

Freshwater Brook Sewer Replacement Project



Special Advertising Feature

Message from Halifax Water

A lot of work has been done over the last two years to identify and understand how the city's sewer (wastewater) system is performing. In conjunction with the Harbour Solutions Project significant infrastructure was constructed to get wastewater to the wastewater treatment facilities. We are now planning, carefully, to ensure that money is invested in projects in the most effective way to complement the Harbour Solutions Project.

One of these projects involves the replacement of the Freshwater Brook sewer in the south end of Halifax and this supplement provides an overview of the work. This is a

capital construction project to be administered by Halifax Water and will begin in early May. It is a large scale project to replace approximately one kilometre of sewer infrastructure which collects about one-third of the wastewater/stormwater from peninsular Halifax.

Also, as part of this sewer project, water mains will be replaced on Victoria Road, Queen Street, Fenwick and South Park Streets to take advantage of construction synergies.

Unfortunately, dust, noise, heavy equipment and re-routing of traffic are common elements of construction. Temporary disruptions to services will occur and we will work

with adjacent property owners to minimize inconvenience. However, we are committed to providing a work site that is safe and orderly. We ask for the public's patience and cooperation while the project takes place.

Please watch for regular updates, on this and other on-going projects throughout the region, on our website at www.halifaxwater.ca. Periodic traffic advisories will also be issued over the radio and in the newspaper.

*Yours in service,
Carl Yates, M.A.Sc., P. Eng.
General Manager*



Facts about the Freshwater Brook Replacement Sewer Project

Project Start: May 2008 (weather permitting)

Project Completion: Late 2008

Project Cost: \$10 million

Work to be Performed

- Installation of large diameter concrete sanitary/combined sewer
- Installation of large diameter concrete storm sewer
- Installation of storm sewer laterals
- Replacement of water distribution mains
- Installation of natural gas mains (over part of the project)
- Replacement of catchbasins

Location

South Park Street: Mid block between University Avenue and South Street to Fenwick Street
Fenwick Street: South Park Street to Queen Street
Queen Street: Fenwick Street to Victoria Road
Victoria Road: Queen Street to Inglis Street
Inglis Street: Victoria Road to Barrington Street

Work Hours

From 7 a.m. to 6 p.m. on weekdays, however, contractor(s) may choose

to work longer hours and occasional weekends to meet the schedule.

What to Expect

Dust, noise and heavy equipment. Please take note of the following:
Pedestrian access (sidewalks) will generally be maintained during construction.

Vehicular Traffic: Through traffic on Fenwick Street, Queen Street and Victoria Road cannot be maintained during construction. The worksite will be limited to a defined area that progresses along these streets. With the exception of temporary driveway restrictions, if access to your driveway is not permitted from one direction, it should be accessible from the other direction on any given street.

Driveway access may be temporarily restricted in order to perform certain work.

Signs will be posted informing residents and the general public of necessary street closures and/or limited access.

Parking will be temporarily restricted in the general area of worksites to allow construction to proceed. Signs will be posted indicating the temporary restrictions.

Public Transportation: Bus stops on South Park Street and Inglis Street

may be temporarily moved to facilitate construction. Signs will be posted showing the new stop locations.

Special Needs

Individuals with special needs who may be uniquely impacted by this project should contact the engineer in charge as soon as possible to make them aware of your situation.

Property Damage Concerns

Under the terms of the contract, the contractor is responsible for the repair of any proven property damage and restoration of the construction area, including sidewalks and curbs, to at least the condition that existed prior to the start of construction.

As a protection to Halifax Water and adjacent landowners along the route of construction, pre-construction pictures and videos are taken. The contract requires the contractor to maintain property damage and liability insurance coverage until the completion of all work.

You are advised to inform the Contractor and the Construction Inspector in the first instance of any property damage claim you may

have. If the Contractor fails to respond within 10 days, you should inform the Construction Inspector in writing.

Water Interruptions

During the course of the project, you may experience temporary water service disruptions. Water may be discoloured by the process of shutting down water mains, by the re-routing of water to maintain service, or by sediment. If this occurs, run cold water only until it appears clear. For scheduled shut-downs, you will receive written notice informing you by the afternoon of the day before service interruption. We suggest you store drinking water to have available in your home or business for the period that water service is suspended. Unless the shutoff notice gives special information regarding non-standard hours (e.g. overnight work), water service should be restored at the end of the workday. Be sure to turn off any open valves or faucets to prevent flooding when water service is restored.

For more information, please contact Halifax Water at 490-4820, visit our website at www.halifaxwater.ca or e-mail merger@halifaxwater.ca.



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History of Freshwater Brook

Dating back to the 1880s, city's current sewage system is a patchwork

By **Melanie Furlong**
Special Features Writer

The name Freshwater Brook is definitely oxymoronic for a sewer, says Councillor Bob Harvey, a local historian.

"It was known as Freshwater River in the 1700s, or maybe even earlier, because ships in the harbour would take on water there for their ships," says Harvey.

The water course began west of the North Commons and made its way toward the peninsula.

"That skateboard facility in the Commons was part of it and used to be Egg Pond, named because it was shaped like an egg," says Harvey. "Years ago people used to skate on it in the winter and in the summertime there were little wooden boats kids could row around on. I can remember that."

Today, the only part of Freshwater Brook that remains visible is Griffin's Pond in the Public Gardens. The first section of the brook was piped for sewage in the late 1880s.

Greg Rice, project engineer for Halifax Water, says that may also have been due to development pressures to provide more land in the area for development.

In the current Fenwick Street area, the stream ran in a deep ravine that had a bridge over it. To fill in the brook and pipe it would have changed the landscape dramatically and allowed for more development.

Rice's map shows that the lower portion of the Freshwater Brook Sewer near Queen and Victoria Streets was piped with a five-foot diameter rock and mortar pipe.

"The piping of the brook happened in phases, I'm sure," says Rice. "Once you get up to South and South Park Streets, the pipe is made of brick and mortar in a circular cross-section. This is actually quite a nice-looking sewer and is in pretty good shape. This work was probably done a little more recently than the lower section."

Unfortunately, the original rock and mortar section is not holding up

as well. In the 1950s, this was lined with corrugated steel, probably because the bottom of the pipe was worn away.

Harvey, who lived in the Fenwick Street area at the time, can remember a big truck falling into the sewer in the 1950s.

"The sewer collapsed as the truck drove over it and it fell in," he says. "I saw that for myself and it's something I've remembered for 50 years."

It's not certain if the incident is connected with the repair work done, but Rice says the sewer needs to be replaced.

Because the sewage pipes were laid into a deep ravine, Rice says

"Once you get up to South and South Park Streets, the pipe is made of brick and mortar in a circular cross-section.

This is actually quite a nice-looking sewer and is in pretty good shape."

Greg Rice

Project engineer

there's a tremendous amount of fill on top of it. In the Queen Street area, it's actually about 14-metres or 42-feet underground.

"It would take tremendous effort to repair at that depth," he says.

Herald Archive

RIGHT: The skateboard park on the Halifax Commons was once the location of the Egg Pond, which marked the starting point for the Freshwater Brook.



Herald Archive

The only part of the Freshwater Brook that remains visible today is Griffin's Pond in the Public Gardens.



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Special Advertising Feature

Why is the system being replaced?

Repairs not enough for aging sewer lines; new system will last into next century

By **Melanie Furlong**
Special Features Writer

The Freshwater Brook Sewer Replacement project will get underway in the south end of Halifax this May, weather permitting. This Capital Construction Project administered by Halifax Water will replace approximately one kilometre of sewer line in part of the Freshwater Brook Sewer System and will cost an estimated \$10 million.

Greg Rice, project engineer for Halifax Water, says the last repairs on the sewer line were carried out in the 1950s with corrugated steel liners, but the time has come for full replacement.

The Freshwater Brook Sewer System is being replaced, rather than repaired, for several reasons. One is that the existing system runs diagonally through several properties in the area of South Street, Fenwick Street and Queen Street. There are also buildings and retaining walls in the way. Rice says in one location a building has actually been built on top of the sewer.

"There are obvious difficulties in replacing the existing system and maintaining it," says Rice. "There's an easement protecting the sewer pipes and buildings can be built right up to that corridor, but the building and the retaining walls that were constructed over the sewer shouldn't have happened. Accessing this pipe, which in one location is 14 metres deep, is extremely difficult."

That system will be abandoned and a brand new system will be built.

"The new system will start on Inglis Street, go up Inglis Street to Victoria Road, up Victoria Road to Queen Street, along Queen Street to the Sobey's parking lot, diagonally through the Sobey's parking lot to Fenwick Street and along Fenwick Street to South Park Street," says Rice. "The project will end on South Park Street, mid-block between



Herald Archive

In this Herald file photo from 1946, the City Home pond, better known as 'the Pogey', is readied to be filled in after a sewer pipe had been laid in the area. Halifax Water is starting work to replace much of the sewer lines in the south end of the city. The map on the next page shows the route for the new system.

Morris and South Streets."

Rice says they hope to complete the project as quickly as possible by employing three different contractors at the same time.

"The existing sewer which serves approximately one-third of the peninsula will be replaced by a new sanitary sewer and a new storm sewer. It begins the process of separating storm water from our combined

sewers. This will reduce the amount of relatively clean water we now treat at the new Halifax Wastewater Treatment Facility, and will also reduce the number of combined sewer overflows into our Harbour."

The majority of the pipes will be 1.5 metres in diameter and in some locations will be buried up to nine metres deep. The water mains will also be replaced by default because

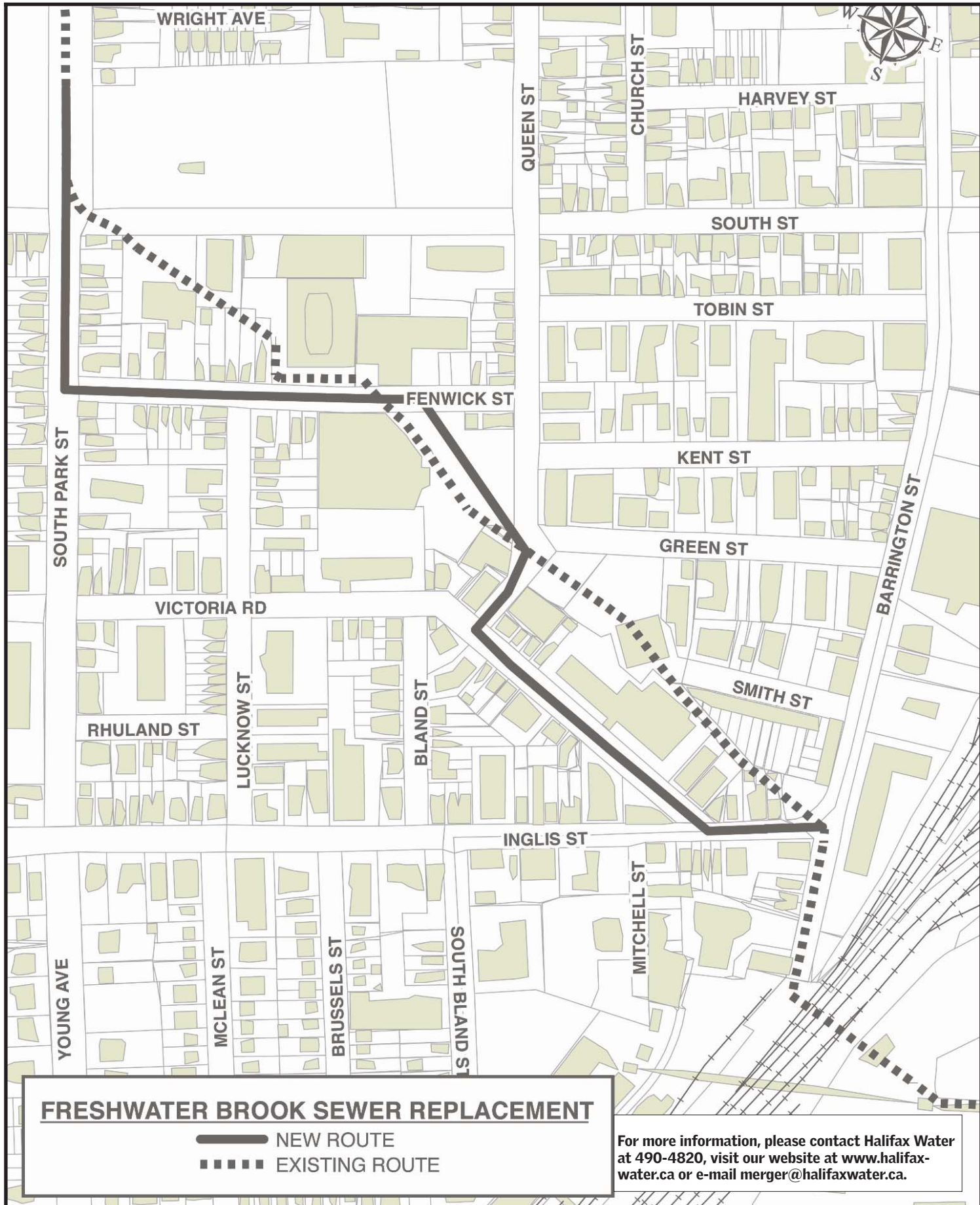
they'll be in the way of the excavation. Natural gas will also be installed on Fenwick Street and part of South Park Street.

"This is quite an exciting project," says Rice. "It's one of the largest sewer projects in Halifax in recent history. Once completed, it means we'll have a reliable, sustainable sewer system in the area for the next 100 years."



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The pipes are calling

Wastewater management systems are in serious decline

By **Melanie Furlong**
Special Features Writer

Existing wastewater and stormwater systems across Canada are in rough shape. To use a Scottish phrase, says Carl Yates, general manager of Halifax Water, the pipes, the pipes are calling.

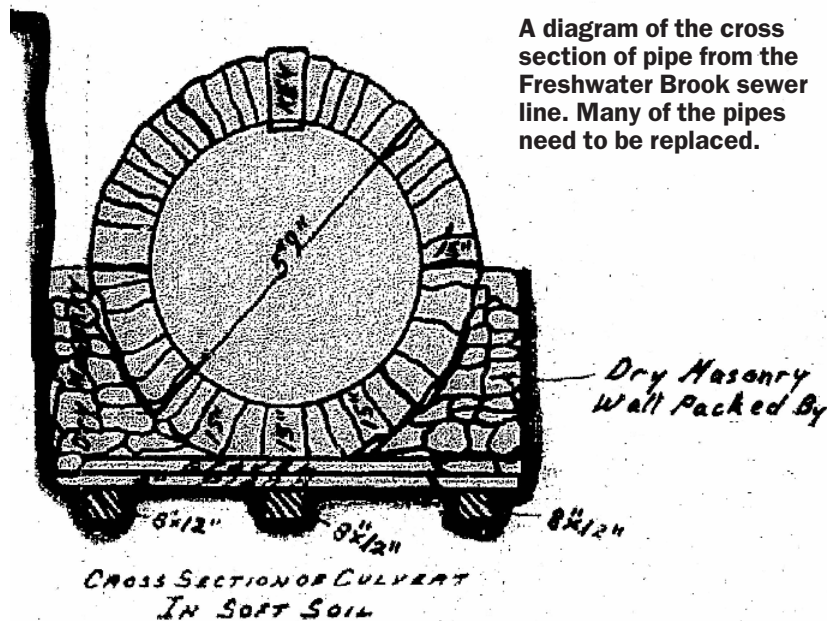
Yates says wastewater assets right across Canada, North America and even the world have deteriorated and need to be replaced.

"People have responded in a positive way and recognized the need for new water treatment plants and water mains, even well before the Walkerton incident. Unfortunately, people have not always been as receptive to wastewater infrastructure," says Yates. "Once wastewater is flushed out of the house, people don't think about it. We have to bring our society to understand that what goes out of their house and how it's handled before it goes back to the environment is just as important as water coming in."

New water systems

The Canadian Water and Wastewater Association estimated that Canada would need \$88.5 billion to upgrade existing infrastructure and build new water and sewer systems between 1997 and 2012.

In Halifax Regional Municipality, there's an infrastructure deficit for wastewater and stormwater systems of greater than \$600 million. In 2006, HRM Council received a report that outlined a plan that entailed expenditures of \$24 million a year for the next 25 years. Council responded by providing \$5.1 million in funding from the gas tax program up to the 2009-2010 fiscal year and \$3.6 million from the water dividend from the water commission per year towards the infrastructure.



A diagram of the cross section of pipe from the Freshwater Brook sewer line. Many of the pipes need to be replaced.

2007. In addition to the existing wastewater infrastructure deficit, another challenge is on the horizon. New regulations are coming from the Canadian Council of the Ministers of the Environment in the form of a Canada-wide Municipal Wastewater Effluent Strategy.

"The writing is on the wall," says Sheppard. "These regulations are not yet in effect, but they will move ahead in the near future, and will require an even greater investment in our wastewater infrastructure."

Long-term, structured view

Yates says since the merger of HRM's former Environmental Management Services (EMS) with Halifax Water, they've been given a mandate to take a long-term, structured view of the infrastructure to bring it to a healthier state of condition from poor to fair and someday to the good category.

"It's one thing to see treatment plants being built and see the harbour being cleaned up, and that is something we really commend HRM for taking charge of and getting underway, but it's the things that you don't see a lot of times that require attention. They are out of sight and out of mind and when they fail it can be quite dramatic."

The Freshwater Brook Sewer Replacement Project fits in with the impending regulations and complements the Harbour Solutions project.

Yates says, "We're putting the backbone in for the eventual separation of the combined sewer on the southern area of the peninsula into two separate networks, one for wastewater and one for stormwater, which will have long-term environmental and public health benefits for our community."

"People have responded in a positive way and recognized the need for new water treatment plants and water mains, even well before the Walkerton incident. Unfortunately, people have not always been as receptive to wastewater infrastructure."

Carl Yates

General manager, Halifax Water

John Sheppard, manager of Environmental Services for Halifax Water, says that the report led not only to the specific increase in funding, but

also to HRM's stormwater and wastewater program being merged with the Halifax Regional Water Commission, now Halifax Water, on August 1,



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Sewer separation for Freshwater Brook

Creating two sewer pipes critical for better wastewater management

The wastewater system in HRM comprises nearly 1,400 kilometres of sewer pipe. Of that total, about 300 kilometres, or 20 per cent, is combined sewer. The combined sewers in HRM are located almost exclusively in the older parts of Halifax and Dartmouth.

Combined sewers were designed and built to handle both sewage and stormwater. At one time, these “combined” flows were then conveyed to a water course or to the ocean, and discharged untreated into the environment. This practice was the norm everywhere at one time.

This practice began to change in the Halifax/Dartmouth area around the 1960s. The new standard was

that two separate systems would be required for new development — a sanitary sewer pipe for sewage only, and either a ditch or a pipe for stormwater.

During dry weather conditions, the flow in combined sewers is relatively low, and comprised primarily of sewage. During rainfall conditions, the flow is much greater — 10 or 20 times or more — and comprised mostly of stormwater. This presents a great hurdle when building and operating wastewater treatment facilities. Building such facilities to handle all of the huge wet weather combined flows would be very expensive, and there are technical challenges too. The usual practice is

to build treatment facilities to handle a portion of the wet weather flow only, which means that, during wet weather conditions, the remainder of the combined sewage flow is bypassed untreated into the environment.

One solution to this dilemma is to separate the combined sewers. The best time to do this is when a combined sewer is at the end of its service life and needs to be replaced, which is the situation with the Freshwater Brook Combined Sewer today. The plan is to replace the old pipe with two new ones. One pipe will be for stormwater only, which is relatively clean as compared to wastewater. The flow from this pipe will be discharged directly into Halifax Harbour.

The second pipe will be for wastewater and stormwater both for the present time, but over time, as other

sewers within the sewershed are also separated, this pipe will handle less and less stormwater. The flow in this pipe will be directed to the new Halifax Wastewater Treatment Facility located near the intersection of Upper Water Street and Cornwallis Street, where this flow will be treated with other combined sewage from the Halifax area, and discharged to the harbour.

The sewer separation component of this project is a critical piece in terms of enabling Halifax Water to better manage our wastewater, to reduce the risk to public health and to reduce the impact of wastewater on the environment of Halifax Harbour. The Freshwater Brook Sewers that we are building today are expected to last for 100 years. If we do not separate today, the opportunity to separate will be lost for another 100 years.

Capital projects in progress or taking place this year

■ **Freshwater Brook Sewer:** Rehabilitating and separating a large combined sewer in the south end of Halifax: Estimated project value \$10 million

■ **Pockwock Transmission Main –** Sectional renewals: estimated project value \$2 million

■ **Eastern Passage Wastewater Treatment Facility:** An owner’s engineer has been hired and a Request for Qualifications/Proposals will be issued soon to expand and upgrade the existing plant to secondary treatment: estimated project value \$31.5 million

■ **Commissioning of Halifax Harbour Solutions Plants:** Three plants will be turned over to Halifax Water after the commissioning phase has been completed: estimated project value \$333 million

■ **Sackville Drive Water & Sewer Service Extension:** Estimated project value \$7 million



■ **Completion of Ellenvale Run Upgrades:** Estimate project value is \$4 million

■ **North Dartmouth Trunk Sewer:** Complete important link in trunk sewer system adjacent to Lake Banook:

Estimated project value \$3 million

■ **200 Waverley Road Pumping Station Upgrade:** Estimated project value \$3 million

■ **Roache’s Pond Pumping Station Upgrade:** Estimate project value \$4.5 million

■ **New water treatment facilities for Collins Park and Middle Musquodoboit** utilizing state-of-the-art membrane technology: Estimate project value \$4 million

■ **Water service extension to North Preston** to provide improved and sustainable water supply for the community. Estimate project value \$3.5 million

For more information, please contact Halifax Water at 490-4820, visit our website at www.halifaxwater.ca or e-mail merger@halifaxwater.ca.