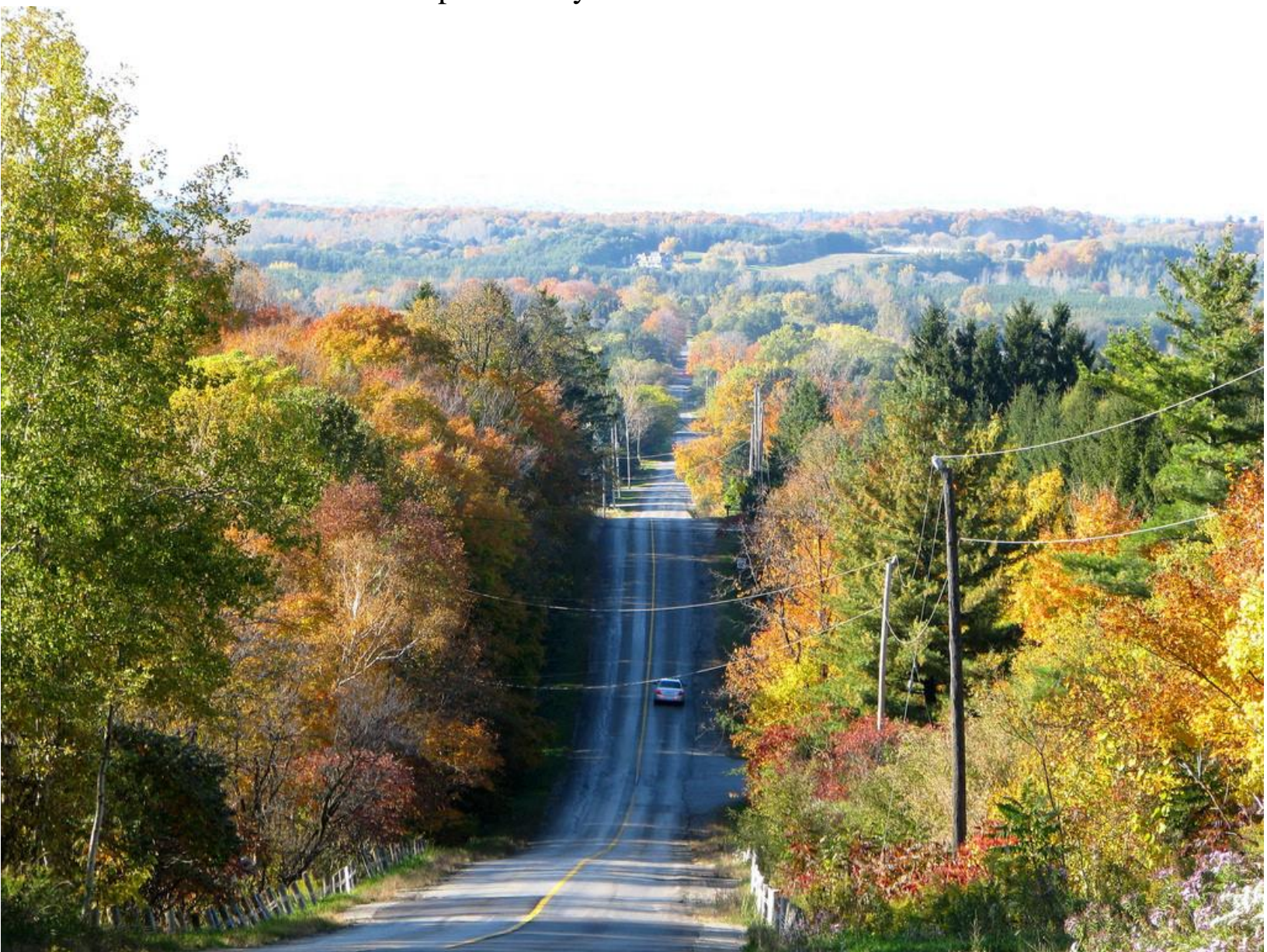# Enhancing Ontario's Rural Infrastructure Preparedness: Inter-Community Service Sharing in a Changing Climate

Interim Report 1: Key Informant Interview Results

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Contents

This document is part of a larger suite of documents on rural Ontario inter-community service cooperation. To access the complete rural ICSC toolkit please visit
http://www.resilientresearch.ca/research-publications/

Introduction

The purpose of this study is to develop a climate change (CC) prepared inter-community service sharing strategy (ICSS) targeted to rural Ontario communities that capitalizes on infrastructure assessments that are undertaken through the asset management process (AMP). AMP is defined by the Ontario government as "…. the process of making the best possible decisions regarding the building, operating, maintaining, renewing, replacing and disposing of infrastructure assets. It helps prioritize infrastructure needs and ensures that investments are made in the right place and at the right time to minimize future repair and rehabilitation costs" (Government of Ontario, 2017, p.15). The objective of AMP's are to maximize benefits, manage risk, and provide satisfactory levels of service to the public in a sustainable manner. Asset management requires a thorough understanding of the characteristics and condition of infrastructure assets, as well as the service levels expected from them. It also involves setting strategic priorities to optimize decision making about when and how to proceed with investments. Finally, it requires the development of a financial plan, which is the most critical step in putting the plan into action (Government of Ontario, 2017). In Ontario, communities are encouraged to undertake the standardized AMP process. AMPs outline the state of local infrastructure (types, age, condition, valuation/replacement cost); expected levels of service (performance measures, external trends/issues); coordinated strategies for maintenance, growth, disposal and renewal including non-infrastructural solutions (integrated planning and land use planning); procurement options, benefits and costs including revenue streams, historic and forecasted costs for the life cycle of the assets, assessment of risk (probability, consequence, vulnerability); and financing options including ICSS potential. AMP challenges include lack of familiarity, personnel training, time and finances and data gaps (Ministry of Infrastructure, 2012).

Changes to AMP in Ontario are coming with the introduction of the Infrastructure for Jobs and Prosperity (IJPA) Act (herein called Bill 6). The biggest change to AMP is that it will soon need to address the risks and vulnerabilities that may be caused by climate change to the municipality's infrastructure assets. The core details of bill six can be found on the recently concluded public comment period, found on the environmental registry website here: https://www.ebr.gov.on.ca/ERS-WEB-External/displaynoticecontent.do?noticeId=MTMyNTkw&statusId=MjAxMzgx&language=en

Strategic Asset Management Policy

All municipalities would be required to develop and adopt a strategic asset management policy by January 1, 2019. At least every five years from that date the municipality would be required to review the policy and if necessary update it.
The policy would include:

- Which municipal goals, plans (e.g., official plan, strategic plan, master plans) or policies the municipality's asset management plan would support
- A process for how the asset management plan would affect the development of the municipal budget and any applicable long-term financial plans

- The municipality's approach to continuous improvement and adoption of best practices regarding asset management planning
- The principles that would guide asset management planning in the municipality, which would be required to include the principles in section 3 of the *Infrastructure for Jobs and Prosperity Act, 2015*
- A commitment to consider in asset management planning:
  - the actions that may be required to address the risks and vulnerabilities that may be caused by climate change to the municipality's infrastructure assets, including to: operations requirements (e.g. increased maintenance schedules); levels of service (e.g. raising or lowering levels of service); and lifecycle management; and the anticipated costs that could arise from these impacts, and adaptation opportunities that may be undertaken to manage these potential risks
  - mitigation approaches to climate change, such as greenhouse gas emission (GHG) reduction goals and targets
  - disaster planning and any required contingency funding.
- A process to ensure that asset management planning would be aligned with Ontario's land-use planning framework, including any relevant policy statements issued under section 3(1) of the Planning Act; provincial plans as defined in the Planning Act; and, municipal official plans
- A discussion of capitalization thresholds used to determine which assets are to be included in the asset management plan and how this compares to the municipality's Tangible Capital Asset policy, if one is in place
- A commitment to coordinate planning between interrelated infrastructure assets with separate ownership structures by pursuing collaborative opportunities with neighbouring municipalities and jointly-owned municipal bodies
- Identification of who would be responsible for asset management planning, including an executive lead and how council will be involved; and
- A commitment to provide opportunities for municipal residents and other interested parties to provide input into asset management planning.

Municipal Asset Management Plans

Municipalities would be required to prepare an asset management plan in three phases:

1. Phase I would address core infrastructure assets, and would be required to be completed by January 1, 2020.
2. Phase II would expand on Phase I by including all infrastructure assets in the plan by January 1, 2021.
3. Phase III would require further details to be provided for all infrastructure assets by January 1, 2022.

Inter-community service sharing (ICSS) is an intergovernmental agreement that facilitates more efficient and/or cost-effective delivery of infrastructure services and manages boundary-spanning infrastructure. Although ICSS holds great potential, currently a research gap exists about how ICSS can boost preparedness in rural Ontario communities facing both climate change (CC)

threats and scarce resources. An ICSS response to the threats from extreme events could include upgrading water management systems, rerouting transportation, harmonizing building codes and coordinating emergency services and response (Black, Bruce, & Egener, 2010). The Ontario Ministry of Infrastructure asserts that "Opportunities should be pursued to provide infrastructure more efficiently by forging partnerships with other communities…" (Government of Ontario, 2017, p. 3). Common services shared are potable water, waste water, storm water, road maintenance, infrastructure management, emergency services, procurement, project tendering, permits and inspections (Government of Ontario, 2017). Across Canada and internationally, ICSS is increasing with research suggesting that the careful use of shared services can contribute to cost savings and improved local service provision (Dollery & Akimov, 2007; LeRoux & Carr, 2007; Province of Nova Scotia, 2014).

In Ontario, CC is already underway (Ministry of the Environment and Climate Change, 2015) and by 2050 an increase in annual average temperature between 2.5-3.7° C is projected. The total amount of precipitation is not expected to change substantially in more southern regions; however, more precipitation is expected in the winter and spring. With increasing southern temperatures, more intense dry periods are expected in the summer months. Projections suggest that more frequent and more intense extreme events are likely and that the risk of disruptions to infrastructure is likely to increase. The impacts of CC are already requiring the adaptation of infrastructure designs and plans, such as the retrofit of storm water infrastructure, and wastewater treatment plants are expected to need significant updates (Infrastructure Canada, 2012; Black, Bruce, & Egener, 2010). Ontario has already felt some of these effects leading to millions of dollars of damage to the province's infrastructure (Ministry of the Environment and Climate Change, 2015). Exacerbated by an aging infrastructure built by now out-dated assumptions, the vulnerability to CC will likely increase and the built-in coping range may not be adequate to handle future climate extremes (Pearson & Burton, 2009; Canadian Council of Professional Engineers, 2008). Vulnerability levels are influenced by the character, magnitude and rate of CC, the sensitivities of the infrastructure to the changes and the capacity to absorb the changes. Undertaking AMP provides the baseline for understanding CC impacts, including risk assessments of potential infrastructure vulnerabilities as well as cost effective response strategies (Pearson & Burton, 2009; Canadian Council of Professional Engineers, 2008). An ICSS response to the threats from extreme events could include upgrading water management systems, rerouting transportation, harmonizing building codes and coordinating emergency services and response (Black, Bruce, & Egener, 2010). Ontario legislation requires local governments to mitigate, prepare and respond to threats within their jurisdictions and to sustain adequate infrastructure to provide a suite of local services (ICLEI, 2012). Municipal preparedness for CC is a function of the range of available options and resources, the organization, nature and characteristics of local infrastructure and access to risk-spreading mechanisms (such as ICSS) (Infrastructure Canada, 2012). Because the impacts will be felt across infrastructure sectors, all day-to day infrastructure planning and management should integrate (mainstream) consideration of CC and all key departments and stakeholders should be consulted in discussing potential preparedness strategies.

This research enhances rural infrastructure preparedness for CC by highlighting ICSS best practices as a cost-effective mechanism to upgrade and/or replace infrastructure at risk from CC.

Through a more thorough integration of ICSS into the standard AMP process, the project explicitly increases the anticipatory, collective actions that reduce infrastructure damage and minimize response and rebuilding costs as well as develop capacity to cope with extreme events. Our approach utilizes extensive, integrated KTT to increase the uptake with end-users. For the purposes of this project, rural communities include all Ontario communities who self-identify as rural, or partially rural, and have membership in the Rural Ontario Municipal Association. This project is guided by a Project Advisory Board (PAB) consisting of experts representing key rural sectors. The research is focused on the infrastructure sectors most likely affected by CC, that are under the control of Ontario rural communities, and where ICSS shows promise. These are broadly grouped into public works and emergency management. For each sector we outline the key hazard vulnerabilities and the services most likely interrupted (Table 1).

Table 1: Municipal Infrastructure and Services Impacted by Climate Change (Adapted from: Canadian Council of Professional Engineers. (2008) *Adapting to Climate Change: Canada's First national Engineering Vulnerability Assessment of Public Infrastructure*. Available Online: http://www.pievc.ca/e/Adapting_to_climate_Change_Report_Final.pdf)

Infrastructure Impacted	CC Hazard Vulnerability	Service Interrupted
Public Works		
Dams	Flood, ice jam, drought	Water management, potable water
Reservoirs, potable water intake and delivery structures	Drought (low water levels), heat waves, flood, ice jam, intense cold, algae blooms	Drinking water quantity/quality, industrial water supply
Sanitary and storm water systems	Intense rain events, wind	Sewage management, water drainage
Bridges, roads and sidewalks	Freeze-thaw cycle, ice accretion, wind, heat wave, flood, winter storm	Transportation
Emergency Management		
Fire, emergency medical services, police, search and rescue, emergency social services	All extreme weather events Where less mitigation and preparedness, cost of response and recovery increased	Could impact multiple services Could be cascading impacts across services

This document presents results from objective 1 (broad assessment), with a specific focus on section 1.2 – key informant interviews.

Objective 1: Broad Assessment
1.1. Through an environmental scan, document current approaches and develop best practices for CC-Prepared ICSS, within the context of AMP
1.2. Undertake key informant interviews
1.3. Survey a sample of rural communities

Objective 1.1 – Environmental Scan

With a focus on ICSS and AMP and informed by the requirements of CC preparedness, we have completed an extensive environmental scan of current approaches and processes through a review of Canadian and international academic, practitioner and government literature. Kylie Hissa is the lead author and research assistant tasked with this component of the project, which was completed from September 2016 – April 2017. The scan has identified case study examples, best practices, and the factors and indicators that influence the potential uptake of a CC-Prepared ICSS strategy. Best practices for developing such agreements as part of Ontario's standardized AMP process are discussed in the document (Appendix B) along with a series of potential survey questions from her perspective (Appendix C). The findings are being used to guide the next stages of research, and have been used to develop the key-informant interview guide and the survey questions.

Additional research specifically focused on AMP from a business perspective was completed in Summer 2017 with the support of a graduate research assistantship graciously provided by the Business Technology Management program at Wilfrid Laurier University. Rusitha Kugathasan completed an economically-focused literature review under the supervision of Dr. Patricia McLaren, who is a financial specialist & business academic. The results from Rusitha's work are integrated into the project, and have been especially useful at understanding the potential economic benefits of undertaking AMP in rural Ontario. A series of potential survey questions from her perspective are offered in Appendix D.

Objective 1.2 – Key Informant Interviews

Based on the insights gathered from the environmental scan and PAB feedback, we developed the interview guide (Appendix A), obtained ethics clearance and conducted 10 key informant interviews. The interviews are being used to refine our initial results and contribute to the final results. In addition, the research team has extracted insights and topics from the interviews to inform the content of the survey (Objective 1.3). Interview informants have expertise related to CC preparedness, ICSS, AMP and rural infrastructure and were drawn from Canadian university, industry, government and community experts. These experts include rural academics (University of Guelph; Memorial University), public works officials (City of Hamilton; Township of Georgian Bay), non-government organizations (Green Communities Canada), municipal/infrastructure sector group representatives (Ontario Good Roads Association; Ontario Municipal Finance Officers' Association; Federation of Canadian Municipalities) and several consultants with expertise in Ontario rural ICSS and AMP. The ten (10) informants were identified through the environmental scan and the PAB, and were interviewed for about an hour each. The interviews were audio-recorded and transcribed. The interviews focused on topics such as the impact of CC on municipal infrastructure sectors; types and levels of CC-preparedness in rural communities; opportunities and challenges for assessing CC infrastructure risks within AMP; benefits, challenges and best practices for further embedding ICSS into AMP processes and undertaking CC-prepared ICSS; and ICSS case study example.

Interview Results

Section 1 – To understand the background of the participant, we began by asking about their experience with assessing and planning the community's infrastructure needs and sharing infrastructure services in their community. We asked respondents about the type of information they thought would be important for us to collect. Probes included: How much/what type of experience do small rural communities have with 1) asset management planning and 2) the use of service sharing to meet infrastructure needs? What infrastructure services are most likely to be shared? What infrastructure services are hardest to share?

Results – Virtually all respondents indicated that it is important to organize all research work and future analysis on service sharing by municipality type. A summary of municipality organization is provided below, and is also available here https://www.amo.on.ca/AMO-Content/Municipal-101/Ontario-Municipalities.aspx

Upper municipalities - Ontario's Municipal Act (2001) defines upper-municipality as "a municipality of which two or more lower-tier municipalities form part for municipal purposes." (Service Ontario, 2013, p. 3). Ontario has 30 upper-tier municipalities that comprise multiple lower-tier municipalities. These upper-tier municipalities include 19 counties, 3 united counties and 8 regional municipalities or regions, all of which represent 30 of Ontario's 49 census divisions. (Service Ontario, 2013). Regional governments are responsible for arterial roads, health services, policing, region-wide land use planning and development, sewer and water systems, social services, transit, and waste disposal, whereas county governments have the lesser responsibilities of arterial roads, county land use planning, health services, and social services.

Local municipalities - Ontario's Municipal Act, 2001 defines local municipality as "a single-tier municipality or a lower-tier municipality" (Service Ontario, 2013, p. 3). Combined, Ontario has 414 local municipalities comprising 173 single-tier municipalities and 241 lower-tier municipalities.

Single-tier municipalities

- o Ontario's Municipal Act, 2001 defines single-municipality as "a municipality, other than an upper-tier municipality, that does not form part of an upper-tier municipality for municipal purposes" (Service Ontario, 2013, p. 3). In southern Ontario, single-tier municipalities are either politically separate from but geographically within neighbouring counties or were formed through the amalgamation of upper-tier and lower-tier municipalities. All municipalities in northern Ontario are single-tier municipalities as upper-tier municipalities are not present. Single-tier municipalities provide for all local government services (Service Ontario, 2013). Ontario has 173 single-tier municipalities comprising 32 cities, 23 municipalities, 28 towns, 85 townships, and 5 villages (Service Ontario, 2013, p. 3).

Lower-tier municipalities

- o Ontario's Municipal Act, 2001 defines lower-tier municipality as "a municipality that forms part of an upper-tier municipality for municipal purposes" (Service Ontario, 2013, p. 3). Ontario has 241 lower-tier municipalities comprising 19 cities, 39 municipalities, 62 towns, 115 townships and 6 villages. Within regions, they are responsible for providing certain local services that are not provided by the regional municipality. Within counties, they are responsible for providing a wider range of local services since counties as upper-tier municipalities provide fewer local services than regions (Service Ontario, 2013, p. 3).

Respondents emphasized the importance of organizing survey results by municipality type, as it will influence how the results are contextualized. An example provided by an academic respondent was rural communities around Waterloo region. The level of capacity that exists in the Waterloo region's lower-tier townships of Wilmont, Wellesley and Woolwich will vary greatly from single-tier municipalities, especially those found in near-north Ontario. It will be important to sort the survey data by municipality-type in the survey data analysis phase.

Capturing more in-depth information about those answering the survey was an important theme that arose with most respondents. Questions on how much/what type of experience do small rural communities have with 1) asset management planning and 2) the use of service sharing to meet infrastructure needs was indicated as being important to provide some snapshot data on service sharing.

Key informant interview findings, along with results from the literature reviews by Kylie Hissa and Rusitha Kugathasan have been utilized to develop this series of questions for section 1 of the survey (background information).

1) Please indicate the size of your community (Choose 1)

Population	X
Less than 999	
1000 to 2499	
2500 to 4999	
5000 to 9999	
10 000 to 49 999	
50 000 to 99 999	
100 000 to 499 999	
Greater than 500 000	

2) What percentage of your community do you consider to be rural? (Choose 1)

☐ 0-20%	☐ 21-40%	☐ 41-60%	☐ 61-80%	☐ 81-100%	☐ Don't Know	☐ N/A

3) When did your community last complete an Asset Management Plan (AMP)?

A. Less than 6 months

B. 6 – 12 months

C. 12 – 24 months

D. 24 – 36 months

E. We have never completed an AMP

4) Does your municipality share services to meet infrastructure needs?

Yes

No

4a.) If yes, what services does your municipality share?

    A. Drinking water
    B. Storm water
    C. Wastewater treatment
    D. Municipal roads
    E. Municipal bridges
    F. Community and social infrastructure
    G. Sports and recreation infrastructure
    H. Emergency services
    I. Other (please explain below)

4b.) If yes, what services are hardest to share?

    A. Drinking water Storm
    B. Wastewater treatment
    C. Municipal roads and bridges,
    D. Community and social infrastructure
    E. Sports and recreation infrastructure
    F. Emergency services
    G. Other (please explain below)

4c. If no, are there services you would like to share but have been unable to?

    A. Drinking water Storm
    B. Wastewater treatment
    C. Municipal roads and bridges,
    D. Community and social infrastructure
    E. Sports and recreation infrastructure
    F. Emergency services
    G. Other (please explain below)

Some interview respondents felt it was important to ask where communities are spending their money (beyond general government and roads) to get an idea of where service sharing could have some potential for cost savings.

5) Over 400 Ontario municipalities have assets for General Government and Paved Roads. Of this list, what is the next most common asset reported on Financial Information Return's (FIR's)?

A. Libraries

B. Cemeteries

C. Parks

D. Fire

E. Solid Waste Disposal

6) What is the next largest asset category, after Roads and Water/Storm, based on $ invested*?

A. Parks

B. Recreation

C. General Government

D. Transit

E. Public Housing

F. Emergency Services

* Based on 2014 FIR closing balance – amount invested over time excludes amortization

Section 2 – In this section of the survey, we are interested in the influence of the community's characteristics on the ability to effectively plan for and share infrastructure assets. We asked interview respondents about their understanding and/or experience with these characteristics. Probes included: What are the characteristics that influence community capacities and approaches to planning for and sharing infrastructure services? (E.g. personnel ability/time to do asset planning, population/location of community, remoteness, available/condition of infrastructure, economic and social structure).

Results – All respondents emphasized the importance of community capacities to complete AMP's, and that the size and location of communities will influence what services are shared. Several respondents noted that municipalities sometimes don't want to work together to share services due to interpersonal conflicts and old feuds. Some municipalities may have the perception that the neighbouring municipality is 'freewheeling' while they themselves are bearing an unfair amount of responsibility or financial burden. This issue was raised most prominently by the municipal government representatives interviewed.

An academic respondent felt it would be interesting to look at what provincially-mandated services are shared, verses services municipalities may choose to share. They noted that 'old tricks' like having fire and police in the same building, or sharing recreation complexes and libraries are fairly common, but it would be interesting to capture some innovative examples.

Perhaps the most prominent theme that emerged from the interviews on this section was the desire to ask 'attitudinal' questions on AMP and service-sharing. A consultant who participated in a working group to develop the original AMP guidelines and the *Infrastructure for Jobs and Prosperity Act (IJPA)* (aka Bill 6) for the Ontario government felt it was important to ask question inquiring about the level of staff knowledge of AMP, and the level of support from senior staff (and the mayor) on AMP and service sharing. They felt this was especially important to ask in rural communities, where there may be less desire and resources to undertake new projects, noting that these small communities are often focused on what they know (e.g. maintaining parks, plowing snow, paving streets) and may not see the benefits of the AMP

process or potential benefits of sharing services. Potential survey questions for this section are presented below.

1) Are you confident that staff understand AMP?

A. Yes

B. No

2) How Refined is your AMP?

A. Beginning our AMP journey

B. Need to add more assets or refine our existing ones

C. AMP is complete but needs to be integrated into other processes

D. AMP is complete and integrated into other processes

3) Is the AMP process supported by a policy and procedure?

A. No policy or procedure

B. No policy, but informal procedures followed

C. No policy, but formal procedures documented

D. Policy in place but no/informal procedures followed

E. Policy in place and formal procedures documented

F. Our municipality has not completed an AMP

4) To what extent is your municipality aware of the benefits of AMP within the organization?

A. No awareness

B. Some general awareness

C. Moderate awareness

D. Detailed awareness of some benefits

E. Detailed awareness of all benefits

5) To what extent is the Asset Management planning process embedded within the municipal organizational structure?

A. No organizational support

B. One department support

C. Mix of support

D. Few departments' support

E. All applicable departments' support

Section 3 – Interview respondents were asked about how asset management planning and decisions about service sharing are undertaken in Ontario's small rural communities, and the survey questions that may best be used to tease-out this data. Probes included: What do infrastructure planning processes and decisions about service sharing typically look like in small rural communities? (E.g. local government buy-in, citizen engagement). To what extent are rural communities using Ontario's formal AMP process? Overall, what processes most influence decisions about infrastructure planning and the potential uptake of service sharing?

Results – The respondents interviewed had varying opinions and thoughts about what questions would be best used to answer these questions. Academic respondents emphasized the importance of low-capacity in small communities, and how this would influence the results. One academic respondent noted that this goes beyond institutional capacity, and into what they termed 'human capacity' which they described as the individual employee's skill set. They described that many of these small, rural communities simply may not have employees with adequate education and training to draft and implement substantive projects based on either AMP or ICSS. The respondent used the example of Sundridge ON, a small community 75km south of North Bay with a population of 961 people. The community needed to conduct a lifecycle analysis on their wastewater system, but they do not have an engineer on staff. They explained that the lack of human capacity is a problem in this instance, but also an opportunity as it forced their hand at sharing resources with North Bay, who facilitated time for their wastewater engineer to conduct the work.

A consultant interviewed for this project indicated it is important to ask what is done with the AMP plan. They indicated that in their experience, most AMP's are completed and then shelved,

explaining that there is a funding and resource shortfall using the example that most communities won't even look at starting work on AMP or ICSS projects until the snowplowing season is finished. They indicated that most communities don't realize funding from OCIF (Ontario Community Infrastructure Fund, which is a shared initiative between MAH and OMAFRA) can be used to progress their AMP. They noted that OCIF funding often goes towards building something new, but that this funding can be used to update or advance the AMP program. So an important question to ask is "have you already taken advantage of a shared asset manager under the OSIF funding program?" The same respondent noted that in their experience, about 80% of rural communities integrate their AMP, with medium and larger communities having less success at integrating AMP into their operations due to (in their opinion) entrenched positions, existing procurement processes, and increased complexity (more services and assets to manage). The literature review suggests that most communities do not have measures and metrics to evaluate the performance and effectiveness of AMP, so they may not see the long-term benefits and chose not to invest resources into advancing their AMP.

Municipal government respondents noted that for public engagement, there is generally very little public input and very little interest in public participation from both sides (general public and municipal government officials). Beyond attending council meetings, they indicated that there is very little public input on AMP's, but that for service sharing there may be opportunities for public input (depending on which services are being discussed). They noted that for 'soft' services (e.g. sharing public health nurses, engineers, and other staff) there is generally very little input or pushback, but for 'hard' services (e.g. recreation complexes, libraries) there can be vehement opposition that requires special council meetings to resolve. They described that it depends a lot on how well communities get along, using the example of a longstanding hockey rivalry that has pitted the communities against each other, which they felt compromised the proposal to share fire services between them in near-north Ontario. This result (according to the respondent) has led to a fire services protection shortfall. The same respondent noted that unions representing firefighters and paramedics were another example of this type of problem, noting that firefighters would like do some of the duties of paramedics, but have been pushed-back on this idea by the paramedics union. The example they provided is that in their service area of Georgian Bay, there are hundreds of cottages on islands. Firefighters have the boats and can respond quickly (~10mins), but must wait upwards of 30-60 minutes for a paramedic to arrive (often coming from Barrie, Midland or Penetanguishene) to take them over in the boat. The respondent also noted that firefighting services (in their opinion) needs to be regionalized, although that is beyond the scope of this study.

Questions presented below aim to capture how asset management planning and decisions about service sharing are undertaken in Ontario's small rural communities.

1) To what extent is the public involved in the Asset Management Planning Process?

A. No public involvement

B. The public can attend Council meeting when AMP is being approved

C. The public is aware of AM plans through active public education campaigns

D. The public is invited to comment on a draft AMP

E. The public is invited to provide input into AMP development.

1a.) Public input in the AMP process includes (click all that apply):

A. Delegations
B. Surveys
C. Special meetings or information sessions
D. Website information
E. Other (please explain below)

2) To what extent does AMP policy/procedures provide measures and metrics to evaluate the performance and effectiveness of the AMP process?

A. No measures and metrics

B. High level discussions regarding measures and metrics

C. Some measures and metrics

D. Measure and metrics are included and used to evaluate the current AMP OR provide for improvement to future AMPs

E. Measure and metrics are included and used to evaluate the current AMP AND provide for improvement to future AMPs

3) Ontario Community Infrastructure Fund (OSIF) funding can be used to update or advance your community's AMP program. Have you already taken advantage of a shared asset manager under the (OCIF) funding program?

A. Yes

B. No

C. Unsure

4) Is there sufficient staff with core competency skills in key operational activities related to AMP?

A. Little or no staff competency and insufficient staffing levels

B. Some staff competency and insufficient complement

C. Staff competency and complement is inconsistent

D. Adequate staff competency but insufficient complement

E. Adequate staff competency and sufficient complement

5) With regards to sharing services, what is the general attitude of staff and/or council towards working with neighbouring municipalities?

A. We enjoy strong working relationships with neighbouring municipalities, and share services with them

B. We are working at building stronger relationships with neighbouring municipalities, and share some services with them

C. We would rather not work with neighbouring municipalities, but we do share some services with them

D. We would rather not work with neighbouring municipalities, and we do not share any services with them

6) Thinking about the major core asset groups, where do you feel you need additional attention with respect to asset management planning?

A. Drinking water

B. Storm water

C. Wastewater treatment

D. Municipal roads

E. Municipal bridges

F. Community and social infrastructure

G. Sports and recreation infrastructure

H. Emergency services

I. Other (please explain below)

7) To what extent does Council support the AMP and process?

A. No Council support

B. Council receive the AMP as information only

C. Council approves the AMP with no specific recommendations

D. Council approves the AMP and defers all recommendations to budget process

E. Council approves the AMP with specific recommendations to be included in budget process.

8) Do you feel that you are in competition with any of your neighbouring communities? If yes, does this feeling of competition limit the opportunities for cooperation?

A. Yes

B. NO

If yes, please explain

Section 4 – In this section of the survey we would like to understand if concerns about climate change and/or the impacts of extreme weather events have influenced approaches to asset management planning or service sharing, particularly in terms of protecting infrastructure. We asked respondents if concern for climate change and/or extreme weather events plays a role in infrastructure planning or service sharing in Ontario's small rural communities. Probes included: To what extent do extreme weather events influence infrastructure asset planning? Given CC, what infrastructure services do you think will be most at risk and what will be most important to share? When undertaking the formal Asset Management Program (AMP), do communities explicitly consider the impact of extreme weather events and/or CC? Why or why not? How could CC be more fully incorporated into AMP?

Results – Respondents universally expressed concerns over a changing climate, and the potentially disruptive role extreme weather has (and will) have on infrastructure in Ontario. A respondent from the Municipal Finance Officers' Association of Ontario (MFOA) explained the struggle facing rural municipal councils as not knowing what to plan for, and even if municipalities have a sense of what to plan for, it's more likely as they plan new infrastructure they are still confused on what they are going to see.

Uncertainty on climate change was the major prevailing theme that emerged when discussing this section. The same respondent from MFOA explained that with Bill 6, rural communities have to show how they are addressing climate change in their AMP. They explained that these communities are struggling just to get the bare bones pieces of the AMP together, and they are certainly struggling on the climate change adaptation (CCA) side, with a lot of communities not knowing what they should be doing to prepare for local CC impacts and how to report these changes in their AMP. They felt there is still a lot of uncertainty on just how to address climate change, especially given that existing infrastructure (e.g. existing storm water systems) are already in the ground, and certainly cannot be changed overnight. They emphasized the importance of potential liabilities, such as where there are flash floods, and people sue the municipality. Overall, there is tremendous pressure to address all infrastructure deficits, there is always a shortage of money, and for new infrastructure, they noted that many rural communities don't know what to build (e.g. what size of culvert is adequate in a changing climate?).

A municipal government respondent addressed concerns around service sharing and climate change as it relates to politics. The respondent felt it would be important to add a question about barriers (broadly speaking), citing that in their experience they've heard that some councils are worried that if they started sharing services, the provincial government is going to amalgamate them.

A different municipal government respondent explained that a significant barrier to service sharing is that many small rural municipalities don't know how to develop service agreements. They sense there could be benefits, but they are worried about staff time and upfront costs. Many rural (and especially northern municipalities) only have Clerk treasurers and do not have full-time finance staff, so they spend the time doing what they know what to do (e.g. snowplowing, road and park maintenance). When it comes to innovative ways of addressing climate change through service sharing, they don't have the time, the resources, and the skills to develop service agreements.

An academic respondent discussed the importance of innovation, noting that it is not necessarily all 'doom and gloom' when it comes to climate change, and that successes on sharing other services could be applied to sharing services that address climate change. They explained that many municipalities are willing to share such things as fire, police, and water. And even in economic development they are working together. So municipalities are able to collaborate, and they are doing that. The respondent felt that municipalities can engage in AMP in a collective

manner across a county area, and work together to share services so long as it is very clear how the source revenue and costs are shared.

A consultant with experience working on Bill 6 felt it would be interesting to ask how the regulation is being implemented, as it gives no 'how to plan for CC' just that you 'should' be doing it. A respondent from Ontario Good Roads Association echoed this concern, noting that Bill 6 is putting more demands on municipalities. They explained that communities that *"have it together"* understand the importance of the AMP process, and that professional staff should allow for more prudent management of their tangible controllable assets. The OGRA respondent would want to know what services municipalities are sharing.

An academic respondent from Eastern Canada explained that in their experience working with rural communities, raising awareness of service sharing benefits with communities is important. It is hard for one person to get service sharing implemented, but in their experience, they utilized the regional water operator (and their engineers) to get this done and it worked well. In their example, a regional water engineer came once a week into smaller communities to help with problems and issues, and make sure things are running properly. This helped with the finances, and the economies of scale. They explained that having institutional awareness has been beneficial and felt this sort of sharing would be important with small rural and unorganized townships (Northern Ontario). They also felt that education about climate change is going to be important too, and that with increased education there can be more willingness to work together and share resources. The respondent also mentioned that 'handshake' agreements should be formalized, especially given the vulnerabilities expected with climate change.

Below are a series of questions aimed at understanding if concerns about climate change and/or the impacts of extreme weather events have influenced approaches to asset management planning or service sharing, particularly in terms of protecting infrastructure.

1) **In your locality, how often do you see evidence that the following people are planning for climate change?**
   A. Municipal politicians
   B. Municipal staff
   C. Members of the broader community
   D. Other (please explain)

2) **What is the main barrier to developing shared service agreements in your municipality?**
   A. Staff resources (time)
   B. Staff competency

C. Up-front financial costs
D. Amalgamation concerns
E. Geographic location (too far from other municipalities)
F. Willingness to work with other municipalities
G. Other (please explain)

3) **A key component of municipal asset management planning is to identify and manage risks including climate change impacts. What is your community doing to prepare for climate change? (choose all that apply)**
A. Working with Conservation Authority
B. Using GIS mapping to identify potential flooding and drought areas
C. Considering/integrating into various municipal plans e.g. Official Plan
D. Preparing briefing materials for council
E. Incorporating resiliency into infrastructure projects
F. Planning/implementing green infrastructure (e.g. Low impact development)
G. Resiliency assessment considering future climate conditions
H. Preparing communication material for the public
I. Other
J. Nothing

4) **In your opinion, has sharing services increased your community's' level of preparedness to climate change-related risks on the infrastructure service being shared?**

Yes
No
We do not share any services
Unsure

5) **Does your municipality have information on climate change that you are using in your asset management planning?**

Yes – Good

Yes – Limited

No

6) How confident are you in the climate change data?

A. Starting to consider climate change in our long-term planning
B. Uncomfortable with the predictions
C. Unsure how to incorporate into planning
D. Recent weather patterns (flooding, drought) have made climate change a priority for our municipality
E. Not confident at all

7) Thinking about the short term and long-term challenges for your municipality related to infrastructure and climate change, what are your municipality's priorities?

A. Funding for rehabilitation work and preventative maintenance
B. Adequate funding for capital works
C. Operations staff availability and competency
D. Incorporating resiliency into infrastructure projects
E. Planning/implementing Green infrastructure/Low Impact Development
F. Resiliency assessment considering future climate conditions
G. Preparing briefing materials for Council
H. Preparing communication material for the public
I. Using GIS mapping to identify potential flooding and drought areas
J. Other

Section 5 – In this section we are interested in understanding the opportunities, strengths and challenges of increased service sharing in rural Ontario communities. In relation to climate change and infrastructure, what do you think are the most important existing strengths and challenges of the AMP process, and what are the opportunities to enhance service sharing in Ontario? Probe: Challenges/Strengths: access to information, resourcing, role sharing, social connectedness, manager awareness, public awareness, political support, other. Opportunities: public/political/manager education, incorporating service sharing across multiple communities, choosing options that have both immediate and longer-term benefits, other.

Results – The prevailing theme emerging from the interviews on this section focused on the importance of knowledge sharing and education of the importance of AMP's and the potential of service sharing. A respondent from MFOA explained that their organization has several initiatives aimed at sharing knowledge to support municipalities for their AMP's and to assist in their journey towards sharing services. The MFOA are aware there are problems doing AMP in small places due to staffing and resource constraints. The respondent noted that 1/3 of all Ontario

municipalities are under 10,000 people, so the MFOA developed a program called 'AMP it up'. The program is providing AMP coaching to 95 municipalities with populations <20,000 (and are looking to do it in 200 more places in the next few years). According to the respondent (and information derived from their website), the top three areas where municipalities need more work are: Levels of service; Asset management policies and procedures; Public engagement and communications.

According to several municipal government representatives, questions around levels of service (LOS) are theoretically the first steps in the AMP that establishes expectations, maps the annual cost to provide LOS, and will impact how LOS expectations will change given future funding levels due to climate change. The example provided was that people may need to live with more pot holes on the roads to fund larger culverts that prevent road wash-outs.

All respondents emphasized that ageing infrastructure is the number one issue, and that climate change is going to exacerbate this. This is well corroborated in the literature, where the Association of Ontario Municipalities (AMO) states that municipalities are currently facing an infrastructure deficit of over $60 billion, of which $28 billion accounts for the infrastructure gap for roads and bridges alone. Extreme weather is going to impact flooding, and roads and infrastructure such as wastewater treatment plants are going to have trouble keeping up. Academic respondents questioned the ability for rural communities (with reduced capacities) to make these changes. One academic respondent noted that we need to examine the governance structure (beyond the scope of this study), but did note several possible solutions have been identified by Richard Rounds (Brandon University). Dr. Rounds is investigating municipalities' sharing assessments, stating that some municipalities in Alberta have been able to pool their assessments and have achieved strong results. The respondent noted cautiously that barriers range from hockey teams who hate each other, to feuds, migrants in the area, and those who simply don't want money going to other municipalities. The academic respondent noted that there are an equal number of people who feel that this could work, citing the *State of Rural Canada* report from Brandon University, funded by The Canadian Rural Revitalization Foundation (CRRF) and available here: http://sorc.crrf.ca/wp-content/uploads/2015/09/SORC2015.pdf

The CRFF report highlights how service sharing in rural spaces can work. Rural Nova Scotia, similar to rural jurisdictions throughout Canada, is encountering substantial infrastructural deficits and concerns regarding service provision. The authors note that it is not uncommon to hear stories in local newspapers regarding the poor state of infrastructure, especially roads, water and sewer pipes, and water testing facilities. The CRFF report notes that rural communities struggle with how to operate and maintain this infrastructure in light of out-migration and aging trends. Recent recommendations have focused on achieving cost effectiveness through service sharing agreements. The authors also explain that the provision of services in rural communities is also impacted by the three population trends most affecting rural spaces: out-migration, aging population, and absolute decline. According to the report, school closures, health service closures, and decreases in public transit are becoming more common. In light of service provision challenges, rural Nova Scotia has a robust and increasing social economy, largely responding to the abdication of service provisions. Nova Scotia has a vibrant community of volunteers. The report notes that Nova Scotia residents averaged the highest annual hours of volunteering in Canada at 18,114. In June 2015, rural leaders from across the province gathered

to draft the 'Nova Scotian Rural Declaration'. The statement encourages both rural and urban Nova Scotians to tackle economic and demographic trends to achieve rural renewal. The CRFF report is an encouraging piece that highlights the strength of people working together to enhance their rural spaces.

A MFOA respondent noted that an existing service sharing strength is Asset Management Ontario's Community of Practise (COP) https://www.amontario.ca/. This exemplifies how big urban communities are sharing knowledge on these issues, but noted that small places need to establish a COP. The MFOA is in the beginning stages of building a guide to assist with this process.

Several respondents noted that many communities do already share consulting services to conduct their AMP's, and that the MFOA provides a self-assessment tool that 95 communities have completed (as of October 2017) available here: www.mfoa.on.ca/mfoa/main/pdfs/20160921_AMP_Workshop_Part_2.pdf

A respondent from OGRA was very clear on the challenges facing shared services in a changing climate. Roads (including sidewalks, bridges) are capital asset that are most expensive assets for most municipalities. There are different factors influencing asset longevity, including trucks and cars wearing them out (most notably in Kitchener-Waterloo, London, the greater Toronto/Hamilton area, and Ottawa) but they emphasized that climate change (extreme heat and freeze/thaw cycles) are greatly exacerbating these problems. They noted another problem is that the design guidelines (for road and bridge construction) are not resilient enough to handle new extreme weather events (e.g. culverts that were designed to handle a 1 in a 100 year flood are washing-out several times a decade). There is going to be a need to revisit what thresholds there are, and that there is some adaptation and resiliency (such when rebuilding, they can rebuild better).

The OGRA respondent noted that a potential benefit of service sharing is looking at how these assets can be bundled into P3's (public-private partnerships) or AFP's (alternative financing and procurement). The idea is that you can bundle a package of bridges together, to draw a singular P3 project to offer a single tender to build out a number of projects. The respondent stated that the thinking is that communities may be able to save 13-20% overall by manufacturing similar forms, so they can make bridges 'on mass' and cheaper. The respondent stated that there is increased interest in bundling, and that the OGRA has completed numerous bundling studies, including in Wellington County which is available here: https://www.ogra.org/files/Asset-Mgmt/County%20of%20Wellington%20Bridge%20Study%20-%20Final%20Report.pdf

The respondent explained that the OGRA along with the Residential and Civil Construction Alliance of Ontario and the Ministry of Transportation are actively seeking municipal partners for an alternative financing and procurement method for bundling the design, construction, maintenance and rehabilitation of bridges and culverts. They noted that the biggest problem was getting enough communities together to set aside their differences, and move towards reflexive

positions to see the potential benefits. The minimum threshold for such projects would be about $750M (with most projects around the $1B mark) and include a 15-20 year management plan.

A municipal government respondent noted the other challenge of sharing services (especially around construction of hard infrastructure like roads and bridges) is that municipalities need to respect the taxpayer's dollars. One example provided by the respondent explained that a community had replaced a culvert and road 3 times in 10 years after it washed-out. The respondent questioned why the road hadn't been re-built back better. The respondent believes the problem is that municipalities base their construction decisions on the Ontario public standards (OPS) guidelines that were designed to guide at the city-level before climate change was ever an issue.

Many respondents again noted that the terms 'shared services' is analogous with 'amalgamation', and that many communities are still adjusting (and some are still very bitter about) the last round of amalgamations in the 1990's when Ontario went from 900 municipalities to 444. An NGO respondent noted that (in their experience) shared services are sometimes associated with the idea of amalgamations. Two municipal government respondents believed if uptake on shared services increases with some significance over the next number of years, that the provincial government would see this as an opportunity to amalgamate more municipalities. Fear of amalgamation was the most commonly citied barrier to service sharing that emerged from this research, which is consistent with what is found in the literature (see e.g. Warner, 2006; Hulst et al., 2009; Carr & Hawkins, 2013; Spicer, 2014).

Below are a series of questions aimed at understanding the opportunities, strengths and challenges of increased service sharing in rural Ontario communities.

1) Does your municipality provide services, under contract or by agreement, to other municipalities?

A. Yes

B. NO

If yes, do you find these shared service agreements satisfactory?

If no, why not?

Please provide examples and let us know about your experiences

2) Does your municipality receive services, under contract or by agreement, from other municipalities?

A. Yes

B. NO

If yes, please provide examples and let us know about your experiences

If no, why not?

3) Does your municipality share or make available its equipment or facilities for use in the delivery of services to another municipality?

A. Yes

B. NO

If yes, please provide examples and let us know about your experiences

If no, why not?

4) Do you believe that the Government of Ontario provides an appropriate level of support for intermunicipal cooperation?

A. Yes

B. NO

If yes, what works well?

If no, why not?

5) What factors must be in place for you to consider intermunicipal cooperation?

A. Staff resources (time)
B. Staff competency
C. Up-front financial costs
D. Amalgamation concerns
E. Geographic location (too far from other municipalities)
F. Willingness to work with other municipalities
G. Other (please explain)

6) Will you be working towards any more intermunicipal cooperation in the coming months and years?

A. Yes

B. NO

If yes, in what areas?

If no, why not?

Appendix A - Interview Guide

Introduction
Do you have any questions or suggestions about the survey, or the project more broadly, that I can answer before we proceed to the specific sections of the proposed survey?

Survey Topics
We want to understand how Ontario's small rural communities undertake asset management planning (AMP) for their key infrastructure systems, the extent to which the impacts of climate change have been integrated into such planning, and how inter-community service sharing (ICSS) could be utilized to address identified needs. The overall goal is to improve CC infrastructure preparedness in Ontario's small rural communities. We have proposed the following survey topics. We are seeking specific input and suggestions for questions under each section.

Section 1 – To understand the background of the participant, we will start by asking about their experience with assessing and planning the community's infrastructure needs and sharing infrastructure services in their community. What type of information do you think it would be important for us to collect? Probe: How much/what type of experience do small rural communities have with 1) asset management planning and 2) the use of service sharing to meet infrastructure needs? What infrastructure services are most likely to shared? What infrastructure services are hardest to share?

Section 2 – In this section we are interested in the influence of the community's characteristics on the ability to effectively plan for and share infrastructure assets. What is your understanding and/or experience with these characteristics and what do you think the survey should focus on? Probe: What are the characteristics that influence community capacities and approaches to planning for and sharing infrastructure services? (E.g. personnel ability/time to do asset planning, population/location of community, remoteness, available/condition of infrastructure, economic and social structure).

Section 3 – In this section we are interested in understanding how asset management planning and decisions about service sharing are undertaken in Ontario's small rural communities. Probe: What do infrastructure planning processes and decisions about service sharing typically look like in small rural communities? (E.g. local government buy-in, citizen engagement). To what extent are rural communities using Ontario's formal AMP process? Overall, what processes most influence decisions about infrastructure planning and the potential uptake of service sharing?

Section 4 – In this section we would like to understand if concerns about climate change and/or the impacts of extreme weather events have influenced approaches to asset management planning or service sharing, particularly in terms of protecting infrastructure. Do you think concern for climate change and/or extreme weather events plays a role in infrastructure planning or service sharing in Ontario's small rural communities? Probe: To what extent do extreme weather events influence infrastructure asset planning? Given CC, what infrastructure services do you think will be most at risk and what will be most important to share? When undertaking the formal Asset Management Program (AMP), do communities explicitly consider the impact of

extreme weather events and/or CC? Why or why not? How could CC be more fully incorporated into AMP?

Section 5 – In this section we are interested in understanding the opportunities, strengths and challenges of increased service sharing in rural Ontario communities. In relation to climate change and infrastructure, what do you think are the most important existing strengths and challenges of the AMP process, and what are the opportunities to enhance service sharing in Ontario? Probe: Challenges/Strengths: access to information, resourcing, role sharing, social connectedness, manager awareness, public awareness, political support, other. Opportunities: public/political/manager education, incorporating service sharing across multiple communities, choosing options that have both immediate and longer-term benefits, other.

Integration
Given our discussion, in relation to climate change, what do you think are the key challenges facing rural Ontario communities' ability to undertake asset planning and potentially share services? Probe: Do you think sharing services is an effective way to reduce damages and increase efficiencies in a changing climate? Is there anything missing?

Wrap-up
1. Are there any topics or important information that is not captured under these 5 sections?
2. Are there any questions I should have asked you but did not?
3. Is climate change likely to be considered in the infrastructure planning process?

Appendix B - Environmental Scan Results

- There exists a clear gap in terms of the information and data regarding infrastructure both in terms of quality and quantity (Breen, 2015)
  - This is particularly relevant for rural communities because access and quality to such information informs future decisions and actions
- There exists a gap in terms of a specific rural "state of infrastructure" report/inventory compared to urban reports (Federation of Canadian Municipalities, 2012)
- There exists no single agreed upon definition of infrastructure and its categorization; inventories and assessments will inevitably differ in terms of what kind of infrastructure is included (Breen, 2015)
  - Summarization and comparison of existing literature and data can be challenging
- Little research has been conducted in Canada to date on how climate change could influence various non-climatic factors (e.g. increasing wealth, demographic shifts to coastal areas, etc.) and on the interdependent infrastructure systems (Boyle, Cunningham, & Dekens, 2013)
- Governments are struggling to catch up to infrastructure needs, yet those needs are continually growing as older infrastructure exceeds its service life and with a growing population (Federation of Canadian Municipalities, 2012)
  - Climate change acts as another pressure to replace or upgrade older systems
- Many municipalities lack the internal capacity to asses the state of their infrastructure accurately on their own (Federation of Canadian Municipalities, 2012)
- The smaller the community, the greater the challenges regarding the provision of services and maintaining infrastructure for citizens (Kitchen & Slack, 2001; Lauzon et al., 2015)
- There is significant amount of American and European literature on inter-municipal service (Hefetz et al., 2012; Spicer, 2013; Kosut, 2016)
- There lacks research on inter-municipal service sharing within a Canadian context – especially within a rural one (Feiock, 2007; Spicer, 2013)
- Although the literature states that inter-municipal service sharing is popular among smaller communities (Kitchen & Slack, 2001; Hefetz et al., 2012), the research that does exist on Canadian inter-municipal service sharing is largely within a metropolitan context (Feiock, 2007; Spicer, 2013)
- There is little consistency in the use of shared service arrangements across Ontario regions (IMFG, 2014)
- There is also a lack of literature that provides empirical guidance as to whether the number of interlocal agreements reflect citizens' perception of quality (Morton, Yu-Che, & Morse, 2008)
- There is an obvious recognition in the literature that supports the need for greater understanding and emphasis at the local level on regional solutions (Minnes & Vodden, 2014; Breen, Minnes, Vodden, 2015)
- Although fiscal incentives have been cited as being a large driving factor for cooperation, it is not clear whether inter-municipal cooperation will result in efficiency gains (Bel & Warner, 2015)

There is a need for:

- Further exploration of how local institutions and governance systems may promote the transition towards sustainable communities (Robinson et al., 2008)
- Exploration on what policy makers can do to promote cooperation among more sparsely settled rural communities (Bel & Warner, 2015)
- Establishing why we see so few inter-local agreements in Canada (Spicer, 2013)
- Connecting perceptions of municipal practitioners with the reality of policy; we know why municipalities say they cooperate, but we don't know whether their reasoning is supported by evidence (Spicer, 2014)
- Synthesis and broadcasting of best practises and important lessons learned by communities as they experiment with innovative new strategies for achieving sustainability such as inter-community service sharing (Douglas, 2003; Canadian Council of Professional Engineers, 2008; Robinson et al., 2008; Transportation Research Board, 2008; Gore, 2010; Brodhead, Darling, & Mullin, 2014; Canadian Climate Forum, 2015; Lintz, 2016)
- Distinguishing the differing climate change impacts and risks by region and type of infrastructure/asset for key infrastructure/asset initiatives throughout Canada (Economist Intelligence Unit, 2015; Canadian Climate Forum, 2015)
- Examining the benefits of partnering with neighbouring municipalities for asset management (Ministry of Infrastructure, 2012)

Appendix C - Interview Questions Proposed by Kylie Hissa

1. What were/are the service delivery- related challenges that your municipality was/is facing?
2. Do you perform shared services/inter-community cooperation with a neighbouring community? If yes, what services do you share?
   a. If yes, is this a formal contract agreement or an informal arrangement? What are the strengths and weaknesses?
3. When did discussion on collaboration begin and when did the arrangement take effect?
4. Who were the key stakeholders in discussions? Were community members involved in the process?
5. Did you experience any initial obstacles or ongoing challenges in the collaborative effort? If yes, how were they overcome?
6. What critical factors sustained the collaboration?
7. Do you believe that the Government of Ontario provides a sufficient level of support for rural inter-community service sharing?
   a. If yes, what works well?
   b. If no, why not?
8. Did your community have access to other communities' experiences with inter-community service sharing?
9. In your opinion, has sharing services increased your community's' level of preparedness to climate change-related risks on the infrastructure service being shared? How would you characterize the results or impact of the collaborative effort?
10. Will you be working towards additional inter-community service sharing in the near future?
11. Do you have general comments or concerns related to shared services/in-community cooperation that you would like to share?

Appendix D - Proposed AMP Related Interview Questions – Business Perspective (Rusitha)

1. What services and programs should be offered, and at what level?
2. Is there a legal requirement to provide a particular service/program in the community? What is the minimum standard? Who sets the standard?
3. Is it better for the municipality to offer services directly to the public or would it be better to contract such services, or will encouraging others to do it work better?
4. If it is better for the municipality to contract services, could some agency, private organization, or not-for-profit group provide that service/program to the public?
5. How can you decide if the agency or private offering of services is affordable to your citizens?
6. What is a safe level of service-delivery?
7. What is the appropriate price for a particular service/program? For what term? What are the operational and customer service guarantees of performance?
8. What happens with the assets that are no longer needed? What happens to surplus assets?
9. What is the impact of your service delivery levels on your asset management plan?
10. What's the right balance between the community's demands and the taxpayers' willingness to pay the costs?
11. What will you get in return for a particular asset investment? Will the life of an asset be extended? Will maintenance costs be avoided? Will more reliable service delivery be provided?
12. If the asset investment is rate-based, like the case for water and sewer, can a pricing model that shows a recovery of the cost of investment be developed and used?
13. Will the asset investment serve more people?
14. Will the asset investment satisfy the "stress test" of mitigation, in a situation where natural disaster strikes?
15. Can existing assets be used to generate more dividends or is there a way to make these existing assets more productive?
16. Are there any surplus assets that can be sold or leased? Could a joint venture partner be used to determine the value of any surplus assets?
17. Is there an opportunity for profit or gain, or reduced cost, by using underperforming assets differently or by some other party?
18. Are surplus/underperforming assets costing the government any money just to maintain them?
19. Are assets at risk of being damaged or destroyed through natural or human-made disaster? If so, how can damages be prevented or reduced?
20. Is there a market for any particular asset, including surplus or underperforming assets?
21. Does the municipal government have any short-term borrowings? If so, what is the monthly level of these loans?
22. What is the level of tax arrears as a percentage of the current year tax levy?
23. Does the government usually have an operating deficit or surplus? What's the government's policy regarding use of operating surpluses?
24. Are asset surpluses good business or imprecise budgeting?

25. Does the government have Reserves and Reserve Funds? If so, how many and what policies govern their use?
26. How does the government fund capital projects?
27. Is there a difference in how the government funds capital projects depending on what type of project is approved (tax-based projects such as recreational facilities vs. rate-based projects such as water and sewer)?
28. How does the municipality make sure it gets the best value from its investment in assets?
29. What does the government do to extend the asset's useful life, reduce future costs, and meet new regulatory standards?
30. Will there be continuity in the event of a natural or non-natural disaster?
31. How is disability access considered when undertaking AMP?
32. Are risks assessed when developing asset management plans and are they balanced with community expectations?
33. Does the municipality look for ways to optimize available grants or partnerships to put taxpayers' money to good use?
34. Is funding for projects kept in line with accounting rules?
35. Are asset management decisions made so that they provide a stable tax outcome for taxpayers?
36. What is the cost of inaction?
37. What is the cost of keeping existing infrastructure in good repair?
38. Can the government explain its portfolio of assets, their current condition and future needs, and their role in service delivery?
39. Does the government know its citizens' tolerance for service disruptions?
40. Has the municipality listened to the public, primary users and providers? Has it listened to citizens' experiences, preferences, and priorities?
41. Has the government balanced the short-term needs against long-term sustainability?
42. What investments are affordable and how is that determined? What methods are being used to set priorities when it comes to AMP?
43. What is the timetable for improvements for capital assets?
44. What funds are available to carry out the necessary work in regards to improvement efforts?
45. Which performance measures or indicators are being used to measure implementation outcomes?
46. What partnerships be developed with other municipalities, agencies, and/or private companies in providing assets to support service delivery? If so, with whom and how?
47. Has the municipality considered various design solutions to ensure maintenance spending is minimized?
48. What steps are being taken to mitigate against the potential of infrastructure failures?
49. Is there a recovery plan and a back-up plan for when there is a natural or non-natural disaster?
50. Does the asset management plan include accessibility plans, energy conservation measures, etc.?
51. How is the asset management plan itself being financed?
52. Does the AMP look at full life-cycle costing vs. one-time cost?
53. Does the municipality know which of its assets are underperforming?

54. Has recycling underperforming and/or surplus assets been considered as an option to mitigate costs?
55. What alternatives does the government have to assist in the financing of new infrastructure?
56. Is there a policy that clarifies asset preservation needs of our municipality?
57. Does our municipality share its best practices with other municipalities?
58. What's the reporting cycle that's established within the municipality for AMP related matters, such as preventative maintenance scheduling, etc.?

Appendix E - Proposed Survey Questions

Section 1 – To understand the background of the participant, we began by asking about their experience with assessing and planning the community's infrastructure needs and sharing infrastructure services in their community. We asked respondents about the type of information they thought would be important for us to collect. Probes included: How much/what type of experience do small rural communities have with 1) asset management planning and 2) the use of service sharing to meet infrastructure needs? What infrastructure services are most likely to shared? What infrastructure services are hardest to share?

1) Please indicate the size of your community (Choose 1)

Population	X
Less than 999	
1000 to 2499	
2500 to 4999	
5000 to 9999	
10 000 to 49 999	
50 000 to 99 999	
100 000 to 499 999	
Greater than 500 000	

2) What percentage of your community do you consider to be rural? (Choose 1)

☐	☐	☐	☐	☐	☐	☐
0-20%	21-40%	41-60%	61-80%	81-100%	Don't Know	N/A

3) Our municipality has completed an Asset Management Plan (AMP) in the last

A. Less than 6 months

B. 6 – 12 months

C. 12 – 24 months

D. 24 – 36 months

E. We have never completed an AMP

4) Our municipality shares services to meet infrastructure needs

Yes

No

4a.) If yes, what services does your municipality share?

J. Drinking water
K. Storm water
L. Wastewater treatment
M. Municipal roads
N. Municipal bridges
O. Community and social infrastructure
P. Sports and recreation infrastructure
Q. Emergency services
R. Other (please explain below)

4b.) If yes, what services are hardest to share?

H. Drinking water Storm
I. Wastewater treatment
J. Municipal roads and bridges,
K. Community and social infrastructure
L. Sports and recreation infrastructure
M. Emergency services
N. Other (please explain below)

4c. If no, are there services you would like to share but have been unable to?

H. Drinking water Storm
I. Wastewater treatment
J. Municipal roads and bridges,
K. Community and social infrastructure
L. Sports and recreation infrastructure
M. Emergency services
N. Other (please explain below)

5) What is the next largest asset category, after Roads and Water/Storm, based on $ invested*?

A. Parks

B. Recreation

C. General Government

D. Transit

E. Public Housing

F. Emergency Services

* Based on 2014 FIR closing balance – amount invested over time excludes amortization

Section 2 – In this section of the survey, we are interested in the influence of the community's characteristics on the ability to effectively plan for and share infrastructure assets. We asked interview respondents about their understanding and/or experience with these characteristics. Probes included: What are the characteristics that influence community capacities and approaches to planning for and sharing infrastructure services? (E.g. personnel ability/time to do asset planning, population/location of community, remoteness, available/condition of infrastructure, economic and social structure).

1) How Refined is your AMP?

A. Beginning our AMP journey

B. Need to add more assets or refine our existing ones

C. AMP is complete but needs to be integrated into other processes

D. AMP is complete and integrated into other processes

2) Is the AMP process supported by a policy and procedure?

A. No policy or procedure

B. No policy, but informal procedures followed

C. No policy, but formal procedures documented

D. Policy in place but no/informal procedures followed

E. Policy in place and formal procedures documented

F. Our municipality has not completed an AMP

3) To what extent is your municipality aware of the benefits of AMP within the organization?

A. No awareness

B. Some general awareness

C. Moderate awareness

D. Detailed awareness of some benefits

E. Detailed awareness of all benefits

4) To what extent is the Asset Management planning process embedded within the municipal organizational structure?

A. No organizational support

B. One department support

C. Mix of support

D. Few departments' support

E. All applicable departments' support

Section 3 – Interview respondents were asked about how asset management planning and decisions about service sharing are undertaken in Ontario's small rural communities, and the survey questions that may best be used to tease-out this data. Probes included: What do infrastructure planning processes and decisions about service sharing typically look like in small rural communities? (E.g. local government buy-in, citizen engagement). To what extent are rural communities using Ontario's formal AMP process? Overall, what processes most influence decisions about infrastructure planning and the potential uptake of service sharing?

1) To what extent is the public involved in the Asset Management Planning Process?

A. No public involvement

B. The public can attend Council meeting when AMP is being approved

C. The public is aware of AM plans through active public education campaigns

D. The public is invited to comment on a draft AMP

E. The public is invited to provide input into AMP development.

1a.) Public input in the AMP process includes (click all that apply):

F.   Delegations
G.   Surveys
H.   Special meetings or information sessions
I.   Website information
J.   Other (please explain below)

2) To what extent does AMP policy/procedures provide measures and metrics to evaluate the performance and effectiveness of the AMP process?

A. No measures and metrics

B. High level discussions regarding measures and metrics, but none implemented

C. Some measures and metrics

D. Measure and metrics are included and used to evaluate the current AMP OR provide for improvement to future AMPs

E. Measure and metrics are included and used to evaluate the current AMP AND provide for improvement to future AMPs

3) Ontario Community Infrastructure Fund (OSIF) funding can be used to update or advance your community's AMP program. Have you already taken advantage of a shared asset manager under the (OCIF) funding program?

A. Yes

B. No

C. Unsure

4) With regards to sharing services, what is the general attitude of staff and/or council towards working with neighbouring municipalities?

A. We enjoy strong working relationships with neighbouring municipalities, and share services with them

B. We are working at building stronger relationships with neighbouring municipalities, and share some services with them

C. We would rather not work with neighbouring municipalities, but we do share some services with them

D. We would rather not work with neighbouring municipalities, and we do not share any services with them

5) Thinking about the major core asset groups, where do you feel you need additional attention with respect to asset management planning?

A. Drinking water

B. Storm water

C. Wastewater treatment

D. Municipal roads

E. Municipal bridges

F. Community and social infrastructure

G. Sports and recreation infrastructure

H. Emergency services

I. Other (please explain below)

6) To what extent does Council support the AMP and process?

A. No Council support

B. Council receive the AMP as information only

C. Council approves the AMP with no specific recommendations

D. Council approves the AMP and defers all recommendations to budget process

E. Council approves the AMP with specific recommendations to be included in budget process.

7) Do you feel that you are in competition with any of your neighbouring communities? If yes, does this feeling of competition limit the opportunities for cooperation?

A. Yes

B. NO

If yes, please explain

Section 4 – In this section of the survey we would like to understand if concerns about climate change and/or the impacts of extreme weather events have influenced approaches to asset management planning or service sharing, particularly in terms of protecting infrastructure. We asked respondents if concern for climate change and/or extreme weather events plays a role in infrastructure planning or service sharing in Ontario's small rural communities Probes included: To what extent do extreme weather events influence infrastructure asset planning? Given CC, what infrastructure services do you think will be most at risk and what will be most important to share? When undertaking the formal Asset Management Program (AMP), do communities explicitly consider the impact of extreme weather events and/or CC? Why or why not? How could CC be more fully incorporated into AMP?

1) **In your locality, how often do you see evidence that the following people are planning for climate change?**
   E. Municipal politicians
   F. Municipal staff
   G. Members of the broader community
   H. Other (please explain)

2) **What is the main barrier to developing shared service agreements in your municipality?**
   H. Staff resources (time)
   I. Staff competency
   J. Up-front financial costs
   K. Amalgamation concerns
   L. Geographic location (too far from other municipalities)
   M. Willingness to work with other municipalities
   N. Other (please explain)

3) **A key component of municipal asset management planning is to identify and manage risks including climate change impacts. What is your community doing to prepare for climate change?**
   K. Working with Conservation Authority
   L. Using GIS mapping to identify potential flooding and drought areas
   M. Considering/integrating into various municipal plans e.g. Official Plan
   N. Preparing briefing materials for council
   O. Incorporating resiliency into infrastructure projects
   P. Planning/implementing green infrastructure (e.g. Low impact development)
   Q. Resiliency assessment considering future climate conditions
   R. Preparing communication material for the public
   S. Other
   T. Nothing

4) **In your opinion, has sharing services increased your community's' level of preparedness to climate change-related risks on the infrastructure service being shared?**

   Yes
   No
   We do not share any services
   Unsure

5) **Does your municipality have information on climate change that you are using in your asset management planning?**

Yes – Good

Yes – Limited

No

6) How confident are you in the climate change data?

F. Starting to consider climate change in our long-term planning
G. Uncomfortable with the predictions
H. Unsure how to incorporate into planning
I. Recent weather patterns (flooding, drought) have made climate change a priority for our municipality
J. Not confident at all

7) Thinking about the short term and long-term challenges for your municipality related to infrastructure and climate change, what are your municipality's priorities?

K. Funding for rehabilitation work and preventative maintenance
L. Adequate funding for capital works
M. Operations staff availability and competency
N. Incorporating resiliency into infrastructure projects
O. Planning/implementing Green infrastructure/Low Impact Development
P. Resiliency assessment considering future climate conditions
Q. Preparing briefing materials for Council
R. Preparing communication material for the public
S. Using GIS mapping to identify potential flooding and drought areas
T. Other

Section 5 – In this section we are interested in understanding the opportunities, strengths and challenges of increased service sharing in rural Ontario communities. In relation to climate change and infrastructure, what do you think are the most important existing strengths and challenges of the AMP process, and what are the opportunities to enhance service sharing in Ontario? Probe: Challenges/Strengths: access to information, resourcing, role sharing, social connectedness, manager awareness, public awareness, political support, other. Opportunities: public/political/manager education, incorporating service sharing across multiple communities, choosing options that have both immediate and longer-term benefits, other.

1) Does your municipality provide services, under contract or by agreement, to other municipalities?

A. Yes

B. NO

If yes, do you find these shared service agreements satisfactory?

If no, why not?

Please provide examples and let us know about your experiences

2) Does your municipality receive services, under contract or by agreement, from other municipalities?

A. Yes

B. NO

If yes, please provide examples and let us know about your experiences

If no, why not?

3) Does your municipality share or make available its equipment or facilitates for use in the delivery of services to another municipality?

A. Yes

B. NO

If yes, please provide examples and let us know about your experiences

If no, why not?

4) Do you believe that the Government of Ontario provides an appropriate level of support for Inter municipal cooperation?

A. Yes

B. NO

If yes, what works well?

If no, why not?

5) What factors must be in place for you to consider intermunicipal cooperation?

H. Staff resources (time)
I. Staff competency
J. Up-front financial costs
K. Amalgamation concerns
L. Geographic location (too far from other municipalities)
M. Willingness to work with other municipalities
N. Other (please explain)

6) Will you be working towards any more intermunicipal cooperation in the coming months and years?

A. Yes

B. NO

If yes, in what areas?

If no, why not?