



The Town of Richmond Hill monitors water levels and conditions in real-time with modems and wireless coverage from Bell.



The Water Resources Section of the Environment Services Division at the Town of Richmond Hill is responsible for looking after water resources in their municipality. They test rivers, lakes and stormwater ponds to ensure developers have adhered to environmental design guidelines, and monitor water quality and levels to prevent and address flooding.

### The need.

The Town of Richmond Hill needed a cost-effective, real-time water monitoring solution that would allow them to evaluate water levels and conditions in their ponds and streams.

In new residential developments, the Town relies on monitoring tools to ensure developers build and maintain ponds according to all environmental guidelines. The municipality collects water samples and informs the developer if conditions do not meet their standards. Approximately four to seven years after ponds are constructed, responsibility over the maintenance of the facilities is transferred to the Town, so the municipality has a vested interest in keeping the facilities functioning properly right from the time the ponds are constructed.

The Water Resources team monitors water levels using loggers (measurement devices), which are installed in stormwater facilities and rivers. Without an automated system in place, the Town had to send a consultant to visit every pond, once a month, to manually download data from the loggers. This process is expensive and time consuming.

### The solution.

The Town of Richmond Hill chose Bell to pilot a new automated water monitoring system. Loggers with modems were installed in two locations – one pond and one stream site. The modems are set up to send out an alert when water levels are higher than normal and download the data to a server once per day.

The automated data gathering capabilities provided by Bell allow the Water Resources team to access critical information in real time.

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## The result.

The ability to pull real-time data allows the municipality to continuously evaluate the conditions of the ponds and rivers. When the Town finds that ponds are falling below standards, they are able to present the data to the developers to substantiate that design improvements are required or address the problem internally.

“Water level monitoring allows us to look at the different hydraulic aspects that you wouldn’t be able to see if you were just inspecting the pond,” said William Withers, Water Resources and Stormwater Operations Coordinator at the Town of Richmond Hill. “We log once an hour, which allows us to correlate rain data with how quickly the pond fills up and drains. That information helps us judge how well it’s working. Visually inspecting a pond can’t tell you that.”

While automation has not completely eliminated manual inspections, it certainly has reduced the frequency of site visits. “We still send out our consultant to check on the real-time gauges for maintenance problems, but now they go a few times a year, not monthly,” said Withers.

The Bell IoT solution has not only made data collection more efficient, it also saves the Town money. “In terms of cost savings, it costs us close to \$150 to manually download data from each gauge in person. And with 55 of them, the monthly costs amount to over \$8,000. If we download in real-time, it costs us about \$30 a line [for data usage] which is only about \$1600 a month,” said Withers. In addition to cost efficiencies, real-time monitoring allows the Town to respond to changing conditions quickly.

Overall, Bell’s remote monitoring solution helps the Town of Richmond Hill act as a good environmental steward by keeping their ponds, rivers and lakes healthy, with improved efficiency through real-time data access, and savings on time and money spent on manual inspections and downloads.

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*William Withers, Water Resources and Stormwater Operations Coordinator,  
Town of Richmond Hill*

## Bell IoT allows the Town of Richmond Hill to innovate.

The Town of Richmond Hill has also embarked on a special project to start monitoring stormwater. The Town’s Rumble Pond Adaptive Stormwater Management Infrastructure Project received \$1 million in funding through a *Showcasing Water Innovation* grant from the Ministry of the Environment. Real time monitoring is a critical part of the solution that allows the Town to monitor the facility and remotely control the valves that enhance the water quality discharging to the stream.

“If we are able to look at the water levels of the pond in real time, we can assess whether to close the valves and hold back water for a certain period of time,” said Withers. “We’ve set up the valves, and gauges for water level, turbidity and rain to communicate with the Telog device, which then can be downloaded at my desk. It allows me to assess the situation and open or close valves to enhance water quality in the pond.”

Further, the instrumentation has real time alarms that will send an email or text when water levels or water quality reach certain levels. This will allow for instantaneous responses and better protection of the downstream watercourse.

Does your business encounter similar challenges? For more information about remote monitoring solutions from Bell, visit [bell.ca/IoT](http://bell.ca/IoT) to request a callback from a Bell Business Expert.

