



**CONNECTING COMMUNITIES.
CREATING OPPORTUNITIES.**

2020 Annual Report



Vision

Helping create equitable access to high-speed internet

Mission

Expanding open access to high-speed internet throughout York Region

Mandate

Planning, building and operating an affordable, reliable and sustainable fibre network across York Region

**YorkNet: Connecting communities.
Creating opportunities.**

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Message from the 2020 Chair of the Board

2020 was an exceptional year by any standard. The COVID-19 pandemic has altered our lives in a manner that was once impossible to imagine. So, we are proud that, despite the challenges we faced last year, YorkNet has made considerable strides in the expansion of its fibre network and we've achieved the majority of the goals that we set out in our ambitious 2020 Capital Plan.

For example, YorkNet added 113 kilometres to its network and created over 70 new connections to Regional facilities and assets that spanned different corners of the Region, from Georgina to Vaughan to Markham; it was by far the most distance built since YorkNet's inception.

At a time when the world is combating a pandemic, YorkNet has provided connections to healthcare facilities to improve health service delivery. In 2020, YorkNet's fibre network enabled the swift launching of a COVID-19 Assessment and Testing Centre at the Southlake Regional Health Centre, as well as providing a direct, fast and secure fibre connection for the new Cortellucci Vaughan Hospital that supports the surge in critical and acute care.

Perhaps most significantly, 2020 allowed us to connect two majorly underserved communities in York Region: the community of Udora and the Chippewas of Georgina Island First Nation. This huge milestone was made possible

through \$2 million in federal funding obtained from the Connect to Innovate program and York Region's \$3 million contribution.

In 2020, high-speed internet became an undeniable essential service; it enables us to work, attend virtual school, receive health services, and keep us close when we must be kept physically apart. This makes YorkNet's work more important than ever. We are proud to advance access to this critical service at a time when it's needed most, and although our connectivity mission has not changed, our purpose has become even more vital to the Region.

In 2021, we aim to maintain our vigorous momentum, expanding the network by over 100 kilometres and adding over 200 new connections. To ensure broadband connectivity continues to expand across the Region, we will continue to explore and apply for funding opportunities offered by all levels of government.

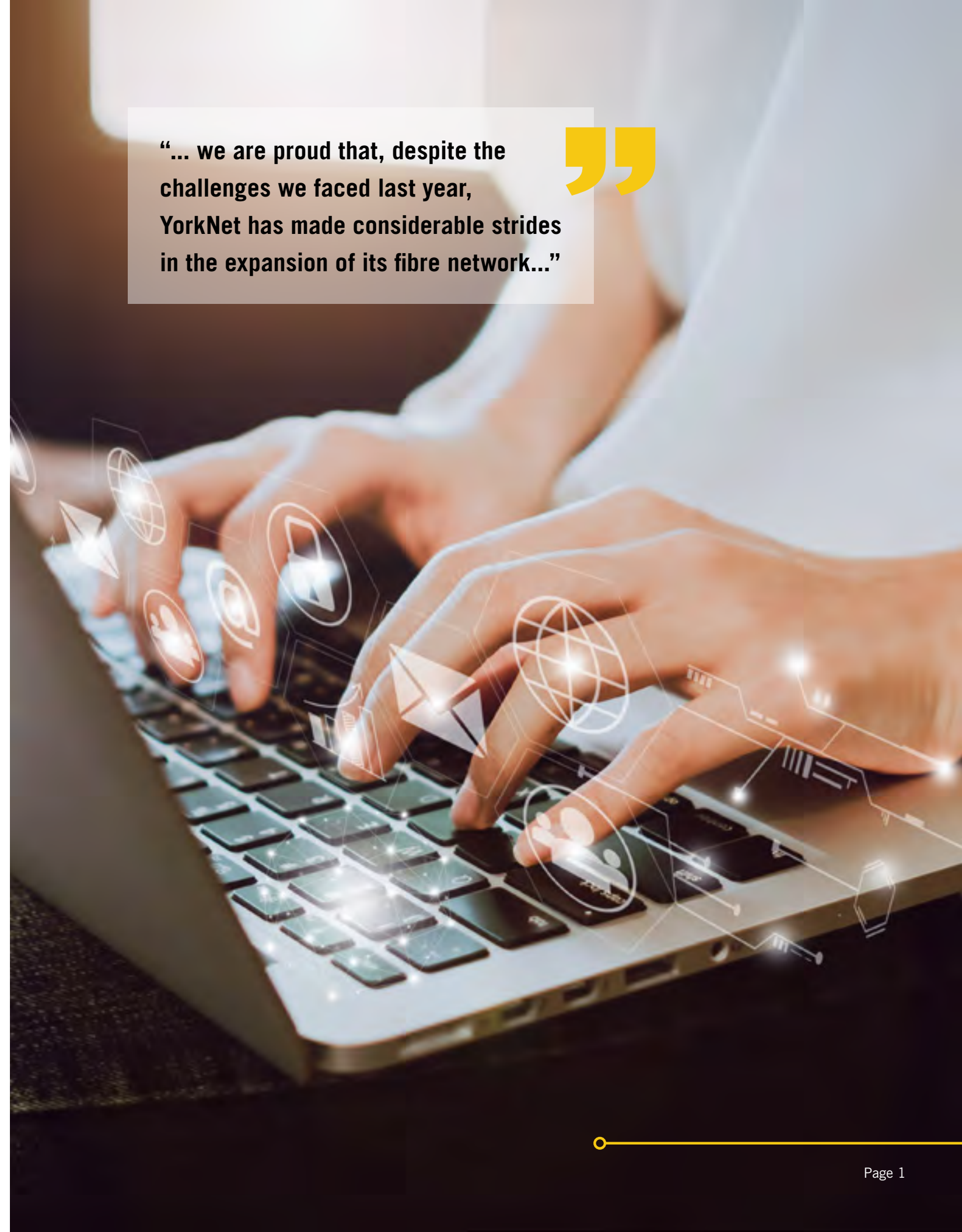
The evolution of YorkNet is impressive, and the network will continue to evolve by adapting to the changing and growing needs of our communities. In other words, we will continue to connect communities and create opportunities for our region.

I wish you and your family a healthy and safe 2021.



2020 Chair of The Board
Mayor, Town of Georgina

“... we are proud that, despite the challenges we faced last year, YorkNet has made considerable strides in the expansion of its fibre network...”

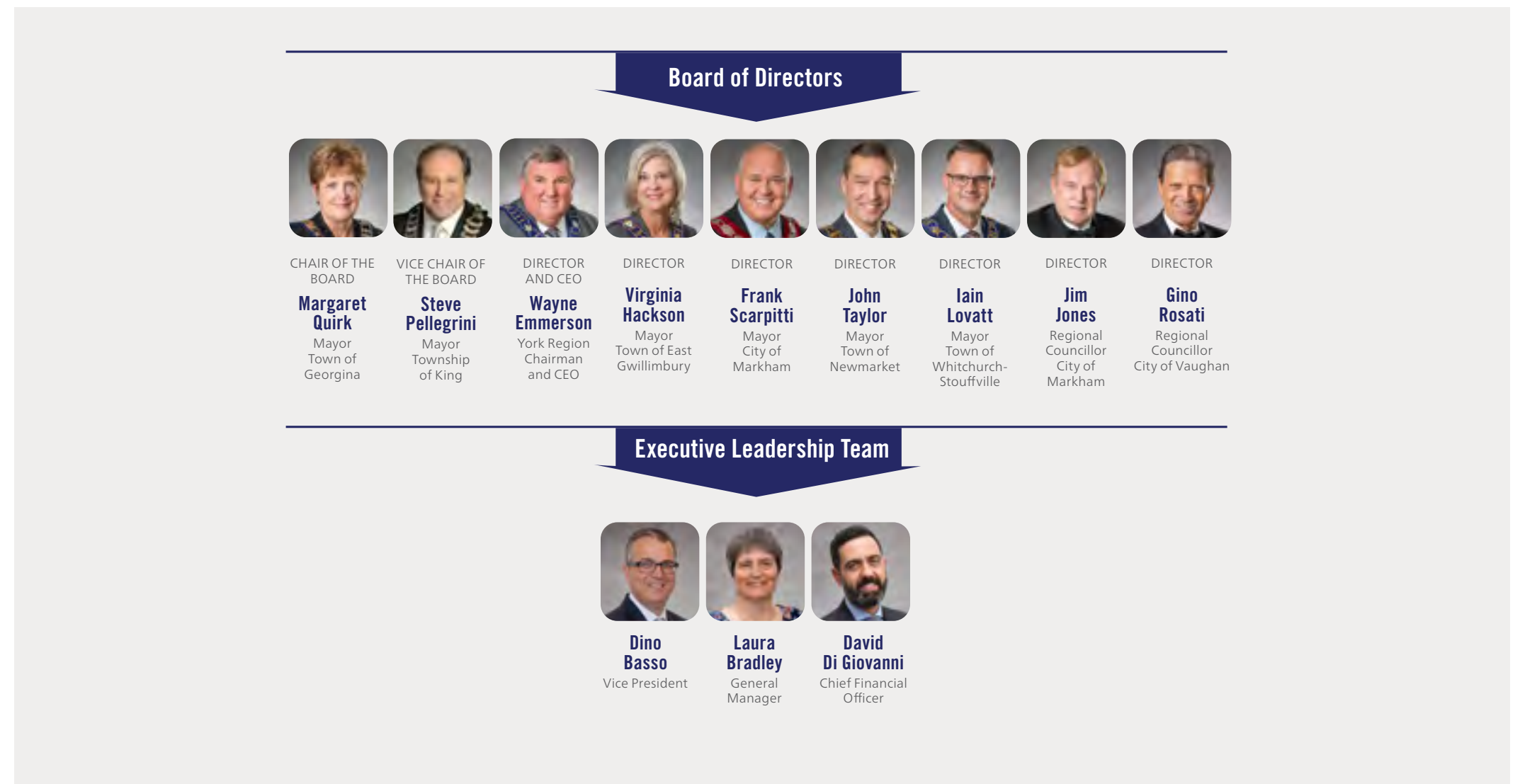


Governance

YorkNet is one of three York Region-owned corporations and is funded by the Region. It is governed by the *Ontario Business Corporations Act*, the *Municipal Act Regulation* and Shareholder direction.

2020 Board of Directors

Reporting to the Shareholder (Regional Council), Directors of the Board are required to oversee the Corporation's business and affairs, approve the annual business plan and budget, appoint or hire officers of the Corporation and delegate day-to-day management to officers.



YorkNet's mandate



Growing York Region's dark fibre network

Improve the delivery of Regional services, such as traffic management, transit systems, water/waste water control management, security monitoring, policing and cloud-enabled applications.



Collaborating with public-sector organizations to improve high-speed internet service

Work with municipalities, hospitals, libraries, fire halls, schools, community centres and other public-sector organizations to improve broadband services they deliver using our network.



Providing private-sector organizations with open access to the network

Drive economic and social benefits and enhance broadband service for the Region's residents and businesses, particularly in rural and underserved areas of the Region.





Dark versus lit fibre

Every day, light waves travel through many kilometres of glass-fibre cables right underneath our feet, connecting us to others, and to the world. While YorkNet doesn't "light" these glass cables, it brings the potential for high-speed internet to all corners of the Region through the expansion and maintenance of this infrastructure.

Why is fibre the 100-year solution?

One word: Scalability.

A fibre cable is made up of fibre strands. Each strand is about one-tenth the width of a human hair. Information travels through these strands as light waves. So, the fibre that YorkNet builds is dark until equipment is connected to light it up, enabling data to travel through it.

An example to illustrate the power of these microscopic wonders is YorkNet's fibre connection between the Operations, Maintenance and Storage Facility building and the 50 High Tech Road building, which is a YorkNet hub that connects local facilities into a wide range of networks in support of the Region's business operations— from intranet and phone connections, security camera operations, access card management, to even carrying the data that runs traffic lights and the transit's intranet.

Using just two fibre strands, the two locations can transmit data without any restraint, supporting 92 high-quality video cameras, over 100 network users, telephone services, security systems and other Internet of Things (IoT) devices, without reaching the two strands' bandwidth limit.

To put this into perspective, the fibre connection that YorkNet has built between Mackenzie Richmond Hill Hospital and Cortellucci Vaughan Hospital (page 14) is made up of 96 fibre strands, allowing almost limitless capacity for growth and innovation.

In short, fibre is a long-term, scalable technology that will accommodate York Region's rapidly growing communities now and well into the future.

2020 accomplishments

Bringing York Region together in a year of distancing



Expanding YorkNet



We've made significant progress in 2020, expanding YorkNet by 113 kilometres and connecting many communities in the Region:

- **The Township of King**
Added 22 kilometres of the network to deliver connectivity for Regional and Township of King-owned facilities.
- **Town of Whitchurch-Stouffville**
Expanded network by 31 kilometres to provide connectivity for the growing community, completing the project ahead of schedule and under budget.
- **York Region facilities**
Advanced a critical 650-metre network expansion across a Metrolinx rail corridor that enabled a connection between the Administrative Centre at 17250 Yonge Street to the South Services Centre at 50 High Tech Road, two key Regional facilities that provide vital services to residents.
- **York Region Rapid Transit Corporation**
Collaborated with York Region Transportation Services to install underground conduit infrastructure during vivaNext rapidway extension on Yonge Street in Richmond Hill.
- **Mackenzie Health**
Built nine kilometres of fibre between Mackenzie Richmond Hill Hospital and the new Cortellucci Vaughan Hospital that provides a secure, reliable and affordable connection.
- **East Gwillimbury**
Expanded into several key East Gwillimbury and Region-owned facilities, such as East Gwillimbury Public Library (Holland Landing Branch), Queensville Fire Station, Holland Landing Fire Station and Oxford Village seniors community.

Building partnerships



- Added 72 Regional, municipal, hospital and third-party connections.
- Secured revenue agreements with various third-party providers to increase YorkNet's revenue and to support broadband connectivity in underserved areas.
- Collaborated with Internet Service Providers to build segments of fibre, and reach fibre-leasing agreements, enabling them to reach more residents.

Reducing cost



- Implemented a strategic plan to save the Region up to \$86 million over the next two decades by eliminating third-party carrier costs through investing in YorkNet's fibre infrastructure.
- Developed a new procurement process to more effectively manage construction tenders and lower costs.
- Established a financial policy to secure funds to mitigate risks and manage YorkNet's assets.





2021 key priorities

Continuing to connect and expand dark fibre across York Region



Complete fibre construction as set out in the 2021 Capital Plan



Connect approximately 200 Regional facilities



Expand network to connect select Regional and municipal facilities:

- Markham: Build 39.2 kilometres in 2021 (a projected total of 64.8 kilometres network built by 2022)
- Vaughan: Build 1.2 kilometres in 2021 (a projected total of 42.6 kilometres network built by 2023)
- King, Richmond Hill and Whitchurch-Stouffville: Start construction (in 2022) on a projected total of 37.9 kilometres network (built by 2023)



Build 28 kilometres of fibre network along the shore of Lake Simcoe as an extension of the Connect to Innovate program



Increase collaboration with third-party partners



Explore funding opportunities to expand into rural communities that will further bridge the digital divide in York Region

Capital Plan

In 2020, a year full of challenges, YorkNet achieved the majority of goals that were set in its 2020 Capital Plan.

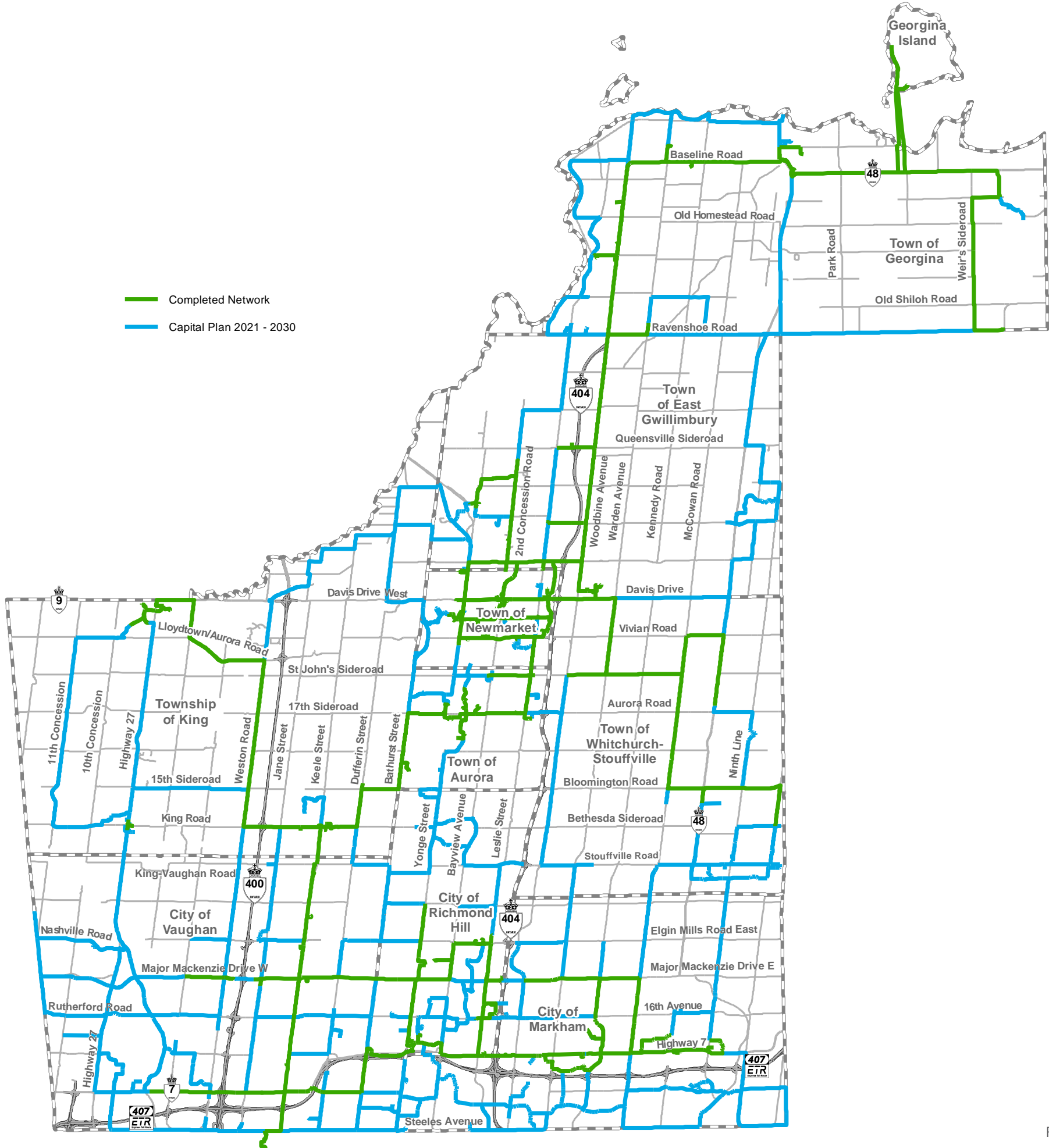
YorkNet continues to enhance services and improve lives across the Region by connecting hospitals, universities, local municipal operations, libraries and police services. In addition, YorkNet plays a vital role in connecting the Region's critical infrastructure such as traffic control systems, transit, social housing units and water-quality monitoring systems.

The organization's long-term vision is to fully expand and construct a broadband network that reaches every corner of the Region and build approximately 1,500 kilometres of dark fibre by 2030 (contingent on the approval of funding applications).

Once the network is completed, there will be redundancy within the Region-owned network, enabling York Region to reduce its reliance on third-party providers. The network will also support the Region's ability to meet the growing demands of sending and receiving data across a vast array of connected devices.

As defined in the Capital Plan, YorkNet will continue to focus on the following priorities:

- Connect Regional, municipal and other public-sector facilities
- Increase network bandwidth
- Enhance service delivery and operations for Regional and municipal partners
- Facilitate connectivity in underserved areas
- Raise revenue from outside parties



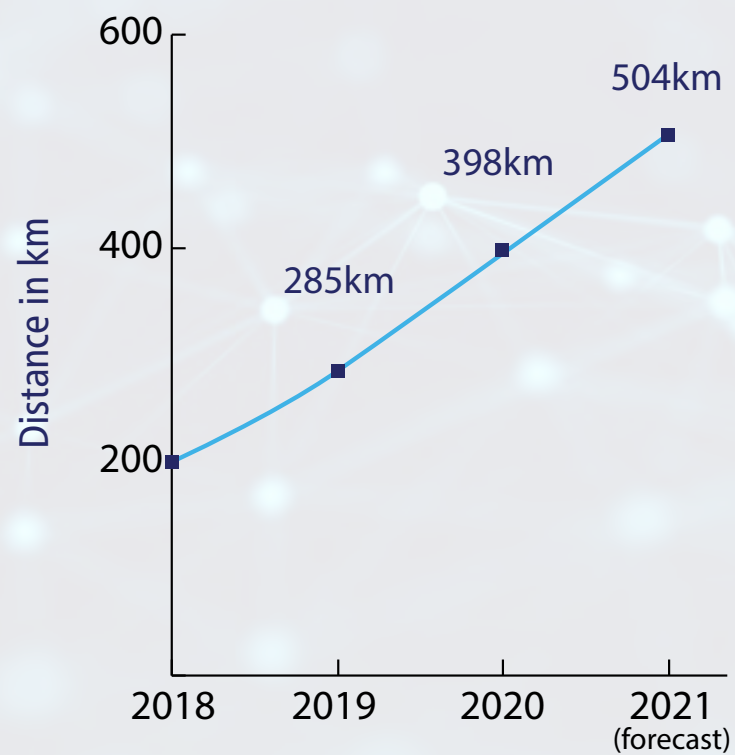
The evolution of YorkNet

Since its incorporation in 2017, YorkNet has brought broadband access to many York Region communities by expanding its dark fibre network and installing connections. This upward trend will continue in 2021 and beyond as YorkNet evolves, expanding to reach even more Regional facilities while enhancing broadband connectivity for York Region.

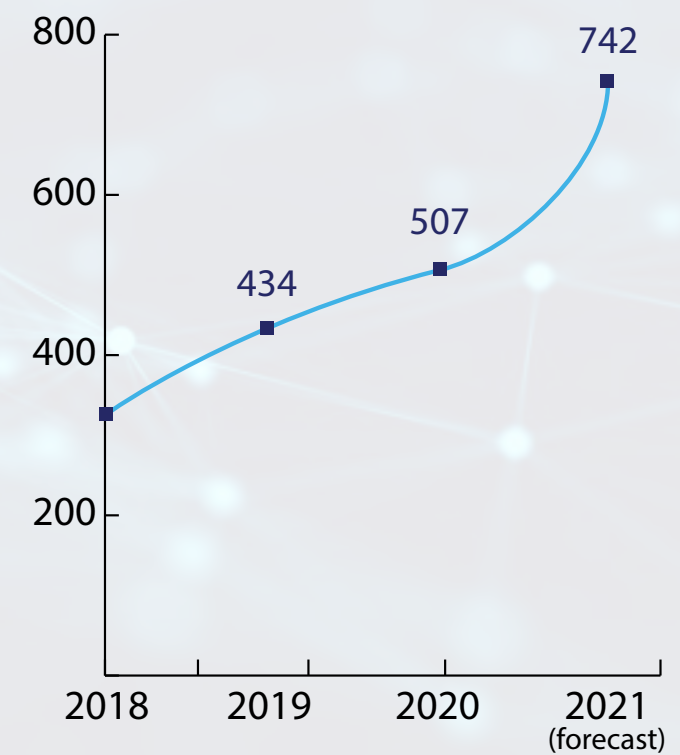
Budget Spent



Network Kilometres Built



Network Connections



The above statistics do not include the IBF/ICON routes.



Connect to Innovate: Bridging the digital divide

While access to reliable and affordable internet is considered an essential service, never has that been more felt than in 2020 as York Region – and the world – pivoted to all things virtual like no other time in our history.

Virtually overnight, reliable internet was required to support telework, online learning, healthcare, commerce and socialization, and the impact of the “have” and “have-nots” was felt more than ever.

For two underserved communities in York Region – Udora and the Chippewas of Georgina Island First Nation – 2020 serendipitously saw the expansion of high-speed internet at a time when it was needed most. And that is thanks to \$2 million in federal funding obtained from the Connect to Innovate program together with a \$3 million contribution from York Region.

In 2021, building upon the CTI program, YorkNet will invest to expand its network by 28 kilometres in the Town of Georgina: 21 kilometres at the western end of the town, and seven kilometres along the shore of Lake Simcoe. In 2022, a further 9.6 kilometres will be added to the network at the northern end of the municipality.

Meanwhile, YorkNet continues to collaborate and partner with various Internet Service Providers to bridge the digital divide.

Digital Divide: “The gulf between those who have ready access to computers and the internet, and those who do not.”

- Oxford Dictionary

Georgina Island: Taking YorkNet across the water

Due to its location, internet connectivity on Georgina Island has always been lagging behind those of urban areas. “We’ve had so many challenges doing day-to-day business from our community because of the slow internet connection,” said Donna Big Canoe, Chippewas of Georgina Island First Nation Chief.

In October 2020, however, YorkNet expanded its dark fibre network to the Island. Encased in conduit and weighed to the bottom of Lake Simcoe, YorkNet brought the potential for high-speed internet to the Island for the first time in history.

In 2020, it took about four months for YorkNet to build the connection, which required the installation of 3.5 kilometres of cable across Lake Simcoe. The construction was designed to protect shoreline vegetation and ensure the safety of boaters and swimmers. When the network reached the Island, it further expanded four kilometres inland to provide connectivity to 16 institutional buildings that offer community services, such as a police station, a firehall, a school, a library and a daycare.

“Without government support, this community would have remained underserved for years to come,” explained Laura Bradley, General Manager of YorkNet. “Now that the backbone connection is there, we anticipate our network will soon be used by an ISP to connect the Island’s 300 homes and business,” she continued.

While the network connecting the Island with the mainland is fully immersed under Lake Simcoe, it is ironically serving as a bridge for the community – a bridge to education, to commerce, to healthcare, to opportunities and to people. It is a bridge that was built by two levels of government that came together to make the seemingly impossible ... possible.



“We’ve had so many challenges doing day-to-day business from our community because of the slow internet connection... it’s becoming more and more apparent that, in order to continue moving forward, we need to be up to date with technology.”

Chief Donna Big Canoe
Chippewas of Georgina Island First Nation

High-speed internet arrives at Udora

Imagine yourself streaming a movie at home on a Saturday night. The screen suddenly goes black and the word “Buffering” appears, a word you are accustomed to seeing, a word that disrupts your viewing experience time and time again.

Now, imagine you are at a virtual interview for a job you desperately want, and in the middle of the interviewer’s question the screen freezes. You sit silently, staring at that frozen screen, wondering how much of her question you’ve missed. Frazzled, you sit and wait for something – anything – to happen while silently stressing.

Finally, imagine meeting virtually with your doctor, who is about to give you a test result when your home’s internet connection is lost for the next hour because it is a rainy day. “What are the results, doc!?” you say to yourself in vain.

This is life for those who happen to be on the wrong side of the digital divide.

The COVID-19 pandemic has nothing if not widened the connectivity gap and turned high-speed internet connectivity into an undeniable necessity. For the over 500 residents who live in Udora, that gap narrowed when fibre internet service arrived in the community thanks to the expansion of YorkNet’s network.

YorkNet’s high-capacity fibre network is a significant upgrade from the communication technology that has been connecting the area – some of which was built in the early to mid-1900s – whose poor transmission has made internet speed across Georgina fall far below the Canadian Radio-television and Telecommunications Commission (CRTC) minimum threshold for years.

Fibre is less susceptible to weather because light is being transmitted, instead of electricity, so even a small water leak does not cause an electrical short. This means fast and reliable internet connectivity at a time when high-speed internet is essential, while also supplying a dependable infrastructure to support growth for years to come.



Living on both sides of the digital divide: A first-hand account

BRIAN MCPHAIL

*Program Manager, Asset Management Data Analytics,
Transportation and Infrastructure Planning, York Region*



Brian and his wife moved to Udora in early 2020, shortly before the pandemic began and Regional employees started working from home. For a year, the couple lived with the inconvenience of slow and unstable internet connectivity, but with YorkNet’s expansion, high-speed internet finally arrived in Udora in early 2021, which has placed the couple in the unique position of having lived on both sides of the digital divide in the span of a year.

What was your internet connection like before getting a fibre connection?

We’ve actually tried two different types of internet services. First, it was satellite internet, which had decent speed, but only when the weather was good, so our internet quality was basically weather dependent. Then we tried point-to-point internet, which had fast download speed so we could stream a movie without any issues, but upload speed was slow, so video chats were always lagging and choppy.

What is the most frustrating thing with slow internet connectivity?

Having video meetings at work. Sometimes they’re so unbearably delayed that I’d resort to using cellular data through my phone’s hotspot feature.

What is the biggest impact on your life at home since you’ve been on fibre connection?

Both my wife and I can work without the hindrance of a poor internet connection. We can even have video meetings at the same time without any issues.

Outside of work, what can you do now that you couldn’t do before?

Play video games. I couldn’t do that with slow internet. Also, with fibre’s unlimited bandwidth, I no longer have to worry about how much data I’m using.

What about the cost?

I’m actually paying less for my fibre internet now than I did for satellite internet, and only paying slightly more than I did for point-to-point internet. It’s worth every penny.



Photography courtesy of Southlake Regional Health Centre

Supporting healthcare through connectivity: YorkNet extends network to two York Region hospitals

A radiologist awaits images being sent to her so she can properly diagnose a critically ill patient. The image files are large – huge in fact – and depending on network connectivity, securely sending and receiving files of this nature between sites can be challenging and time consuming. While a few minutes of time is usually of no consequence in most situations, in these instances when every minute counts, it really matters.

Healthcare telecommunications requires fast and reliable connectivity to deliver quick, quality and even life-saving information and – now more than ever before – healthcare services, too. While this was true before the pandemic, COVID-19 has increased the importance of this service more than any other time in our digital history.

In 2020, YorkNet's expanding dark fibre network enhanced the connectivity of two York Region hospitals – Southlake Regional Health Centre in Newmarket and Mackenzie Health in Vaughan – providing essential support to both hospitals behind the scenes.

Connecting Southlake's COVID-19 Assessment and Testing Centre

In September 2020, healthcare providers were anticipating the arrival of COVID-19's second wave. For Southlake Regional Health Centre, its tent-based outdoor COVID-19 Assessment and Testing Centre set up on the hospital's parking lot had to be quickly relocated to a larger, all-season site to accommodate more patient flow and the imminent arrival of cooler weather.

Since the nearby Newmarket Senior's Meeting Place on Davis Drive was vacant at the time, the Town of Newmarket agreed to host the Testing Centre in that space, which solved the location challenge. The next hurdle was connectivity; Southlake would need a secure data connection to the main hospital to get the Testing Centre up and running.

So, on September 25, the hospital's IT department approached YorkNet to request a fibre connection between its Testing Centre and its main hospital. Five short days later, YorkNet had that connection built and ready to go.

"The project was completed at a lightning speed," said Sabah Dattu, Manager, Information Technology, Technical Support & Client Services at Southlake. "YorkNet's team got moving as soon as we reached out to them. Their tech team quickly analyzed our infrastructure and had us connected within days," she continued.

"We were able to move quickly thanks to the backbone fibre we had laid along Davis Drive a few years ago. Because the fibre was already installed close by, only a short expansion of dark fibre was required to connect the Senior's Meeting Place to our network and, ultimately, to Southlake," explained Steve Pellegrini, Vice Chair of the Board at YorkNet and Mayor of Township of King. "This project truly demonstrates how quick and nimble we can be to support the community when the groundwork is already laid, even during a global pandemic," he continued.

This is not the first time YorkNet had partnered with Southlake to improve connectivity. In 2015, YorkNet connected Southlake's main hospital to its satellite locations at the Tannery Mall and Magna Centre in Newmarket, supplying the hospital with the bandwidth to transmit medical and patient information. In addition, as one of the three hospitals on the Shared Health Information Network Exchange, Southlake's high-speed and stable connectivity enables it to run the MEDITECH Expanse hospital information system without any bandwidth restraints, which gives healthcare providers and patients seamless access to patient records and other important information.

Today, the COVID-19 Assessment and Testing Centre continues to support the community to combat COVID-19.

Photography courtesy of Southlake Regional Health Centre



"This project truly demonstrates how quick and nimble we can be to support the community when the groundwork is already laid, even during a global pandemic"

Steve Pellegrini
Vice Chair of the Board at YorkNet
and Mayor of Township of King

Supporting Mackenzie Health to stay at the forefront of healthcare technology

With hospitals located in both Richmond Hill and Vaughan, in addition to a network of other locations, Mackenzie Health requires secure, reliable and fast connectivity at all sites at all times.

When YorkNet was approached in 2019 about building a connection from the hospital in Richmond Hill to the new Cortellucci Vaughan Hospital, the YorkNet team adjusted its plans for the network extension along Major Mackenzie Drive to support this project.

The connection was completed in February 2020, making Mackenzie Health "...the first in Ontario to have two modular data centres connected by a fiber-optic cable installed between two hospitals. This network connection is a critical component of the Information Technology infrastructure and allows for both Cortellucci Vaughan Hospital and Mackenzie Richmond Hill Hospital to act as a back-up for each other," said a communications spokesperson at Mackenzie Health.

"This is a great example of the behind-the-scenes work York Region continues to do in our communities," said York Region Chairman and CEO Wayne Emmerson. "We are deeply committed to partnering with other public-sector organizations, such as hospitals, to support their critical connectivity needs across the Region."

The new Cortellucci Vaughan Hospital opened in February 2021, and instead of operating as a full-service community hospital as planned, its first order of business was to support COVID-19 by creating additional Intensive Care Units and acute care capacity to help address the surge of cases in Ontario.

Since connected by YorkNet dark fibre cable, the two hospitals can share data directly and securely. Perhaps most importantly, information that travels between the two locations is protected by a direct and private connection, independent even of the YorkNet network, ensuring the utmost security. And since Mackenzie Health owns the nine kilometres of fibre, the cost is lower than leasing or renting from a service provider.

"In the event of an outage at one site, a back-up will be available at the other site ensuring minimal downtime. This means that our nurses and physicians will be able to provide continuous, quality care to patients without interruption," said the spokesperson. "Mackenzie Health partnered with YorkNet sharing the cost of construction and a share of the fibre cable infrastructure resulting in savings for both. YorkNet managed the design and installation of the fibre network backbone and will continue to provide maintenance services for Mackenzie Health for the next three decades," she continued.

Mackenzie Health has always been at the forefront of healthcare technology. It is the first hospital in Canada to receive the highest certification for electronic medical record adoption, and it has received the Healthcare Information and Management Systems Society (HIMSS) Nicholas E. Davies Award of Excellence, as well as College of Healthcare Information Management Executives (CHIME) Healthcare's Most Wired certification, for a few years in a row.



Photography courtesy of Mackenzie Health

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