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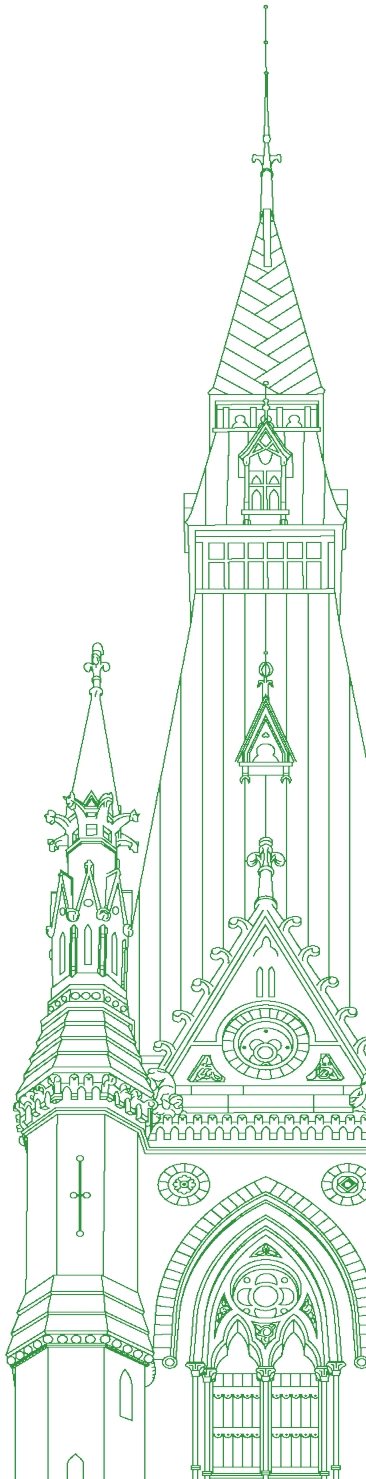

Chair: Mr. Peter Schiefke

Standing Committee on Transport, Infrastructure and Communities

Tuesday, June 6, 2023

● (1110)

[*Translation*]

The Chair (Mr. Peter Schiefke (Vaudreuil—Soulanges, Lib.)): I call this meeting to order

Welcome to meeting No. 73 of the House of Commons Standing Committee on Transport, Infrastructure and Communities.

Pursuant to Standing Order 108(2) and the motion adopted by the committee on Tuesday, March 7, 2023, the committee is meeting to discuss its study on adapting infrastructure to face climate change.

Today's meeting is taking place in a hybrid format, pursuant to the House Order of Thursday, June 23, 2022. Members are attending in person in the room and remotely using the Zoom application.

[*English*]

I wish to inform the committee members that the connections of all witnesses have been tested for sound quality for the benefit of our interpreters and have passed the sound test.

Colleagues, appearing before us today as witnesses, we have Mr. Ryan Ness, director for adaptation in the Canadian Climate Institute, appearing by video conference; Ralf Nielsen, from the Canadian Urban Transit Association, director of enterprise sustainability, appearing by video conference; and Wing-On Li, from Horizons Group, director and chief executive officer, also appearing by video conference.

Welcome.

[*Translation*]

We also have Patrick Bousez, Prefect of the MRC de Vaudreuil-Soulanges; Antonin Valiquette, Mayor of the Municipalité des Îles-de-la-Madeleine; and Andrée Bouchard, Mayor of the Ville de Saint-Jean-sur-Richelieu.

Welcome, everyone.

[*English*]

We begin our opening remarks today with Mr. Ness, from the Canadian Climate Institute.

Mr. Ness, you have five minutes. The floor is yours.

Mr. Ryan Ness (Director, Adaptation, Canadian Climate Institute): Thank you very much, Mr. Chair, for the invitation to speak today.

My name is Ryan Ness. I'm the director of adaptation at the Canadian Climate Institute, Canada's independent climate policy research organization. Our job is to generate research and advice for decision-makers to use in making informed policy decisions and to drive action that's proportional to Canada's climate change challenges.

We've examined the potential impacts and costs of climate change on Canada's infrastructure, as well as the benefits of infrastructure adaptation, as part of our "Costs of Climate Change" for Canada research series, the largest study to date of the potential economic implications of climate change for this country. Today I'll highlight some key findings and recommendations that are relevant to the work of this committee.

The first key finding is that the cost to Canada from climate change in damage and destruction to infrastructure, which is already vulnerable from decades of underinvestment, could be massive. Climate change-driven damage to roads and electricity systems from hotter summers alone could cost another $2.5 billion to $4 billion annually by 2050. As well, flood damage to homes and buildings could triple, from over $1 billion now to over $5 billion per year by 2050.

This damage costs everybody—not just those directly affected, but everyone—by disrupting economic growth. We estimate that by 2025, just the additional impacts of climate change since 2015 will cost the Canadian economy $25 billion in GDP and reduce average household incomes by $800.

The impacts of climate change on infrastructure will have major non-economic costs as well, fundamentally changing ways of life in some parts of Canada, such as in the north, where many communities are built on thawing permafrost and rely on increasingly unviable winter roads. These communities can become unlivable in just one or two decades.

The second key finding is that proactive investment in infrastructure adaptation is by far the most cost-effective way to protect the infrastructure services that people, businesses and the economy depend on.

When repaving roads, for example, using materials selected to withstand the climate two or three decades into the future can reduce climate change costs by over 90%. Protecting or moving neighbourhoods and buildings in high-risk areas could reduce the costs of coastal flooding by up to a billion dollars every year by the end of the century. We find that, as a whole, each dollar invested in adaptation can return $5 in avoided damage to directly affected households, businesses and governments, as well as an additional $10 in avoided disruption to the Canadian economy.

A third key finding is that a lack of information and guidance is holding back progress in Canada on infrastructure adaptation and resilience. For example, approximately half a million buildings at risk of flooding in Canada are not identified on any government-produced flood maps, and mapping of wildfire risks is virtually non-existent.

In the absence of this information, few infrastructure owners or investors are able to assess and manage existing climate risks, let alone future risks that would be associated with climate change. Many codes and standards that dictate how infrastructure in Canada is built still don't account for climate change, and others that are in the process of being updated are many years away from being implemented. Also, financial regulation is currently doing very little to ensure that infrastructure owners and investors are pricing climate risk into infrastructure investment decisions.

We have recommendations that emerge from these findings and are relevant to the work of this committee.

First, the Government of Canada should play a leadership role in ensuring that all government spending and regulatory decisions around infrastructure explicitly take into account climate risks and adaptation benefits.

Federal government actions, such as expanding financial support for municipal infrastructure adaptation under the disaster mitigation and adaptation fund and the green municipal fund, as well as research on codes and standards, are important, but they are not delivering results at the scale and pace that are required. The federal government should lead long-term, coordinated, accelerated approaches to make better use of the collective resources and powers of all orders of government to ensure that new infrastructure is built to be resilient and that existing infrastructure is made resilient.

Second, the Government of Canada should do more to lead and coordinate the development and publication of accurate information about climate-related infrastructure risks across the country. Investments to this end announced in the national infrastructure strategy and in budget 2023 around flood mapping are a positive step, but they provide only a small fraction of the funding that will be required to develop complete coast-to-coast-to-coast climate risk information and mapping.

Third and last, governments and regulators should be requiring climate change risks to be made transparent in infrastructure transactions, whether it be homeowners putting houses up for sale or municipalities issuing bonds. The Government of Canada and the regulatory bodies it oversees can again lead here by demonstrating for other governments and regulators how policy and tools can be developed to ensure owners, lenders, investors and other financial system actors are analyzing, disclosing and managing climate risks associated with infrastructure investment and driving capital towards less risky infrastructure decisions.

Thank you, Mr. Chair, for this opportunity.

● (1115)

The Chair: Thank you very much, Mr. Ness.

Next we have Mr. Nielsen. Mr. Nielsen, the floor is yours. You have five minutes.

Mr. Ralf Nielsen (Director, Enterprise Sustainability, TransLink): Thank you, Mr. Chairman and the committee.

I'm representing the Canadian Urban Transit Association, but my day job is the director of enterprise sustainability at TransLink, and I'm responsible for developing and for leading the climate action plan and strategy for our organization.

TransLink is North America's first multimodal transportation authority, as enacted by provincial legislation in 1998. We serve a region of 2.5 million people, which is going to grow to 3.5 million people by 2050. This region encompasses 21 municipalities, nine first nations, one treaty nation and one electoral district.

We're not just about transit. We own and operate six bridges in the region. We provide operations and maintenance funding for the major road network, and together with our regional partners, we invest in cycling and walking infrastructure.

Climate change is directly affecting our region. In 2021, as you know, our population was directly affected by significant events that have been directly linked to climate change. During the summer of that year, 619 people died across British Columbia during the successive heat waves and the heat dome. Then, later in October and November that year, the region was effectively cut off, physically and economically, from the rest of Canada due to the successive atmospheric rivers, the flooding and the bridge takeouts that ensued.

Climate change is also affecting TransLink and transit infrastructure. Our work on an adaptation strategy and plan told us that water—essentially flooding, intense rain and sea level rise—is going to affect infrastructure, while heat affects people.

We know that several of our bus depots, which we use to deploy our fleet in the region, are located on flood plains, some of which are very well protected, while others are not, and they will become essentially islands that are unable to deliver services during a critical flood event along the Fraser River.

We also know heat is affecting our staff. We've had to shorten some shifts, provide temporary cooling and extra PPE, and make accommodations for staff working in facilities that were designed 30 years ago without air conditioning. We also know that heat is going to affect our customers. Whether they take transit or walk or bike, it's really important that we keep them comfortable and safe by ensuring that they continue to choose TransLink and transit over taking the automobile.

Adaptation is key to managing the long-term risks to transit, whether physical or financial. Our government institutions, our financial institutions, our regional partners and the Government of Canada, all of which serve and fund transit in Canada, are expecting us to have mitigation and adaptation plans and to provide disclosure of those risks. We are grateful for federal investments via the zero emission transit fund that we use to address climate change mitigation through our fleet transitions, but our long-term success in climate change adaptation is dependent upon three things.

Number one is close collaboration in proactive planning and design among climate change adaptation specialists, engineers, architects, emergency management and preparedness experts, as well as in the building codes. As Mr. Ness mentioned, it is really important to plan and design to higher standards that are based on the future climate rather than on the historical norms.

Number two, we need consistent, reliable funding primarily for key things. The first of these is regional cross-infrastructure, cross-jurisdictional protection against severe events. For example, the Lower Mainland flood management strategy requires collaboration across the entire region.

The second key thing is a premium for designing and constructing new infrastructure that can adapt to the changing climate over the typical 50- to 70-year life cycle for which we design and build our infrastructure. I think a permanent transit fund would be an excellent means of delivering the support needed to enable transit agencies to manage these long-term risks.

Finally, programs that keep our customers safe and comfortable—active or passive cooling strategies or tree canopies—may continue to make transit, walking and cycling preferred over the automobile as reliable, convenient and frequent choices.

Next, we need to protect and enhance our natural assets, which oftentimes can not only be our best protection against severe events but can also sequester carbon, improve biodiversity and bring nature back into the suburban or urban landscapes.

We need to do this work in a couple of ways that are different from the past. One is equity. Our solutions have to be equitable and just and do no further disadvantage to equity-seeking groups, those with lower incomes. Can't the planting of trees go alongside zero emissions transit in these neighbourhoods?

● (1120)

Second, two-eyed seeing—acknowledging both indigenous and western knowledge systems—can help us find long-term adaptations and solutions that we may otherwise not see or discover on our own.

Finally, I'd like to thank the Canadian Urban Transit Association and B.C.'s Ministry of Transportation and Infrastructure for sharing knowledge with us and the other agencies. We hope TransLink's leadership in climate change adaptation will help other agencies across Canada.

I look forward to the discussion this morning.

The Chair: Thank you very much, Mr. Nielsen.

Next we have Mr. Li.

Mr. Li, the floor is yours. You have five minutes for your opening remarks, sir.

Mr. Wing-On Li (Director and Chief Executive Officer, Horizons Group): Good morning, Mr. Chair and honourable members.

My name is Wing Li, CEO of Windsor-based property developer Horizons Group. We are an eco-friendly developer in the Windsor and Essex County market, building sustainable homes at attainable prices.

Today, Canada has about 40 million people living in 15 million homes. Our homes contribute 17% towards the nation's total greenhouse gas emissions. By 2050, the population will probably double if we continue to welcome overseas immigrants at current rates. To achieve the federal government's 2050 net-zero vision, we must keep the carbon footprint of future homes as low as possible while encouraging existing homeowners to slash their household energy consumption with retrofit improvements.

Over the past 20 years, attempts have been made to induce people to buy energy-efficient homes accredited by Energy Star, EnerGuide or R-2000. Unfortunately, there has been little success, mainly because the higher price tags deter both builders and buyers from making an environmentally sound decision.

To ensure we can weather the global warming challenge, governments at federal, provincial and municipal levels; developers; homeowners; and investors—all stakeholders—must come up with a viable business model that could help all stakeholders pay a fair share of financial contributions that would eventually benefit them in the long run. That is what we call a "win-win-win" strategy to face the climate change challenge.

Horizons Group has a corporate vision of producing energy-efficient homes like the net-zero homes Natural Resources Canada has been advocating. By definition, net-zero homes are 80% more energy-efficient than those built under current building codes. To be more specific, the most important feature is that these homes use renewable energy to cover all or most of what they consume. In other words, their utility bills are always kept low, at, say, $30 to $50 per month year-round.

Our group does not mind being a first mover. We always walk the talk. Last October, we announced we would market 52 net-zero homes in Colchester in the town of Essex, which MP Chris Lewis represents. These homes feature geothermal and solar energy generation systems on the property. We have ICF walls, an airtight envelope and a metal roof. Finally, we will install a level 2 EV charger in the garage to encourage residents to switch to electric vehicles. In sum, we are creating a subdivision that would not put a burden on the town's power infrastructure. As a matter of fact, the engineer at Hydro One was amazed by what we told her when she asked us about the power demand for the new subdivision. I said there was very little.

We are finalizing the building costs for each home. The extra costs for the eco-friendly features are almost 20% of the total construction budget. While realtors and buyers love our eco-homes and the long-term benefits, they don't like the higher prices paid up front. As a good corporate citizen, we don't mind lowering our profit margin for a lofty social cause. However, we cannot price the homes beyond affordability or the prospective buyer's purchasing power.

That is where governments at different tiers must step in to make net-zero homes a real option. They must offer incentives to the builders and homeowners. The federal government announced, in the last budget, an investment tax credit of up to 30% for geothermal initiatives taken by new home builders or owners. No details have been announced yet, but I think this is a giant step in the right direction.

At the provincial level, we recommend the government waive the land transfer tax for buyers of accredited net-zero homes. At the municipal level, a city or town can choose to waive the builder's development charges or permit application fees so that we can keep our home prices low. The best incentive is to give the owners a tax credit on the home's property tax.

These combined government efforts will be a critical success factor in determining the destiny of net-zero homes.

Another positive development in the financing of green infrastructure is the participation of institutional money in renewable energy assets, such as those in which we are investing in Colchester.

● (1125)

Private investors have approached us. They said they are willing to pay us a buyout allowance for the geothermal and solar energy systems assets in return for a 25-year "energy as a service" contract with the homeowners to recoup their investment and make a profit.

If the monthly energy service fees are lower than the otherwise normal utility bills, we believe owners would likely accept the offer. They will then enjoy unlimited renewable energy without worrying about escalating utility costs or maintenance expenses for the next 25 years.

The Chair: Mr. Li, I'm going to have to ask you to wrap up, unfortunately. If you're close to finishing, then I'll let you finish, sir.

Mr. Wing-On Li: To recap, we are confident that net-zero homes are an attainable home product, with a slight premium, if the governments and the builders and homebuyers all work together.

Thank you, Mr. Chairman.

The Chair: Thank you very much, Mr. Li, for your opening remarks.

Colleagues, the bells are ringing.

I'm looking around and would perhaps ask for unanimous consent to finish after we have the three remaining opening remarks. It would be about 15 minutes. Are we all in agreement?

Some hon. members: Agreed.

The Chair: That's perfect. Thank you very much.

[*Translation*]

Mr. Bousez, the floor is yours for five minutes.

Mr. Patrick Bousez (Prefect, MRC de Vaudreuil-Soulanges): Good morning, Mr. Chair and members of the committee.

I want to thank you for your invitation. I am pleased to be able to contribute to your committees efforts by sharing with you the experiences that the MRC de Vaudreuil-Soulanges has had with increasing climate phenomena.

Mr. Chair, you are very familiar with our region—I have the honour of knowing you—but I would first like to describe our region for committee members to provide them with some context for the rest of my remarks.

The MRC de Vaudreuil-Soulanges comprises 23 municipalities over 855 km2 and was home to 166,076 inhabitants in 2022. The region features a constantly growing population, a road network consisting of Autoroute 30, Autoroute 20 and Autoroute 40, the Trans-Canada Highway, in addition to major national railway lines of the Canadian National and Canadian Pacific railways, not to mention the 5 pipelines that cross the the region and represent other risk factors. Vaudreuil-Soulanges is both metropolitan and rural in character, with agricultural land representing 76% of the MRC's area.

Our municipalities are feeling the consequences of climate change and increasingly face intense weather phenomena like the ice storm this past April. Everyone remembers the 1998 ice storm, and the one we had in April was the second biggest ice storm in Quebec's history.

The MRC de Vaudreuil-Soulanges was the first region to be hit by freezing rain. Nearly 97% of our population was without electricity for long periods of time ranging up to 6 days. The municipalities faced numerous challenges given the extraordinary circumstances and extent of the damage. We are never ready enough to face the vicissitudes of nature. We can always do better.

The first thing we try to do when this kind of situation occurs is obviously to establish communication with all local actors to ensure that everything is in place to meet emergency needs and quickly reassure the public.

The reality is that, even though we live in the communications era, we soon realized that we couldn't communicate among ourselves, since the telecommunications network was partly or completely down for many hours, indeed days in some areas. Consequently, we elected members, particularly mayors and MPs, couldn't even contact each other or local stakeholders. At the very least, the situation was much more complicated than usual.

Furthermore, since most of the population uses cell phones rather than land lines, we had no easy way to obtain cell numbers. To reach the public, stakeholders had to go door to door, instead of making quick telephone contact, to ensure, for example, that people in vulnerable situations were safe. That operation required much more time. All that was available was social media, for those who still had a connection. It wasn't sufficient for us to be able to contact the entire population.

Here are a few facts, to give you an idea of the crisis by the numbers. Nearly 30 to 35 mm of freezing rain fell in 13 hours. More than 40 mm fell in some places, according to Simon Legault, a meteorologist at Environment Canada. In the MRC de Vaudreuil-Soulanges, 64,765 of 75,429 Hydro-Quebec clients lost power. Essential services such as gas stations had to close their doors and were unable to meet the public's needs. Consequently, there were lineups several kilometers long over many hours at the only two or three service stations that were open in the MRC to supply gasoline for cars and generators.

In many cases, generators were used to pump water out of the basements of people's houses and other buildings and to ensure that heating systems worked for vulnerable individuals, in addition to providing opportunities to recharge cell phones so people could stay in touch with their families and friends. In other cases, failing that, municipalities and local stakeholders directed citizens to whatever local resources were available. In addition, the Lévis 911 emergency centre had never received so many calls in such a short period of time for our region. In 2022, 3,074 calls were made to 911 to report fires in Vaudreuil-Soulanges.

● (1130)

Some 2,177 calls were made to 911 Fire in the 6 days from April 4 to 9 of this year, a figure that represented 71% of the total number of 911 Fire calls received in all of 2022.

It is important to understand that a call to 911 isn't just one single call because it results in many more calls that are simultaneously made over the network to respond to it. You must also understand that calls concerning operational fire services are made by radio, whereas those regarding administrative services are made over the telecommunications system.

Since the telecommunications system wasn't operating during the ice storm, all administrative services were transferred to the radio network, which caused a significant increase in traffic on radio frequencies. Even the Sûreté du Québec—yes, the Sûreté du Québec—lost cell service. So you can understand how disastrous the impact on the communications of those essential services was.

To sum up, all our civil services, infrastructure and essential services were tested during the ice storm. These observations and this experience prove that we will need more government assistance to adapt our infrastructure to these increasingly frequent climate variations. We will definitely need to review the resilience of our telecommunications network to ensure that we can cope with these large-scale weather phenomena with which we will clearly be increasingly faced.

I will conclude by noting the resilience of the municipalities and by inviting the committee to consider various potential solutions to improve our telecommunications, electrical transmission and municipal infrastructure systems. I also encourage the various local stakeholders to take action by adopting specific measures, such as better vegetation control near electric power lines and a plan B for the telecommunications network.

Thank you for listening, and I hope your committee can help find and implement specific solutions as soon as possible given the issues at stake.

Thank you, Mr. Chair.

● (1135)

The Chair: Thank you very much, Mr. Bousez.

We will continue with Mr. Valiquette.

Mr. Valiquette, you have the floor for five minutes.

Mr. Antonin Valiquette (Mayor, Municipalité des Îles-de-la-Madeleine): Thank you very much, Mr. Chair.

Thank you for inviting me to appear before the Standing Committee on Transport, Infrastructure and Communities as part of its study on adapting infrastructure to face climate change in Canada.

I'm glad to be speaking to you as mayor and president of the maritime community of the Magdalen Islands, which consists of the Municipalité de Grosse-Île and the Municipalité des Îles-de-la-Madeleine. Our archipelago is occupied by 13,000 permanent residents and visited annually by approximately 75,000 tourists, who stay there for an average of 11 days.

To simplify my presentation and to avoid confusion, I will use the term "municipalité des Îles" or simply "municipality". However, please understand that, every time I use the term, it will refer to all the people I represent and all the authorities conferred on me.

To provide some context, the Magdalen Islands archipelago lies in the centre of the Gulf of St. Lawrence, more than 100 km from the closest landfall. Consequently, as you will understand, we have a front row seat on the impact of climate change. The erosion of our coastlines is a well-known phenomenon. However, we have also had to combat a sinking coastline since the recent storms.

Until a decade ago, we experienced strong, and sometimes violent, wind and rain storms that attacked our coastlines and forced us to take proactive action to protect our environment. The proof of that is that we are one of the pioneer municipalities in Quebec that have collected scientific data, conducted cost-benefit analyses and created a specialized coastal erosion manager position.

Despite those storms, the last hurricane that Magdalen Islanders talked about was Hurricane Blanche, which hit in 1974. However, since the November 2018 storm, Hurricane Dorian in 2019 and Hurricane Fiona in 2022, we have entered a new era. We are now subjected to furious storms that attack with greater frequency and much greater force, the local effects of which are similar to those described by my colleague from Vaudreuil-Soulanges.

As a result of these weather events, together with retreating winter ice cover, parts of our Islands have become vulnerable. We are therefore forced to take action to protect our infrastructure and to make tough choices regarding the management and development of our land.

The main infrastructure under the Canadian government's responsibility is the Magdalen Islands port infrastructure. The archipelago has eight small craft fishing harbours, which are the responsibility of Fisheries and Oceans Canada and accommodate the 325 lobster boats and some 50 other inshore fishing craft. This industry represents an economic impact of nearly $250 million in our community.

We are satisfied with the role that Fisheries and Oceans Canada plays with regard to small craft fishing harbours. The department is proactive and, in planning for infrastructure upgrades, strives to allow for the impact that climate change will have over the next 40 or 50 years. Unfortunately, accelerated silting in certain harbours has strained the infrastructure upgrading budget.

Despite the effort and significant funding allocated for the maintenance and upgrading of fishing harbours, additional funding will clearly the needed soon if we want to step up efforts to cope with new climate realities.

A major intervention in a fishing harbour can also be an opportunity for us to work on the adjacent land and optimize protection for a broader territory. However, the discrepancy between funding available for harbour upgrading and funding from other sources that the municipality could use often results in considerable lost opportunities.

The archipelago also has a commercial harbour for which Transport Canada is responsible. It houses the terminal of the ferry linking us to Prince Edward Island, the cargo ship that supplies us with goods from Montreal, the oil tankers and barges that supply us with fuel and the aggregates used in various infrastructure works, the mid-shore fishing fleet and the increasing number of cruise ships that visit us.

So it's a vital link between our community and the rest of the world. In short, it's our highway to the Magdalen Islands.

Commercial dock no. 1, which is used to unload barges, is aging and unsuitable for its current intensive use. As a result of climate change, this infrastructure will have to be upgraded, and replacement infrastructure will have to be planned to offset an eventual service interruption at that dock.

You should know that all materials needed to combat climate change, such as armour stone, pebbles and aggregate material to restore beaches and shorelines transit by this dock.

The Cap-aux-Meules commercial dock is a vital piece of infrastructure but has been neglected in recent decades. The Prime Minister, in catch-up mode, fortunately came and announced new funding in 2022. We think we are on the right track, but we have unfortunately learned to moderate our enthusiasm when it comes to infrastructure managed by Transport Canada.

Since 2008, the municipality and governments of Quebec and Canada have invested many millions of dollars in coastline protection and shoreline stabilization, essentially following major weather events. This constitutes a major fiscal burden for a municipality of 13,000 inhabitants.

The municipality is currently developing a coastline erosion and submersion intervention framework that will help determine solutions that should be favoured and the costs associated with those actions.

● (1140)

The aim of the framework is for us to be able to take preventive action as soon as possible rather than react to weather events. Available studies show that, for every dollar invested in prevention, we can avoid paying an average of between $13 and $15 in damages, as Mr. Ness mentioned earlier.

Consequently, we feel it is important that the three levels of government work in complementary fashion to facilitate implementation of the intervention framework I just mentioned. In so doing, we will be able to optimize every dollar invested.

For all municipalities, including ours, to be able to take effective action to adapt their land to climate change, they must have predictability so they can clearly inform their populations, properly complete the stages preliminary to deployment on the ground and provide for management of the impacts of those often extensive and sizable works. They must have the flexibility to react and modify their priorities following a significant weather event that undermines an unexpected sector, without having to restart the lengthy acceptance processes or be bound by agreements previously signed based on different parameters.

When he appeared before your committee on May 4, Matt Gemmel, the representative of the Federation of Canadian Municipalities, said that the FCM had estimated that the cost to replace or rehabilitate just municipal assets would be approximately $175 billion.

Since the sums involved are enormous, we think it is important to establish the best conditions for success.

In conclusion, our community and its institutions have long been proactive and resolutely decided to adapt to climate change and to protect the Magdalen Islands.

To do so, we will need significant and predictable financial support and a flexible regulatory framework. We are counting on the Canadian government's support in this matter.

In closing, we have seen that it is difficult over time to match Canadian government programs with those of the Quebec government. The results on the ground are delays or limitations in possible uses of normally available funding. We ask you to do all you can to keep that funding flowing. That will benefit local populations.

Thank you for your attention.

The Chair: Thank you very much, Mr. Valiquette.

To conclude, we will hear from Mrs. Bouchard.

Mrs. Bouchard, you have the floor for five minutes.

Mrs. Andrée Bouchard (Mayor, Ville de Saint-Jean-sur-Richelieu): Mr. Chair and members of the committee, thank you for having me here on the day following World Environment Day to discuss adapting infrastructure to face climate change.

My name is Andrée Bouchard, and I am the mayor of the Ville de Saint-Jean-sur-Richelieu, the eleventh Quebec municipality to increase its population to 100,000 inhabitants in 2022, and a garrison town with more than 355 years of history, that is now facing infrastructure challenges. Among other challenges, we will have to separate 90 kilometers of combined infrastructure networks by 2028, a mission impossible.

In the spring of 2011, Saint-Jean-sur-Richelieu, like many neighbouring cities on the Richelieu River and Lake Champlain, experienced the worst floods ever recorded, which definitely marked the city's inhabitants the municipal authorities that cooperated in managing the crisis.

Twelve years later, I want to express my gratitude once again for the support provided by the community of the provincial government, the federal government, the army and employees of the city's various departments, who worked non-stop to manage an extraordinary situation.

During the floods, more than 1,600 residences had to be evacuated, 2,500 houses were damaged, and many businesses and farms were hard hit. It was estimated that more than 100 bridges and roads across the entire region affected by the floods were damaged.

The Groupe d'étude international du lac Champlain et de la rivière Richelieu, which was formed to study the floods, has established that more than $188 million in damage was caused, nearly $150 million of it in Quebec, mostly in Montérégie.

Incidentally, I invite you to read the report of the Commission mixte internationale sur le bassin de la rivière Richelieu et du lac Champlain, which cites many recommendations that have not been implemented to date. I sent the link to that report to the clerk a few minutes ago.

Since then, Saint-Jean-sur-Richelieu has taken part in an increasing number of environment-related initiatives. It joined the Municipalités amies du climat and was certified a City Friend of the Monarchs. It has also implemented an ambitious conservation plan. Saint-Jean-sur-Richelieu is also a pioneer in the protection of natural environments, particularly as a result of a major $62 million acquisition strategy that has been in place for nearly 10 years.That acquisition strategy will be amended starting in 2024.

We have also established a climate plan to reduce greenhouse gases, or GHGs, including a component called the climate change adaptation plan. We have also adopted a tree policy, regulations on the use of pesticides for aesthetic purposes, a nourishing community development plan, which is being elaborated, and a responsible procurement policy.

Since 2010, we have maintained a partnership with the Cégep Saint-Jean-sur-Richelieu to offer students free bus service. In addition, public transit is free of charge during key events and public holidays, and natural parks have been created to promote and provide access to nature.

In the next few years, it will be critically important for municipalities to obtain the federal government support necessary to fund the acquisition of the last remaining natural environments, the lungs of the highly urbanized living environments that we occupy.

In addition to elected representatives, we must make every effort to reduce GHGs, which are intimately related to the climate changes responsible for an excessive number of increasingly frequent natural disasters.

Levels of government, businesses, agencies and citizens, we must work together to do more for the environment. The real question we must ask ourselves is not whether another crisis will strike Saint-Jean-sur-Richelieu or other riverside municipalities, but rather when. We must be ready to make our living environments more resilient to climate change.

Thank you for your attention.

● (1145)

The Chair: Thank you, Mrs. Bouchard.

[*English*]

This is a message to all of our witnesses appearing online and in person. A vote has been called in the House of Commons, and we are required to attend. It shouldn't be more than 15 to 20 minutes, but we have to suspend the meeting in the meantime, so I ask for your patience.

We will suspend now.

You can shut your cameras and microphones off, witnesses, and we'll resume, probably, in about 15 to 20 minutes.

This meeting is now suspended.

● (1145)

_____(Pause)_____

● (1210)

The Chair: I call this meeting back to order. Thanks again, witnesses, for your patience.

We'll begin our line of questioning today with Dr. Lewis.

Dr. Lewis, the floor is yours. You have six minutes.

Ms. Leslyn Lewis (Haldimand—Norfolk, CPC): Thank you.

Thank you to all of the witnesses for coming here today and giving your very important testimony to this committee.

My first question is for Mr. Li.

Mr. Li, you spoke extensively about the project you're working on. I believe you said it was in Essex. I'm concerned about whether or not you see any tensions with respect to that project—the one you're building with the eco-friendly, environmental, sustainable homes—and the cost of building these homes. I know you are predicting long-term savings, but right now the market is such that people can't even afford to get into it because they don't have the tens of thousands of dollars handy in their bank accounts to make down payments.

You spoke about some really novel things that are being incorporated into your building structure, such as geothermal heating, electric charge plugs in the front of the house and the use of more renewable energy sources.

Is there any way to still encourage people to invest in these homes, knowing that there may be upfront costs but that they will save on the back end in terms of their electricity bills?

Mr. Wing-On Li: Thank you. I'm happy to answer this question.

Indeed, there's a big conflict between the price and the benefits that our eco-homes are bringing to the buyers. I believe that while these eco-features are costly, we have been able to do the project with an economy of scale so that when we talk to the geothermal guys or the solar panel vendors, we try to convince them that we are building not one house at a time but a whole subdivision so that we can get a bulk discount for all the infrastructure.

On the question about attainability, knowing that the prices are higher and that people may not be able to even put down the down payment, we have also included an additional dwelling unit in the design of the property. In Windsor and Essex, we have a very popular design type called the “raised ranch”. Basically, it's a bungalow with the basement not completely underground but halfway above grade, so we have designed an ADU, an additional dwelling unit. It's basically for rental purposes so that the owner, instead of having just one home for themselves, has an additional dwelling unit that can now be rented to people in the area or their family members so that the rental income can subsidize the mortgage payment every month.

In addition, the mortgage lenders will take into consideration the fact that they will have substantial savings on their hydro bills. Everything adds up to help them get a loan more easily than would be the case for the ordinary houses a lot of people are buying right now.

● (1215)

Ms. Leslyn Lewis: You've explained what your company's doing and the foresight you've put into making sure that people can afford their homes. What steps do you believe the government can focus on to make it easier for people to purchase these net-zero homes and perhaps even move to these areas? In terms of building more of these homes, building more of these resilient homes and paying the upfront costs, what do you believe the role of government is in doing this?

You've stated clearly how your company has dealt with this issue and thought about it, but is there anything governments can do?

Mr. Wing-On Li: I believe there's a lot the government could do to help.

As I said in my opening speech, there are several areas that each level of government can participate in, and I think the federal government has already taken a really good step by announcing in the current budget the initiative for the owners of geothermal exchanges for ducting, heat pumps and so on. I think the owners can get up to a 30% tax credit, so it's already a really good move.

At the provincial level, I think the easiest way is to widen the lens on surtax exemptions so that anybody who buys an eco-home with these kinds of eco-features can be entitled to an exemption from the land transfer tax, which saves them a couple of thousand dollars.

I think the most important part is at the municipal level. I really think we could be exempt from development charges, which you have a lot of. They should lower the cost to the barest minimum. I think they could also give people an extra incentive of enjoying a discount on their tax bill in the long run. Let's say they pay $3,000 annually, but if they buy an eco-home, they can get a 10% discount on their tax bill. I think this would be a very useful incentive.

I think then everybody would be paying their fair share. They're chipping in to help lower the upfront costs for the builders and at the same time convincing buyers that you can pay a little bit more now, but—

The Chair: Thank you very much, Mr. Li.

Thank you, Dr. Lewis.

Next we have Mr. Badawey. Mr. Badawey, the floor is yours for six minutes, please.

Mr. Vance Badawey (Niagara Centre, Lib.): Thank you, Mr. Chairman.

I want to concentrate on the how as opposed to the what, and I'm concentrating my questions to Mr. Ness.

Mr. Ness, I really appreciated your opening comments and in particular how strategically you were and are thinking.

I'm going to concentrate on your vision and how you envision a whole-of-government approach at and within the federal level of government, combining all the departments that are involved in a lot of the programs that would attach to climate resiliency infrastructure. It would include all levels of government as well, with municipal, regional, county, provincial or territorial levels working together toward integrating capital planning to ensure that strategic investments work first toward infrastructure resiliency.

There are two points I'd like you to comment on. One is planning and strengthening sustainable funding envelopes available from all levels of government to leverage and partner capital programs that are available at those levels of government. The second is to promote a disciplined approach to land use planning—you spoke a bit on that—with strategic capital investments as well as asset management plans that are sustainable well into the future through those very funding envelopes that I spoke about earlier.

Mr. Ness, can you comment on that, please?

● (1220)

Mr. Ryan Ness: Through you, Mr. Chair, certainly we've heard from the Federation of Canadian Municipalities and many other individual municipalities across the country that part of what constrains their ability to build resilient infrastructure and make their existing infrastructure resilient is a lack of stable funding and a lack of mechanisms to generate that funding.

Certainly the scale of infrastructure adaptation that's going to be required in this country needs much more funding and needs many more financial resources than are available right now. That's going to require innovative solutions, both in terms of maximizing the utility of public finances as well as in potentially looking for more creative ways to bring in private financing as well.

To your second point, certainly municipal asset management and long-term capital planning have been highlighted by the municipal community in Canada as vital parts of planning, maintaining and operating infrastructure that is climate resilient. Land use planning to situate infrastructure and development in places that are appropriate both for the current and potential future climate, given how climate risks will change, is vital as well.

We have heard from stakeholders across the country, particularly in the municipal sector, that all of those are areas where they need supports, standardized approaches and capacity, especially at the small and medium-sized municipality level.

Mr. Vance Badawey: Thank you for that.

You're absolutely right. There are funds we have available now: the Canada community-building fund, which was the former gas tax fund; the green building fund; the disaster mitigation fund; and even the ports modernization review. There's some funding that is expected to come through that review.

The bottom line is that when it comes to climate change and the cost, what we're trying to do, not only through those funds but also through the carbon tax—carbon pricing—is contribute a lot of the dollars we collect, in this case from the polluters, and repurpose that money back to the municipalities. The wildfires and the hundred-year storms, which are now five-year storms, cost money, and that lands, and quite frankly defaults, onto property taxes and water bills.

In giving through those funds at all levels of government, and particularly here at the federal level of government—the ones I just mentioned, as well as the carbon tax—money is going back to residents, with 90% going to individuals and 10% back to municipalities, which mitigates the impact on the property tax and the water bills.

However, you raised a good point about debentures.

Would you agree that if we had a sustainable fund, whether through the FCM or other mechanisms, municipalities could then take full advantage of debenturing a lot of that infrastructure work over a period of time? It could be handed down, but they would be using the funds available at all levels of government to pay down that debenture so that their operating budgets aren't impacting their capital planning and their capital budgets, based on that money sustainably funding their operating budget and mitigating the default impact on the property tax and water bills.

Mr. Ryan Ness: Thank you again for the question.

Through you, Mr. Chair, I can't comment on the specific design and use of debentures, not having studied that specifically at the institute.

Certainly we've heard over and over again that the existing funding mechanisms and capital-raising mechanisms available to municipalities are not adequate for their needs in terms of the scale of funding and the time frames over which they need to acquire that funding to adapt their infrastructure to the scale that's required.

● (1225)

Mr. Vance Badawey: Thank you, Mr. Ness. I appreciate the answers.

On that same question, Mayor Valiquette, you commented a bit on the sustainable funding needed to satisfy the capital needs and therefore the operational budgets that are being impacted by capital.

Can you speak on debenturing and the ability you would have if in fact that sustainable money was made available to you?

Mr. Antonin Valiquette: Of course. Thank you, sir.

[*Translation*]

Actually, I'm going to trust the interpreters since my French is better than my English.

Mr. Ness is approaching the matter in the right way. When municipalities have a plan or a framework, such as the action framework that we have, that facilitates action. We in the municipality are in the best position to know our territory, the sectors that should be prioritized and the places where we need to do preventive work. The key is definitely sustainable and preventive funding. That would allow us the necessary flexibility to anticipate weather events and take action upstream.

We need a more sustainable, more reliable and more stable fund enabling us to take action before storms hit. That would considerably cut costs.

The Chair: Thank you very much, Mr. Valiquette.

[*English*]

Thank you very much, Mr. Badawey.

[*Translation*]

Mr. Barsalou-Duval is the next speaker.

Mr. Barsalou-Duval, you have the floor for six minutes.

Mr. Xavier Barsalou-Duval (Pierre-Boucher—Les Patriotes—Verchères, BQ): Thank you, Mr. Chair.

Thanks once again to the witnesses for being here today. We have a busy meeting. So I hope everyone has an opportunity to speak as much as possible.

First, I'll go to the mayor of Saint-Jean-sur-Richelieu, Mrs. Bouchard, because that city, like many others in Quebec, has a duty to upgrade its sewer infrastructure system so its storm and sanitary sewer systems are separated for water treatment purposes.

Mrs. Bouchard, you have to discharge that duty by 2028, as you vaguely mentioned in your remarks earlier.

What does that mean for a municipality like Saint-Jean-sur-Richelieu? How is it related to climate change and the impact that it has on infrastructure that we are currently discussing?

Mrs. Andrée Bouchard: It has a major impact.

Climate change is a concern for us because our aging infrastructure doesn't allow water to drain adequately. Infrastructure upgrades are obviously a significant financial burden. Separating the systems isn't the only work we need to do; we also have to do everything else; we have to provide services to the public.

The main issue now, as in all Quebec municipalities, is housing. Our vacancy rate is 0.8%. We really need to focus on densification, but our aging system prevents us from doing so.

It's really the safety of our population that's at risk.

Mr. Xavier Barsalou-Duval: If I understand you correctly, the standards you'll have to meet in future also present a challenge for densification because, if your sewers don't meet the standards for your system, which is already at maximum capacity, it'll be hard to add more people. Is that correct?

Mrs. Andrée Bouchard: That's exactly correct.

Mr. Xavier Barsalou-Duval: I have another question for you.

Funding is available to assist in reconstruction works. How satisfactory is it right now?

Mrs. Andrée Bouchard: The current funding level is absolutely unsatisfactory. That's why we're making increasing demands on the Quebec and federal governments.

Mr. Xavier Barsalou-Duval: Thank you. You answered my question.

You discussed floods earlier. Saint-Jean-sur-Richelieu is situated on the banks of the Richelieu River near Lake Champlain. We have previously welcomed representatives of the municipalities of Saint-Ours and Saint-Antoine-sur-Richelieu, who told us about the problems involved in communicating about decisions the federal government had made regarding water levels, which are managed by means of dams and locks.

How are your communications with federal authorities?

● (1230)

Mrs. Andrée Bouchard: Our communications are quite good. We have a tripartite committee involving public safety, which is a provincial jurisdiction, Vermont and the federal government. We have a committee that has been monitoring the situation since 2011.

Mr. Xavier Barsalou-Duval: I understand that, after the floods, you were able to obtain information on how water levels are managed.

Mrs. Andrée Bouchard: Yes.

Unfortunately, it's as though it takes a disaster for us to get any information, but I hope we'll be better prepared for the next one.

As I said at the outset, the question isn't whether it will happen again, but rather when.

Mr. Xavier Barsalou-Duval: Thank you very much.

Mr. Valiquette, earlier you discussed shoreline erosion and sea level rise, which now impact your infrastructure even more than in the past.

How well does current federal funding help you cope with the consequences of these negative issues? Could it be improved?

Mr. Antonin Valiquette: Yes. It's always possible to improve funding programs.

You can draw a parallel with the first question that was put to Mr. Li during the first round of questions. The aim is to invest the money before the storms hit because they're what result in the biggest costs. However, we're more used to reacting to storm events.

Federal infrastructure funding programs do exist. However, we turn more to provincial public safety authorities when it comes to the protective works that we're used to in the Magdalen Islands, which are often created in reaction to violent storm and erosion events.

The municipalities have their work to do to characterize, target and prioritize the sectors and the means used to mitigate the effects of coastal erosion and submersion. However, we need federal tools, funding and programs that are adapted to those of the province so they can more easily flow through to the municipalities. As you may know, in Quebec, federal funding that's provided through the province is a special challenge.

The Chair: Thank you very much, Mr. Valiquette and Mr. Barsalou-Duval.

[*English*]

Next we have Ms. Zarrillo.

The floor is yours. You have six minutes, please.

Ms. Bonita Zarrillo (Port Moody—Coquitlam, NDP): Thank you so much.

I'm going to direct my first questions to Mayor Bousez. I hope I pronounced that properly.

You really brought this down to the people level. You talked about how it impacts people on the ground when an extreme event happens like that. Two of the things you spoke of were a more robust communications ability and the protection of utilities.

In my riding of Port Moody—Coquitlam, we have a Coquitlam amateur radio emergencies safety society. We've leaned on that amateur radio society before in emergencies.

I wanted to understand from you, Mayor, how these emergencies impact people on the ground, just thinking of it more locally. What can the federal government do to support better communications, or at least a plan B and a utilities plan B?

[*Translation*]

Mr. Patrick Bousez: Thank you for your question.

I welcome the use of amateur radio for those who have the equipment and know how to use it. However, most of our citizens don't have that equipment or don't know how to use it. Our fire services and emergency preparedness services communicate over radio waves. However, our biggest communication problem is contacting our fellow citizens. It always comes down to money. Since our first role is to protect our fellow citizens, how do we determine whether they've left their homes, whether they're still at home or whether they need something? We have to be able to reach them.

During the ice storm in 1998, one of the tasks the mayor assigned me at the time was to call our citizens. We had a telephone book. Today, we don't know how to contact people. We can message people on all platforms when social media and the web giants are working, and that's a good thing, but it gets harder to contact our people when they aren't. That's why we go door to door.

What can be done? All telecommunications towers are under federal jurisdiction. Consequently, the federal government has to ensure that those towers can hold up under various hazards. We haven't discussed the floods we had in Vaudreuil-Soulanges in 2017, 2019 and 2023, or the violent wind storm in 2016, or the train derailment in 2018, all of which caused power outages in certain areas and across the entire MRC. When telecommunications towers go down in those kinds of situations, that causes major problems. So we have to find a solution. Is there a better technology? Perhaps, but I think it's up to the federal government to ensure that one telecommunications tower is equipped with a generator and at least batteries that can last several hours. That's the case of many towers now. However, batteries drain in two, three or four hours, and someone has to replace or recharge them. There should at least be one generator. However, there also has to be fuel at hand ready to be used and electricity so someone can go and top it up. That's already happened in our MRC.

Communications are still essential in every emergency situation. Having been in the municipal world for 15 years, I know that every event and hazard always presents a danger.

So the greatest danger is a lack of communication. We need to ensure that we have a more robust system. Our cell phone networks, our emergency telecommunications towers and even the communication systems of our fire services must be more robust, but all cell phone networks across the country even more so.

● (1235)

[*English*]

Ms. Bonita Zarrillo: Thank you so much for that information. I was living in L'île-Bizard during the first ice storm, close by you.

I want to use my last two minutes by going to Mr. Nielsen at TransLink. My riding is Port Moody—Coquitlam, so I'm obviously very familiar with TransLink and the new infrastructure that has come into my community over the last five years.

Mr. Nielsen, we know that the government has promised permanent and reliable funding, but that's not until 2026. I wonder if you wouldn't mind sharing how important it is to have that funding advanced and to have it right away.

Mr. Ralf Nielsen: Through the chair, thank you for the question.

I think there are two aspects of funding. Building on Mr. Ness's comments, we actually need two streams. One is to learn to understand more about where our risks and vulnerabilities are. We're currently conducting inner risk, hazard and vulnerability studies just to be able to expand our knowledge. Once we know what our risks and vulnerabilities are, we can define what kinds of capital changes are needed for whether we retreat or advance or modify infrastructure or upgrade it, so we need that larger pot as well.

In the first few years, we're learning more about where our risks and vulnerabilities lie. We need consistent funding to do those studies. That's really important. The larger capital will come later. The permanent transit fund should hopefully even provide both, but in the interim, we need to get started. We need to understand what our current risk profile is. We've done some very high-level work. We generally know where our risks and vulnerabilities lie; now we need to go to the next levels of detail.

I hope that answers your question.

The Chair: Thank you very much, Ms. Zarrillo.

Next we have Mr. Muys. You have the floor for five minutes.

Mr. Dan Muys (Flamborough—Glanbrook, CPC): Thank you, Mr. Chair, and all witnesses as well, for your time and expertise.

Mr. Chair, I gave notice of motion on Thursday of last week with regard to the supplementary estimates and the ministers appearing. I'd like to move that motion for consideration. I know that it's been distributed by the clerk to all members.

The Chair: Do we have unanimous consent to have the ministers appear for supplemental estimates?

(Motion agreed to [*See Minutes of Proceedings*])

● (1240)

Mr. Dan Muys: Thank you, Chair, and thank you, colleagues.

My first question is for Mr. Li.

In your experience working with homebuyers, what are the incentives? You mentioned a number of different federal and provincial incentives and things that can be done for home builders from the municipal level. When homebuyers are making that huge investment in a home, what are the incentives that homebuyers would most value to make that investment in a more sustainable home?

Mr. Wing-On Li: Thank you for the question.

I believe the biggest problem that the buyers have is usually the deposit. Even though we try to make the deposits as small as possible, I think what is most important right now for us is to lower the deposit for so-called eco-homes as much as possible. With support from the different levels of the government, we can definitely do that.

One most gratifying development is the involvement of what I call institutional money. I believe that there are a lot of pension funds or institutional private equities that are now looking at the kind of energy assets we are building, not only in individual homes but also in condominiums. They are willing to come forward. They are saying, “Hey, Mr. Li, I want to support your geothermal initiative.” They will provide all the funding we need for the geothermal infrastructure; then what we need to do when we sell the condos is sign a contract with the condo owners so that instead of paying all the money up front, we can ask the condo buyers to pay a service charge, like $100 per month, so that in the next 25 years, they don't have to pay the utility. Instead, they pay me, the contractor, the fee for the use of the energy for the next 25 years.

This will help us to lower the sale price. This is a great help in making the buyers know that they are getting a home up front at a price that is comparable to prices from conventional builders. At the same time, they're only going to pay a limited service fee for energy over the next 25 years.

This is a big help. I can see that it's a very promising development.

Mr. Dan Muys: Thank you, Mr. Li.

I'd like to also ask a question of Mr. Ness.

You talked about proactive investment in infrastructure adaptation. I agree that this makes sense.

Is there a list that your organization has or that exists at other organizations or levels of government that prioritizes and assesses the risks? Where do we go to in terms of what the top-tier priorities are? What's the next tranche? Where are the areas of risk, etc.?

Mr. Ryan Ness: There is no one-stop shop for that kind of information. There is information at different levels that can be used for that purpose.

The national adaptation strategy, at the very highest level, identifies some top-level priorities for the country. Many provinces and territories have risk and vulnerability assessments that identify their top priorities, including their top infrastructure priorities. Many municipalities have done the same as well, but the challenge is still that many jurisdictions have not completed those assessments to know where their infrastructure risks are greatest and where investment might best be spent.

Many of them don't have the capacity. Again, small and medium-sized municipalities specifically often lack the staff capacity and the ability to even hire the expertise to be able to do those kinds of assessments. Supports in terms of capacity and in terms of standardized approaches for doing that kind of work are essential to be able to use that funding effectively.

The Chair: Thank you very much, Mr. Ness.

Thank you, Mr. Muys.

Mr. Chahal, the floor is yours. You have five minutes.

Mr. George Chahal (Calgary Skyview, Lib.): Thank you, Chair.

Thank you to all the witnesses for joining us today.

Mr. Ness, I'm going to start with you and your presentation. I'm going to focus on zoning and building codes. You made comments and recommendations about transparency as well, and about risk and loss and how transparency is important for communities and individuals.

My constituency was hit with a massive hailstorm. We had up to $1.5 billion in damage, with 35,000 homes damaged. One area that we identified was the roofs. If we had had better and more resilient roofs, we could have prevented damage to those homes, and potentially 35,000 home insurance claims could have been avoided.

When it comes to building codes, municipalities have a role and our provincial governments have a role. We had an extensive dialogue on this issue. The City of Calgary came forward with a resilient roofing program, which was very successful and actually was nationally recognized.

When you're in Calgary, you're in hailstorm alley. These storms come, and they're ferocious and do a lot of damage. Wouldn't it make sense to maybe mandate resilient roofs and provide incentives for homeowners to do this?

● (1245)

Mr. Ryan Ness: Thank you for the question.

Building codes and infrastructure codes and standards that dictate the way in which infrastructure and buildings should be constructed are an essential part of building an adapted country with resilient infrastructure.

The challenge is updating frequently, and what we've heard through our research is that the pace of those updates for research at the national level, the trickle-down and the actual implementation and enforcement of those provincial building codes and standards is a long process. It is one that's going to need to be accelerated if our building approaches are going to be made resilient in the very limited amount of time we have to catch up to climate change.

Mr. George Chahal: I'm focusing on resilient roofs because that was the impact in my constituency. Fort Collins, Colorado, mandated resilient roofs. We've also seen that the other day the IBC talked about providing incentives and also opportunities for homeowners to have those resiliencies built in so they could have lower insurance costs.

Do you think we need to have a conversation nationally to look at further incentives that push our provincial counterparts on building codes to ensure that if you're in hailstorm alley, let's say, like in Alberta and southern Alberta, you have resilient roofing programs?

Mr. Ryan Ness: To the first point, there's certainly the need for both the carrot and the stick sides of the equation: both the regulation of the way things are built and the incentives for builders and homeowners to apply measures that make them more resilient and that encourage them through things like insurance savings.

Again, I'll repeat that the building codes, whether for resilient roofs or other aspects of design that need to accommodate climate change in more harsh and extreme weather, are a vital part of the solution, but they aren't changing fast enough. It needs to be accelerated, and that will require intergovernmental co-operation.

Mr. George Chahal: Mr. Li, I'm going to go to you. Thank you for joining us today and talking about your community.

It's a net-zero community of attainable eco-homes. In an article, that is what was stated and what you talked about today. Can you tell us about sustainability in your community development? Earlier Mr. Ness talked about roads. Whether it's roads or stormwater, how your community development promotes sustainability and the net-zero component is also a part of your entire community development.

You've done a great job of talking about the homes specifically. I'm curious to know more about the entire community.

● (1250)

The Chair: You have 20 seconds, please.

Mr. Wing-On Li: Right now, it is a challenge for us. Basically, I don't think the municipality is ready for this kind of development and the buyers are not ready, but I believe it is a good challenge for us to put out homes at a price that the buyers can afford, which, as I've said, is very important.

I believe that once we have done a showcase, other builders will follow, and the municipality will give us the necessary support if they see that it works for the community.

The Chair: Thank you very much, Mr. Li.

Thank you, Mr. Chahal.

[*Translation*]

Now we will go to Mr. Barsalou-Duval for two and a half minutes.

Mr. Xavier Barsalou-Duval: Thank you very much, Mr. Chair.

I'm going to go to Mr. Valiquette once again.

We're in the Standing Committee on Transport, Infrastructure and Communities. I'm also the Bloc québécois' transport critic, and we often receive complaints from people from the Magdalen Islands regarding considerably irregular flights and service, often as a result of the weather. In many instances, we're increasingly seeing storms, freezing rain, hurricanes and extreme weather phenomena, and those phenomena increasingly affect the Magdalen Islands. You yourself mentioned that hurricanes are increasingly frequent and impact the Magdalen Islands more.

In those circumstances, do you think the fact that the runway of the Magdalen Islands airport is the shortest commercial runway in Quebec may be related to this problem of establishing long-term reliable service?

Do you think that worsening climate change could increasingly be a problem in future?

Mr. Antonin Valiquette: I think so, and, in fact, I'm sure of it.

I have to say that we used to have colder winters on the Magdalen Islands, and our facilities were adapted to those conditions. Now with the warmer winters, temperatures are closer to zero degrees Celsius, as a result of which we get more rain and, especially, freezing rain. Freezing rain really damages transport infrastructure. That's true for the airstrip, which needs to be longer. The airport infrastructure in the Magdalen Islands that belongs to Transport Canada needs to be adapted. As I said in my remarks, that's also true of the port facilities.

Earlier you asked me a question about federal funding for protecting infrastructure from climate change. There's actually a provincial-territorial infrastructure funding program for municipalities. It's called the Provincial-Territorial Infrastructure Component–National and Regional Projects, or PTIC-NRP.

However, I think, first and foremost, that it's up to the federal government to adapt its own infrastructure in the Magdalen Islands in order to cope with climate change and to take financial responsibility for it.

Mr. Xavier Barsalou-Duval: There's a specific case, which you referred to earlier, and it's the Cap-aux-Meules commercial dock. Most of the provisioning for the islands goes through it, particularly the material used to protect their coastlines. The dock is apparently not very well maintained or at least needs to be upgraded.

Mr. Antonin Valiquette: The Cap-aux-Meules commercial dock is actually used intensively by the barges that transport stone and protective material for the coastlines. Many major works representing millions of dollars are under way in the Magdalen Islands to protect shorelines.

The dock is now too old and damaged by climate change, in particular, to accommodate the materials we need to protect ourselves from climate change. You can see the paradox.

The Chair: Thank you very much, Mr. Valiquette and Mr. Barsalou-Duval.

[*English*]

Next we have Ms. Zarrillo.

The floor is yours. You have two and a half minutes, please.

Ms. Bonita Zarrillo: Thank you so much.

My questions are going to be for Mr. Ness. They will, I'm sure, take up the full two and a half minutes.

Mr. Ness, I'm going to ask you two questions, and you can answer them in the order you prefer. I want to revisit the communications and the utilities.

My first question is this: What can the federal government do to protect the communications systems and the utilities that Canadians rely on every day, especially during natural disasters?

The second question is this: From your 20 years of experience, can you share some of the government roadblocks you have faced in regard to our lack of preparedness for extreme weather events and in regard to resilient infrastructure?

● (1255)

Mr. Ryan Ness: Thank you for the question.

Certainly the federal government has a role to play in ensuring the resilience of our telecommunications systems. We haven't researched the specific mechanisms that are available to do so, but certainly its role in regulating those systems and the providers of those systems is to ensure that they are constructing and maintaining infrastructure that is designed to face the future climate.

With respect to the second question, there are always challenges when dealing with a large complex democracy and moving major issues like adaptation forward. Certainly adaptation has taken second place to mitigation, which is obviously still important. Reducing our greenhouse gas emissions is the number one form of adaptation we can take. However, it has taken up most of the air in the room, and there hasn't been as much attention on adaptation.

As well, the benefits of adaptation are realized over quite a long term, and certainly well beyond individual electoral cycles in many cases. Therefore, it's often difficult, with more pressing priorities, to justify expenditures that may not pay off—many won't ever pay off in very dramatic and showy ways—until decades down the line.

Ms. Bonita Zarrillo: Thank you.

I still have a very quick 30 seconds here, so I'm going to ask Mayor Valiquette this question.

I want to know whether there is good visibility into the selection process for some of these climate adaptation funds—let's say, for example, the disaster mitigation fund from the federal government.

Is there good visibility into who's getting chosen and why?

Mr. Antonin Valiquette: I believe so.

It's hard for me to say that this is the case in all the provinces or across the country, but in the Magdalen Islands, we've done extensive work over the last 10 years to recognize and target specific spots and areas that are most vulnerable to climate change, but we also need the flexibility to change that prioritization for a sudden and unexpected climate event.

[*Translation*]

The Chair: Thank you very much, Mr. Valiquette.

[*English*]

Thank you very much, Ms. Zarrillo.

Next we have Ms. Vecchio.

Ms. Vecchio, the floor is yours. You have five minutes.

Mrs. Karen Vecchio (Elgin—Middlesex—London, CPC): Fantastic. Thank you very much. It's great to be here on this important committee today.

Mr. Li, I'm going to start with you.

I'm very fortunate, because I live near Western University. Within our own riding, people from the Canadian Home Builders' Association and the Ontario Home Builders' Association are doing a lot of work on research and development.

You've talked a lot about making sure these homes are net zero. Have you also taken into consideration wind resistance, such as by ensuring those screws are the six-inch screws? What types of things have you done when it comes to mitigation for wind?

Mr. Wing-On Li: In our case, we have used weather-resilient roofs. We use metal roofs, because it's easy for the solar panel installer to put the panel there. As we are using a more advanced metal roof—like the standing seam snap-lock mechanism—we have very strong roof protection for the solar panels, as well as for the roof. I think one of the members asked this. In a hailstorm, a metal roof is very good protection. It's a foolproof mechanism to protect the property.

Mrs. Karen Vecchio: Thanks so much. I absolutely agree with that.

Have you also taken into consideration, in ensuring all the facets and everything.... Have you increased what you're using when it comes to products to ensure that they have reached that research and development level to make sure wind...?

Yes, the steel roof is there, but are you ensuring the roof doesn't come off? What are you using to ensure it is attached properly?

Mr. Wing-On Li: When it comes to very technical stuff, to be honest, I don't know. Usually we have an assigned architect in Windsor who does the design in terms of cover and architectural, mechanical and even structural aspects. I count on them to do that for me.

Mrs. Karen Vecchio: That's okay. I'm very fortunate because I am surrounded by some incredible home builders who are doing a lot of research, so I may have a bit of extra knowledge through them. They take me through the sites all the time.

I also want to ask you about charging the cars.

I know one of the greatest challenges we're hearing, from many home builders, is that yes, people want one car charger, but they also want two. What they're finding is that there isn't enough power. Sometimes, if they're at the end of a road, there isn't going to be enough power for them.

Have you come across any of those challenges? If so, how have you addressed them?

● (1300)

Mr. Wing-On Li: So far we are pretty lucky, in that our garages are basically two-car garages. We have sourced a supplier that can do an EV charger, and therefore two EV chargers, at a very modest price of $3,000. That's all. I can install it as part of the building cost. With two cars, maybe one unit for the owner and the other for an additional dwelling, they can share the chargers at the same time, and the cost is very modest.

Mrs. Karen Vecchio: Excellent.

Mr. Li, I guess one of the challenges is that we've heard there is not enough energy to do this.

You have all the testing and all of that, so will there be enough energy for two electric cars per household?

Mr. Wing-On Li: Yes.

As you know, we have a geothermal system. Basically, all the heating and cooling power demands are handled by the geothermal system. What we need to do is install 13 kilowatts of solar photovoltaic panels on the rooftop, and that will basically take care of the power for lighting, cooking, video games and TV and so on. It is also good enough to provide the solar power for the EV chargers.

Mrs. Karen Vecchio: Perfect. Thank you so much. You are doing incredible work.

I want to switch over to the Climate Institute and speak with Ryan for a moment.

I see some incredible flood mapping that's being done.

I am very fortunate to live on Lake Erie. We have four great ports, which I am really proud of. However, one of the biggest challenges comes from people building on flood plains.

What do you see across Canada when it comes to the flood mapping? Are we ensuring that all of our municipalities and conservation authorities have access to doing that?

Mr. Ryan Ness: Thank you for the question.

The state of flood mapping across Canada is not an ideal one. As I mentioned earlier, probably half of households that are at high risk of flooding in Canada are not on a flood map anywhere, so they have no way of knowing about their risk. Municipalities are often left to develop that information on their own. When development comes up and there are time pressures and political pressures associated with moving that development forward, often the mapping can't get done fast enough.

Ontario is lucky to have instituted conservation authorities, which do a lot of that work. Other provinces don't have them. Even in Ontario, conservation authorities often lack resources to be able to keep mapping up to date.

Mapping across the country is generally obsolete. The average age of flood mapping in the country is over 20 years. Essentially, 0% of flood mapping reflects the changing risk of flooding from climate change; it simply reflects historic risk.

The Chair: Thank you very much, Mr. Ness, and thank you, Ms. Vecchio.

[*Translation*]

I will begin the next round of questions with Mr. Bousez.

As chair of our committee, but also as the member for Vaudreuil-Soulanges, I want to thank you sincerely for being here and for sharing with the committee our community's experience during the ice storm.

Would you please cite some other examples besides the rain storm example that attest to the challenges the municipalities must overcome, especially with regard to climate change?

Are we prepared to face them?

Mr. Patrick Bousez: As I briefly mentioned earlier, floods are one of the challenges. Our region is at high risk of flooding. We observed this in 2017, 2019 and once again this year on a lesser scale, when 135 houses were nevertheless affected and may possibly be demolished.

Snowstorms are another challenge. The one that hit on December 24, for example, completely paralyzed our region.

We're dealing with increasingly violent and unpredictable weather phenomena. In the municipality where I'm mayor, microbursts destroyed an entire wooded area in 2016. Even the skating rink was caught in a vortex when it happened.

We'll be experiencing these kinds of unpredictable events more and more often. We're talking about climate warming, but we've nevertheless experienced extremely cold nights, followed by extremely warm days for the season.

So we're observing many phenomena like these. Are we prepared to face them? The answer is no. We're never ready enough, for one thing. Are we learning from our mistakes? In our region, we've learned from the ice storm in 1998, but have we learned enough?

In the very first hours of the last ice storm, only 8 out of 23 municipalities were prepared, which is quite surprising. It's also surprising that some municipalities have halls that can accommodate 1,500 to 2,000 persons but that aren't equipped with generators in winter. If we have places to accommodate people but those places don't have electricity, we have a problem.

Are we ready enough? No. I liked the question that the lady who talked to us about amateur radio asked earlier. We won't be able to communicate with everyone if we don't have more robust radio communication services adapted to climate change and wind, rain and winter storm events.

We can communicate among ourselves, but the fact remains we're never prepared enough. I repeat: events like that won't just occur back home in Vaudreuil-Soulanges. They'll happen all across Canada. You're experiencing them in your regions—

● (1305)

The Chair: Mr. Bousez, do you think the problem can be attributed to a lack of planning? Is it more a lack of knowledge of the funding that the federal government offers? Do you think the eligibility criteria for those programs exclude the municipalities from access to them?

As prefect, what you think the problem is?

Mr. Patrick Bousez: You raise several points.

First of all, people don't always have the right information. There are so many different programs that the problem can often be attributed to the difficulty involved in finding the right one rather than to a lack of available funding. If we had a single window, for example, and someone could tell us which program suits us, that would simplify matters. Right now, we really have to sift through the programs and do some research, and that's difficult.

In addition, Canadian and Quebec governments have a special relationship regarding most federal-provincial programs and agreements. Federal assistance first has to go through the province before it reaches the municipalities, which makes no sense. The process should be reviewed in short order.

On the other hand, I believe there's a lack of knowledge of the programs that are available to the municipalities. People are poorly informed. The fact nevertheless remains that there's much to be done to assist and guide the municipalities.

Getting back to adapting to climate change, what do we do when we see municipalities being impacted by floods now? Do we demolish half of the city because it has been affected, or couldn't we build a levee instead? Incidentally, a temporary levee has saved the municipality on two occasions. However, Environment and Climate Change Canada prohibits them from being built.

What do we do when a seniors centre, for example, or a school with 5,000 students has to be protected? There will have to be a little more flexibility in that regard if we really want to adapt to climate change. We won't cause any more damage if we build a levee to protect the city.

The Chair: Thank you very much, Mr. Bousez.

[*English*]

Next we have Mr. Morrison. The floor is yours.

What we'll do for the last round, colleagues, if it's okay with you, is that since we have 12 minutes left, we'll give all parties three minutes.

I'll turn the floor over to you, Mr. Morrison.

Mr. Rob Morrison (Kootenay—Columbia, CPC): Thank you, Chair. My first question is going to be for Mr. Ness.

I was really happy to hear you talking about proactive investment. We can look to the Sumas floods. We had a billion dollars of damage when the dikes didn't survive, and that was predicted.

I have a unique problem in my riding as well. The Columbia River basin supports over 600 hydroelectric dams. Part of the dam system goes down into the United States and comes back up into Canada. Where it comes back into Canada is the Kootenay River system, and the Kootenay River dikes are failing. We know that. We're predicting it, yet it's really hard to get the federal government to look at proactive investment. We are always reacting, and it costs us significantly more money.

I'm wondering if you can give me an example of how we can stress the importance of proactive investment over reactive investment.

● (1310)

Mr. Ryan Ness: Thank you for the question.

In those kinds of examples, when the dikes for flood protection that have been so much the subject of conversation lately are allowed to degrade and are not maintained to the level of service and the level of protection that they were originally designed to provide, we see the consequences during a major flood event. The cost of upgrading and maintaining those dikes would almost certainly have been a fraction of the cost of the damage that resulted. We see this over and over again in all kinds of disasters.

We could have foreseen where the impact would be, as the Insurance Bureau of Canada mentioned in earlier testimony. Most of the flood risk in this country is concentrated in the top few per cent of homes that are at flood risk, so a relatively small investment to protect or perhaps relocate those homes would deliver major benefits in terms of reducing the flood damage that those homeowners, and then the Canadian economy as a whole, have to bear.

Mr. Rob Morrison: Thanks very much.

My last question is for Mr. Nielsen of TransLink. I am a TransLink user whenever I'm in Vancouver. You have a very good system there.

The problem to me, being from rural British Columbia and rural Canada, is that while we're certainly putting a lot of investment into urban areas, our rural communities have opportunities as well. For example, we have a fairly good train system, so we can go to electric trains, but it's really hard to get noticed when we're focusing so much on urban needs. As you are from TransLink in the Lower Mainland, I understand, how can we make our government, the federal government, more aware of the needs in the rural communities as well, where we have distance challenges and weather challenges?

Mr. Ralf Nielsen: That's an excellent question.

The Lower Mainland, inclusive of the entire Fraser Valley, needs to be looked at as a system and as a watershed. If we take a watershed view, what happened in our flooding several years ago could have happened right in the hearts of our urban populations as well.

The importance of the Lower Mainland flood strategy across the entire system is that what we do in one part of that overall watershed for diking, improving or taking back orphan dikes or making them seismic-resilient is really important. It can't be just one body doing that, so I think the federal government has a role in that regard.

The Chair: Thank you, Mr. Nielsen. Thank you, Mr. Morrison.

Next we have Mr. Rogers. You have three minutes, please.

Mr. Churence Rogers (Bonavista—Burin—Trinity, Lib.): Thank you, Chair. I'll try to do the best I can in three minutes.

Mr. Ness, in Canada's national adaptation strategy, the federal government sets a number of targets for improving the understanding of the risks that climate change poses to infrastructure. Here are examples:

> By 2025, 60% of Canadians are aware of the disaster risks facing their household as a result of climate change.
>
> By 2028, at least 200 out of 250 targeted high-risk areas identified as priorities in collaboration with PTs are covered by new flood hazard maps, produced in accordance with scientific guidance and made available to Canadians
>
> By 2025, 50% of Canadians have taken measures to respond to climate change risks facing their household

Given these targets, what is Canadians' current level of understanding of the disaster risk their households face because of climate change? What steps can Canadians take to address the climate change-related risk facing their individual households?

Mr. Ryan Ness: Mr. Chair, I am just confirming that the question is for me.

Mr. Churence Rogers: Yes.

The Chair: Yes, it is, Mr. Ness.

Mr. Ryan Ness: The state of Canadians' understanding of climate risk is very poor. There have been interesting studies done that have shown that a fraction—10% or perhaps even less—of Canadians who live in flood risk zones are aware that they are at risk. There is not only a gap in climate risk information in this country, but also, even where it exists, Canadians aren't accessing it to better understand that they are, in fact, at risk.

To the second question in terms of what Canadians can do, certainly there are some steps that Canadians can take to make their homes more resilient, for example, and to upgrade their homes. There are some government programs at various levels that can help them to do that.

I would also, though, submit that Canadians should look to their elected officials and to their public servants to take the right steps in terms of the big things that need to be done at a collective scale to protect them from risk, whether it's building flood risk protection infrastructure or moving neighbourhoods out of harm's way or the like.

● (1315)

The Chair: Thank you very much, Mr. Rogers.

Thank you very much, Mr. Ness.

[*Translation*]

Mr. Barsalou-Duval will have the floor next.

Go ahead for three minutes.

Mr. Xavier Barsalou-Duval: Thank you, Mr. Chair.

Mr. Bousez, you mentioned in your presentation that the key factor when a climate crisis or extraordinary event occurs in a community is communication. It's becoming increasingly difficult to communicate with people because we don't have individuals' cell phone numbers.

Do you think that cell phone directories or people's cell phone numbers should be made available to municipalities, public authorities or even MPs' offices, for example? Should there be an official list so we can contact them and send messages that they should evacuate an area or determine whether they're all right or need help?

I'd like to hear what you have to say about that.

Mr. Patrick Bousez: That would definitely help us a lot, but even when telephone books were available, they work accessible to everyone because there were private numbers at the time.

Would that help us? Yes. Otherwise, are there any apps for contacting people? Yes, there are. We have some; I won't name any names, but we're asking our fellow citizens to sign into them. They give us their contact information. That's one thing, but when the message is sent out, it won't reach anyone if the telecommunications towers are down.

So it's good to have our fellow citizens' contact information. That's what we try to do. In addition, every time someone moves to our MRC, we always try to project the best image and provide the most details, but they aren't obliged to give us that information.

Should they have to provide a minimum amount of information to the municipality? I think so, but, once again, there are no more land lines; the major problem remains the resilience of the telecommunications network. We travelled to the moon in the late 1960s, and we're incapable of establishing a telephone network that operates across the country. It makes no sense.

That's why I emphasize that this is where our radio communicators should invest. This is a federal jurisdiction. We should require them to invest. It's not normal that we went to the moon with the equivalent of a 386 computer and we were able to communicate. This is now 2023, and we can't do it anymore.

When I left home, 90 minutes from here, I lost the network signal three times. We were trying to speak over the telephone. We live in a big country; I agree. However, it's not normal for us to be unable to communicate at all times. There were no extreme winds; it was a normal day. Imagine what happens when two or three telecommunications towers go down. We really need to emphasize that point.

The Chair: Thank you, Mr. Bousez and Mr. Barsalou-Duval.

[*English*]

If the committee is in agreement, before I turn the floor over for the final line of questioning by Ms. Zarrillo, I'd like to officially request to the telecommunications companies that they submit a written response to the committee with regard to why, for the period of five to six days, millions of Quebeckers were without cell service.

It's not to lay blame; it's to fully understand what infrastructure challenges we are facing right now such that in 2023 we're still experiencing this. It causes elected officials to experience significant challenges when we're trying to serve our population during crisis.

Is the committee in agreement?

Some hon. members: Agreed.

The Chair: With that, I will turn the floor over to Ms. Zarrillo for the final line of questioning.

You have three minutes.

Ms. Bonita Zarrillo: Thank you so much.

I'm going to start by asking Mr. Ness to revisit the “Due North” report.

The “Due North” report says, “Transformative adaptation is needed to address the Northern infrastructure gap and worsening climate impacts.” It goes on to talk about “fundamentally rethink[ing] how infrastructure is built in the North, for Northerners.”

I wonder, Mr. Ness, if you have some examples for us of how it's different. What are the gaps and what needs to be done quickly up in northern communities?

● (1320)

Mr. Ryan Ness: That particular recommendation in “Due North” was recognizing that much of the infrastructure that exists in the north right now will not be viable in the future. Much of it is built on permafrost, which will thaw permanently. It will be gone. It will leave unsuitable, unstable soil beneath it. Infrastructure in many ways will have to be a do-over.

It is an opportunity to rethink the infrastructure that northerners need. Much of their existing infrastructure was not designed with them in mind or with their input. This is a chance to design their communities in a way and in places that make sense for them, and to design them so that they are also resilient to the long-term impacts of climate change, whether that be new ways of getting around the north that don't rely on winter roads—which again, will not be viable in much of the north for much longer—or new ways of constructing buildings. New ways of air transport, even, are being discussed in the north.

Ms. Bonita Zarrillo: Thank you for that.

I'm going to ask the mayor of Saint-Jean-sur-Richelieu about jurisdiction shared with our neighbours in the south when it comes to water.

I know a portion of the flooding that happened in the Fraser Valley from the atmospheric rivers came up from waterways in the south, in the United States. There are some conversations now about shared jurisdiction on water.

I note that you are also on a very large body of water. I wonder if there are shared jurisdiction conversations that you've had and if you have any concerns about flooding that could come from the south.

[*Translation*]

Mrs. Andrée Bouchard: Absolutely.

We're in contact with Vermont right now because we share Lake Champlain. Consequently, people from Vermont sit on our steering committee.

[*English*]

Ms. Bonita Zarrillo: Is there a federal representative? You talked about a steering committee. Is there a Canadian federal representative on that steering committee?

[*Translation*]

Mrs. Andrée Bouchard: That's a piece of information that I don't have right now. I think so, but I can't confirm that for you.

The Chair: Thank you very much, Mrs. Bouchard.

[*English*]

Thank you very much, Ms. Zarrillo.

I'd like to take the opportunity to thank all of our witnesses for appearing before committee today and contributing to this very important study.

With that, this meeting is adjourned.