

BROADBAND SITUATION ANALYSIS

The Current State and Socioeconomic Impacts

May 2020



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Agenda

Introductions and Background



Current State Assessment



Socioeconomic Impact



Emerging Recommendations



Next Steps



Questions and Answers





INTRODUCTIONS AND BACKGROUND

EMRB, RSM, and TaylorWarwick



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The Project Team

PROJECT TEAM

Edmonton Metropolitan
Region Board

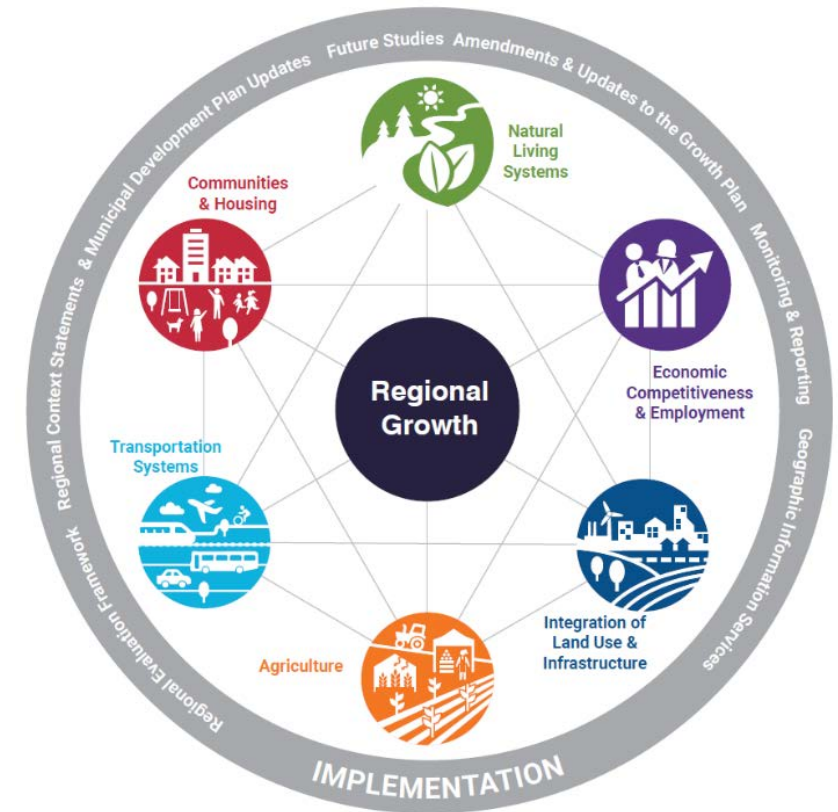


Background

The Board committed to “enhancing communication tools like broadband to contribute to the prosperity and quality of life in the Region” within the 2018-2023 EMRB Strategic Plan. Broadband is a critical piece of enabling infrastructure that supports the outcomes and policies within the Growth Plan’s six interrelated policy areas.

The Broadband Situation Analysis will create a comprehensive region-wide understanding and accurate picture of the current regional state of broadband.

The Situation Analysis will provide Board Members with the evidence necessary to make informed decisions regarding next steps in addressing regional broadband issues and supporting Growth Plan implementation.





CURRENT STATE ASSESSMENT

Regional and Ecosystem Findings

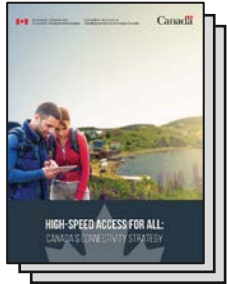


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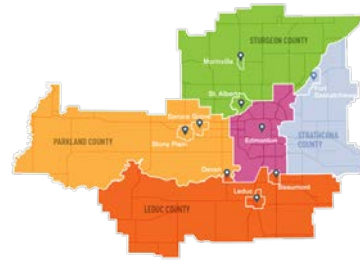


Current State Analysis Approach

RSM and TaylorWarwick assessed the **current state of broadband** network infrastructure and capabilities of the EMR through:



Review of strategic documentation



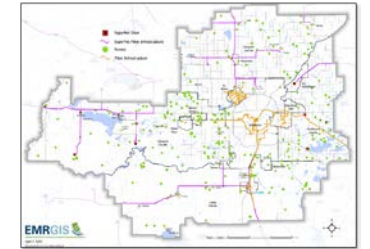
Workshops with 18 EMR municipalities



Interviews with 7 Ecosystem Stakeholders



Assessment of 240+ service levels



Compilation of a infrastructure asset inventory

Regional Current State Summary

The table below summarizes the regional current state and brings to light key findings:

Policy Tier	Municipality	Broadband Strategy	Dev. / Eng. Guidelines	Municipal Owned Fibre	Service Levels
Metropolitan Core & Metropolitan Area	Beaumont	!	!	✗	✓
	Edmonton	✓	✗	✓	✓
	Fort Saskatchewan	!	✗	✓	!
	Leduc	!	!	✓	!
	St. Albert	✓	✓	✓	!
	Stony Plain	!	✗	✓	!
	Spruce Grove	✓	✓	!	!
Metropolitan & Rural Area	Leduc County	✓	✗	!	✗
	Parkland County	✓	!	!	✗
	Strathcona County	✓	✗	✓	!
	Sturgeon County	✓	✗	!	✗
Rural Area	Devon	✗	✗	✗	!
	Morinville	✓	!	!	✗

Legend	Broadband Strategy	Dev. / Eng. Guidelines	Municipal Owned Fibre	Service Level
✓	Dedicated broadband/connectivity strategy in place or is currently being developed	Guidelines are formal and followed by all developers/engineers	Majority of municipal buildings are connected via fibre-optic infrastructure	CRTC standards met across the board
!	Broadband/connectivity is referenced in strategy documents but no dedicated strategy is in place	Guidelines are informal and/or the municipality is considering putting guidelines in place	There is currently limited fibre-optic infrastructure connecting municipal buildings	CRTC standards met in all but one area and/or speeds do not exceed CRTC standards in multiple areas
✗	Broadband/connectivity is not referenced in any strategy document	There are no guidelines in place and no guidance is given	There is no municipal owned fibre-optic infrastructure	CRTC standards not met in two or more areas



Key Findings

Similarities in current state findings were seen across each of the EMRB policy tiers:

REGIONAL



- Municipalities approach network development in silos
- Municipalities are generally unaware of the breadth of deployment options available
- Municipalities are not applying for federal funds
- Lack of engineering and development guidelines
- SuperNet is utilized for public buildings, however, municipal operation buildings are connected with municipal-owned fibre
- ISPs do not share their IP

METROPOLITAN CORE & AREA



- Greatest interest from ISPs and municipal strategies focus on developing these partnerships
- Gbps service levels are highly prevalent and municipalities are preparing for 5G

METROPOLITAN & RURAL AREA



- Lack population density and therefore ISPs lack interest
- Service levels are adequate in dense centers, however, rural areas struggle with connectivity
- Most likely to build their own network infrastructure, and therefore require robust technical strategies

RURAL AREA

- Lack population density and therefore ISPs lack interest
- Municipal revenue is not adequate for network development



Ecosystem Current State

Below is a high-level summary of the Ecosystem Current State:

Strategy & Funding



Alberta
Innovation, Science and Economic Development Canada
Western Economic Diversification Canada
EDERATION
of ALBERTA GAS CO-OPS LTD.



- Canada's Connectivity Strategy focuses on ensuring all citizens have access to 50/10 Mbps
- WD has partnered with ISED to deliver on its Grow West Strategy
- Alberta has reinvigorated the development of a provincial broadband strategy



- Federal funding is centered around the goal of achieving ubiquitous speeds of 50/10 Mbps. Current funds include, ISED CTI (\$585M), CRTC Broadband Fund (\$750M), ISED Universal Broadband Fund (\$1B), ISED LEO (\$600M), INFC RNCIS (\$2B), CIB (\$1B)
- The Government of Canada estimates there is an \$8B funding gap

Advocacy



RMA
RURAL MUNICIPALITIES
of ALBERTA
Edmonton Global
AUMA



- Edmonton Global utilizes their Going Global document to engage the Provincial and Federal Government on behalf of businesses



- RMA and AUMA engage with the Provincial and Federal Government on behalf of their members and have provided feedback on the UBF and other funds





SOCIOECONOMIC IMPACT

The Importance of Broadband



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Objectives

- RSM was engaged to conduct a high level socioeconomic impact assessment of broadband connectivity as part of the Broadband Situation Analysis project.
- We set out to answer the following key questions:
 - What are some of the socioeconomic benefits of improved broadband connectivity?
 - What does improving broadband connectivity mean for the Edmonton Metropolitan Region and communities that comprise the region?

Analytical Framework – Social Return on Investment

- RSM's SROI methodology utilized as the overarching analytical framework.
 - Looks at a project or an initiative on holistic basis.
 - Quantifies and **monetizes** socioeconomic impacts.
 - Often used to allocate government funding and build consensus with stakeholders.



SROI Core Principles

1

EVIDENCE BASED



- Quantification and monetization of socioeconomic impact requires a strong evidentiary basis and relevant data.
- Our goal is maximize credibility of the analysis.

2

CONSERVATISM



- When making assumptions we will always be cautious and conservative not to overstate benefits.
- Utilize risk analysis to explicitly consider uncertainty.

3

QUANTITATIVE VERSUS QUALITATIVE



- Not all socioeconomic impacts can be quantified and/or monetized; we qualitatively assess these socioeconomic impacts.



The Big Picture

Broadband connectivity is absolutely and fundamentally essential to our long term social and economic prosperity



Canada is falling behind in broadband connectivity compared to other developed economies

There are significant service gaps in the Edmonton Region

COVID-19 and plunging oil prices will be a significant drag on Alberta's economy

Go further – not good enough to simply address gaps

Investing in broadband connectivity projects generates a substantial SROI



The Big Picture

Broadband connectivity enables...

QUALITY OF LIFE

Social and economic well being and prosperity

INNOVATION ECOSYSTEM

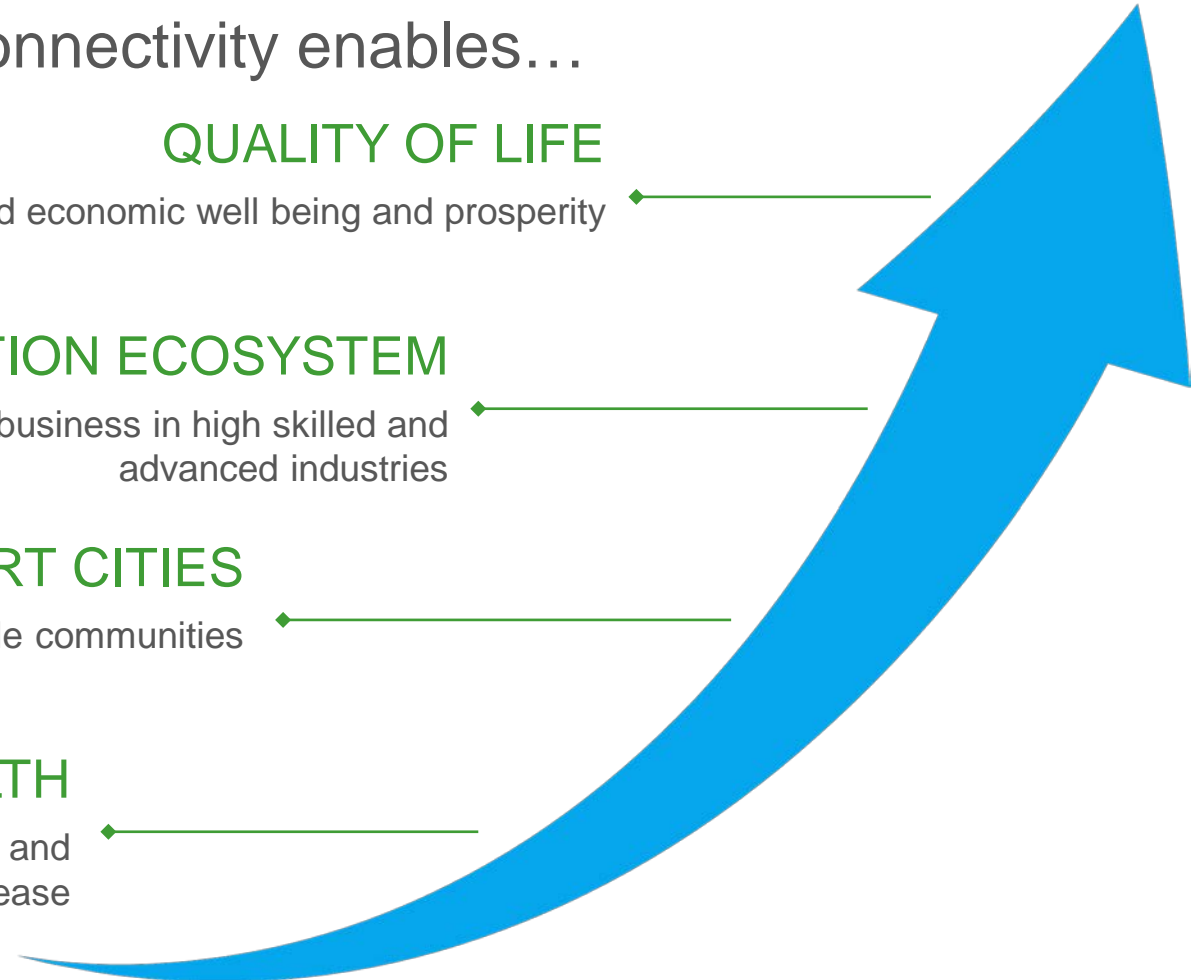
Critical to attracting business in high skilled and advanced industries

SMART CITIES

Development of sustainable communities

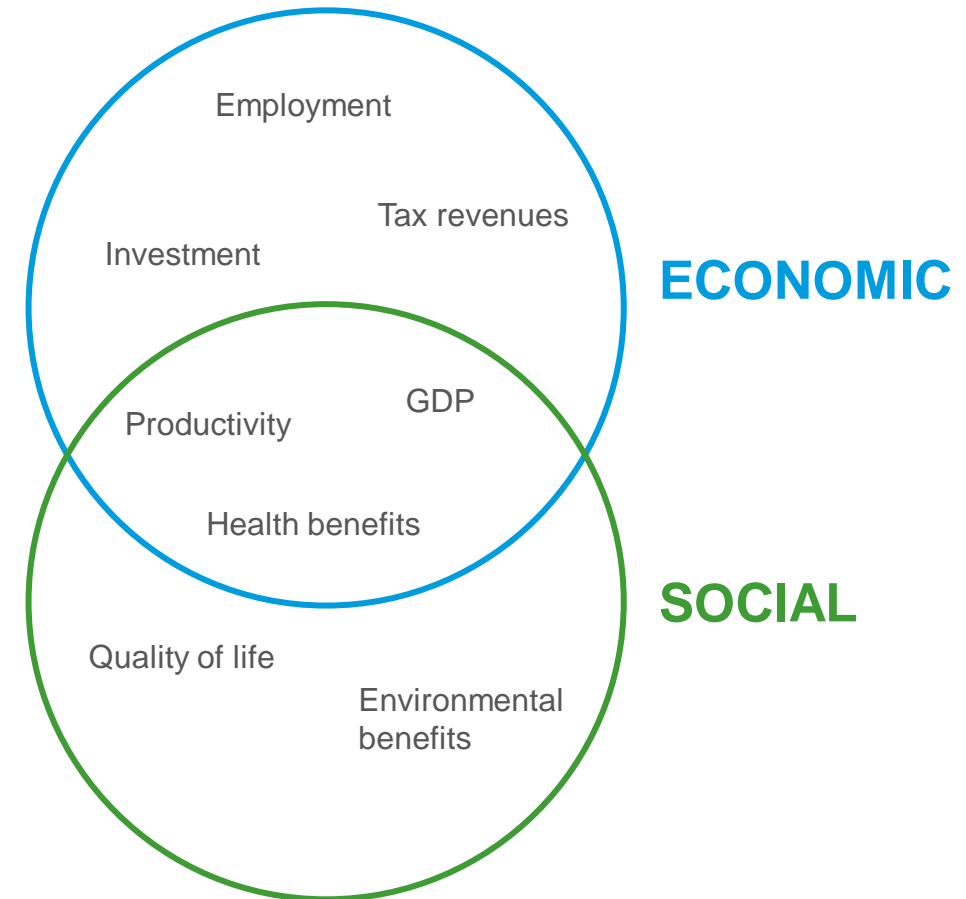
DIGITAL HEALTH

Drive healthcare efficiencies, improve access and better manage chronic disease



Socioeconomic Impact

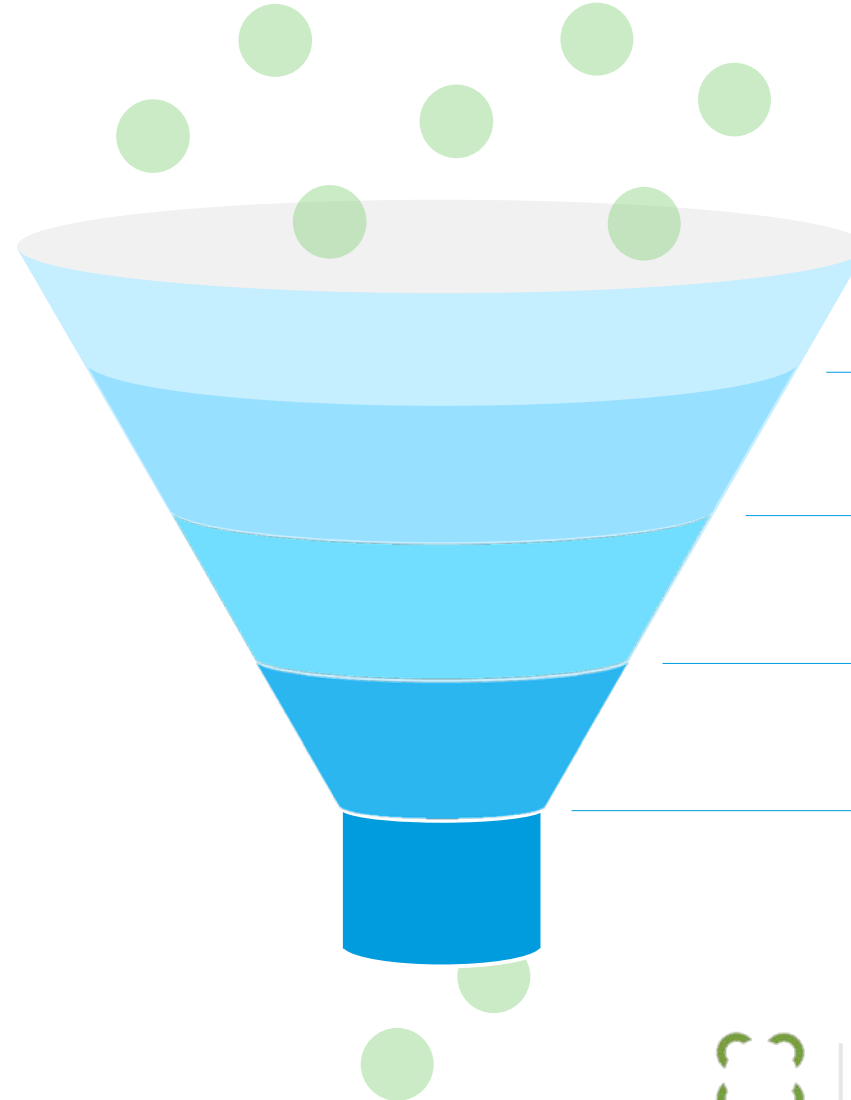
- Literature focused on assessing the relationship between improved broadband connectivity and economic outcomes.
 - Strong direct and **causal** relationship between improved connectivity and GDP.
- Significant overlap between GDP and social impacts.
 - Difficult to disentangle economic from social impact.
 - Limited literature that causally links broadband connectivity to social benefits



Socioeconomic Impact

IMPORTANT POINTS REGARDING RESULTS:

- Risk analysis used to account for uncertainty in input assumptions and underlying data
- Some underlying studies a bit dated
- Nevertheless, we view estimated economic benefits as likely being conservative



– Literature review

- Published, peer reviewed and credible sources

– Statistics Canada

- Household income and Edmonton Region GDP estimates by community

– Baseline broadband connectivity data

- CRTC and other sources

– Expert opinion

- Key assumptions and build scenarios

– Economic impact

- Incremental GDP; economic growth



Socioeconomic Impact

- Conservatively, improving broadband connectivity across the Edmonton Region could increase real GDP by up to **\$1 billion per year**.
 - Would increase real GDP in the Edmonton Region by approximately 1%.
 - In comparison, real GDP across Alberta grew by 0.4% in 2019 and is projected to decline in 2020.

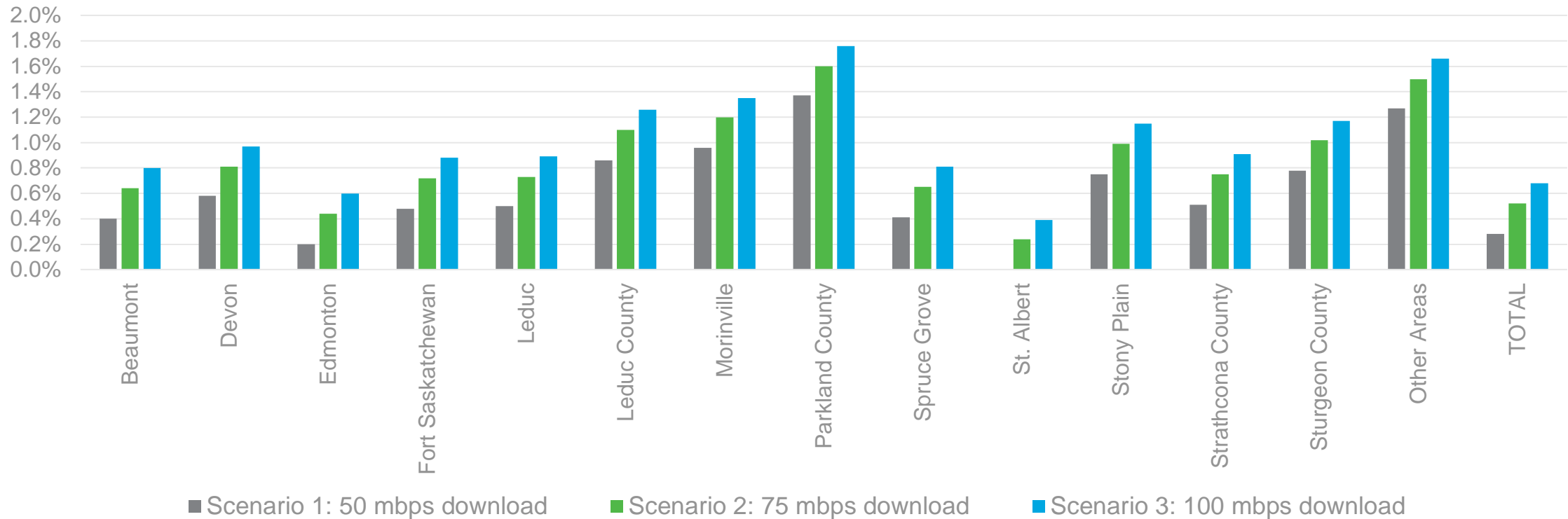
Incremental economic impact by build scenario	Real GDP impact (\$, millions)	Per cent GDP increase relative to baseline
Scenario 1: Average 50 mbps download speed	\$144 - \$412	0.15% - 0.43%
Scenario 2: Average 75 mbps download speed	\$274 - \$736	0.28% - 0.76%
Scenario 3: Average 100 mbps download speed	\$358 - \$954	0.37% - 0.99%



Socioeconomic impact

All regions of the Edmonton Metropolitan Region benefit; communities with lower baseline broadband connectivity levels benefit more

GDP percent increase from baseline by build scenario



Socioeconomic Impact

From a use case perspective, improving broadband connectivity could generate \$60 million for Edmonton Region households

Use Case	Estimated Benefit \$ / HH / yr	Connectivity Needs	Sources of Benefit
Telecommuting	\$350-\$420	<ul style="list-style-type: none"> Efficient collaboration and low-latency video conferencing 	<ul style="list-style-type: none"> Savings on fuel, vehicle and other transportation costs; reduced facilities costs
Remote Health & Learning	\$70-\$140	<ul style="list-style-type: none"> Video-conferencing with doctor/instructor, web-based tools and applications 	<ul style="list-style-type: none"> Savings on transportation; reduced direct costs of doctor visits; reduced educational housing costs
E-Commerce	\$140-\$170	<ul style="list-style-type: none"> Research, comparison shopping and purchasing, including video reviews 	<ul style="list-style-type: none"> Time and cost savings for purchasing decisions; reduced transportation costs
Streaming Video	\$30-\$70	<ul style="list-style-type: none"> Standard definition and 4k video streaming for entertainment 	<ul style="list-style-type: none"> Reduced transportation costs; reduced direct spending on video entertainment
Cloud Storage & Computing	\$30-\$40	<ul style="list-style-type: none"> Storage, file syncing, and throughput for remote machine use 	<ul style="list-style-type: none"> Reduced direct spending on computing capacity
Gaming & Social Media	\$15-\$30	<ul style="list-style-type: none"> Low-latency connection for responsiveness, including rich media and video interactions 	<ul style="list-style-type: none"> Reduced transportation costs; reduced direct spending on interactive media and communication
Two-way Video Streaming	\$210-\$280	<ul style="list-style-type: none"> Low-latency video interaction 	<ul style="list-style-type: none"> Reduced transportation costs for personal and family visits, etc.
Total Possible Benefit of High-speed Broadband			\$845 – \$1,150





EMERGING RECOMMENDATIONS



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Emerging Recommendations

Through the Current State Analysis, the following recommendations for the Region have begun to emerge:

- **Vision:** develop a regional vision / aspirational goals for broadband.
- **Regional Advocate:** advocate for policy and funding frameworks that encourage and enable more capable broadband infrastructure to be deployed.
- **Policy Development:** develop local and regional policies to make the EMRB region a broadband-friendly region.
- **Engineering Guidelines:** develop engineering guidelines to promote consistent utility-grade deployment of broadband infrastructure.
- **Education:** provide access to the resources, tools, and data regional municipalities require to understand and navigate the broadband space and set direction.
- **Intermunicipal Collaboration:** establishing a longer-term collaboration framework to create and harness synergy amongst the many individual member broadband related initiatives.
- **Speed and Infrastructure Data Collection:** continue to collect speed and infrastructure data to track progress and have a clear understanding of the regional current state.



NEXT STEPS



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Next Steps

The Final Report will be completed in August 2020 and remaining deliverables will be focused on building a future state vision and solidifying recommendations. Remaining deliverables are listed below:

1

Jurisdictional Scan:

A scan of international jurisdictions is being completed to identify world-leading broadband deployment policies and practices.

2

Definition of the Desired Future State:

The Jurisdictional Scan results will be utilized to engage EMRB and potentially the wider ecosystem to explore the “art of the possible” and develop a vision for the ideal state of regional collaboration.

3

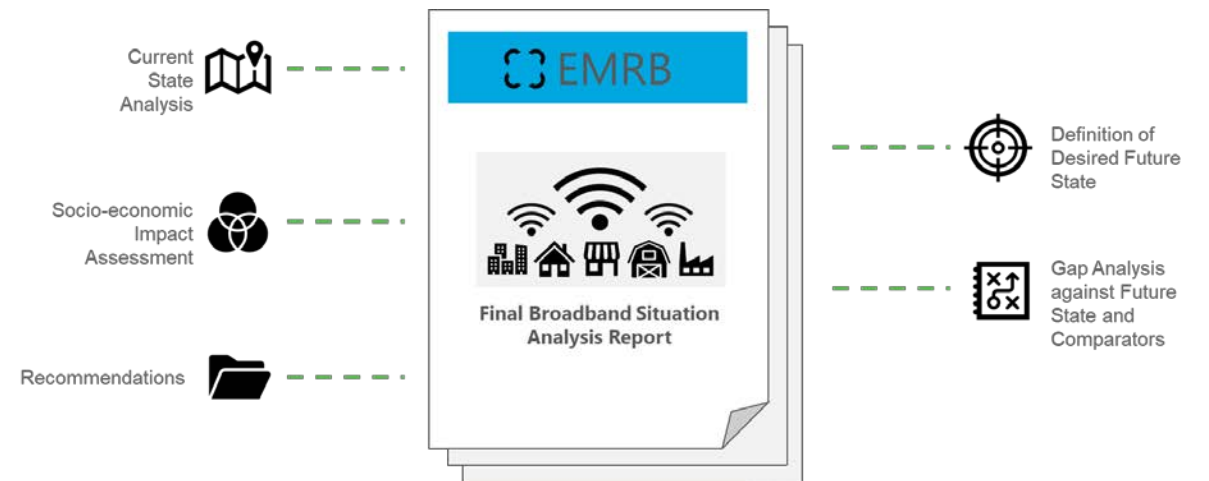
Gap Analysis:

Utilizing current state data and the defined future state vision, a thorough gap analysis will be completed to identify gaps and recommendations.

4


Recommendations:

Emerging recommendations will be solidified and supplemented, and an actionable plan will be provided to address gaps.



QUESTIONS AND ANSWERS





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