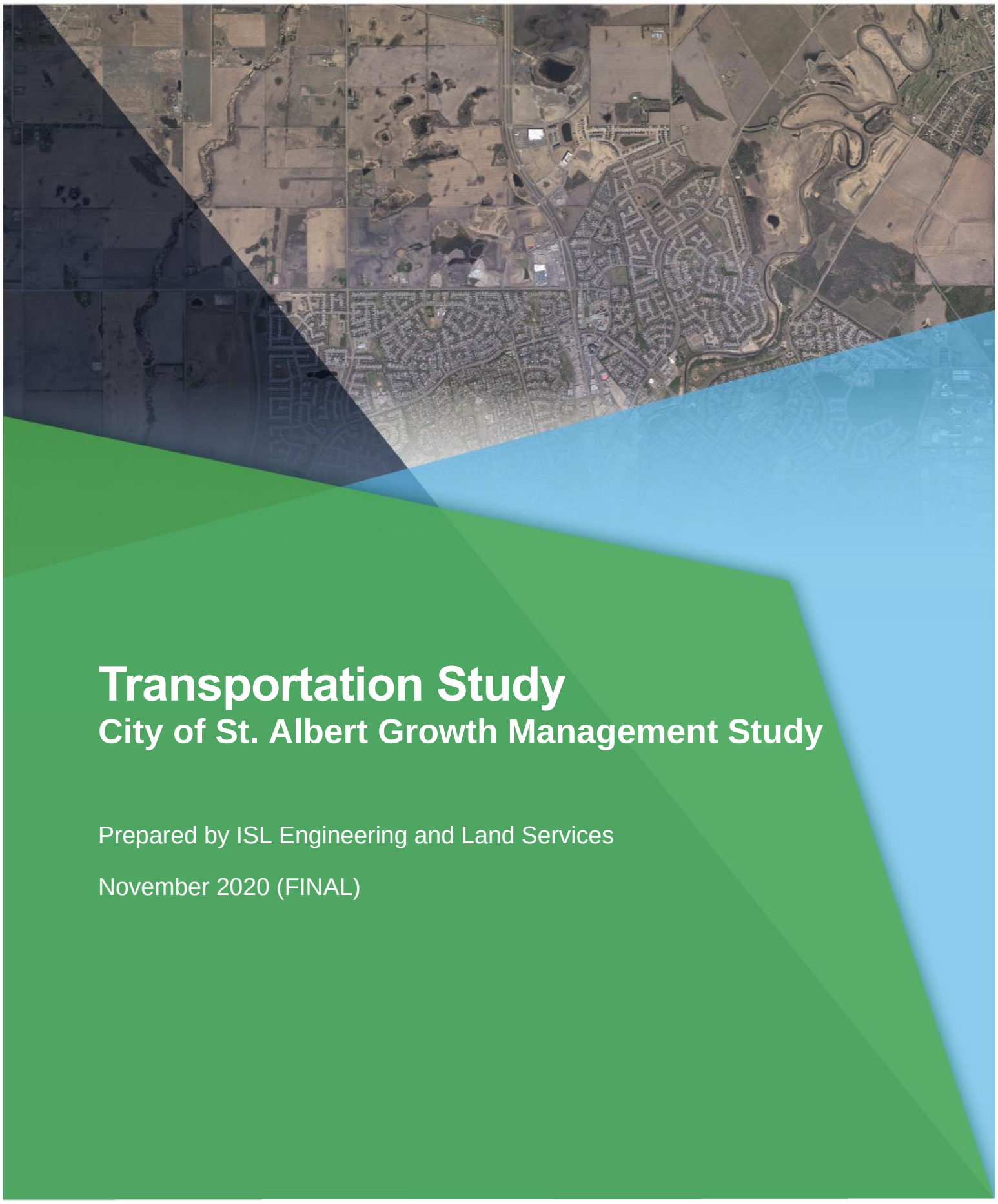
APPENDIX F
2020 Transportation Study

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Transportation Study

City of St. Albert Growth Management Study

Prepared by ISL Engineering and Land Services

November 2020 (FINAL)

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Appendix F.1: 127 Street Assessment

1.0 Transportation Network

1.1. Regional Roads

Map F.1 illustrates the Maximum Potential Annexation Area (MPAA), which combined with the City of St. Albert's current municipal boundaries comprise the overall study area for this Transportation Study. Map F.1 also shows the following roads within and adjacent to the overall study area that were identified by the Edmonton Metropolitan Region Board (EMRB) as regionally significant roads in its 2011 Integrated Regional Transportation Master Plan (IRTMP). These were carried forward as regionally significant roads by the EMRB in its 2016 Edmonton Metropolitan Region Growth Plan (EMRGP).

Ray Gibbon Drive

Ray Gibbon Drive is a two-lane undivided signalized arterial roadway through the west portion of St. Albert. It originates at Anthony Henday Drive as a continuation of the City of Edmonton's 184 Street and terminates at Villeneuve Road. Traffic demand on Ray Gibbon Drive is currently exceeding capacity, with the City considering options to widen it to a four-lane arterial with a maximum speed of 90 km/hr. Ray Gibbon Drive is planned to ultimately be a six-lane freeway extending north to Highway 2 between Highway 37 and Highway 642 near Morinville. Ray Gibbon Drive is classified as a regional freeway in the IRTMP, which is generally defined as a type of arterial road designed for rapid and conflict-free movement of people and goods. Freeway speeds are typically from 80 km/hr to 110 km/hr.

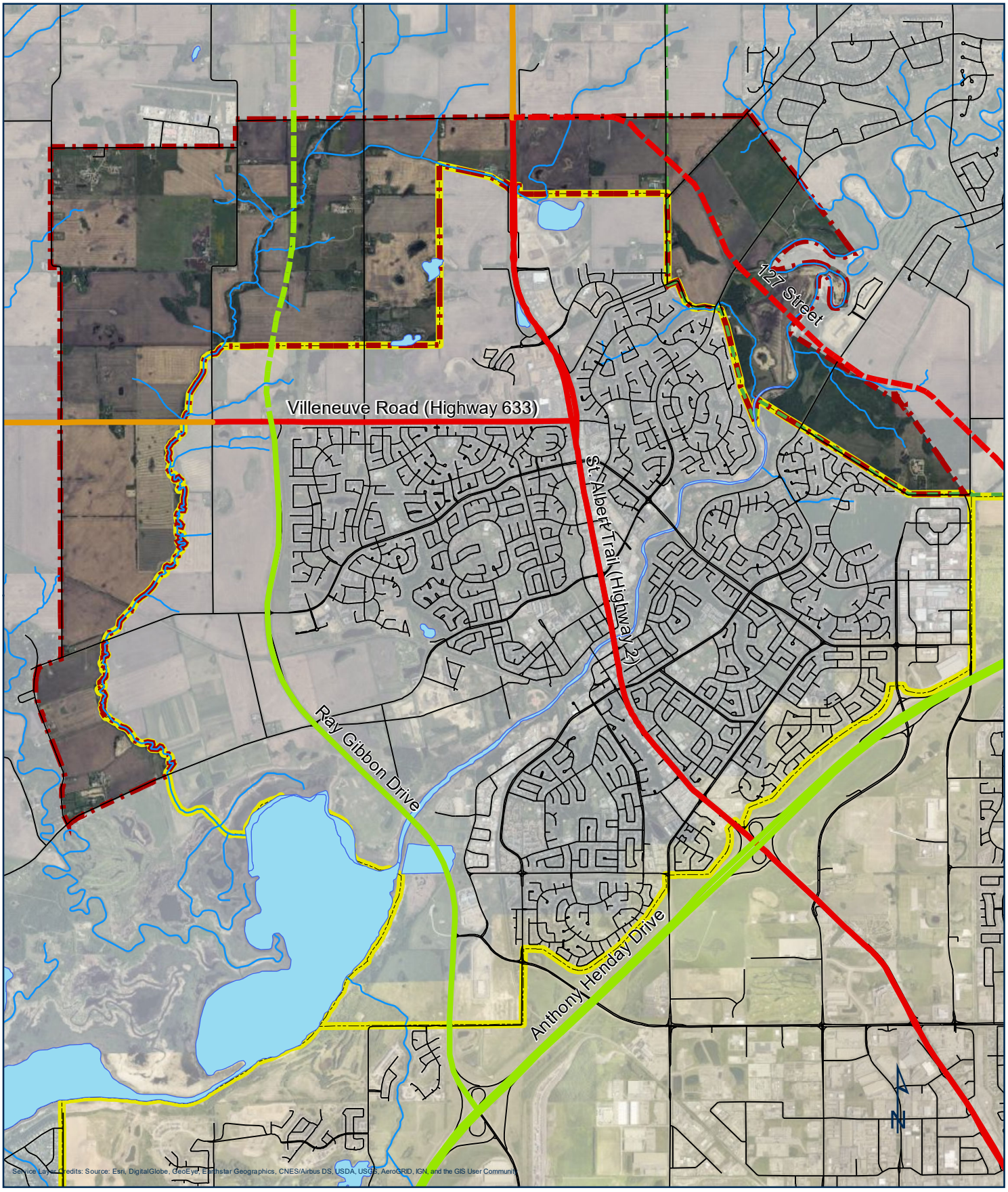
A cost sharing agreement between the Government of Alberta and the City of St. Albert was announced in February 2019 to widen Ray Gibbon Drive to four lanes.

St. Albert Trail (Highway 2)

St. Albert Trail is the portion of Highway 2 that runs north-south bisecting St. Albert. It is classified as a regional arterial in the IRTMP, which is generally defined as a roadway that provides a relatively high number of people and goods from one part of a municipality to another, typically with connections to collector and local roadways. Arterial roads should be designed with vehicles, buses, pedestrian, and cyclists elements. The northern portion of St. Albert Trail within the study area is a four-lane divided signalized roadway with a 20-metre median.

Villeneuve Road (Highway 633)

Villeneuve Road is a two-lane undivided portion of Highway 633 that bisects the northern portion of St. Albert. It originates off St. Albert Trail and continues west towards the study area. Currently all intersections are unsignalized except at Ray Gibbon Drive and St. Albert Trail. There are several commercial accesses onto the north side of Villeneuve Road near St. Albert Trail. East of Ray Gibbon Drive, Villeneuve Road is classified as a regional arterial in the IRTMP.



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City of St. Albert Cultivate Life

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- Municipal Boundary
- Maximum Potential Annexation Area
- Sturgeon Valley Area Structure Plan
- Parcel
- Water Body
- Watercourse
- Regional Arterial
- Regional Expressway
- Regional Freeway
- Other Roadway
- Regional Arterial (Future)
- Regional Freeway (Future)

ST. ALBERT GROWTH MANAGEMENT STUDY: TRANSPORTATION STUDY

MAP F.1: MAXIMUM POTENTIAL ANNEXATION AREA AND REGIONALLY SIGNIFICANT ROADS

West of Ray Gibbon Drive, Villeneuve Road is classified as a regional expressway in the IRTMP, which is generally defined as a form of arterial roadways that operate at higher speeds than arterials with no direct property access. Expressways are typically intended to operate at speeds of 70 – 100 km/hr with intersections 800 – 1,600 m apart.

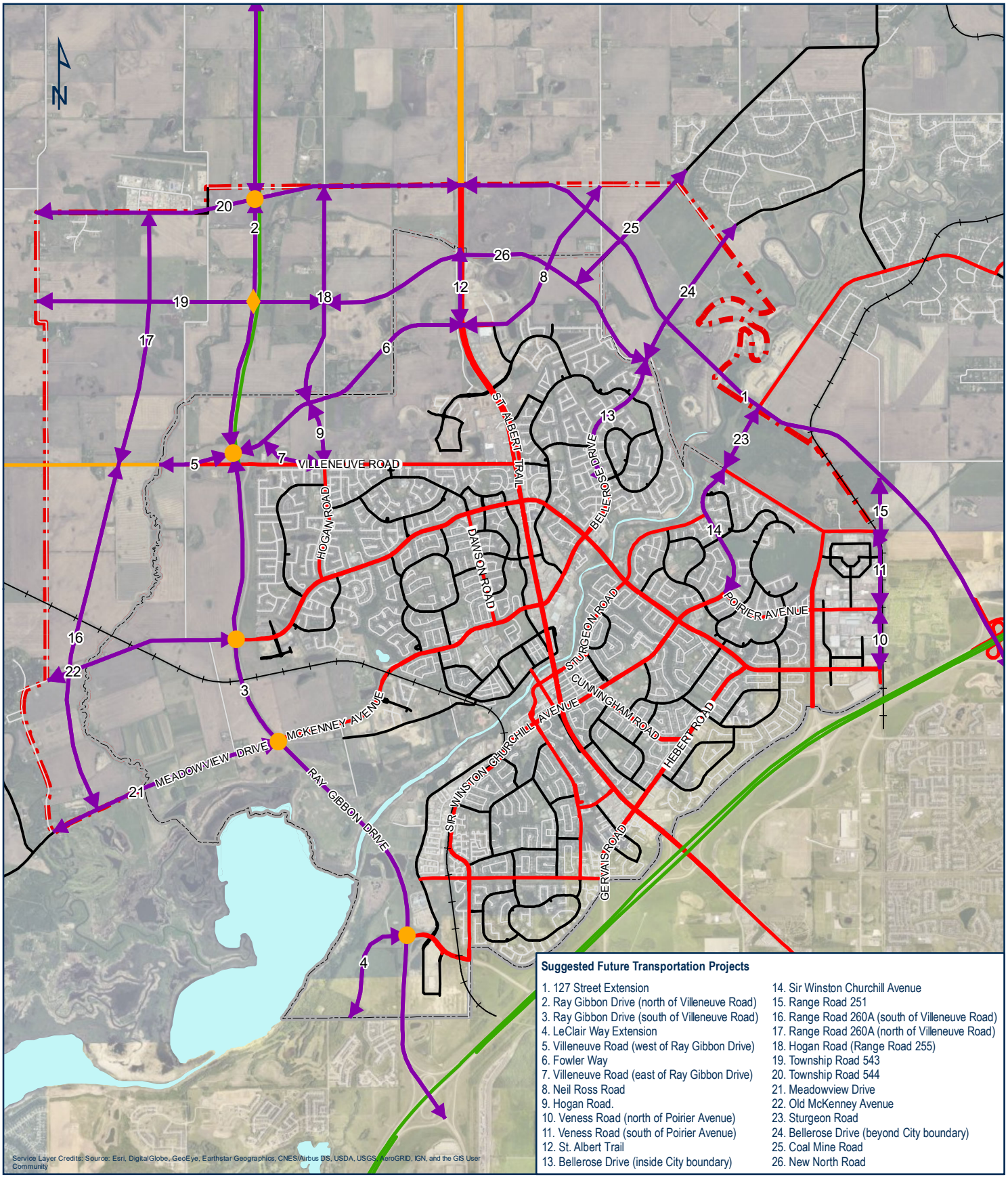
127 Street

127 Street is currently a four-lane arterial within Edmonton that connects with the northwest Anthony Henday via an interchange. It then branches off into a two-lane roadway connecting into the Sturgeon Valley. While 127 Street is currently outside of the City's boundary, there are plans for the roadway to extend northward to ultimately connect with Highway 2. The extension of 127 Street from Anthony Henday Drive to Highway 2 is identified as a regional arterial in the IRTMP. Regional arterial roadways are intended to operate at lower speeds than regional expressways, with intersection spacing varying widely, but generally within 250 – 400 m depending on adjacent development. A high level traffic analysis to assess the need for extending 127 Street across the Sturgeon River to support full build-out of the northeast portion of the MPAA is presented in an appendix to this report.

1.2. Future Roadway Network

Improvements and additions to the City's current roadway network will be required to support its future growth. Several future roadway improvements have been planned within or near St. Albert's current boundary. Many of these projects are included within St. Albert's 2017 Off-Site Levy Update. For the purpose of this study, additional roadways and improvements have been added to create an arterial system spaced approximately one mile apart and to support future growth within the study area. These suggested future transportation projects are presented in Map F.2 and summarized in Table F.1. Descriptions of the suggested future projects are provided below.

- **127 Street Extension (1):** A functional study was conducted for Sturgeon County by ISL Engineering and Land Services in 2012 to extend 127 Street from Anthony Henday to Highway 2. While this project resides in Sturgeon County, the current suggested alignment passes through a large portion of St. Albert's MPAA and will provide increased connectivity to potential future developments within the northern limits of the MPAA. 127 Street is identified as a regionally significant roadway in the IRTMP. It is classified as a regional arterial.
- **Ray Gibbon Drive (2-3):** Traffic demand on Ray Gibbon Drive is currently exceeding capacity, with the City considering options to widen to a four-lane roadway. Ray Gibbon Drive is planned to ultimately be a six-lane freeway extending north to Highway 2 between Highway 37 and Highway 642 near Morinville.
- **LeClair Way Extension (4):** The current LeClair Way will be extended as an arterial west of Ray Gibbon Drive as a continuation of the City of Edmonton's 137 Avenue.
- **Villeneuve Road (5 & 7):** West of Ray Gibbon Drive, Villeneuve Road will convert the current two-lane rural roadway into a four-lane undivided roadway from Ray Gibbon Drive to the western municipal boundary. East of Ray Gibbon Drive, it is planned to be



Suggested Future Transportation Projects

1. 127 Street Extension
2. Ray Gibbon Drive (north of Villeneuve Road)
3. Ray Gibbon Drive (south of Villeneuve Road)
4. LeClair Way Extension
5. Villeneuve Road (west of Ray Gibbon Drive)
6. Fowler Way
7. Villeneuve Road (east of Ray Gibbon Drive)
8. Neil Ross Road
9. Hogan Road.
10. Veness Road (north of Poirier Avenue)
11. Veness Road (south of Poirier Avenue)
12. St. Albert Trail
13. Bellerose Drive (inside City boundary)
14. Sir Winston Churchill Avenue
15. Range Road 251
16. Range Road 260A (south of Villeneuve Road)
17. Range Road 260A (north of Villeneuve Road)
18. Hogan Road (Range Road 255)
19. Township Road 543
20. Township Road 544
21. Meadowview Drive
22. Old McKenney Avenue
23. Sturgeon Road
24. Bellerose Drive (beyond City boundary)
25. Coal Mine Road
26. New North Road

City of St. Albert Cultivate Life

- Municipal Boundary
- Maximum Potential Annexation Area
- Water Body/Watercourse
- Railroad
- Freeway
- Expressway
- Arterial
- Collector
- Other
- Levy Project
- Flyover
- Interchange

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ST. ALBERT GROWTH MANAGEMENT STUDY: TRANSPORTATION STUDY

MAP F.2: SUGGESTED FUTURE TRANSPORTATION PROJECTS

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realigned during the construction of Fowler Way between Ray Gibbon Drive and Hogan Road to create a 90-degree intersection with Fowler Way. The existing segment of Villeneuve Road between Hogan Road and Project 5 is planned to be removed.

- **Fowler Way (6):** Fowler Way is a planned east-west arterial roadway in northern St. Albert connecting St. Albert Trail to Ray Gibbon Drive. The Fowler Way Functional Alignment Study was completed August 2018. The current suggested alignment has a portion of the roadway bisecting the MPAA.
- **Neil Ross Road (8):** The current Neil Ross Road is approximately 350 m long and serves as an access to a Costco and an apartment complex. The 2017 St. Albert Off-Site Levy Update extends the existing Neil Ross Road northeast to tie into Township Road 544.
- **Hogan Road (9):** Hogan Road is currently a two-lane rural gravel road running north of Villeneuve Road. The City of St. Albert has included upgrades to Hogan Road to a four-lane undivided arterial in its 2017 Off-Site Levy Update.
- **Veness Road (10-11):** Veness Road is currently a two-lane paved undivided roadway that serves the adjacent Campbell Business Park in the eastern side of St. Albert. The City of St. Albert has included upgrades to Veness Road to a four-lane undivided arterial in its 2017 Off-Site Levy Update.
- **St. Albert Trail (12):** The urbanization of St. Albert Trail from Villeneuve Road to the northern municipal boundary was included in St. Albert's 2017 Off-Site Levy Update.
- **Bellerose Drive (13):** Branching northeast off of St. Albert Trail north of the Sturgeon River, Bellerose Drive narrows from a four-lane to a two-lane roadway north of Oakmount Drive. The City of St. Albert has included upgrades to Bellerose Drive to a four-lane undivided arterial up to the municipal boundary in its 2017 Off-Site Levy Update. The upgrades have been extended to the MPAA's limits to accommodate future growth in the area (see 24 below).
- **Sir Winston Churchill Avenue (14):** Similar to Bellerose Drive, this roadway extends northeast across St. Albert and narrows from a four-lane to a two-lane roadway north of Poirier Avenue. The City of St. Albert has included upgrades to Sir Winston Churchill Avenue to a four-lane undivided arterial up to the municipal limits in its 2017 Off-Site Levy Update. The upgrades have been extended to the MPAA's limits to accommodate potential future growth in the area (see 23 below). Note the roadway's name changes from Sir Winston Churchill Avenue to Sturgeon Road past the City's current municipal limits.
- **Range Road 251 (15):** Currently a two-lane gravel rural road on the east side of St. Albert, upgrades to Range Road 251 are proposed to connect the roadway to the future 127 Street extension. This will provide additional traffic capacity to the easternmost portion of the MPAA.
- **Range Road 260A (16-17):** This is a suggested new arterial connection through the MPAA to the west of St. Albert between Range Road 261 and 260. This new arterial would extend from Meadowview Drive to Township Road 544. The project would be divided into two parts at Villeneuve Road to be completed separately based on future annexation and transportation needs. This new arterial is suggested to maintain a one-mile arterial spacing, particularly south of Villeneuve Road as there is currently no east-

west connection in the proposed alignment of Ray Gibbon Drive between Villeneuve Drive and Township Road 544.

- **Hogan Road (Range Road 255) (18):** Currently a two-lane rural gravel road, upgrades of Hogan Road to a four-lane undivided arterial roadway are suggested to maintain a one-mile arterial spacing in the MPAA.
- **Township Road 543 (19):** This is a suggested new arterial roadway in the northwest between Villeneuve Road and Township Road 544 spanning from Range Road 261 to Hogan Road. This new arterial is suggested to maintain a one-mile arterial spacing.
- **Township Road 544 (20):** Currently a two-lane rural gravel road, upgrades of Township Road 544 to a 4-lane undivided arterial roadway are suggested from Range Road 261 to St. Albert Trail. This roadway will serve as St. Albert's new boundary road that will align with the planned future 127 Street extension. Minor roadway realignment is required to accommodate higher speeds and traffic at the Range Road 260 intersection. Township Road 544 will tie into Ray Gibbon Drive via an interchange.
- **Meadowview Drive, Old McKenney Avenue, and Coal Mine Road (21, 22 & 25):** These roads are all currently two-lane paved roads running either west or northeast out of the current municipal limits. Upgrades to four-lane undivided arterial roadways are suggested to maintain a one-mile arterial spacing in the MPAA.
- **Sturgeon Road and Bellerose Drive (23 & 24):** These are both currently two-lane rural paved roads that connect St. Albert to the northeast portion of the MPAA. The roadways primarily serve the residential communities in Sturgeon Valley. Upgrades to four-lane undivided arterial roadways are suggested to maintain a one-mile arterial spacing in the MPAA.
- **New North Road (26):** This is a new east-west arterial roadway that will connect with Township Road 543 at St. Albert Trail then continue east terminating at Bellerose Drive to maintain the half-mile to one-mile spacing.

Table F.1: Suggested Future Transportation Projects

No.	Project Location	Project Description	Length (m)	Road Authority
1	127 Street extension	Greenfield to four-lane divided	7,250	Sturgeon County*
2	Ray Gibbon Drive - connection north of Villeneuve Road to Highway 37	Extension, ultimate freeway	6,700	Alberta Transportation*
3	Ray Gibbon Drive - widening from 137 Avenue to Villeneuve Road (from two to four lanes)	two-lane to four-lane undivided (4-LAUD)	8,200	St Albert*
4	West LeClair Way - City of Edmonton limits to Ray Gibbon Drive	two-lane to 4-LAUD	1,500	St. Albert†
5	Villeneuve Road - west City limits to Ray Gibbon Drive	two-lane rural to 4-LAUD	800	St. Albert†

No.	Project Location	Project Description	Length (m)	Road Authority
6	Fowler Way - Ray Gibbon Drive to St. Albert Trail	Greenfield to 4-LAUD	4,700	St. Albert*
7	Connection to Fowler Way off of Villeneuve Road	Greenfield to 4-LAUD	500	St. Albert‡
8	Neil Ross Road - St. Albert Trail to Coal Mine Road	Greenfield to 4-LAUD	2,500	St. Albert†
9	Hogan Road - Villeneuve Road to north City limits	two-lane rural to 4-LAUD	900	St. Albert†
10	Veness Road - Boudreau Road to Corriveau Avenue	two-lane rural to 4-LAUD	650	St. Albert†
11	Veness Road - Corriveau Avenue to Poundmaker Road	two-lane rural to 4-LAUD	900	St. Albert†
12	St. Albert Trail - Fowler Way/Neil Ross Road to north City limits	Urbanization of existing highway	1,190	St. Albert†
13	Bellerose Drive - twinning to City limits	Second two lanes of 4-LAUD	1,700	St. Albert†
14	Sir Winston Churchill Avenue - twinning to City limits	Second two lanes of 4-LAUD	1,700	St. Albert†
15	Range Road 251 - arterial conversion to future 127 Street extension	Greenfield to 4-LAUD	900	St. Albert‡
16	Range Road 260A - new roadway from Villeneuve Road to Township Road 544	Greenfield to 4-LAUD	3,000	St. Albert‡
17	Range Road 260A - new roadway from Meadowview Drive to Villeneuve Road	Greenfield to 4-LAUD	4,000	St. Albert‡
18	Hogan Road (Range Road 255) - arterial conversion	two-lane rural to 4-LAUD	2,500	St. Albert‡
19	Township Road 543 - new roadway from Range Road 261 to Hogan Road	Greenfield to 4-LAUD	3,400	St. Albert‡
20	Township Road 544 - arterial conversion	two-lane rural to 4-LAUD	5,000	St. Albert‡
21	Meadowview Drive - arterial conversion	two-lane rural to 4-LAUD	2,500	St. Albert‡

No.	Project Location	Project Description	Length (m)	Road Authority
22	Old McKenney Ave - arterial conversion	two-lane rural to 4-LAUD	2,600	St. Albert‡
23	Sturgeon Road - arterial conversion	two-lane rural to 4-LAUD	750	St. Albert‡
24	Bellerose Drive -- Arterial Conversion	two-lane rural to 4-LAUD	1,600	St. Albert‡
25	Coal Mine Road - Range Road 253 to New North Road	two-lane rural to 4-LAUD	1,600	St. Albert‡
26	New North Road	Greenfield to 4-LAUD	4,400	St. Albert‡

Notes:
* Project from an existing functional study.
† Project from the City of St. Albert 2017 Off-Site Levy Update, March 19, 2018.
‡ Project added to support potential future growth.

2.0 Transportation Serviceability

2.1 Methodology

The transportation serviceability of units of land within a potential annexation area is often determined based on each unit of land's proximity to existing transportation infrastructure. Capacity is also considered in this study, as proximity to an existing roadway has no value if the existing roadway has no capacity for the additional volume generated from new development. The capacity of existing roadways adjacent to the MPAA were calculated using Synchro, a traffic operations modelling software. Each unit of land in the MPAA, typically the size of a quarter section, was then given a ranking from 1-10 based on its proximity to transportation infrastructure and the infrastructure's capacity, with 1 being the highest ranking.

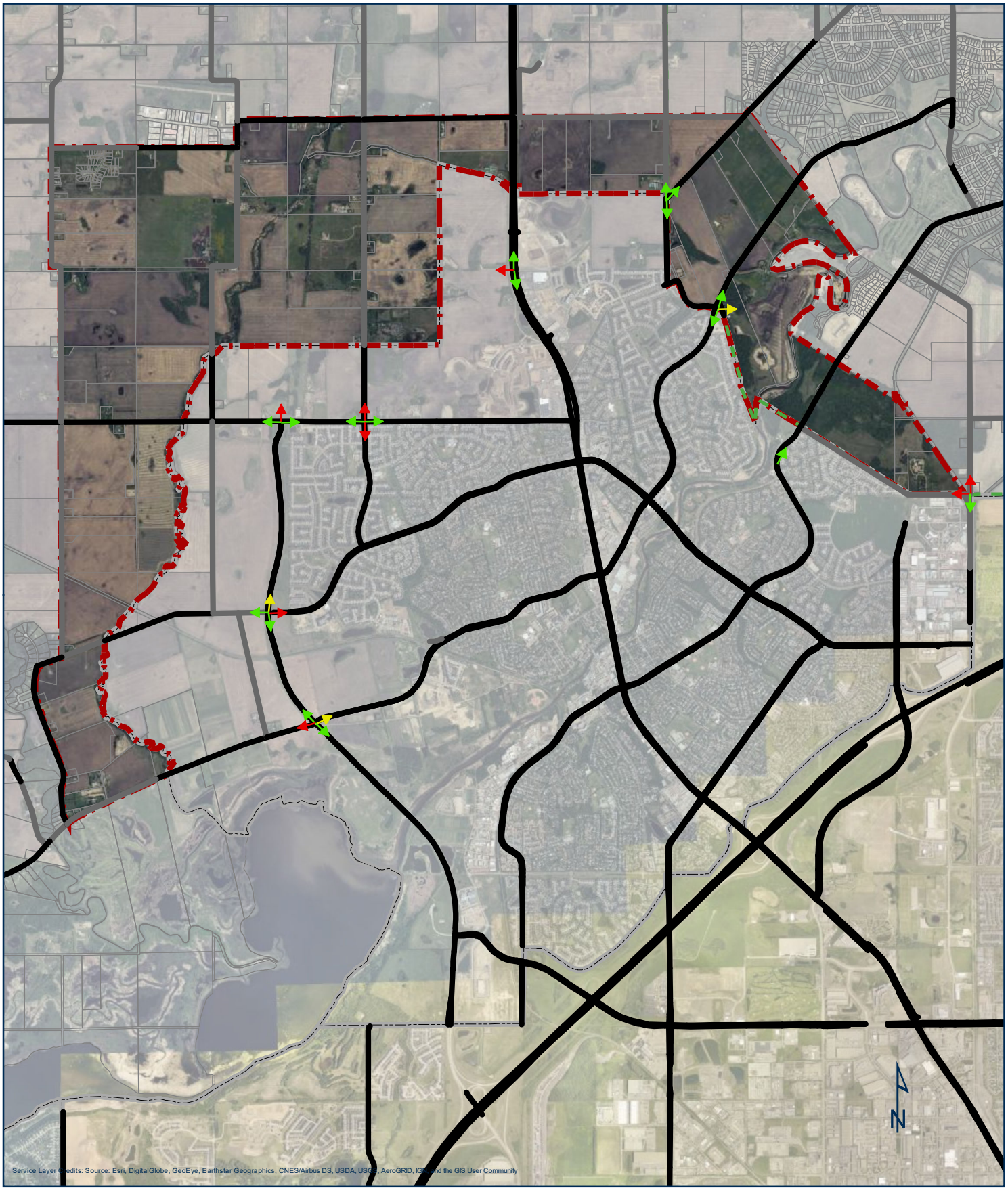
2.2 Roadway Capacity Analysis

A unit of land's transportation serviceability is primarily based on the current adjacent roadway's capacity to support future traffic demands. Intersections feeding into the overall study area were modeled in Synchro to determine each roadway's remaining capacity during the PM peak hour based on the model's calculated volume to capacity ratio. As ISL Engineering and Land Services has several past and ongoing projects with St. Albert, several of the required models were already available for use. The remaining intersections were modeled based on their apparent geometry on Google Maps with traffic volumes provided by St. Albert. A summary of the results is provided in Table F.2 below, while Map F.3 presents intersection capacities.

Table F.2: Roadway Remaining Capacity

Major Roadway	Minor Roadway	Leg	Capacity Used	Utilization
Ray Gibbon Drive	Villeneuve Road	Eastbound	222	0.14
		Westbound	296	0.19
		Northbound	301	0.64
	Giroux Road	Eastbound	2	0.01
		Westbound	375	0.28
		Northbound	960	0.70
		Southbound	204	0.16
	McKenney Avenue	Eastbound	160	0.25
		Westbound	253	0.39

Major Roadway	Minor Roadway	Leg	Capacity Used	Utilization
		Northbound	1,329	0.51
		Southbound	530	0.39
St. Albert Trail	Everitt Drive	Eastbound	1,359	0.35
		Westbound	892	0.22
		Northbound	75	0.17
		Southbound	158	0.94
	Neil Ross Road	Westbound	109	0.26
		Northbound	1,056	0.25
		Southbound	843	0.25
Bellerose Drive	Coal Mine Road	Eastbound	23	0.03
		Northbound	219	0.16
		Southbound	202	0.12
Old Coal Mine Road	Range Road 253	Southbound E/W	27	0.02
		Southbound	6	0.01
		Northbound	53	0.03
Sturgeon Road	North of Poundmaker Road	Northeast	233	0.19
Veness Road	Poundmaker Road	Eastbound	35	0.12
		Westbound	47	0.15
		Southbound	124	0.09
Villeneuve Road	Hogan Road*	Eastbound	407	0.31
		Westbound	505	0.45
		Northbound	152	0.29
		Southbound	18	0.05



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City of St. Albert Cultivate Life

Municipal Boundary
Maximum Potential Annexation Area
Sturgeon Valley Area Structure Plan

Parcel
Paved Road
Unpaved Road

Capacity
0-400
400-800
800+

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ST. ALBERT GROWTH MANAGEMENT STUDY: TRANSPORTATION STUDY

MAP F.3: ROADWAY SURFACE AND SPARE CAPACITIES

2.3 Transportation Serviceability Criteria

Transportation Proximity and Capacity Criteria

The MPAA's transportation serviceability is based on the proximity of each unit of land to existing roadways that have available capacity. Future roadways are not considered in this analysis. Lands that are adjacent to an existing paved roadway with capacity for more traffic are considered more serviceable compared to an area located on a gravel road with the same capacity for more traffic. The following Table F.3 describes the ranking system.

Table F.3: Transportation Proximity and Capacity Coding Criteria

Rank	Adjacent Roadway Conditions		Upgrade Type
	Surface	Spare Capacity (vehicles)	
1	Paved	> 800	—
2	Paved	800 - 400	—
3	Paved OR Gravel	< 400 (paved) OR >800 (gravel)	Improve Existing
4	Rural road within 800 m – 1,600 m of Rank #1		Improve Existing
5	Rural road within 800 m – 1,600 m of Rank #2		Improve Existing
6	Rural road within 800 m – 1,600 m of Rank #3		Improve Existing
7	Rural road within 1,600 m – 2,400 m of Rank #1		Improve Existing
8	Rural road within 1,600 m – 2,400 m of Rank #2		Improve Existing
9	Rural road within 1,600 m – 2,400 m of Rank #3		Improve Existing
10	Rural road within 2,400 m – 3,600 m of Rank #1-3		Improve Existing

Rankings are then given based on each unit of land's proximity to a paved roadway and that roadway's capacity. Overall, while lands adjacent to existing paved roadways receive lower ranking (≤3), the best serviceability ranking of 1 is given to those land units adjacent developed roadways with capacity to fully support future growth. The 800-vehicle spare capacity threshold was calculated assuming each unit of land will be developed with residential[1] at an assumed density of 35-40 dwelling units per net hectare and 1.5 trips generated per unit during the peak hour resulting in 840 trips. Units of land that are over 2,400 m from a paved roadway receive the lowest ranking of 10 regardless of the capacity of the nearest paved roadway, as considerable development would be required to make the land serviceable from a transportation perspective.

[1] All units of land are assumed to be developed with residential for simplicity in assigning rankings

Transportation Serviceability Cost Criteria

To factor in cost associated with necessary transportation infrastructure investments, ISL has developed a secondary level of detail for ranking the viability of quarter sections. The MPAA has been broken into seven potential development sub-areas or basins. The projected cost of unbudgeted transportation projects (not included in the current levy nor approved for funding by other means) that support development in each basin was then calculated to determine the financial cost of transportation servicing for each basin. The cost of upgrading Ray Gibbon Drive was not included in the serviceability cost. Each basin received an additional score from 0-4 to represent the relative financial burden of servicing the area. The cost of servicing a specific basin is based on the its cost per quarter section. The following Table F.4 describes the transportation infrastructure cost penalty system.

Table F.4: Transportation Serviceability Cost Coding Criteria

Infrastructure Cost	Cost Rank
$0 - $7 000 000	0
$7 000 000 - $9 000 000	1
$ 9 000 000 – $11 000 000	2
$11 000 000 – $13 000 000	3
$13 000 000 +	4

2.4 Transportation Serviceability Results

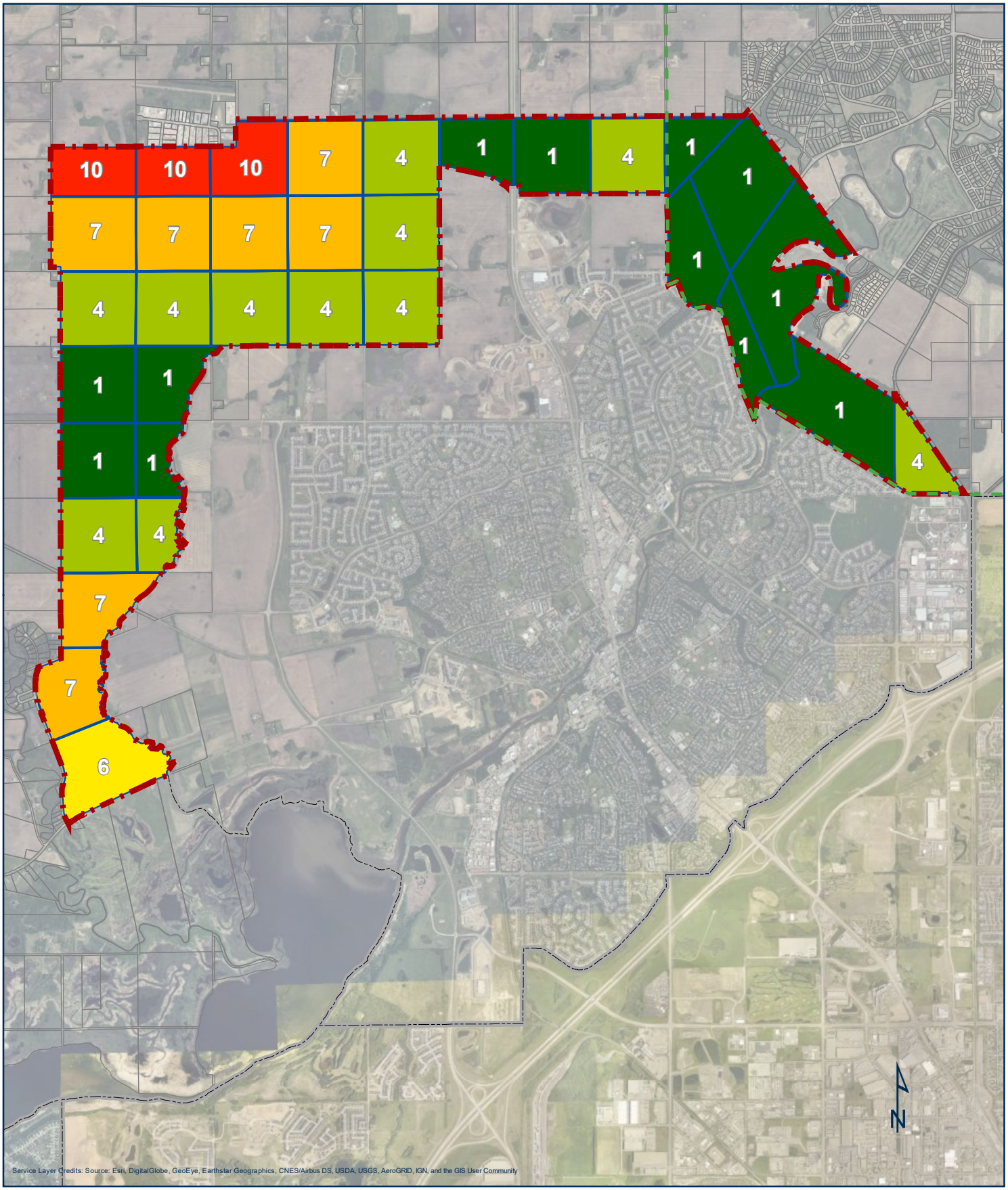
Transportation Proximity and Capacity Serviceability Results

The transportation proximity and capacity criteria in Table F.3 was applied to the MPAA's land units as illustrated in Map F.4. Based solely on proximity and serviceability, the units that most easily integrate into the transportation network are to the west along Villeneuve Road as well as the north/northeast. These areas received the highest proximity and capacity serviceability rankings because of the proximity to existing paved roadways with capacity to support additional transportation demand.

Note this capacity analysis is based on the existing infrastructure. The recent funding of the Ray Gibbon Drive widening could provide additional transportation capacity to the western MPAA lands.

Transportation Serviceability Cost Results

The transportation proximity cost criteria in Table F.4 was applied to the seven potential sub-areas or basins. The results of the transportation serviceability cost analysis are illustrated in Map F.5.



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City of St. Albert Cultivate Life

Municipal Boundary
Maximum Potential Annexation Area
Sturgeon Valley Area Structure Plan
MPAA Analysis Area
Parcel

Serviceability Ranking

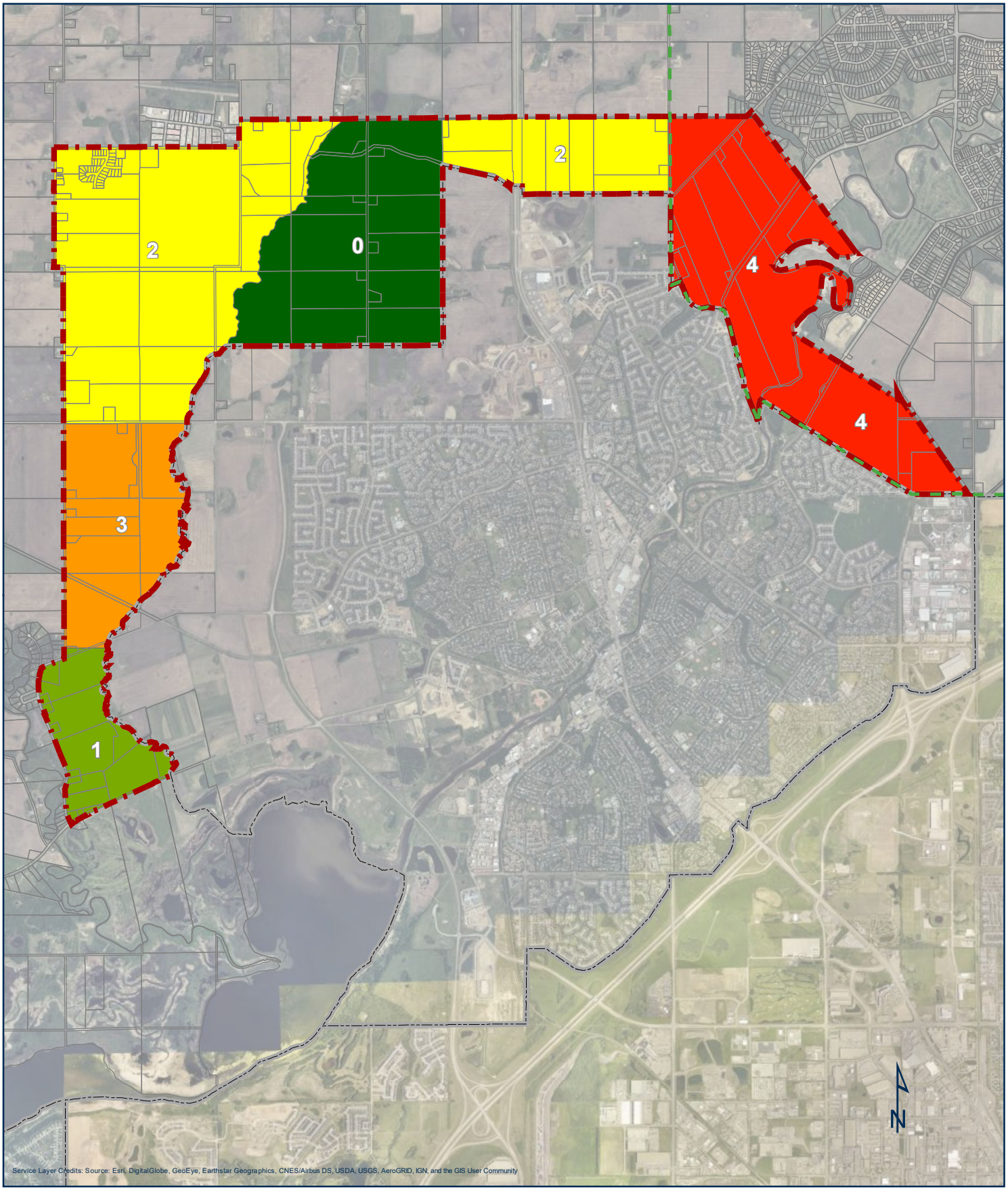
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3	7	
4	8	

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ST. ALBERT GROWTH MANAGEMENT STUDY: TRANSPORTATION STUDY

MAP F.4: TRANSPORTATION SERVICING RANKING



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City of St. Albert Cultivate Life

Municipal Boundary
Maximum Potential Annexation Area
Sturgeon Valley Area Structure Plan
Parcel

Basin Cost Ranking

0
1
2
3
4

0 0.2 0.4 0.8 1.2 1.6 km

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ST. ALBERT GROWTH MANAGEMENT STUDY: TRANSPORTATION STUDY

MAP F.5: TRANSPORTATION BASIN COST RANKING

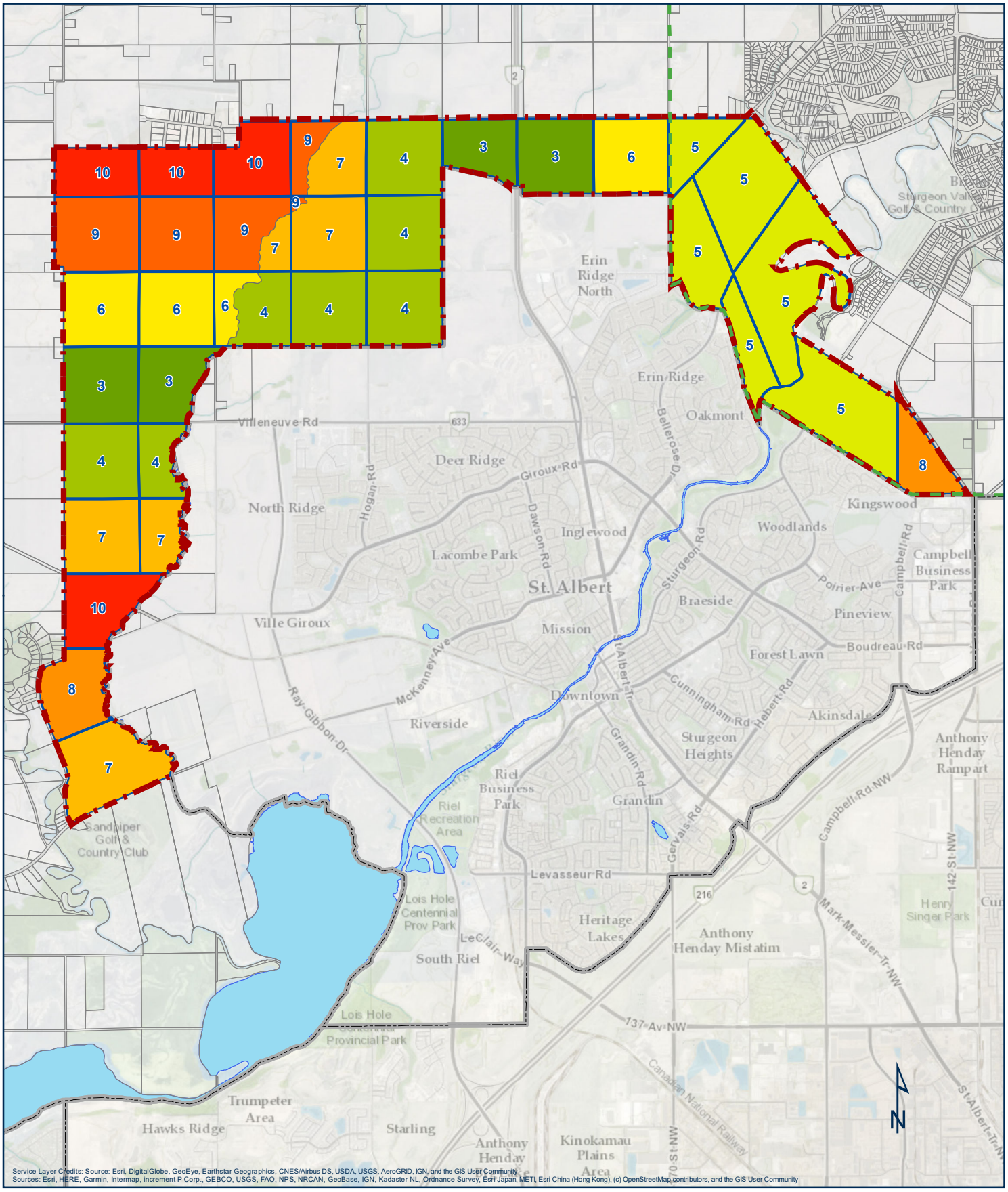
Based on the cost to service results, the area that will require the least additional capital investment to service is the north, west of St. Albert Trail and east of Carrot Creek. The cost criteria is based on transportation projects that are either added from this report to support existing infrastructure or projects with unclear or unapproved funding (127 Street). As several existing transportation projects are planned in the area, particularly Fowler Way, minimal additional capital investment is required to make the area serviceable for transportation. The northeast area requires the highest capital investment as it is assumed the 127 Street extension, including the bridge across Sturgeon River, is required to service the area.

Combined Transportation Serviceability Results

The combined transportation serviceability score based on existing infrastructure and the unbudgeted cost of servicing is presented in Map F.6. These two criteria were combined to provide more balanced transportation serviceability results. While the northeast received the highest transportation rank based on proximity and capacity, it also has the highest cost of servicing due to the costs of constructing the 127 Street extension. The proximity and capacity ranks for each land unit were added together to create the combined map. While the theoretical maximum rank is 14, areas receiving a rank of 10 or higher were noted as 10.

Based on the existing infrastructure analysis, the lands to the north along St. Albert Trail and west along Villeneuve Drive have the best transportation serviceability, followed by benefitting areas adjacent to the City's current northwest limits. These areas have existing roadways with capacity to support future growth. The additional consideration for projected transportation servicing costs indicates that significant investment would be required to service the northeast.

The serviceability analysis was based on existing transportation infrastructure only. Considering the existing development plans including Fowler Way and extension of Ray Gibbon Drive, the northwest portion of the MPAA is likely the most serviceable.



City of St. Albert Cultivate Life

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ST. ALBERT GROWTH MANAGEMENT STUDY: TRANSPORTATION STUDY

MAP F.6: COMBINED TRANSPORTATION SERVICING RANKING

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3.0 Transit Infrastructure

The City of St. Albert has identified public transit as a critical tool to meet the short and long term needs of residents. Existing municipal transit routes, transit centres, a planned future light rail transit (LRT) alignment, and current and future park and ride facilities are all shown in Map F.7.

3.1 Current Transit Facilities

The City of St. Albert has two park and ride facilities: a shared lot at St. Albert Centre and a dedicated park and ride location at the Nakî Transit Centre. The St. Albert Centre is a mall in central St. Albert off St. Albert Trail. The management of the mall offers parking for transit patrons on the mall parking lot in designated areas identified for transit use. This park and ride facility is currently at capacity.

The Nakî Transit Centre & Park and Ride was recently constructed on Campbell Road southeast of Anthony Henday Drive within the City of Edmonton, replacing the Village Transit Station to become St. Albert's new transit hub. The facility is a paved asphalt lot with a transit centre building and a total capacity of approximately 800 stalls, which is expandable to 1,600 stalls. It also has capacity for 16 buses with the potential to expand to 24, and features bicycle storage facilities, disabled parking, and a kiss-and-ride for drop offs. The Nakî Transit Centre & Park and Ride is integral to the long-term goal of bringing LRT to St. Albert and is Edmonton's planned terminus for its Metro Line.

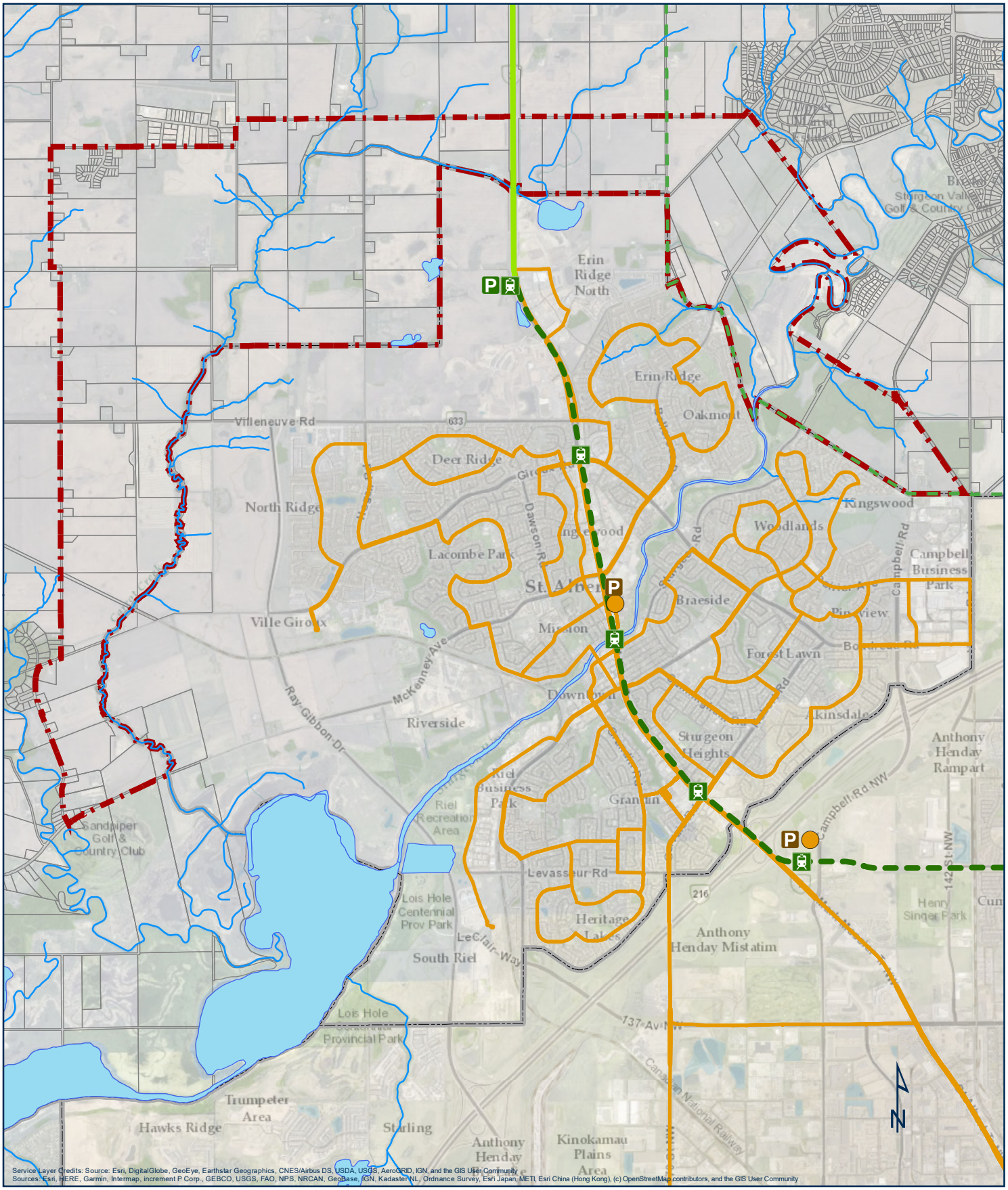
3.2 Future Transit Facilities

A northern park and ride has been proposed in the 2015 St. Albert LRT Planning Study Phase 2 – Alignment Section Report. The North Park and Ride would be approximately 1.6 km north of Villeneuve Road off St. Albert Trail and would serve as the northern terminus for the St. Albert LRT extension. The City's proposed 2019 budget included $4,600,000 to identify lands and begin negotiations and purchasing or required lands to construct the North Park and Ride.

3.3 Transit Serviceability

There is limited transit infrastructure near the MPAA to serve the potential future growth. As such, transit serviceability is not considered when ranking the overall transportation serviceability of the lands. New transit routes can be planned within the final annexation area to service future growth at the area structure plan preparation stage.

The North Park and Ride would be a sustainable way for the City of St. Albert to further support growth, as the bulk of the MPAA is within a 2-km radius of Villeneuve Road. Integrating a transit centre into the residential developments in the area early may entice new residents to take advantage of the City's transit before they get into the habit of commuting in personal vehicles.



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Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

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City of St. Albert Cultivate Life

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- Municipal Boundary
- Maximum Potential Annexation Area
- Sturgeon Valley Area Structure Plan
- Existing Transit Centre
- Existing Park-and-Ride
- Future Park-and-Ride
- Future LRT Station
- Local Transit Route
- Future Regional Bus
- Planned LRT

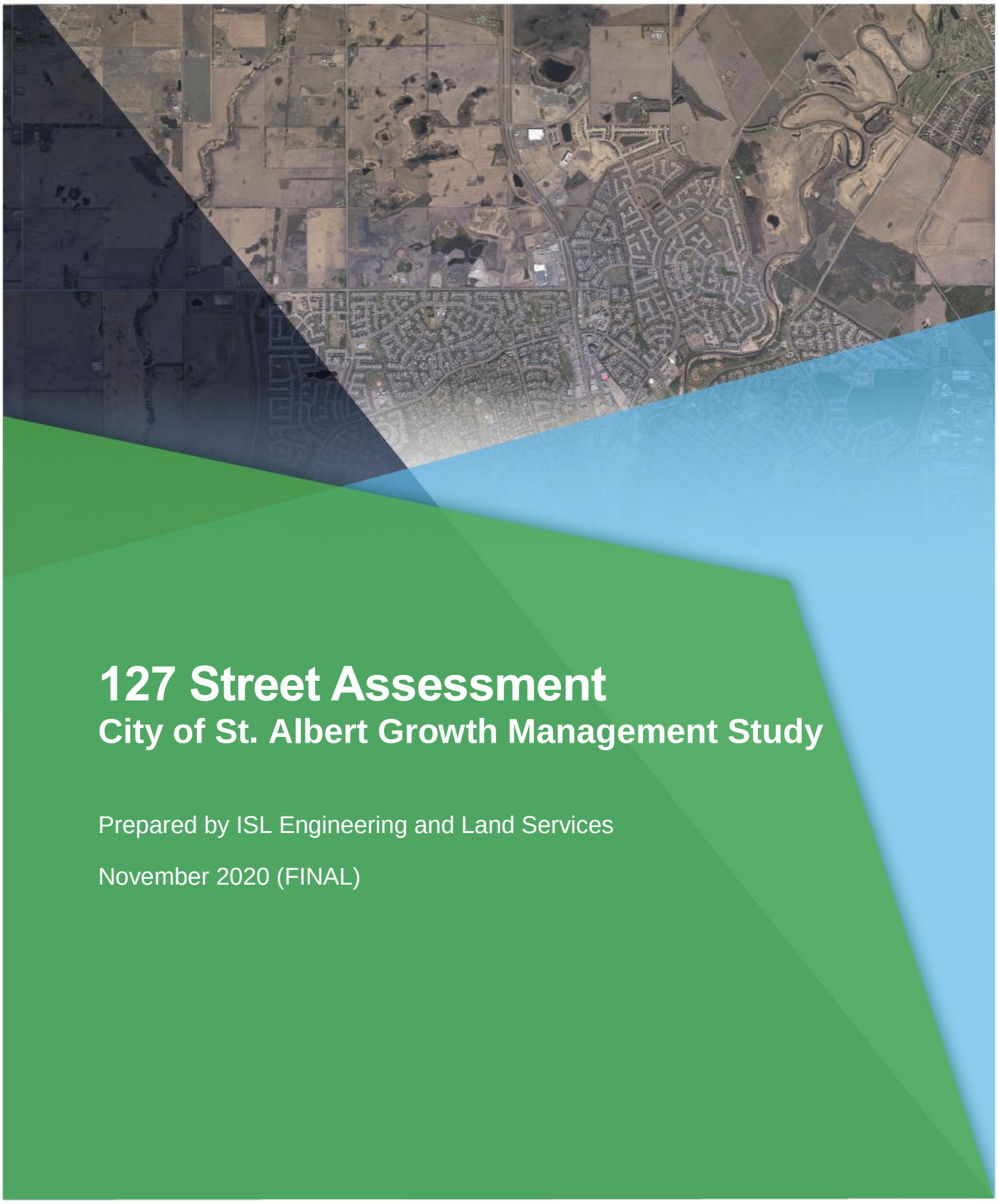
ST. ALBERT GROWTH MANAGEMENT STUDY: TRANSPORTATION STUDY

MAP F.7: EXISTING AND FUTURE TRANSIT ALIGNMENTS AND FACILITIES

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Appendix F.1
127 Street Assessment

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127 Street Assessment

City of St. Albert Growth Management Study

Prepared by ISL Engineering and Land Services

November 2020 (FINAL)

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4.0 Introduction

Over the course of the ongoing Growth Management Study and Technical Supporting Studies project (the "Project"), it has emerged that the northeast portion of the Maximum Potential Annexation Area (MPAA) appears to be a viable future urban growth direction. This area can largely be serviced through the logical extension of the City's existing core infrastructure systems, most particularly from the perspective of tying into the City's existing transportation system. However, growth into the northeast portion of the MPAA is anticipated to trigger a requirement to construct a significant and costly transportation facility – a bridge crossing over the Sturgeon River to form part of the 127 Street extension from Anthony Henday Drive in Edmonton to Highway 2 north of St. Albert.

During the December 2018 growth directions workshop for the Project, geotechnical concerns about soil and slope stability in the northeast portion of the MPAA were expressed based on the City's experiences in the development of Oakmont. That, coupled with the costs associated with the bridge and a different wastewater drainage basin east of the future 127 Street extension, led to a desire to undertake a high level traffic analysis on the 127 Street extension to help determine if annexing all of the northeast portion of the MPAA was in the City's best interests. Subsequent to that workshop, it was acknowledged that the subject lands already have development rights at urban densities whether annexed or not. These development rights are bestowed by the Edmonton Metropolitan Region Growth Plan through the Sturgeon Valley Special Study Area. So, if St. Albert does not annex to the northeast, the lands could still be developed at urban densities by Sturgeon County.

4.1. Purpose

The following summarizes the purpose of this traffic analysis.

- **Traffic Demand Forecasting:** Forecast traffic volumes generated at the 2070 horizon due to developing the northeast portion of the MPAA, and the remaining undeveloped lands in northeast St. Albert within Erin Ridge North.
- **Transportation Servicing Requirements (without 127 Street connection):** The future connection of 127 Street provides a high level of regional transportation connectivity as it connects directly to Anthony Henday Drive. As such, removing 127 Street results in a significant diversion of traffic to other regional transportation routes including Campbell Road, 170 Street, St. Albert Trail and Ray Gibbon Drive. It would also divert traffic to local arterial roads such as Bellerose Drive, Giroux Road, McKenney Avenue, Boudreau Road and others needed to connect to the regional routes listed. Many of the routes listed are operating at high level of congestion and accommodating any additional traffic will be challenging without major improvements.
    - The primary purpose of this traffic analysis is determining the impacts of diverting regional transportation demand to other City roads assuming the 127 Street connection is not available and discussing the associated challenges.

4.2. Methodology

Forecasting traffic volumes to assess the need for the 127 Street extension involves the following steps:

- **Background Inputs:** Future transportation plans, including alignments, classifications and number of lanes for roadways serving the subject lands. Transportation plans include two scenarios, with and without the 127 Street extension and background traffic demand extracted from the 2042 Transportation Master Plan (TMP), with and without the 127 Street extension.
- **Traffic Forecasting:** Forecasting traffic demand for full build-out of the subject lands by applying the four-step method for traffic forecasting, including trip generation, mode choice, trip distribution, and trip assignment. The trip assignment step was completed for both scenarios – one with and one without 127 Street.
- **Regional Roadway Screenline Analysis:** The results of the previous step illustrate the traffic volumes on the transportation network with and without the 127 Street extension, for the total of full build-out traffic of the subject lands and background traffic from the 2042 TMP. The screenline analysis is a network assessment of the total number of lanes required for the two scenarios, with and without the 127 Street extension, at the following regional connections: St. Albert Trail (south), Anthony Henday Drive (west and east), Ray Gibbon Drive, 137 Avenue, 170 Street, Veness Road, Campbell Road and 127 Street (in Edmonton).
    - **Results:** Using the results of the screenline analysis, determine whether the regional roadways can accommodate the increase in traffic without the 127 Street connection. Additional discussion is provided on the impacts on local arterial roadways, including required improvements required and challenges associated
    - **Level of Service Analysis:** The following traffic analysis does not include level of service analysis as the screenline analysis is focused on the regional transportation ability to accommodate removal of 127 Street. Traffic operational impacts on local arterials, including level of service analysis is not included at the level provided in this study, although there is discussion on the types of improvements likely needed on local arterials to accommodate the demand without 127 Street.

5.0 Traffic Forecasting

5.1. Land Use

For the purpose of this traffic analysis, the land use assumptions for the northeast portion of the MPAA and the remaining undeveloped portions of Erin Ridge North are presented in Map F.8. The associated assumed net areas for non-residential development and assumed units for residential development are presented in Table F.5.

Table F.5: Land Use Assumptions

Land Use	Area/Units
Business Industrial	69 net hectares
Corridor Commercial	36 net hectares
Regional Commercial	3.8 net hectares
Low Density Residential (LDR)	MPAA = 2,085 dwelling units Erin Ridge North = dwelling 835 units
Multi-Family Residential (MFR)	MPAA = 2,780 dwelling units Erin Ridge North = 1,748 dwelling units

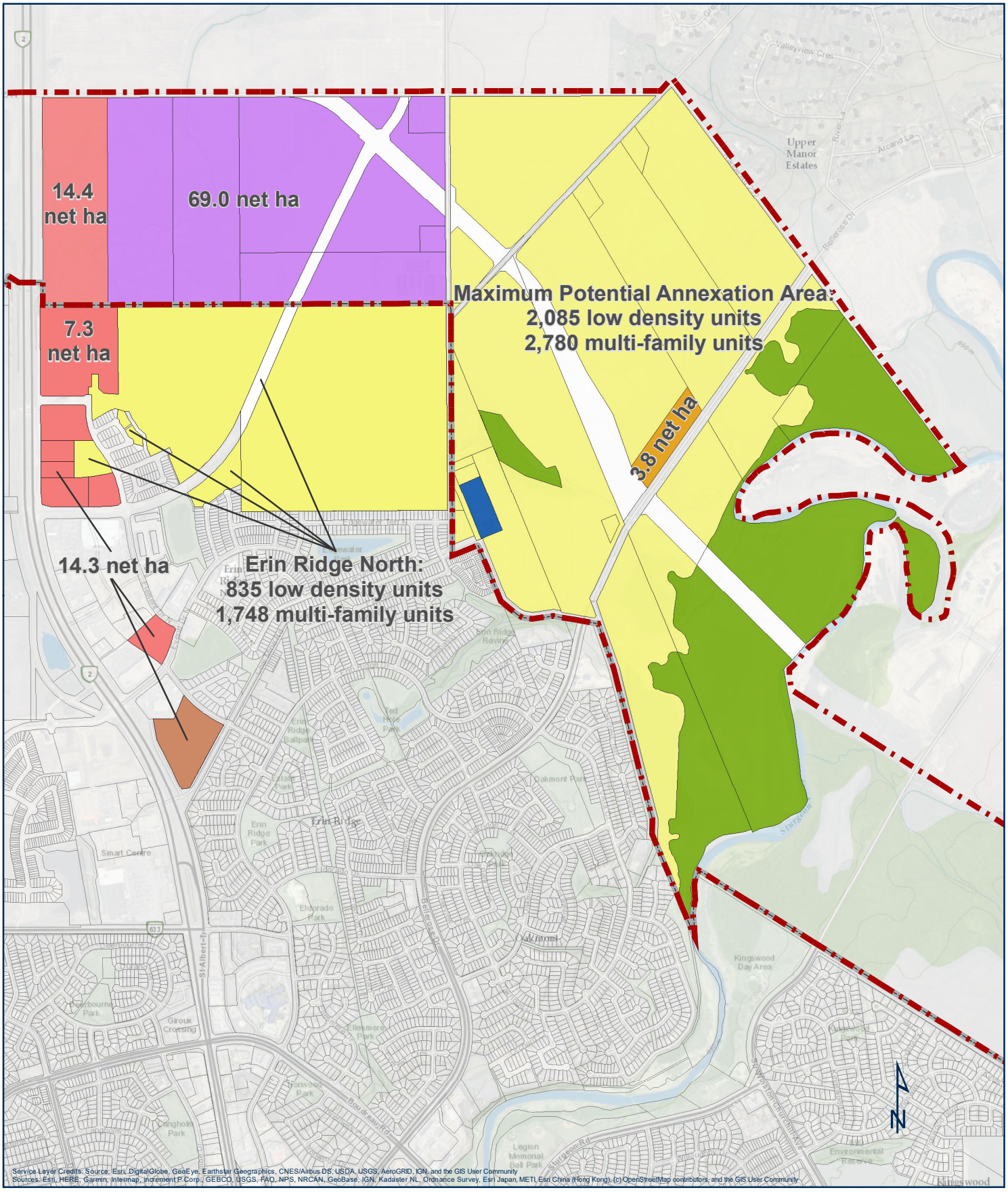
5.2. Trip Generation

Trip generation rates are based on the Institute of Transportation Engineers Trip Generation Manual 10th Edition. These are summarized in Table F.6. Commercial and industrial gross leasable floor areas is assumed at 25% of the net areas in Table F.5.

Table F.6: Trip Generation Rates

Land Use	Source	Daily
Business Industrial	ITE LUC = 110	51.8/net acre
Corridor Commercial	ITE LUC = 820	e^(0.68 Ln (x) + 5.57)
Regional Commercial	ITE LUC = 820	e^(0.68 Ln (x) + 5.57)
Residential (LDR)	ITE LUC = 210	9.44/dwelling
Residential (MFR)	ITE LUC = 221	5.44/dwelling

x = 1,000 ft^2 gross leasable area



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City of St. Albert
Cultivate Life

- Municipal Boundary
- Maximum Potential Annexation Area
- Residential
- Regional Commercial (RC District)
- Corridor Commercial (CC District)
- Business Industrial (CIS District)
- Environmental Reserve
- Existing Institutional (Church)
- Arterial Road
- Mixed Use (16% Residential & 84% Commercial)

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ST. ALBERT GROWTH MANAGEMENT STUDY: 127 STREET ASSESSMENT

MAP F.8:
NORTHEAST TRAFFIC ANALYSIS FUTURE GROWTH AREAS

Gross Daily Trips

The gross daily traffic volumes are provided in Table F.7.

Table F.7: Gross Traffic Volumes

Land Use	Daily Volumes
Business Industrial	3,574
Corridor Commercial	28,182
Regional Commercial	6,104
Residential (LDR)	27,857
Residential (MFR)	24,632
Total	**90,349**

Internal Trip Capture (within subject area)

Internal trips travel to/from land uses inside the subject area and do not have an impact at a regional level, including 127 Street, as their trips are captured locally. Internal trip capture assumptions are summarized as follows:

- Twenty percent (20%) of trips generated by the residential uses are assumed to travel to the business industrial as employment, reducing the gross trips generated by the industrial lands and residential lands;
- Twenty percent (20%) of trips generated by the commercial uses are assumed to be captured by residential trips reducing the gross trips generated by the commercial lands and residential lands; and
- The total internal trips reduced from industrial and commercial uses are subtracted from the gross residential trips, proportional to the gross trips generated by the residential LDR and MFR. This accounts for the internal trips from residential destined for the industrial and commercial uses. Subtracting twenty percent (20%) off the gross residential trips would over estimate the number of internal trips absorbed by the commercial and industrial land uses.

Pass-by Trip Capture

Pass-by trips represent trips captured from traffic passing by the land use and already using the adjacent street network. These trips do not have an impact at a regional level, including the 127 Street extension, as these trips are already present and are not new traffic volumes. Pass-by trip assumptions are summarized as follows:

- Forty percent (40%) of commercial trips originate from the adjacent streets as pass-by trips, reducing the gross trips generated by the commercial lands. Forty percent (40%) pass-by represents a blended rate of several types of commercial. Some examples of these types and their average pass-by rate based on the Institute of Transportation Engineers, Trip Generation Handbook are as follows: discount supercentres (21%), super markets (36%), shopping centres (34%), sit-down restaurants (44%), fast food restaurants (50%), gasoline/service stations (52%), and convenience markets (66%).

Mode Choice

The remaining trips, after reducing for internal trips capture and pass-by trips, are allocated to different mode choices, including vehicle, transit, cycling and walking. Within the horizon of the study, it is foreseeable that the City will have some form of transit accessible to the subject lands, increasing their current transit mode share. The City's current mode share is 20% non-vehicular. For the purpose of this analysis, it is assumed the mode share will increase to 30% non-vehicular within the 2070 horizon with further investments being made in transit.

Net Vehicular Trips

The net vehicular trips are summarized in Table F.8.

Table F.8: Net Vehicular Trips

Land Use	Daily Traffic	Internal	Pass-by	Mode Choice (non-vehicle)	Net Trips (vehicle)
Business Industrial	3,574	715	—	858	2,002
Corridor Commercial	28,161	5,632	9,011	4,055	9,462
Regional Commercial	6,104	1,221	1,953	879	2,051
Residential (LDR)	27,857	4,011	—	7,154	16,692
Residential (MFR)	24,632	3,556	—	6,323	14,753
Total	**90,328**	**15,135**	**10,965**	**21,539**	**44,690**

5.3. Trip Distribution

There is no travel demand model representing a 2070 horizon. Alternatively, ISL used the closest scenario readily available at the time, which is the City of Edmonton's regional travel demand model for 2044. The model provides origin/destination distribution between 16 sectors across the region. The travel demand model origin/destination data illustrates that approximately 50% of the net vehicular trips generated by the subject lands is destined into/out of the City and 50% is destined into/out of regional areas. Therefore, splitting the net trips into

two categories, the City of St. Albert and regional traffic volumes, accounts for this, which is summarized in Table F.9.

Table F.9: Origin/Destination, Regional and St. Albert

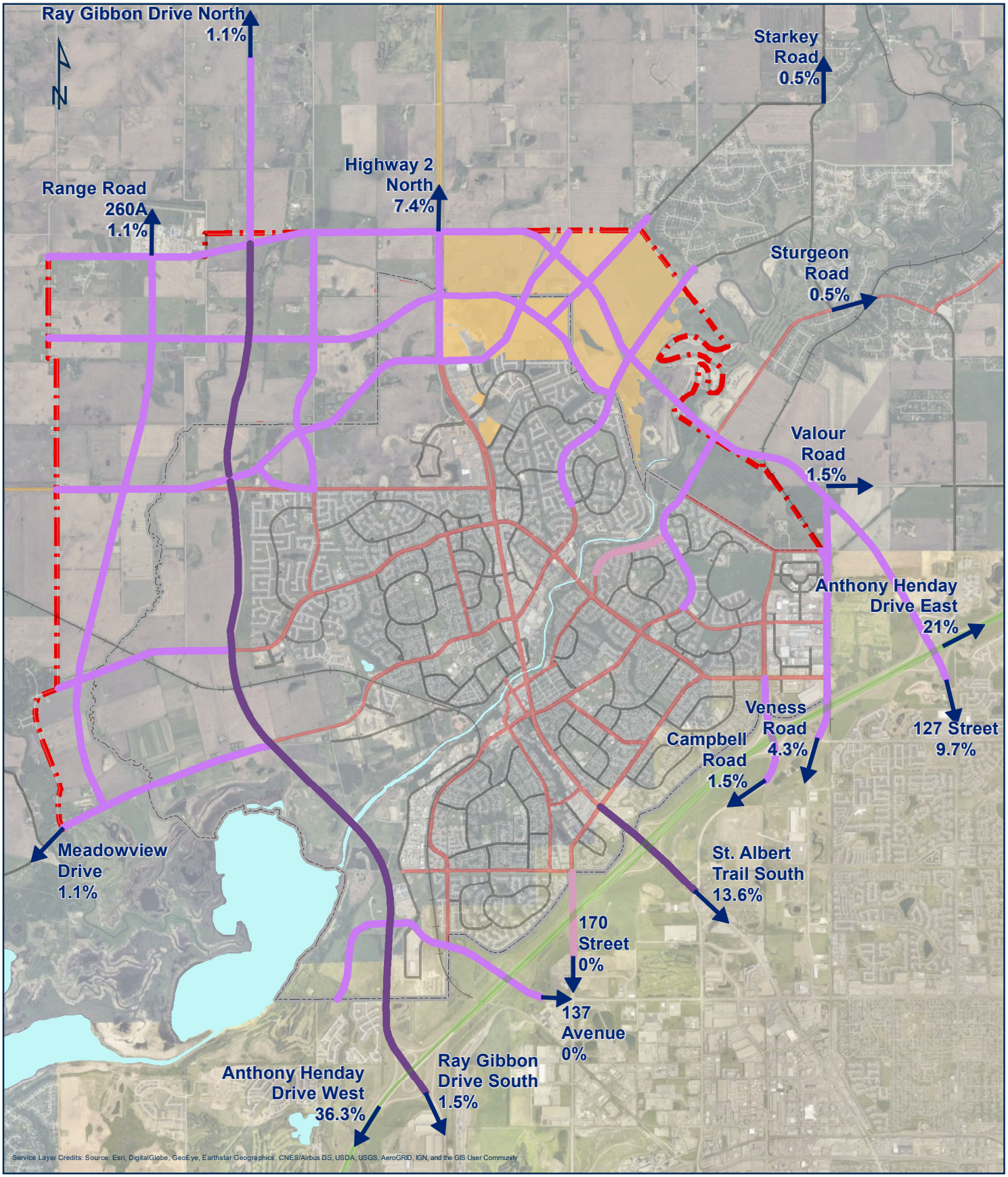
Land Use	Net Trips (Table F.8)	Origin/Destination Regional	Origin/Destination St. Albert
Business Industrial	2,002	1,001	1,001
Corridor Commercial	9,462	4,731	4,731
Regional Commercial	2,051	1,025	1,025
Residential (LDR)	16,692	8,346	8,346
Residential (MFR)	14,753	7,377	7,377
Total	**44,690**	**22,480**	**22,480**

The remaining net trips have regional origin/destination and their demand is accommodated through regional transportation networks and is used for completing the regional screenline analysis. Distributing trips at a regional level onto the regional transportation network is based on the City of Edmonton's 2044 regional travel demand model and summarized in Table F.10 and illustrated in Map F.9.

Table F.10: Regional Trip Distribution

Roadway	Distribution
Highway 2 North	7.4%
Starkey Road	0.5%
Sturgeon Road East	0.5%
Valour Avenue East	1.5%
127 Street South	9.7%
Anthony Henday Drive East	21.0%
Veness Road	4.3%
Campbell Road	1.5%
St. Albert Trail South	13.6%
137 Avenue	0.0%

Roadway	Distribution
Ray Gibbon Drive South	1.5%
Anthony Henday Drive West	36.3%
Meadowview West	1.1%
Ray Gibbon Drive North	1.1%
Total	**100.%**



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City of St. Albert
Cultivate Life

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- Municipal Boundary
- Maximum Potential Annexation Area (MPAA)
- Northeast Future Urban Growth
- Waterbody/Watercourse
- Railroad
- Freeway
- Expressway
- Arterial
- Collector
- Other
- Six-Lane Roadway*
- Four-Lane Roadway*
- Two-Lane Roadway*

* Only roadways shown within MPAA and those entering/exiting the City of St. Albert.

ST. ALBERT GROWTH MANAGEMENT STUDY: 127 STREET ASSESSMENT

MAP F.9: REGIONAL DISTRIBUTION OF TRAFFIC

6.0 Traffic Analysis

6.1. Assumptions

The following analysis compares the total daily traffic volumes on regional and local roadways to the available daily traffic volume capacity for the future roadway network, with and without the 127 Street extension connecting to the subject lands. The future roadway network is illustrated in Map F.9. The daily traffic volume capacity for the number of lanes is provided in Table F.11, using engineering judgement and experience on past projects assuming arterial roadways capacities.

Table F.11: Arterial Roadway Traffic Capacity (Daily)

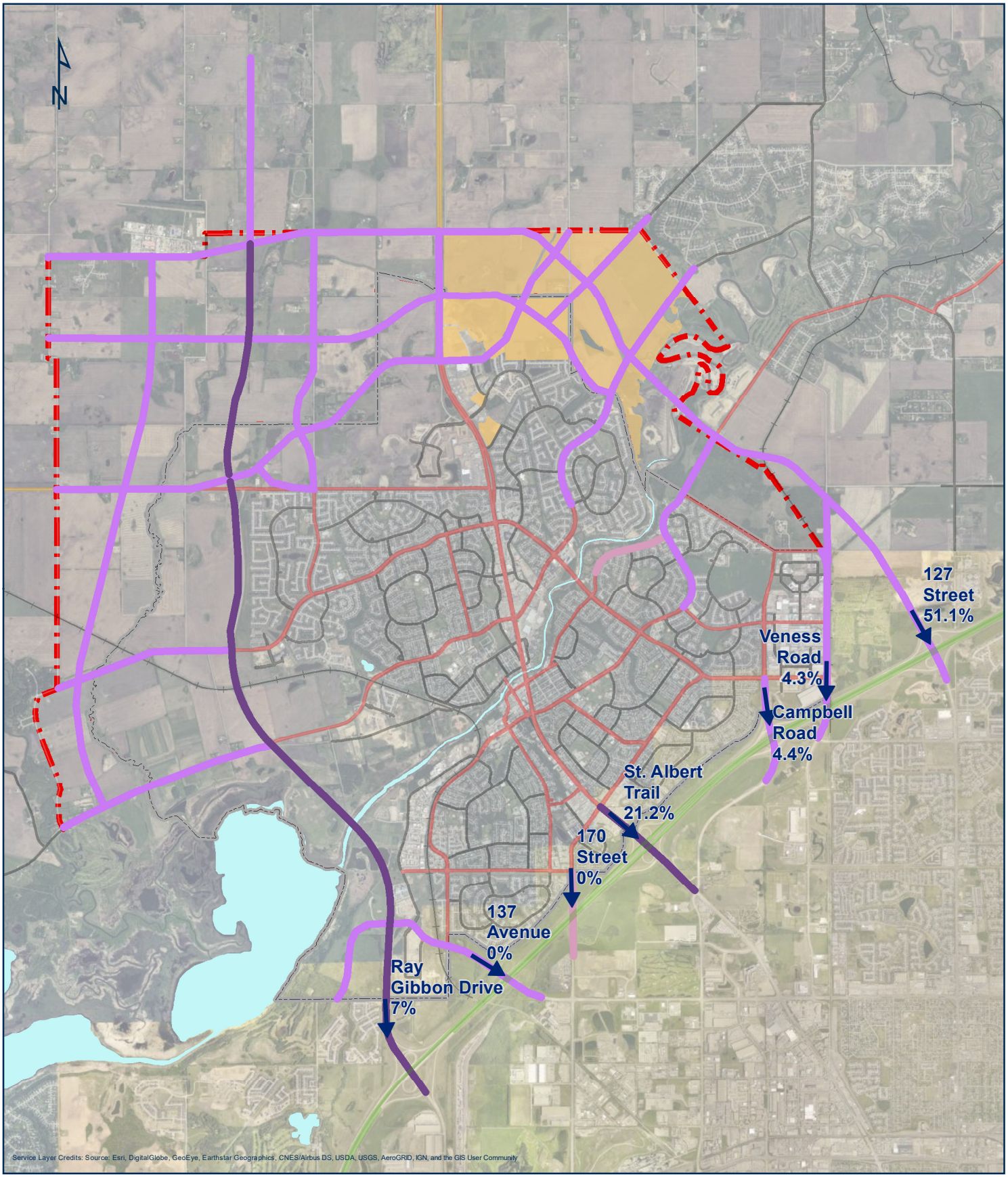
Number of Lanes	Capacity (Daily)
2 lanes	10,000 – 20,000
4 lanes	20,000 – 35,000
6 lanes	35,000 – 50,000
8 lanes	50,000 – 60,000

The range of capacities depends on the number of cross-streets and traffic control requirements at intersections. Higher capacities are for roadways with a limited number of cross-streets and less traffic signals, and lower capacities are for roadways with higher numbers of cross-streets and many traffic signals.

6.2. Regional Roadway Screenline Analysis

The regional roadway connections include St. Albert Trail (south), Anthony Henday Drive (west and east), Ray Gibbon Drive, 137 Avenue, 170 Street, Veness Road, Campbell Road and 127 Street (in Edmonton). City arterials that connect to these regional roadways include Ray Gibbon Drive, 137 Avenue, 170 Street, St. Albert Trail, Campbell Road, Veness Road and the 127 Street extension.

Distribution of traffic from the subject lands to the regional roadways listed above account for 88% of traffic distributed to the region. Since Anthony Henday Drive (both west and east) and St. Albert Trail (south) account for 71% of the 88%, a majority of the traffic from the subject lands will use the 127 Street extension, as this is the fastest route and removing the 127 Street extension means redistribution of the 71% of traffic to other City arterials. The results are summarized in Tables T.12 and T.13, and the distributions at the screenlines with and without the 127 Street extension are illustrated in Maps F.10 and F.11. It should be noted that the distributions provided in Maps F.10 and F.11 are based on the fastest path and do not consider



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City of St. Albert Cultivate Life

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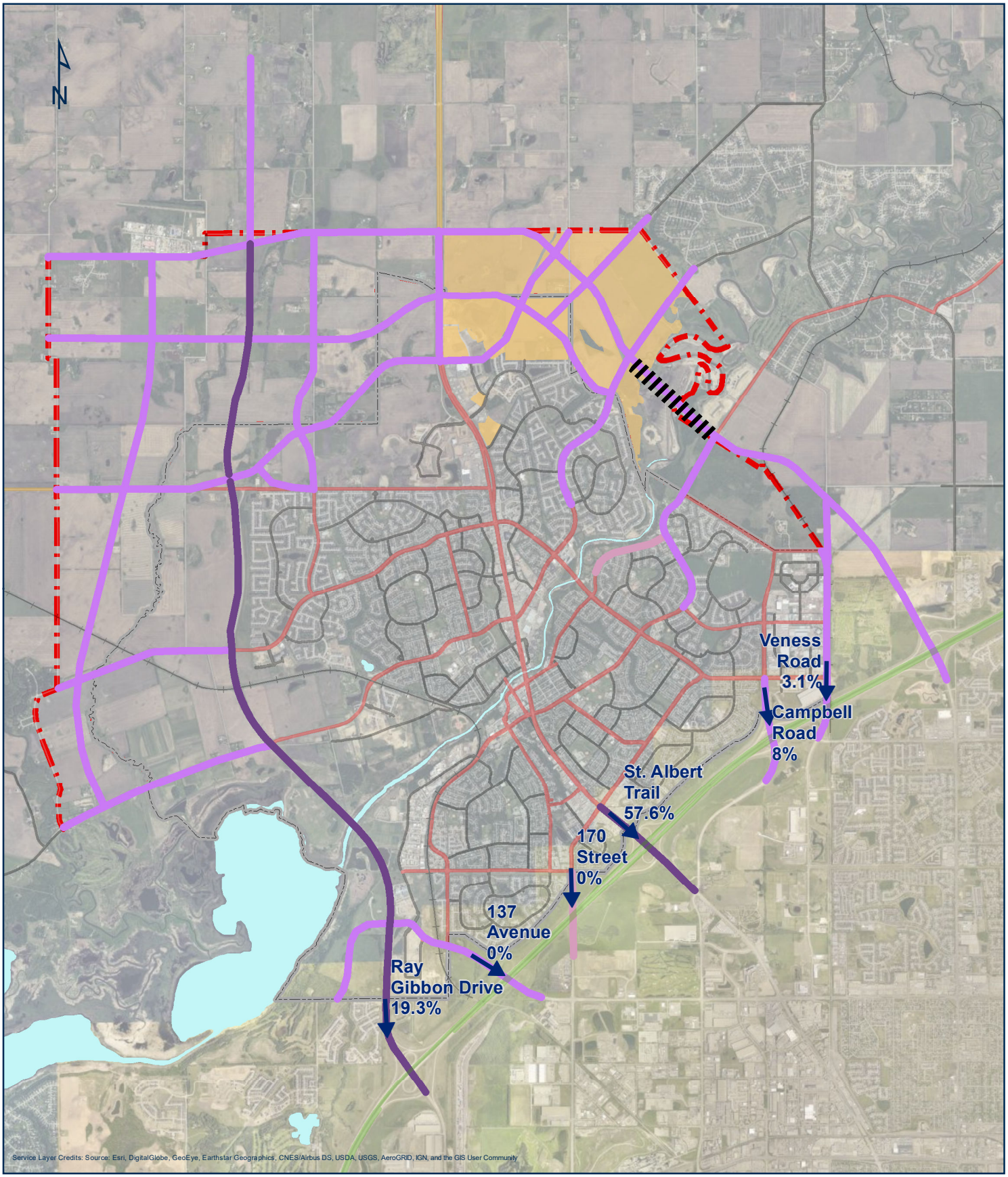
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- Municipal Boundary
- Maximum Potential Annexation Area (MPAA)
- Northeast Future Urban Growth
- Waterbody/Watercourse
- Railroad
- Freeway
- Expressway
- Arterial
- Collector
- Other
- Six-Lane Roadway*
- Four-Lane Roadway*
- Two-Lane Roadway*

* Only roadways shown within MPAA and those entering/exiting the City of St. Albert.

ST. ALBERT GROWTH MANAGEMENT STUDY: 127 STREET ASSESSMENT

MAP F.10: REGIONAL DISTRIBUTION OF TRAFFIC WITH 127 STREET



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City of St. Albert Cultivate Life

0 0.25 0.5 1 1.5 2 km

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- Municipal Boundary
- Maximum Potential Annexation Area (MPAA)
- Northeast Future Urban Growth
- Waterbody/Watercourse
- Railroad
- Freeway
- Expressway
- Arterial
- Collector
- Other
- Six-Lane Roadway*
- Four-Lane Roadway*
- Two-Lane Roadway*
- No 127 Street Crossing of Sturgeon River

* Only roadways shown within MPAA and those entering/exiting the City of St. Albert.

<BOL>ST. ALBERT GROWTH MANAGEMENT STUDY: 7 STREET ASSESSMENT</BO

MAP F.11: REGIONAL DISTRIBUTION OF TRAFFIC WITHOUT 127 STREET

capacity constraints at this level. If capacity constraints are found after assigning the traffic, further discussion is provided in follow up steps.

Table F.12: Screenline Analysis Distribution (without the 127 Street Extension)

Roadway	Distribution (without 127 Street)		Traffic Volumes (2042 TMP)	Total Volumes	Lanes	Daily Capacity
	Distribution	Assignment				
Ray Gibbon Drive	19.3%	4,339	30,000	34,339	6 lanes	35,000 – 50,000
137 Avenue	0.0%	0	<5,000	<5,000	4 lanes	20,000 – 35,000
170 Street	0.0%	0	<10,000	<10,000	4 lanes	20,000 – 35,000
St. Albert Trail	57.6%	12,948	45,000	57,948	8 lanes	50,000 – 60,000
Campbell Road	8.0%	1,798	25,000	26,798	4 lanes	20,000 – 35,000
Veness Road	3.1%	697	15,000	15,697	4 lanes	20,000 – 35,000

Table F.13: Screenline Analysis Distribution (with the 127 Street Extension)

Roadway	Distribution (without 127 Street)		Traffic Volumes (2042 TMP)	Total Volumes	Lanes	Daily Capacity
	Distribution	Assignment				
Ray Gibbon Drive	7.0%	1,574	30,000	31,574	6 lanes	35,000 – 50,000
137 Avenue	0.0%	0	<5,000	<5,000	4 lanes	20,000 – 35,000
170 Street	0.0%	0	<10,000	<10,000	4 lanes	20,000 – 35,000
St. Albert Trail	21.2%	4,766	45,000	49,766	8 lanes	50,000 – 60,000
Campbell Road	4.4%	989	25,000	25,989	4 lanes	20,000 – 35,000
Veness Road	4.3%	967	15,000	15,697	4 lanes	20,000 – 35,000
127 Street	51.1%	11,487	20,000	~31,487	4 lanes	20,000 – 35,000

Key Observations Comparing Tables T.12 and T.13

- The 127 Street extension would accommodate 11,487 vehicles per day from the subject lands, so these must be redistributed throughout the network if it was removed.
- St. Albert Trail demand would increase from 21.2% to 57.6% with removal of the 127 Street extension. Traffic volume impacts from the subject lanes would therefore increase from 4,766 to 12,948 vehicles per day. St. Albert Trail is likely operating at the

lower range of capacity due to requirements for servicing several cross streets along the corridor, including Hebert Road. Traffic demand likely exceeds capacity without the 127 Street extension and possibly with the 127 Street extension also. It is difficult to foresee accommodation of any traffic along this corridor from the subject lands given it is already at capacity, requires improvements, and would need to accommodate growth from other existing lands within the City without development of the subject lands.

- Ray Gibbon Drive operates well under capacity. With St. Albert Trail traffic demand exceeding capacity, Ray Gibbon Drive is a viable alternative.
- 170 Street operates below capacity in both scenarios, with and without the 127 Street extension. Distribution of traffic from the subject lands to 170 Street is expected to be negligible as it is less direct. However, with the 127 Street extension removed and traffic volumes on St. Albert Trail exceeding demand, 170 Street may be a viable alternative to absorb a portion of the traffic demand heading into the City.
- Campbell Road likely operates at the lower range of capacity given the operational requirements for intersections along the route to the subject lands, including Boudreau Road and Bellerose Drive intersections. Accommodating any additional volume likely means improving these intersections along this corridor.

Transportation Requirements to Accommodate 127 Street Removal

Since it is an issue to accommodate traffic volumes from the subject lands on St. Albert Trail, the following considers redistributing the volumes to other roadways under capacity and what is required for this to be realistic.

- **Ray Gibbon Drive:** If all of the volumes destined for the Anthony Henday Drive (west) connect to Ray Gibbon Drive, the distribution increases from 7% to 37.8%, increasing the traffic impacts from the subject lands from 1,574 to 8,497 vehicles per day. The total traffic volumes on Ray Gibbon Drive increase from 30,000 to 38,497 and operates under capacity as it is assumed to be six lanes (based on 2070 horizon) with a capacity of 35,000 – 50,000 vehicles per day. The following considerations are applied to this analysis:
  - Ray Gibbon Drive needs improvement to six lanes to accommodate the increase in volumes due to full build out of the subject lands.
  - Assuming Ray Gibbon Drive is at six lanes, good connections from the subject lands are needed, including significant improvements at major intersections along the route to Ray Gibbon Drive. This includes impacts due to increased volumes on Giroux Road, Bellerose Drive, McKenney Avenue and future Fowler Way. These corridors need to accommodate an additional 8.497 vehicles per day, including increased pressure at intersections crossing St. Albert Trail.
  - Given increased congestion on St. Albert Trail to accommodate future traffic demands, it will be challenging to accommodate additional east-west movements without new connections or significant improvements to existing connections from the subject lands to Ray Gibbon Drive.
- **Campbell Road:** Assuming the Campbell Road connection absorbs the traffic demand to the Anthony Henday Drive (east) and 127 Street (in Edmonton), traffic distribution increases from 4.4% to 30.7%, increasing the traffic impacts from the subject lands

from 989 to 5,102 vehicles per day. Although the increase in daily volume from the subject lands appears small at only 5,102 vehicle per day, it is the configuration of the corridor from the subject lands to Campbell Road with multiple intersections where accommodating the traffic will be the most challenging.
    - For example, the Campbell Road/Boudreau Road intersection would need to accommodate an additional 300 – 400 northbound left turns during the PM peak and 300 – 400 southbound left turns at the intersection of Bellerose Drive and Boudreau during the AM peak. This is in addition to increases in traffic from other developments and traffic generated from the subject lands diverted locally. This is a substantial issue as this intersection is already considered to be at or near capacity and will not accommodate the additional volumes generated.
    - This corridor will likely require widening, including Bellerose Drive and Boudreau Road needed to be improved to six lanes along with significant intersection improvements. The existing bridge along Boudreau Road over the Sturgeon River needs to be widened as part of the corridor improvements negating some cost savings from not constructing the 127 Street bridge.
- **170 Street:** Assuming a small portion of the traffic demand on St. Albert Trail diverts to 170 Street, the volumes could increase nominally. While 170 Street will likely operate under capacity with the redistribution, this assumes that traffic can access 170 Street using St. Albert Trail, which may not be feasible.
- **Summary:** Assuming significant diversion of traffic from St. Albert Trail to Ray Gibbon Drive, Campbell Road and 170 Street (to a lesser extent) and improvements to support the diversion, the transportation network can support the development within the subject lands, without the 127 Street extension. Improvements needed include the following:
    - Ray Gibbon Drive widening to six lanes
    - Increased capacity constructed on Giroux Road, Bellerose Drive, McKenney Avenue and future construction of Fowler Way to facilitate additional flows to Ray Gibbon Drive.
    - Widening of the corridor from the subject lands to Campbell Road to six lanes, including Bellerose Drive, Boudreau Road and Campbell Road, also including the existing bridge over the Sturgeon River and intersections along the routes; and,

Feasibility of improving the corridors listed in not included in this report, but at a cursory level, many improvements listed are located within existing developed areas that have insufficient right of way to accommodate widening to six lanes. Additionally, costs associated with widening the existing bridge over the Surgeon River negate some of the cost savings from not constructing the 127 Street.

7.0 Conclusions and Recommendations

7.1. Conclusions

The land use is forecasted to generate approximately 90,000 vehicles per day, of which approximately 12,000 vehicles per day are regional in nature and expected to use the 127 Street connection.

Removing the 127 Street extension has the following impacts:

- St. Albert Trail is not a feasible candidate to accommodate a significant increase in traffic volumes from the subject lands, therefore the following connections need to accommodate the traffic.
  - Ray Gibbon Drive volumes would increase by ~7,000 vehicles per day (1,574 – 8,497) with removal of the 127 Street extension and diverting the St. Albert Trail traffic demand. Assuming appropriate connections are available and Ray Gibbon Drive at six lanes, this roadway can accommodate the increase in volumes.
  - Campbell Road volumes would increase by ~4,000 vehicles per day (989 – 5,102) with removal of the 127 Street extension and diverting the St. Albert Trail traffic demand. Improvements are needed at intersections and roadways along the route between Campbell Road and the subject lands, including intersection reconfiguration and road widening.
  - The remaining 1,000 vehicles per day can be theoretically absorbed on 170 Street assuming a small increase in volumes in acceptable.
  - Diverting 127 Street regional traffic volumes to local arterials are in addition to local traffic volumes generated by the subject lands. Detailed local traffic impacts due to the subject lands, however, was not the focus of this study.

7.2. Recommendations

The following recommendation are provided as a result of this traffic analysis:

1. 127 Street is recommended.
2. Alternatively, not constructing 127 Street requires significant investments in alternative routes, including the following:
   a. Widening to six lanes from Anthony Henday Drive to the subject lanes along Campbell Road, Boudreau Road and Bellerose Drive, including existing bridge over the Sturgeon River;
   b. Widening of Ray Gibbon Drive to six lanes and significant improvements from the subject lands to Ray Gibbon Drive, including Giroux Road, McKenney Avenue and future Fowler Way and,

c. Feasibility of improving the corridors listed is not included in this report, but at a cursory level, many improvements listed are located within existing developed areas that have insufficient right of way to accommodate widening to six lanes. Additionally, costs associated with widening the existing bridge over the Sturgeon River negate some of the cost savings from not constructing the 127 Street.

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