service levels are often specific to a municipality and a particular service. The following table is not fully completed based on the availability of data or data collection and reporting preferences of a given municipality:

Table 9.6:   Fire Services – Existing Service Levels

Municipality	Service Response Target (2017)	Average Fire Response Time (2017)	Total Emergency Calls (2017)	Subtotal of Fire Calls (2017)	Subtotal of EMS Calls (2017)	Subtotal of Ambulance Calls (2017)
Town of Beaumont	Not provided	9 min 55 sec	197	150	47	NA
Town of Devon	Not provided	~12 min	195	154	41	NA
City of Edmonton	90% within 7 min	85.4%	50,603	16,812	33,791	NA
City of Fort Saskatchewan	Not provided	8 min 15 sec	407	-	-	NA
City of Leduc	90% within 10 min.	8 min. 57 sec.	4,972	1,045	-	3,927
Leduc County	Not provided	15 min. 34 sec.	713	-	-	NA
Town of Morinville	80% within 8 min.	8 min. 33 sec.	228	156	72	NA
Parkland County	Not provided	~12 min.	764	697	67	NA
City of Spruce Grove	90% within 320 sec.	6 min. 23 sec.	5,489	422	930	4,137
City of St. Albert	90% within 8 min.	7 min. 18 sec.	5,913	733	2,259	2,921
Town of Stony Plain	90% within 600 sec.	617 sec.	303	247	56	NA
Strathcona County	Not provided	See note	8,665	1,506	418	6,741
Sturgeon County	Not provided	20 min. 4 sec.	871	-	-	NA
Total			**79,320**			

The following should be noted:

- For service response target, 90% or 90 percentile, depending on the municipality, means 90% of emergency calls were responded to within the target (e.g. 10 min.), typically based on a specified period (e.g. annually).
- Many municipalities do not have specific service response targets and few have those service levels defined in a Standard of Cover document or Fire related Bylaw.
- Four municipalities provide ambulance services within an integrated service delivery model. This service is provided under a service agreement with Alberta Health Services. Alberta Health Services is responsible for all other ambulance services within the Region.
- Some municipalities are not collecting detailed data for service targets and response times.
- Parkland County has average response times in the eastern districts range from eight to 12 min., while the western districts are nearly doubling those with times ranging between 14 to 20 min.
- Town of Devon has average response times between 8 to 12 min. with (Paid-On-Call) POCs. Water rescue calls take longer when responding.
- City of St. Albert average response times are not a KPI which the fire service uses. The 90th percentile indicates a target of attaining the goal 90% of the time. City of St. Albert uses 8 min. 90% as a first on scene total time for Fire, and 7 min. total for MFR response.
- Leduc County total emergency calls do not include EIA incidents (Airside/Medicals). Note: Leduc County has ~10 min. average response time to Nisku Fire district.
- City of Edmonton does not keep stats on average response times. Included is the percentage (i.e. 85.4%) meeting the 7-minute target. Response target listed for both Fire and EMS calls is to get the first unit on scene, not full first alarm response of 16 firefighters.
- Sturgeon County goal is to have "Chute times", as defined in the University of Alberta report, under 10 min. 100% of the time which is being achieved.
- Strathcona County has an urban average response time of 7 min. 52 sec. and a rural time of 13 min. 21 sec. The target for rural response is within 17 min. The target for urban response is within 8 min.
- City of Spruce Grove uses a 320 sec. total response target 90% of the time. Average provided in the chart is for all calls including non-emergency within Spruce Grove. Fire emergency calls average is 3 min. 50 sec. and EMS emergency calls average is 6 min. 15 sec.
- City of Fort Saskatchewan in 2017 only had a 10-minute target on structural fires, no other commitments to any other services. Average response time is not commonly used in the fire department. The 90th percentile response time is utilized as a benchmark. In 2017, at the 90th percentile, Fort Saskatchewan was on scene in 1017 seconds or 16 min. 57 sec.
- Town of Morinville response times are within 10 min 80% of the time with a range of ~7-13 min.
- Town of Stony Plain completed 568 calls in 2017 including Town and County responses.

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9.6 Current Service Costs

Service costs are one of the most complex and varying elements for Emergency Services (Fire) within the Region. Service costs are typically offset by some form of revenue, reserve funding and/or municipal tax levy. A better phrase might be Emergency Services Financial Management includes the following considerations:

- Operating revenues;
- Operating and capital expenditures;
- Grants;
- Reserves; and
- Tangible Capital Assets.

For this environmental scan, member municipalities were asked to validate some data previously provided and included within the Regional Emergency Services (Fire) Report in 2018 and add additional details where appropriate for ambulance services.

Table 9.7:   Fire Services – Current Service Costs

Municipality	Total Net Surplus (Cost) (2017)	Fire and/or Ambulance Operating Expenditures (2017)	Fire and/or Ambulance Operating Revenues (2017)	Estimated Sub-total Ambulance Operating Expenditures (2017)	Estimated Sub-total Ambulance Operating Revenue (2017)
Town of Beaumont	-969,700	-1,033,500	63,800	N/A	N/A
Town of Devon	-247,026	-319,728	72,702	N/A	N/A
City of Edmonton	-205,359,000	-207,561,000	2,202,000	N/A	N/A
City of Fort Saskatchewan	-2,030,808	-2,124,858	94,050	N/A	N/A
City of Leduc	-5,011,398	-8,577,387	3,565,989	Not provided	Not provided
Leduc County	-6,033,080	-6,168,780	135,700	N/A	N/A
Town of Morinville	-396,136	-633,236	237,100	N/A	N/A
Parkland County	-7,782,000	-8,306,100	524,100	N/A	N/A
City of Spruce Grove	-4,871,534	-6,774,806	3,661,900	-4,499,456	3,484,984
City of St. Albert	-14,553,569	-18,222,258	3,661,900	-3,494,470	3,598,512
Town of Stony Plain	-1,382,662	-1,674,004	291,342	N/A	N/A
Strathcona County	-26,229,666	-34,732,091	8,502,425	Not provided	Not provided
Sturgeon County	-2,722,257	-3,099,253	376,996	N/A	N/A
Total	**-277,588,836**	**-299,227,001**	**23,390,004**	**0**	**0**

The following should be noted:
- Each municipality is assumed to have unique accounting and financial management practices and reporting.
- Of the four (4) municipalities providing ambulance services, only two (2) provided data for ambulance expenditures and revenues.
- Only two (2) municipalities updated the financial information for 2017 from the previous data in the Regional Emergency Services (Fire) Report in 2018.

9.7 Summary Observations

The following observations have been made by the consultant based on research and the input from the member municipalities:

- There is no single strategy (e.g. Regional Fire Master Plan), single set of infrastructures (e.g. fire stations, apparatus) nor single processes (e.g. recruitment, standard operating procedures) for Emergency Services (Fire) in the Region.

- Emergency Services (Fire) terminology varies across the Region. One example is Emergency Medical Services (EMS) which may mean simple standard first aid (e.g. medical first response) to one municipality while to another it is advanced life support and the provision of ambulance services.

- There is a wide variance in the level of available data for services. Some municipalities have specific data details while others tend to aggregate data or in some cases simply not gather and assess certain data and information.

- All members provide (or contract) emergency services in different municipal contexts and urban/rural environments within the Region. These contexts vary from full time (also known as career departments) to paid-on-call (also known as volunteer departments).

- Typically, Counties have large geographic areas of responsibility that by their nature have response challenges and are primarily served by paid-on-call service models.

- Typically, fire services assets (e.g. fire stations, apparatus, and equipment) and staff are locally based.

- Some members provide emergency communications/dispatch services to one or more municipalities. All municipalities play a major role in emergency management within their respective municipalities, a sub-region, and/or the Region.

- Some EMRB municipalities provide ambulance services to the Region on behalf of Alberta Health Services. Of the 13 member municipalities, 5 have primarily a true career or full time staffing configuration and of those 4 also provide ambulance services for Alberta Health Services. The provision of ambulance services has a significant impact on call volumes, response times, staffing numbers and service costs.

- Many municipalities have various fire specific mutual aid or service agreements within a sub-region or the Region. While some services are provided outside a local jurisdiction – assets, service capacity and service costing are primarily local for most municipalities. City of Edmonton Dangerous Goods are deemed as regional in intent; Services with Dispatch or Ambulance are deemed to be sub-regional in intent.

- Comparing or ranking municipal fire services (e.g. cost per call or calls per firefighter) should be cautiously approached at this point as there are no well-defined benchmarking criteria. Further, direct comparisons for urban versus rural-oriented fire services require a more extensive information collection and analysis given factors such as – ability to pay, geographic areas and distances, full time versus paid-on-call staffing configurations, service levels, and service targets.

- The topic of service costs for Emergency Services (Fire) is extremely complex and influenced by local accounting policies and practices including funding sources (e.g. municipal levy, grants, reserves, chargebacks or fee for service agreements). Further, understanding fixed assets, both in terms of current inventory and future needs or investments, will require extensive data collection, and harmonization, if there is any intent to establish per unit measures and comparisons.

- Typically, most members subsidize the services through municipal levies, grants, and fees for services. Generally, those members providing ambulance services tend to have a cost recovery basis for those services.

Some key observations were identified by Fire Chiefs (or designates) in an October 2, 2018 meeting to discuss the draft Environmental Scan. These observations are summarized following and are intended to illustrate the breadth of some of the challenges and opportunities for Emergency Services (Fire) in the Region from these Chief Officers' perspectives:

- Emergency Services have evolved in the Region and Alberta based on changing legislation (e.g. repeal of Fire Protection Act, ambulance services falling under Alberta Health Services), regional development, risk, emphasis on fire prevention, and fiscal realities.

- Regional collaboration by Emergency Services (Fire) continues to improve; however, some of this collaboration is informal and fragmented. This collaboration has included the following areas – recruitment, procurement, training, equipment sharing, and service coverage. There have been some occasions where a willingness to collaborate between services is constrained by corporate processes and policies. There is a strong interest and desire to further enhance collaboration on a regional and sub-regional basis to make the Region stronger.

- There is significant diversity in services, service levels, and service targets for the municipalities within the Region.

- There is consensus that there are increased fiscal pressures on municipalities specifically in the areas of facilities, apparatus and staffing.

- In alignment with the Growth Plan, growth and densification will have impacts on community risk and Emergency Services (Fire) delivery.

- There is an increasing need to consider the influences of labour relations and associated collective agreements on services (e.g. migration to full time or full time elements of staffing configurations) and collaboration or agreements between municipalities.
- The gathering and compiling of quality data are paramount to understanding the current state and future needs including the need to spatially represent information on a regional basis to support consistent and common reporting.
- Going forward municipalities should consider opportunities to further explore service delivery models, recruitment, procurement, equipment and facility use, agreements and many other regional and sub-regional needs.

9.8   For Discussion

The following are some potential considerations for Emergency Services (Fire) within the context of the MRSP.

- EMRB municipalities should determine what the future opportunity or intent of a servicing plan is for Emergency Services (Fire) prior to further data and information gathering and analysis (e.g. future needs assessment).
- EMRB members should embark on the development of a shared glossary so as to better define terms and acronyms for the purposes of regional collaboration for Emergency Services (Fire). Ideally, a Working Group of Fire Chiefs (or designates) is needed to ensure the right subject matter experts can collaborate on this service area for the whole of the Region within the context of the MRSP.
- EMRB municipalities should develop a shared and well-defined fire services inventory supported by a glossary for the reporting of fire services statistics (e.g. calls, response times, costs, assets).
- MRSP related regional initiatives (e.g. governance, shared services) on Emergency Services (Fire), should have a comprehensive assessment and analysis.
- EMRB municipalities may consider identifying future local, sub-regional and regional major investments and Fire Master Plan priorities and then sharing those to better understand opportunities for consideration at a regional level. The following is a preliminary set of topics, suggested by some stakeholders to this project, that may be of interest for future regional discussions:
  - Recruitment;
  - Training and Education;
  - Fleet Maintenance;
  - Procurement;
  - Information Technology Management and Support;
  - Geospatial Information; and/or,
  - Emergency Communications/Dispatch.

10.0
Service Area Profiles

10.1 Introduction

Based on the Service Area information gathered, servicing profiles were created for:

- Each member municipality;
- The Region as a whole; and,
- Each Service Area on regional basis.

These profiles provide a quick description of servicing issues and conditions across the Region.

10.2 Municipal Profiles

The municipal profiles provide a brief description of the seven (7) service area for each of the thirteen (13) municipalities. They are presented in Table 10.1a through 10.1m below.

Table 10.1:   Municipal Profiles

a) Town of Beaumont

Service Area	Parameter	Description
Water	Supply	EPCOR via CRSWSC
	Number of Reservoirs and Capacity	2 (Main & St. Vital) 17.2 ML
	Required Storage Capacity (2017)	9.2 ML
	Average Annual Use (L/c/d)	201
	Existing Issues or Constraints	Low pressure east of downtown; considering installing separate pressure zone
Wastewater	Discharge	EPCOR via ACRWC SERTS South
	Existing Issues or Constraints	Master plan proposes local trunk upgrading
	Downstream Capacity Constraints	ACRWC SERTS Beaumont Line is being upgraded in stages
Stormwater	SWMF Design	1:100 year
	SWMF Release Rates	1.8 to 6.7 L/s/ha
	Receiving Watercourse	LeBlanc Canal/Irvine Creek/Blackmud Creek
	Downstream Constraints	Capacity and erosion concerns
Transportation - Roadways	Major Connections	50 Street, Highway 625
	Existing Issues or Constraints	50 Street capacity within City of Edmonton
Transportation - Intermunicipal Transit	Park and Ride Locations	1 - Ken Nicholls Recreation Centre
	Number of Routes	1- Beaumont Transit Service
	Peak Hour Frequency	Every 30 minutes
	Hours of Service Daily	5
Solid Waste	Waste Streams Serviced	Garbage, Recycling, Organics
	Collection Provider	CanPak Environmental
	Municipally Owned Transfer Stations	None
	Municipally Owned Landfills	None
	Municipally Owned Recycling Facilities	None
	Annual Total Waste Collection (tonnes/yr)	6,465
Emergency Services (Fire)	Number of Fire Stations	1
	Number Management and Firefighters	38
	Total Emergency Calls	197

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b) Devon

Service Area	Parameter	Description
Water	Supply	Devon WTP
	Number of Reservoirs and Capacity	
	Required Storage Capacity (2017)	5.0 ML
	Average Annual Use (L/c/d)	Unknown
	Existing Issues or Constraints	None
Wastewater	Discharge	Devon WWTP
	Existing Issues or Constraints	WWTP currently being upgraded
	Downstream Capacity Constraints	None
Stormwater	SWMF Design	
	SWMF Release Rates	
	Receiving Watercourse	North Saskatchewan River
	Downstream Constraints	None
Transportation - Roadways	Major Connections	Highway 19 and 60
	Existing Issues or Constraints	None
Transportation - Intermunicipal Transit	Park and Ride Locations	
	Number of Buses	
	Frequency	
	Existing Issues or Constraints	
Solid Waste	Waste Streams Serviced	Garbage, Recycling, Organics
	Collection Provider	GFL Environmental
	Municipally Owned Transfer Stations	None
	Municipally Owned Landfills	None
	Municipally Owned Recycling Facilities	1
	Annual Total Waste Collection (tonnes/yr)	2,205
Emergency Services (Fire)	Number of Fire Stations	1
	Number Management and Firefighters	32
	Total Emergency Calls	195

c) City of Edmonton

Service Area	Parameter	Description
Water	Supply	EPCOR
	Number of Reservoirs and Capacity	12 (E.L. Smith, Rossdale, Kaskitayo, Papachase, Mill Woods, Ormsby, Thorncliff, Castledowns, Clareview, Londonderry, Rosslyn, and North Jasper Place) 624.6 ML
	Required Storage Capacity (2017)	235 ML
	Average Annual Use (L/c/d)	286
	Existing Issues or Constraints	None
Wastewater	Discharge	EPCOR (Goldbar WWTP)
	Existing Issues or Constraints	EPCOR managing transmission and treatment for ACRWC south municipalities; EPCOR looking to reduce combined sewer discharges to river and reduce basement flooding risks
	Downstream Capacity Constraints	Upstream storage being used to mitigate impacts on downstream combined trunks and Gold Bar WWTP
Stormwater	SWMF Design	1:100 Year & historic 1978 event (worst case)
	SWMF Release Rates	3.0 to 5.0 L/s/ha (varies based on receiving trunk, creek or river)
	Receiving Watercourse	North Saskatchewan River via Blackmud/Whitemud Creek, Mill Creek, Fulton Creek, Gold Bar Creek and Clover Bar Creek
	Downstream Constraints	Creeks all have downstream erosion issues, sediment loadings to the river
Transportation - Roadways	Major Connections	Multiple roadways
	Existing Issues or Constraints	Lack of safe cycling facilities across the TUC
Transportation - Intermunicipal Transit	Park and Ride Locations	8 – Clareview, Belvedere, Stadium, Davies, Lewis Farms, Eaux Claires 2 in construction: Heritage valley Park and Ride, Wagner 1 in transitionary period: Century Park (will be replaced by private development)
	Number of Routes	2 - Route 747 (EIA), 599 (Edmonton Garrison)
	Peak Hour Frequency	Every 30 minutes (EIA), 45 (Garrison)
	Hours of Service Daily	19 (EIA), 4 (Garrison)
	Existing Issues or Constraints	Clareview overspill into neighborhoods- under discussions to relocate station area, Davies commuter use will be replaced by new Wagner P&R
Solid Waste	Waste Streams Serviced	Garbage, Recycling, Organics
	Collection Provider	City of Edmonton/Private Haulers (various)
	Municipally Owned Transfer Stations	6
	Municipally Owned Landfills	0 (the City operates one waste to energy facility)
	Municipally Owned Organics Processing Facilities	3
	Municipally Owned Recycling Facilities	3
	Annual Total Waste Collection (tonnes/yr)	311,506
Emergency Services (Fire)	Number of Fire Stations	29
	Number Management and Firefighters	1,105
	Total Emergency Calls	50,603

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d) City of Fort Saskatchewan

Service Area	Parameter	Description
Water	Supply	EPCOR via CRNWSC
	Number of Reservoirs and Capacity	3 (Westpark, Water Tower, and Main) 24.5 ML
	Required Storage Capacity (2017)	22.8 ML
	Average Annual Use (L/c/d)	266 L/s/ha
	Existing Issues or Constraints	
Wastewater	Discharge	ACRWC via NERTS
	Existing Issues or Constraints	
	Downstream Capacity Constraints	None (addressed by ACRWC)
Stormwater	SWMF Design	1:100 Year
	SWMF Release Rates	3.5 L/s/ha
	Receiving Watercourse	Ross Creek, North Saskatchewan River
	Downstream Constraints	
Transportation - Roadways	Major Connections	Highway 15/21
	Existing Issues or Constraints	The main corridor through the city. Currently over capacity. A bypass would help diverting the heavy truck traffic but no bypass exists yet.
Transportation - Intermunicipal Transit	Park and Ride Locations	One in construction
	Number of Routes	1- Route 580
	Peak Hour Frequency	Every 30 minutes
	Hours of Service Daily	9
	Existing Issues or Constraints	Operational concern connecting between local bus to commuter bus and then to LRT
Solid Waste	Waste Streams Serviced	Garbage, Recycling, Organics
	Collection Provider	GFL Environmental
	Municipally Owned Transfer Stations	1
	Municipally Owned Landfills	0
	Municipally Owned Organics Processing Facilities	0
	Municipally Owned Recycling Facilities	0
	Annual Total Waste Collection (tonnes/yr)	6,335
Emergency Services (Fire)	Number of Fire Stations	1
	Number Management and Firefighters	46[1]
	Total Emergency Calls	407

[1]Note: Fort Saskatchewan Emergency Services (Fire) is in transition to a full time staffing configuration.

e) City of Leduc

Service Area	Parameter	Description
Water	Supply	ECPOR via CRSWSC
	Number of Reservoirs and Capacity	2 (North & South) 20.5 ML
	Required Storage Capacity (2017)	9.2 ML
	Average Annual Use (L/c/d)	
	Existing Issues or Constraints	
Wastewater	Discharge	EPCOR via ACRWC SERTS South
	Existing Issues or Constraints	
	Downstream Capacity Constraints	None
Stormwater	SWMF Design	1:100 year
	SWMF Release Rates	
	Receiving Watercourse	Whitemud Creek/Blackmud Creek
	Downstream Constraints	Capacity and erosion concerns
Transportation - Roadways	Major Connections	Highway 2
	Existing Issues or Constraints	65 Avenue Interchange, Spine Road/170, Highway 2A Re-Alignment
Transportation - Intermunicipal Transit	Park and Ride Locations	3 - Alexandra Arena, Leduc Recreation Center, Leduc County Centre
	Number of Routes	2 - Route 1 and Route 10
	Peak Hour Frequency	Every 27 minutes
	Hours of Service Daily	13
Solid Waste	Waste Streams Serviced	Garbage, Recycling, Organics
	Collection Provider	GFL Environmental
	Municipally Owned Transfer Stations	1 (yard waste)
	Municipally Owned Landfills	0
	Municipally Owned Organics Processing Facilities	0
	Municipally Owned Recycling Facilities	1
	Annual Total Waste Collection (tonnes/yr)	7,933
Emergency Services (Fire)	Number of Fire Stations	2
	Number Management and Firefighters	100
	Total Emergency Calls	4,972

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f) Leduc County including EIA

Service Area	Parameter	Description
Water	Supply	ECPOR via CRSWSC
	Number of Reservoirs and Capacity	2 (Nisku & EIA) 13.8 ML
	Required Storage Capacity (2017)	8.6 ML
	Average Annual Use (L/c/d)	N/A (non-residential)
	Existing Issues or Constraints	
Wastewater	Discharge	EPCOR via ACRWC SERTS South
	Existing Issues or Constraints	
	Downstream Capacity Constraints	None
Stormwater	SWMF Design	1:100 year
	SWMF Release Rates	
	Receiving Watercourse	Irvine Creek/Blackmud Creek
	Downstream Constraints	Capacity and erosion concerns
Transportation - Roadways	Major Connections	Highway 39/ 60, 19, 2A, 652; TWP 510
	Existing Issues or Constraints	Safety and capacity issues not on some of these highways. Existing issues or constraints should include 65th Avenue and lack of access to the QE2 (interchange is needed).
Transportation - Intermunicipal Transit	Park and Ride Locations	3 - Alexandra Arena, Leduc Recreation Center, Leduc County Centre (all shared lots)
	Number of Routes	2 - Route 1 and Route 10
	Peak Hour Frequency	Every 27 minutes
	Hours of Service Daily	8
Solid Waste	Waste Streams Serviced	Garbage, Recycling, Organics
	Collection Provider	GFL Environmental
	Municipally Owned Transfer Stations	8
	Municipally Owned Landfills	1
	Municipally Owned Organics Processing Facilities	0
	Municipally Owned Recycling Facilities	0
	Annual Total Waste Collection (tonnes/yr)	3,127
Emergency Services (Fire)	Number of Fire Stations	5
	Number Management and Firefighters	142
	Total Emergency Calls	713

Note: Leduc County Emergency Services (Fire) does not include EIA call statistics nor staffing and stations associated with EIA.

g) Town of Morinville

Service Area	Parameter	Description
Water	Supply	Morinville/Sturgeon/Legal Line from EPCOR
	Number of Reservoirs and Capacity	2 – (North & South) 16.6 ML
	Required Storage Capacity (2017)	4.3 ML
	Average Annual Use (L/c/d)	226
	Existing Issues or Constraints	100 L/s Morinville line interim capacity is being exceeded by Sturgeon, Legal and Morinville collectively during max day demand
Wastewater	Discharge	ACRWC via Morinville PS
	Existing Issues or Constraints	Wet weather storage facility constructed jointly with ACRWC to address wet weather flow issues
	Downstream Capacity Constraints	None
Stormwater	SWMF Design	
	SWMF Release Rates	1.65 L/s/ha
	Receiving Watercourse	Sturgeon River via Carrot Creek and Manawan Canal
	Downstream Constraints	Historic flooding on Highway 2 ditch that drains most of Morinville
Transportation - Roadways	Major Connections	Highway 2 Interchange, Cardiff Road
	Existing Issues or Constraints	Potential need to install an interchange at Cardiff Road
Transportation - Intermunicipal Transit	Park and Ride Locations	
	Number of Buses	
	Frequency	
	Existing Issues or Constraints	
Solid Waste	Waste Streams Serviced	Garbage, Recycling, Organics
	Collection Provider	GFL Environmental
	Municipally Owned Transfer Stations	0
	Municipally Owned Landfills	0
	Municipally Owned Organics Processing Facilities	1
	Municipally Owned Recycling Facilities	0
	Annual Total Waste Collection (tonnes/yr)	Not reported
Emergency Services (Fire)	Number of Fire Stations	1
	Number Management and Firefighters	42
	Total Emergency Calls	228

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h) Parkland County

	Parameter	Description
Water	Supply	ECPOR via CRPWSC
	Number of Reservoirs and Capacity	1 – (Acheson) 9.3 ML (excludes Entwhistle)
	Required Storage Capacity (2017)	
	Average Annual Use (L/c/d)	N/A (non-residential)
	Existing Issues or Constraints	New storage facility planned for Acheson
Wastewater	Discharge	Parkland Sanitary Transmission System (PSTS)
	Existing Issues or Constraints	ACRWC is planning on addressing capacity concerns in PSTS by diverting upstream flows to storage facility
	Downstream Capacity Constraints	Parkland PS and START (being addressed)
Stormwater	SWMF Design	1:100 year
	SWMF Release Rates	1.8 L/s/ha upstream of Hwy 16A, 2.5 L/s/ha downstream of Hwy 16A
	Receiving Watercourse	Atim Creek
	Downstream Constraints	Development has increased discharge downstream of Spruce Grove
Transportation - Roadways	Major Connections	Highway 60, 16A, 16, 628, 627
	Existing Issues or Constraints	Twinning and grade separation required (60, 16A, 19), not designated high load corridor (60, 16A, 19), partially poor surface condition (628), no direct highway connection to Anthony Henday constrains flows (627)
Transportation - Intermunicipal Transit	Park and Ride Locations	
	Number of Buses	
	Frequency	
	Existing Issues or Constraints	
Solid Waste	Waste Streams Serviced	Curbside Collection Service not offered, except in Entwistle
	Collection Provider	N/A
	Municipally Owned Transfer Stations	6
	Municipally Owned Landfills	0
	Municipally Owned Organics Processing Facilities	0
	Municipally Owned Recycling Facilities	4
	Annual Total Waste Collection (tonnes/yr)	7,564
Emergency Services (Fire)	Number of Fire Stations	5
	Number Management and Firefighters	156
	Total Emergency Calls	764

i) City of St. Albert

Service Area	Parameter	Description
Water	Supply	EPCOR
	Number of Reservoirs and Capacity	3 (Oakmont, Lacombe Park and Sturgeon Heights) 55.8 ML
	Required Storage Capacity (2017)	51 ML
	Average Annual Use (L/c/d)	286 (assuming similar to total EPCOR values)
	Existing Issues or Constraints	Looking at servicing potential future annexation areas
Wastewater	Discharge	ACRWC via St. Albert PS
	Existing Issues or Constraints	New trunk constructed to St. Albert PS; looking at servicing for potential future annexation areas
	Downstream Capacity Constraints	Twinning work underway on START
Stormwater	SWMF Design	1:100 year
	SWMF Release Rates	
	Receiving Watercourse	Sturgeon River (Carrot Creek ditches to be diverted to downstream Sturgeon River)
	Downstream Constraints	Carrot Creek has capacity and erosion issues
Transportation - Roadways	Major Connections	Ray Gibbon Drive, St. Albert Trail, LeClair Way, Boudreau Road, Ray Gibbon Drive
	Existing Issues or Constraints	Capacity, Delays (all connections)
Transportation - Intermunicipal Transit	Park and Ride Locations	2 – Village transit Center, St. Albert Center Exchange (shared lot) 1 – In planned (Campbell Road)
	Number of Routes	8 - Route 201, 202, 203, 204, 205, 206, 207, 208, 211 HandiBus and Charters also available
	Peak Hour Frequency	Every 15-30 minutes
	Hours of Service Daily	19
	Existing Issues or Constraints	Metro LRT crossing delays, CN Rail Crossing 170 St delays, increased demand and subscriptions to HandiBus service, demand exceeds capacity at both park and rides
Solid Waste	Waste Streams Serviced	Garbage, Recycling, Organics
	Collection Provider	GFL Environmental/City of St. Albert
	Municipally Owned Transfer Stations	1 (for Recycling and Organics)
	Municipally Owned Landfills	
	Municipally Owned Organics Processing Facilities	0
	Municipally Owned Recycling Facilities	0
	Annual Total Waste Collection (tonnes/yr)	19,870
Emergency Services (Fire)	Number of Fire Stations	3
	Number Management and Firefighters	98
	Total Emergency Calls	5,913

Service Area	Parameter	Description
Water	Supply	ECPOR via CRPWSC
	Number of Reservoirs and Capacity	2 (Zone 1 and 2) 48.3 ML
	Required Storage Capacity (2017)	
	Average Annual Use (L/c/d)	245
	Existing Issues or Constraints	Zone 2 reservoir storage recently commissioned
Wastewater	Discharge	Parkland Sanitary Transmission System (PSTS)
	Existing Issues or Constraints	ACRWC is planning on addressing capacity concerns in PSTS by diverting flows to storage facility (former Spruce Grove lagoons)
	Downstream Capacity Constraints	Parkland PS and START (being addressed)
Stormwater	SWMF Design	1:100 year
	SWMF Release Rates	1.8 L/s/ha upstream of Hwy 16A, 2.5 L/s/ha downstream of Hwy 16A
	Receiving Watercourse	Atim Creek, Dog Creek
	Downstream Constraints	Development has increased discharge downstream of Spruce Grove
Transportation - Roadways	Major Connections	Highway 628
	Existing Issues or Constraints	Poor roadway conditions, road surfacing required
Transportation - Intermunicipal Transit	Park and Ride Locations	2- Spruce Grove Agrena, Tri Leisure Center (all shared lots)
	Number of Routes	3- Route 560, 561, and 562
	Peak Hour Frequency	Every 15-30 minutes
	Hours of Service Daily	14
Solid Waste	Waste Streams Serviced	Garbage, Recycling, Organics
	Collection Provider	GFL Environmental
	Municipally Owned Transfer Stations	1 (Eco Centre)
	Municipally Owned Landfills	0
	Municipally Owned Organics Processing Facilities	0
	Municipally Owned Recycling Facilities	0
	Annual Total Waste Collection (tonnes/yr)	10,306
Emergency Services (Fire)	Number of Fire Stations	1
	Number Management and Firefighters	51
	Total Emergency Calls	5,489

k) Strathcona County

Service Area	Parameter	Description
Water	Supply	EPCOR
	Number of Reservoirs and Capacity	4 – (17 St, Mills Haven, Glen Allen and Southeast) 109.8 ML
	Required Storage Capacity (2017)	65 ML
	Average Annual Use (L/c/d)	198
	Existing Issues or Constraints	
Wastewater	Discharge	ACRWC via SERTS North
	Existing Issues or Constraints	Wet weather flow impact on SERTS North
	Downstream Capacity Constraints	ACRWC addressing SERTS North
Stormwater	SWMF Design	1:100 year
	SWMF Release Rates	1.8 L/s/ha to Irvine Creek, <=4.0 L/s/ha everywhere else in Strathcona
	Receiving Watercourse	NSR via Irvine Creek (Whitemud/Blackmud Creek), Mill Creek, Fulton Creek, Goldbar Crek, Clover Bar Creek.
	Downstream Constraints	Erosion and capacity constraints on most downstream creeks
Transportation - Roadways	Major Connections	Range Road 224, Highway 16 Cloverbar to Highway 21, Highway 16 Twp 225 to Highway 824
	Existing Issues or Constraints	At or near capacity on connections
Transportation - Intermunicipal Transit	Park and Ride Locations	2 – Ordze Transit Center, Bethel Transit Center
	Number of Routes	3 – 401, 403, 404, 411, 413, 414
	Peak Hour Frequency	Every 30 minutes
	Hours of Service Daily	18
	Existing Issues or Constraints	Both park and ride locations at capacity during peak times, Ordze two story facility impacts mobility of double decker's, operational concerns caused by traffic disruptions due to traffic
Solid Waste	Waste Streams Serviced	Garbage, Recycling, Organics
	Collection Provider	GFL Environmental
	Municipally Owned Transfer Stations	0
	Municipally Owned Landfills	0
	Municipally Owned Organics Processing Facilities	0
	Municipally Owned Recycling Facilities	3 (Eco Centers)
	Annual Total Waste Collection (tonnes/yr)	32,688
Emergency Services (Fire)	Number of Fire Stations	6
	Number Management and Firefighters	198
	Total Emergency Calls	8,665

I) Town of Stony Plain

Service Area	Parameter	Description
Water	Supply	ECPOR via CRPWSC
	Number of Reservoirs and Capacity	2 (Meridian and High Park) 19.2 ML
	Required Storage Capacity (2017)	
	Average Annual Use (L/c/d)	245
	Existing Issues or Constraints	
Wastewater	Discharge	Parkland Sanitary Transmission System (PSTS)
	Existing Issues or Constraints	ACRWC is planning on addressing capacity concerns in PSTS by diverting flows to storage facility (former Spruce Grove lagoons)
	Downstream Capacity Constraints	Parkland PS and START (being addressed)
Stormwater	SWMF Design	1:100 year
	SWMF Release Rates	1.8 L/s/ha upstream of Hwy 16A, 2.5 L/s/ha downstream of Hwy 16A
	Receiving Watercourse	Atim Creek
	Downstream Constraints	Development has increased discharge downstream of Spruce Grove
Transportation - Roadways	Major Connections	Highway 16A, Highway 16
	Existing Issues or Constraints	None
Transportation - Intermunicipal Transit	Park and Ride Locations	
	Number of Buses	
	Frequency	
	Existing Issues or Constraints	
Solid Waste	Waste Streams Serviced	Garbage, Recycling, Organics
	Collection Provider	GFL Environmental
	Municipally Owned Transfer Stations	0
	Municipally Owned Landfills	0
	Municipally Owned Organics Processing Facilities	0
	Municipally Owned Recycling Facilities	1 (Recycling Depot)
	Annual Total Waste Collection (tonnes/yr)	Not Reported
Emergency Services (Fire)	Number of Fire Stations	1
	Number Management and Firefighters	50
	Total Emergency Calls	303

m) Sturgeon County

Service Area	Parameter	Description
Water	Supply	EPCOR, directly and via Morinville Line and via CRNWSC
	Number of Reservoirs and Capacity	8 (6 on Morinville Line -Alcomdale, Cardiff, Landing Trail, Northern Lights, Summerbrook, and Villeneuve; Sturgeon Industrial Park; and Allin Ridge) - 15.7 ML
	Required Storage Capacity (2017)	n/a (distribution systems not connected)
	Average Annual Use (L/c/d)	266 L/c/d on CRNWSC
	Existing Issues or Constraints	Capacity in Morinville Line is a constraint; several communities do not have fire protection
Wastewater	Discharge	ACRWC via Morinville PS, St. Albert PS, START and NERTS
	Existing Issues or Constraints	Sturgeon Valley local system upgraded in 2017
	Downstream Capacity Constraints	START being upgraded by ACRWC
Stormwater	SWMF Design	
	SWMF Release Rates	2.5 L/s/ha for Sturgeon River (north of 16A)
	Receiving Watercourse	Sturgeon River and North Saskatchewan River
	Downstream Constraints	Erosion potential for creeks connecting to NSR
Transportation - Roadways	Major Connections	Highway 37, Highway 2, Highway 28, Highway 633, Highway 825
	Existing Issues or Constraints	Roadway classification system is being updated to reflect IRTMP standards.
Transportation - Intermunicipal Transit	Park and Ride Locations	
	Number of Buses	
	Frequency	
	Existing Issues or Constraints	
Solid Waste	Waste Streams Serviced	Drop-off only
	Collection Provider	Not Applicable
	Municipally Owned Transfer Stations	0
	Municipally Owned Landfills	0
	Municipally Owned Organics Processing Facilities	0
	Municipally Owned Recycling Facilities	0
	Annual Total Waste Collection (tonnes/yr)	7,875
Emergency Services (Fire)	Number of Fire Stations	5
	Number Management and Firefighters	95
	Total Emergency Calls	871

10.3 Regional Profile

The regional profile provides a brief description of the seven service areas across the region as a whole. It is presented in Table 10.2 below.

Table 10.2:   Regional Profile

Service Area	Component	Description
Water	Water Treatment Plants	3 – E.L. Smith, Rossdale, Devon
	Annual Water Treated (includes non-EMRB)	366 MLD
	Average Per Capita Water Use (including non-residential)	285 L/c/d
	Current Water Servicing Issues	None - EPCOR and water commissions are expanding transmission capacity incrementally when needed; water conservation has deferred WTP expansion
Wastewater	Wastewater Treatment Plants	3 – Gold Bar WWTP, ACRWC WWTP, Devon WWTP
	Total Wastewater Treated (includes non-EMRB)	358 MLD
	Average Wastewater Generated (including non-residential)	291 L/c/d
	Current Wastewater Servicing Issues	ACRWC working with its members to reduce inflow/infiltration; EPCOR implementing its sanitary servicing strategy with all south flows going to Gold Bar WWTP
Stormwater	Intermunicipal Stormwater Infrastructure	None
	Key Intermunicipal Stormwater Systems	Atim Creek/Big Lake/Sturgeon River, Whitemud/Blackmud Creek, North Saskatchewan River
	Range of Release Rates (L/s/ha)	0.6 to 6.8 L/s/ha
	Current Stormwater Servicing Issues	Limited intermunicipal stormwater planning and no centralized regional planning; planning is ad hoc on a watershed specific basis (e.g. Whitemud/Blackmud Creeks); stormwater discharges to creeks impacts downstream erosion rates; no consistency in design standards
Transportation - Roads	Major East-West Intermunicipal Roadways	Yellowhead Trail, Whitemud Drive/Hwy 628, Anthony Henday Drive, Hwy 19/625, Hwy 37
	Major North-South Intermunicipal Roadways	Hwy 2, Anthony Henday Drive, Hwy 60, Hwy 44, Hwy 21, Hwy 814, Hwy 28, Hwy 28A
	Current Intermunicipal Roadway Issues	Cardiff/Hwy 2, 65 Avenue/Hwy 2, Hwy 628, Hwy 15/21/NERC, Hwy 39/60, Hwy 60, 50 Street (Beaumont), 170th (extension), St. Albert Trail, Ray Gibbon Drive, RR 224
Transportation – Transit	Number of Intermunicipal Transit Systems	7 – St. Albert, CFB/EIT Edmonton, Fort Saskatchewan, Strathcona, Beaumont, Leduc, Spruce Grove
	Total peak am/pm Intermunicipal Users	am: 3774 | pm:3786
	Current Intermunicipal Transit Issues	New Intermunicipal Transit Commission announced by Edmonton and St. Albert
Solid Waste	Waste Streams Serviced	Garbage, Recycling, Organics
	Regionally Owned Transfer Stations	35
	Regionally Owned Landfills	8
	Regionally Owned Organics Processing Facilities	5
	Regionally Owned Recycling Facilities	1
	Regionally Owned Energy from Waste Facilities	2
	Regional Annual Total Waste Collection (tonnes/yr)	415,876
Emergency Services (Fire)	Total Fire Stations	61
	Total Management and Firefighters	~2,153

Service Area	Component	Description
	Total Emergency Calls	~79,320
	Total Net Surplus (Cost)	-$277,588,836
	Integrated Services	4
	Career or Fulltime Services	5

Note 1: Integrated is meant to imply the provision of Fire/EMS and Ambulance services
Note 2: Career or Full time is meant to imply the primary staffing configuration.

10.4 Service Area Profiles

More detailed profiles of each of the seven service areas are presented in Tables 10.3a to 10.3g below.

Table 10.3:   Service Area Profiles
a) Water

Treatment	EPCOR's E.L. Smith and Rossdale Water Treatment Plants treat 97% of the EMRB's water; Devon is the only EMRB municipality that treats its own water. The existing WTP have capacity for existing development within the region provided that municipalities conserve water during periods of peak water demand (e.g. extended periods of hot, dry weather).
Pumping & Transmission	EPCOR pumps from its WTP to its City of Edmonton transmission system, which connect to regional pumping facilities/transmission mains Additional capacity is added by twinning the transmission mains, adding pumps, or both.
Storage	There are over 30 municipal reservoirs providing potable water storage for major residential and industrial areas within the EMRB area. These reservoirs generally have capacity for the current level of development for equalization, emergency and fire flow storage.
Governance	EPCOR is 100% owned by the City of Edmonton and has an agreement with the Regional Water Customers Group for providing water to three water commissions and 4 EMRB municipalities.

b) Wastewater

Treatment	EPCOR's Gold Bar WWTP and the Alberta Capital Region Wastewater Commission's ACRWWTP treat 97% of the EMRB's water; Devon is the only EMRB municipality that treats its own wastewater. The existing WWTP have capacity for existing development within the region and can be expanded to accommodate growth as needed. The Gold Bar WWTP also treats combined sewer (stormwater & wastewater) flows from central Edmonton.
Pumping & Transmission	The ACRWC collects wastewater from 11 EMRB municipalities and conveys it to its WWTP or to the City of Edmonton (Beaumont, Leduc City & County) through 150 km of transmission mains and four pump stations. EPCOR collects the ACRWC South flows plus most City of Edmonton flows and conveys it to the Gold Bar WWTP via gravity trunks (includes two major pump stations). The northeast part of Edmonton (Clareview and Pilot Sound) are serviced to the ACRWC WWTP.
Governance	EPCOR is 100% owned by the City of Edmonton, and the City has a wastewater exchange agreement with the ACRWC for providing transmission and treatment services to each other. The City of Edmonton (now EPCOR) and the ACRWC carry out joint wastewater system planning on a regular basis.

c) Stormwater

Intermunicipal Stormwater Infrastructure	There is no stormwater infrastructure that has been constructed specifically to provide intermunicipal servicing. Some infrastructure has been constructed to address historic developments without adequate stormwater management but they are not considered to be regional in nature.
Creeks, Rivers, and Lakes	The North Saskatchewan River drains virtually all of the EMRB area, including the following major watercourses that are regionally significant: Atim Creek/Big Lake/Sturgeon River, and Whitemud/Blackmud Creek. There are a number of creeks that are also important on an intermunicipal basis, such as Mill, Fulton, Gold Bar, Clover Bar and Ross Creeks. These creeks are critical for intermunicipal conveyance of stormwater flows.

Stormwater Management Facilities	While there are no regional SWMF, the municipal SWMF are critical for capturing and slowly releasing stormwater at a pre-development rates, eventually discharging to downstream creeks or rivers. SWMF (wet lakes and wetlands) also provide treatment of stormwater to protect downstream ecosystems.
Erosion	Erosion is a natural process in creeks and rivers, but the rate of erosion can increase substantially with increases in peak stormwater runoff rates and volumes from urban development. Controlling stormwater runoff to pre-development rates does not fully address the impact of development on erosion rates due to the increase in annual runoff volumes in the creeks. This can be mitigated by utilizing very low SWMF release rates, utilizing piped diversions around creeks, or constructing erosion control measures in the creeks.
Stormwater Quality	The City of Edmonton (now EPCOR) has been working with AEP for the past 25 years to address the impact of its stormwater discharges on the creeks and river, including an extensive water quality monitoring program. Other municipalities have adopted stormwater quality initiatives on an ad hoc basis. There is no centralized monitoring program or common design standards or strategies to address stormwater quality.
Governance	There is no formal stormwater governance in the region except for by Alberta Environment and Parks as the provincial stormwater regulator. Municipalities have worked together on an ad hoc basis to study specific watershed planning studies (e.g. Big Lake, Whitemud/Blackmud) and then establish SWMF discharge rates with AEP. Edmonton, Leduc City/County, Beaumont and Strathcona are currently working with AEP to establish a "fenceline" approval for development in the Whitemud/Blackmud watershed.

d) Transportation - Roadways

Major Roadways	Yellowhead Trail, Whitemud Drive/Hwy 628, Anthony Henday Drive, Hwy 19/625, Hwy 37, Hwy 2, Anthony Henday Drive, Hwy 60, Hwy 44, Hwy 21, Hwy 814, Hwy 28, and Hwy 28A.
Air Transportation	EIA, Villeneuve, and Josephburg.
Over-dimensional Routes	Alberta Transportation high load corridors, municipal truck routes, and dangerous goods routes.
Rail	Canadian National and Canadian Pacific.
Major Concerns	A major North Saskatchewan River crossing that supports a north/south over-dimensional vehicles route (high, heavy, long, and wide) is needed for goods movement in the region. Interchanges at Highway 2/65 Avenue (Leduc) and Highway 2/Cardiff Road (Morinville) note as concerns. 65 Avenue interchange could spur growth of Aerotropolis (Leduc County, City of Leduc). St. Albert is constrained with a majority of connections at capacity (St. Albert Trail, Ray Gibbon Drive). Strathcona County connections from Sherwood Park also noted as being near capacity. Other roadways include Highway 19 (twinning), Highway 60 (as heavy haul road), 50 Street (Beaumont to Edmonton), Highway 39/60 (intersection improvements) and need for Nisku Spine Road and 170 Street extension.

e) Transportation - Transit

Number of Intermunicipal Transit Systems	7 – Beaumont, CFB/EIA Edmonton, Fort Saskatchewan, Leduc, St. Albert, Strathcona County, and Spruce Grove.
Peak Hour Frequency of Service	Peak hour busses are available every 15 to 30 minutes on average.
Hours of Service Daily	Intermunicipal transit routes are available for 8 to 12 hours per day on average. This covers peak hour, midday, and evening trips. Transit routes traveling to Downtown Edmonton are available for the longest period of time likely due to its connection to the LRT and Edmonton busses.
Total am/pm Intermunicipal Users	There are a total of 3774 intermunicipal transit users during the am peak hour and 3786 during the pm peak hour. Strathcona County and St. Albert make up the majority of the users at over 45% and 40% respectively.

f) Solid Waste

Waste Services	Most municipalities provide automated curbside collection for garbage, recycling, and organics. Services are primarily provided by GFL Environmental, or in some cases the municipality or an alternate contracted service provider
Solid Waste Disposal Options	Garbage is disposed of at one of the regional landfills, or else at a private facility. Organics and recyclables are also primarily processed by a private facility, with the exception of the City of Edmonton and the City of Fort Saskatchewan.
Intermunicipal Agreements	Very few intermunicipal agreements are in place for solid waste, with the exception of the Roseridge Waste Commission, and the Leduc Waste Management Authority.

g) Emergency Services (Fire)

Service Levels	Varies across member municipalities.
Agreements	Appears to vary significantly across member municipalities; however, additional data and information required.
Service Costs	Cannot not be qualified nor quantified at this time given the data and information provided and inability to effectively analyze the known variance in financial and accounting practices.
Service Capacity	Varies significantly across member municipalities.