Annual Customer Seminar

Water and Waste Department

Wednesday, December 5, 2007

Winnipeg

Water and Waste Department

Vision

Excellence in environmental services

Mission

Serving the community by providing and continually improving drinking water, wastewater, land drainage, and solid waste services to the citizens of Winnipeg

Agenda

- 9:00 – 9:05 a.m. Welcome
- 9:05 – 9:15 a.m. Tips on Recycling and Solid Waste
- 9:15 – 9:35 a.m. Protecting and Improving Winnipeg's Water
- 9:35 – 9:55 a.m. Maintaining Your Private Water Service Infrastructure
- 9:55 – 10:05 a.m. Backflow Prevention, Update on Overstrength Charges for Hauled Wastewater

Agenda

- 10:05 – 10:30 a.m. Coffee break
- 10:30 – 10:40 a.m. Protecting and Improving Our Sewer System
- 10:40 – 11:00 a.m. Tips on Maintaining Your Private Sewer Infrastructure
- 11:00 – 11:15 a.m. Sewer By-law and Wastewater Treatment Update
- 11:15 – 11:30 a.m. 2008 Water and Sewer Rates
- 11:30 – 11:40 a.m. Question Period and Closing Remarks

Tips on Recycling and Solid Waste

Dan McInnis, Manager of Solid Waste Services

Outline

- Tour of the Brady Road Landfill
- Managing difficult wastes
  - electronic waste
  - hazardous waste

Brady Road Landfill

Brady Road Landfill

Brady Road Landfill – Entrance

Brady Road Landfill – Fees

Brady Road Landfill – Hours

Brady Road Landfill – Tipping area

Brady Road Landfill

Brady Road Landfill – Tire recycling

Brady Road Landfill – Battery recycling

Brady Road Landfill – CFC recycling

Brady Road Landfill – Propane tank recycling

Brady Road Landfill – Scrap metal recycling

Brady Road Landfill – Wood grinding

Brady Road Landfill – Leaf composting

Brady Road Landfill – New entrance

Remember…

Difficult wastes

Hazardous wastes…

- Provincial program - available to residential locations
- Contracted to Miller Environmental – 1803 Hekla
  - first Saturday of the month plus an appointment system for Wednesdays and Thursdays
- More info at www.winnipeg.ca/waterandwaste/garbage/hhw.stm

- Miller will do commercial for a fee – 925-9615

Difficult wastes

Electronic wastes…

- Provincial responsibility
- Ad-hoc program currently
- Take back program to retailers, re-users
- More info at winnipeg.ca/waterandwaste/garbage/specialHandle.stm#electronics

Difficult wastes

Big news…

- October 10, 2007 Province of Manitoba announces e-waste and HHW regulations to be reviewed
  - asking for feedback from the public
  - comments by November 13, 2007
- New programs likely to include industry responsibility and new levies at time of purchase
- More accessible and comprehensive programs, similar to other Provinces

Questions?

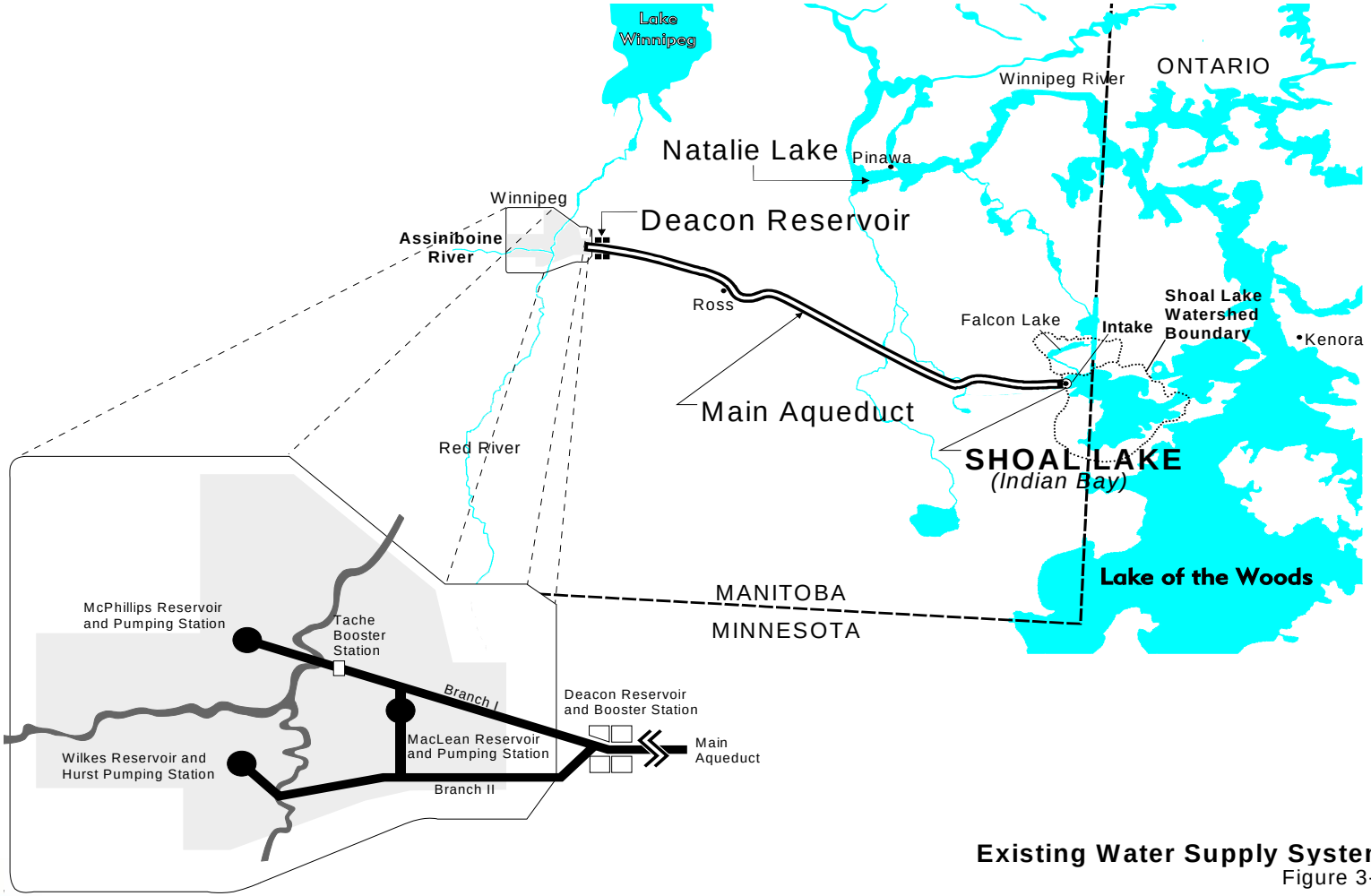
Protecting and Improving Winnipeg's Water

Duane Griffin, Water Planning Engineer

Outline

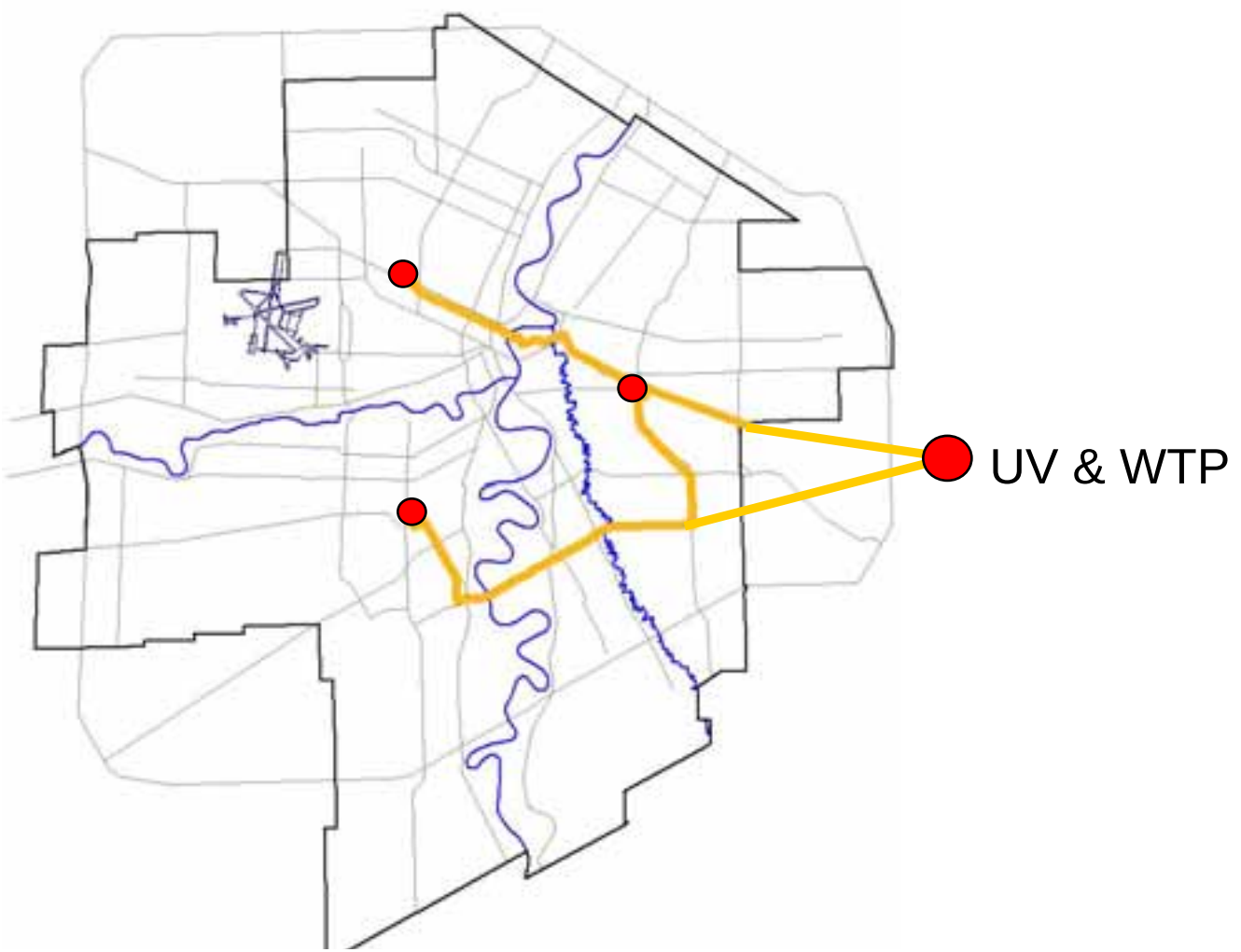
- Existing water supply and treatment
- Update on:
  - water treatment plant
  - water main cleaning program
  - water main renewal program

Our water supply

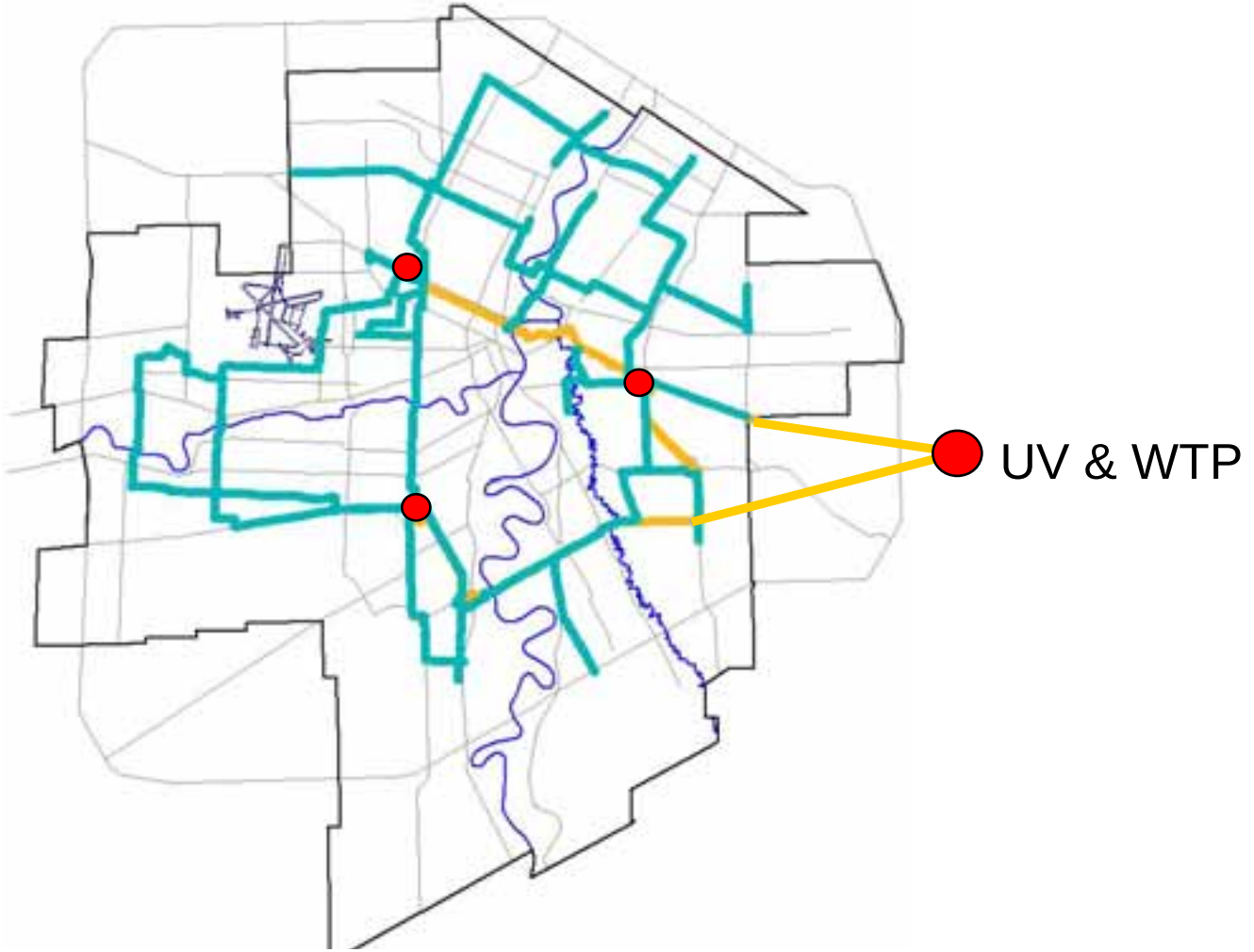


Existing Water Supply System
Figure 3-1

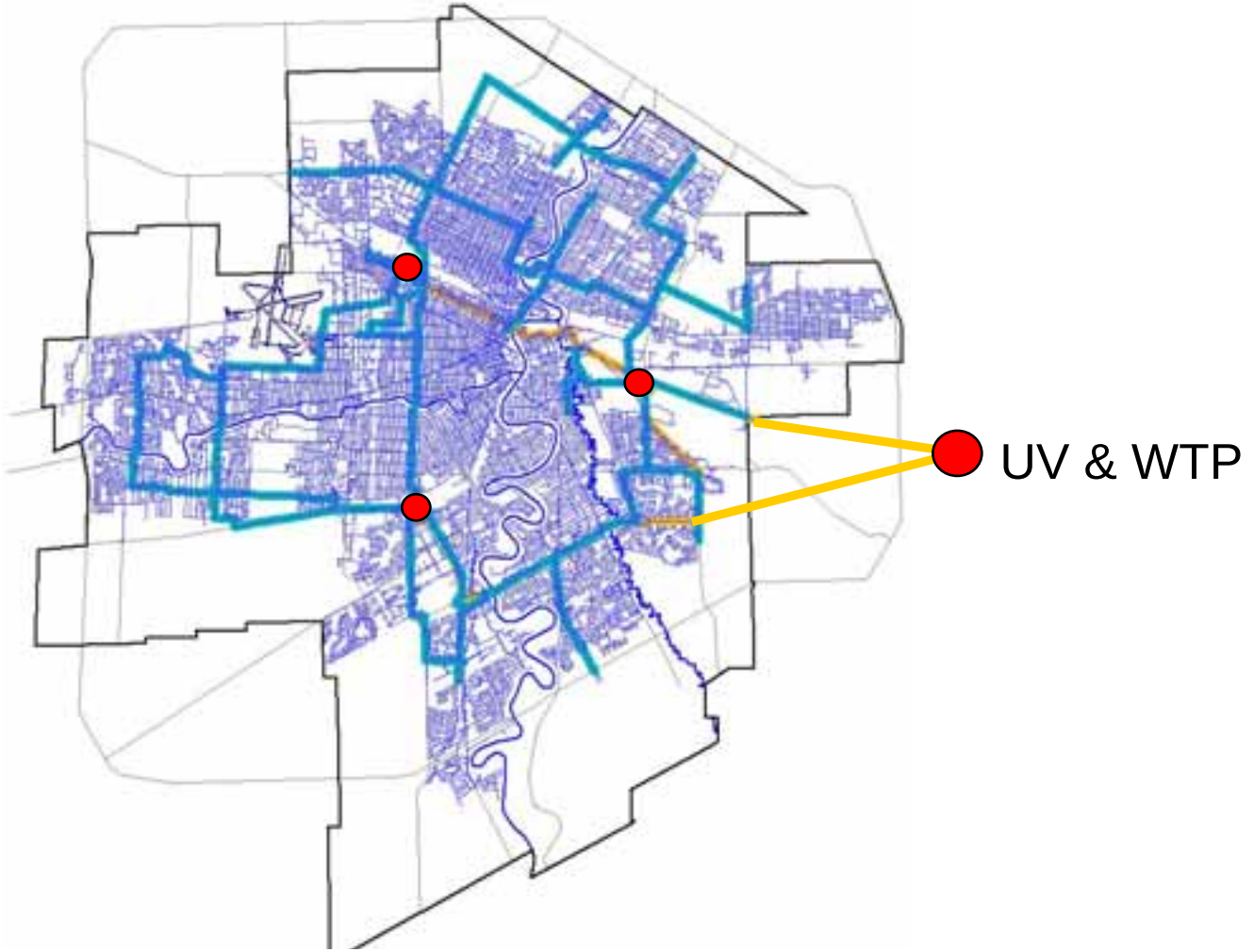
Water supply and distribution



Water supply and distribution



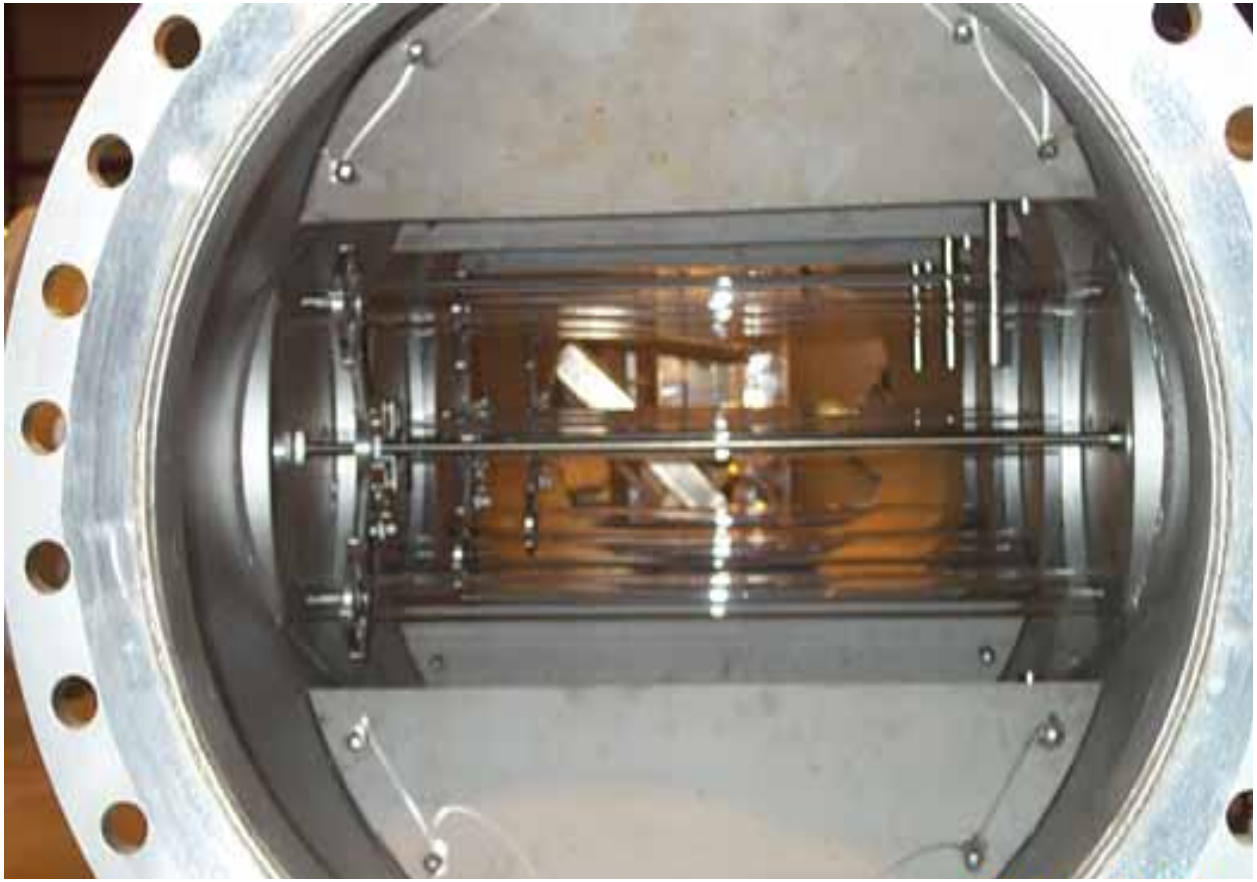
Water supply and distribution



Ultraviolet light disinfection in place

- Installed in the existing Deacon pumping station at a cost of $9 million
- Protects the water against parasites such as *Cryptosporidium* and *Giardia*
- Does not change the taste, odour, appearance, or the general chemistry of the water

Ultraviolet light disinfection chamber



Ultraviolet light chamber - 48” in diameter

Ultraviolet light chambers

Our new water treatment plant

- Being built at the Deacon Reservoir site
- Will house the state-of-the-art water treatment process

In the beginning

The size of the MTS Centre

The size of the MTS Centre

Front entrance

Front entrance

41 construction contracts

Project budget $300 million

50% complete construction

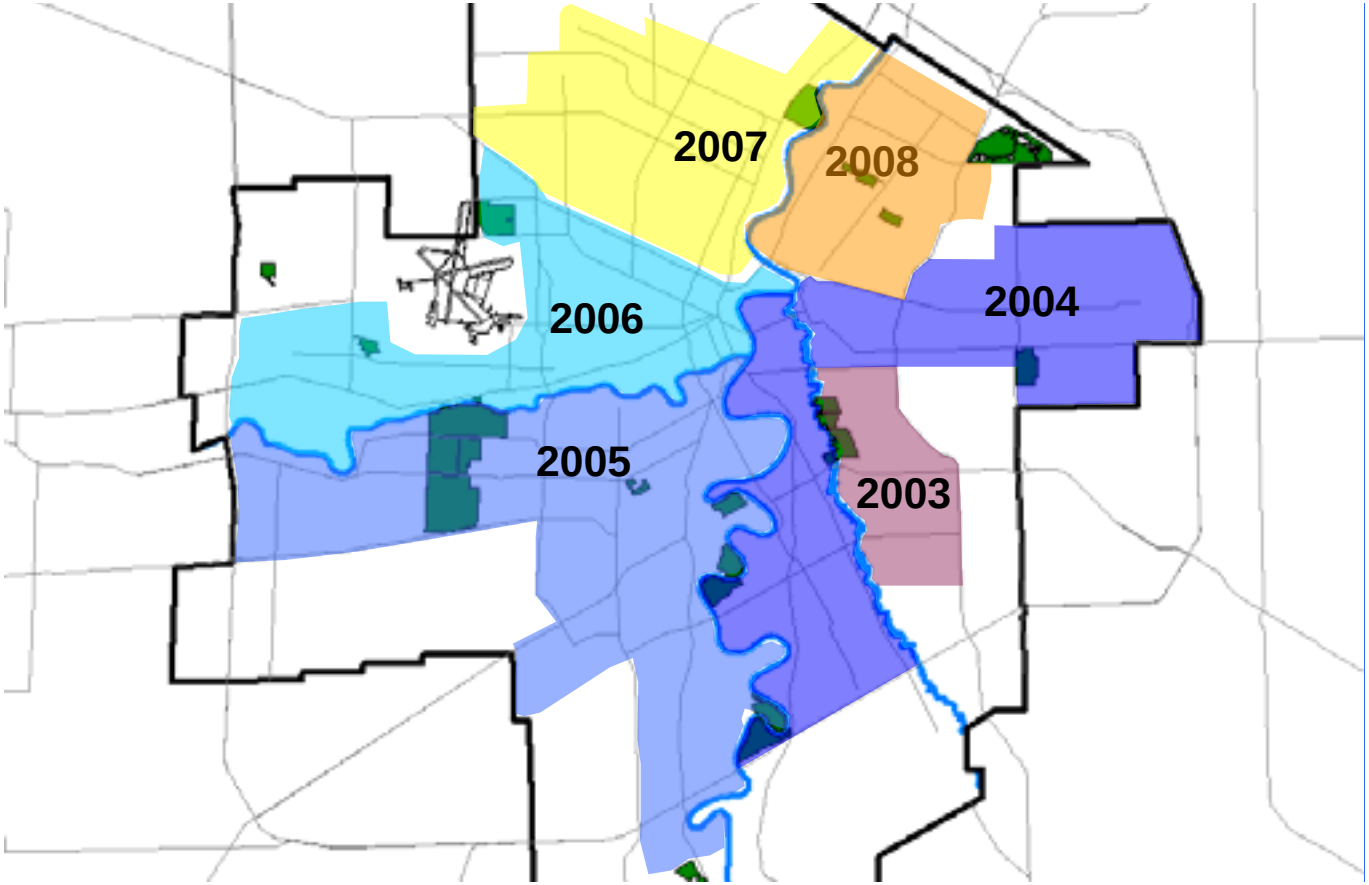
Construction to be completed Dec 2008

Water main cleaning program

Why are we cleaning the water mains?

- Improve water quality
  - remove sediment (primarily dead algae) that accumulate in water mains
  - clean all water mains before the new water treatment plant begins operating
- Reduce “dirty water” complaints from water main breaks or valve operation
- Test the distribution system for deficiencies

Water main cleaning plan



2008 water main cleaning area

What does water main cleaning mean to you?

- Before cleaning
  - we will contact your business in person 1 – 2 days in advance to advise when work will begin and how long work is expected to take
  - if you need water while we are cleaning, please contact our Customer Service Centre 986-5858
- Q & A fact sheet on our web site

During cleaning

- Don’t use water while we’re cleaning water mains on your street
- Recommend you turn off water supply to prevent sediment entering water pipes

How long does it take to clean a water main?

- Usually completed in about 15 minutes

After cleaning

- We will contact you to let you know that we are finished cleaning
- Turn on cold tap water in building to see if water is clear

After cleaning you may notice

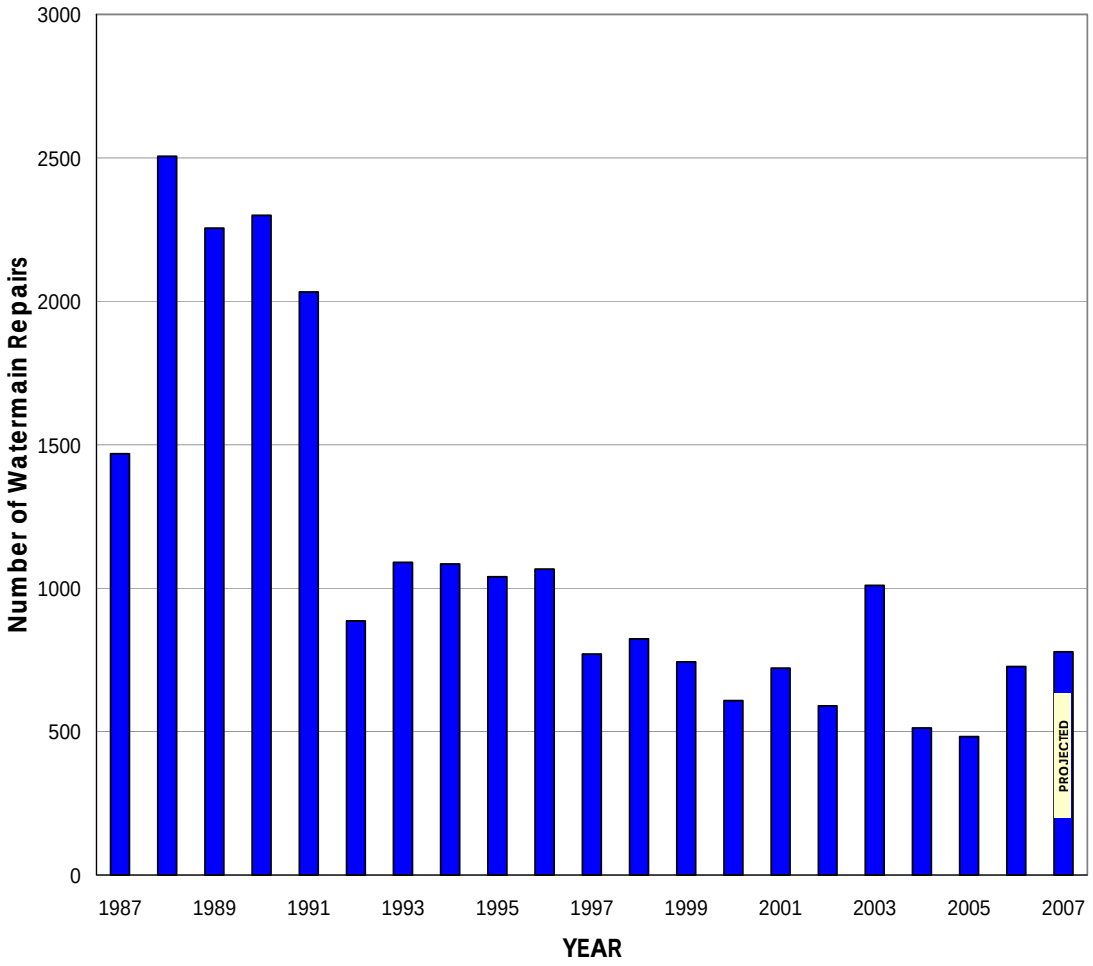
- Cloudy water
  - water is cloudy when air gets in it and makes tiny bubbles
- Chlorine smell
  - we add enough chlorine to the water to keep it safe
- Drop in pressure
  - water pressure will soon return to normal

Water quality monitoring

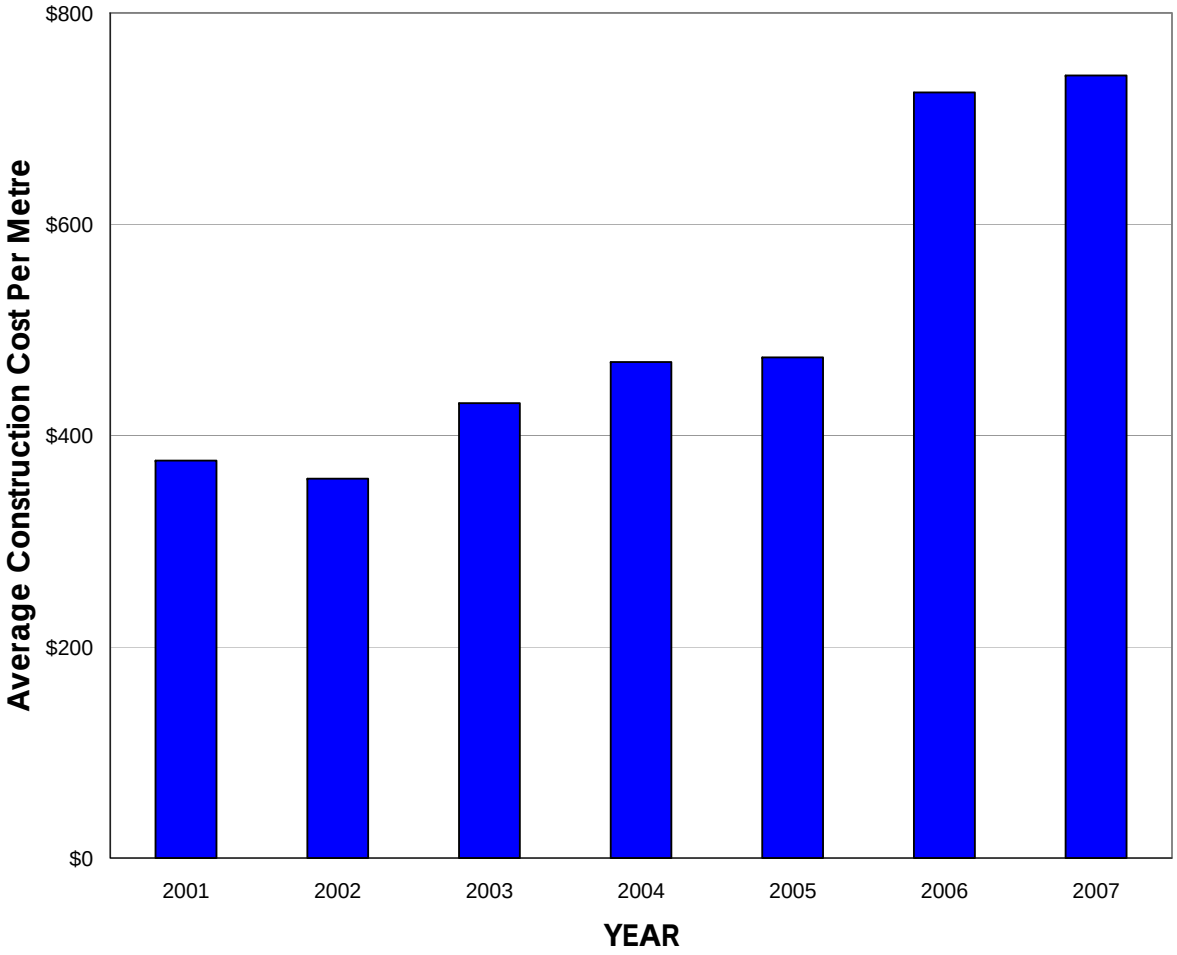
- We test water samples to confirm chlorine levels:
  - in the distribution system
  - onsite

Water main renewal program update

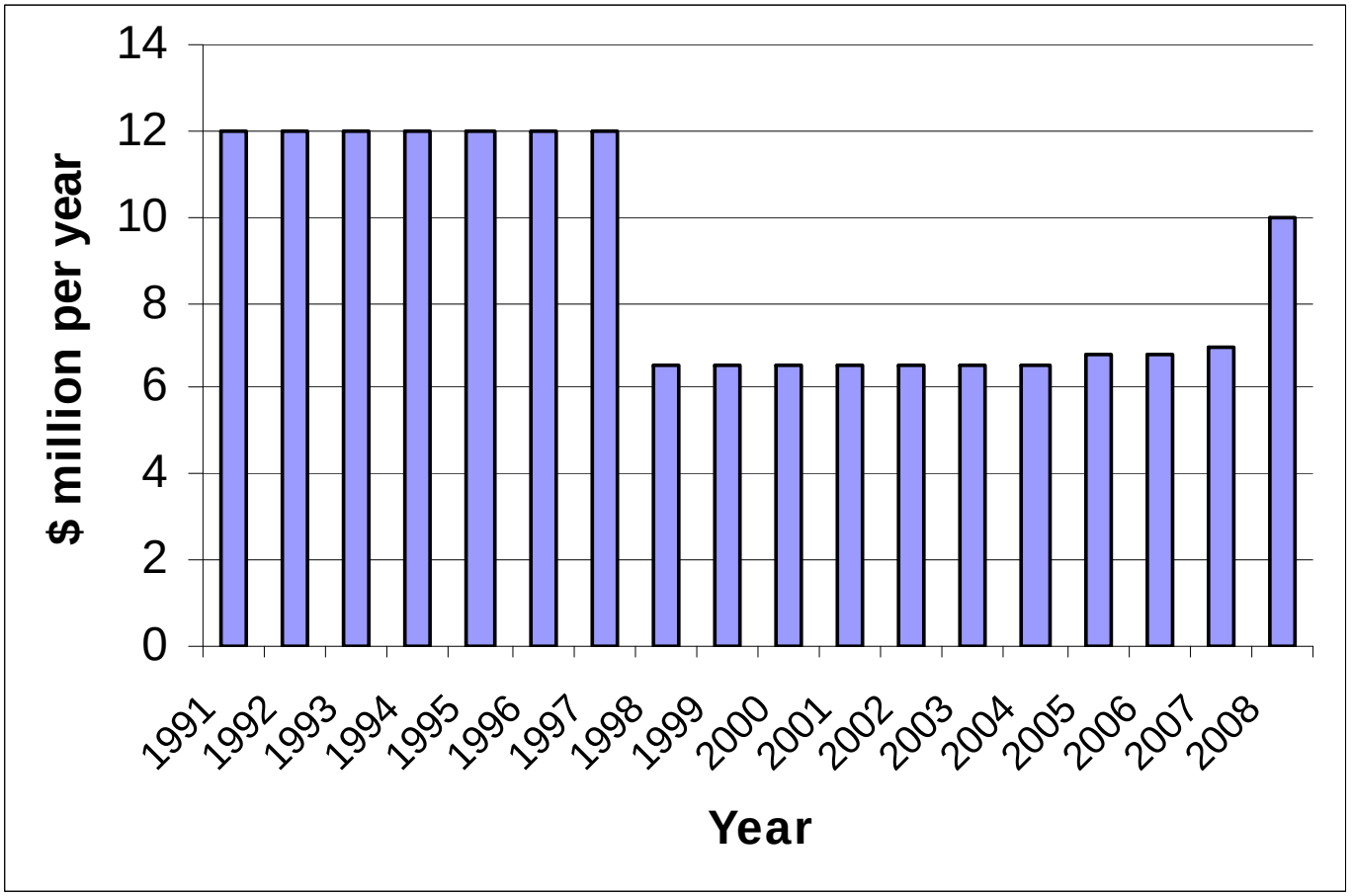
Water main leak repair history



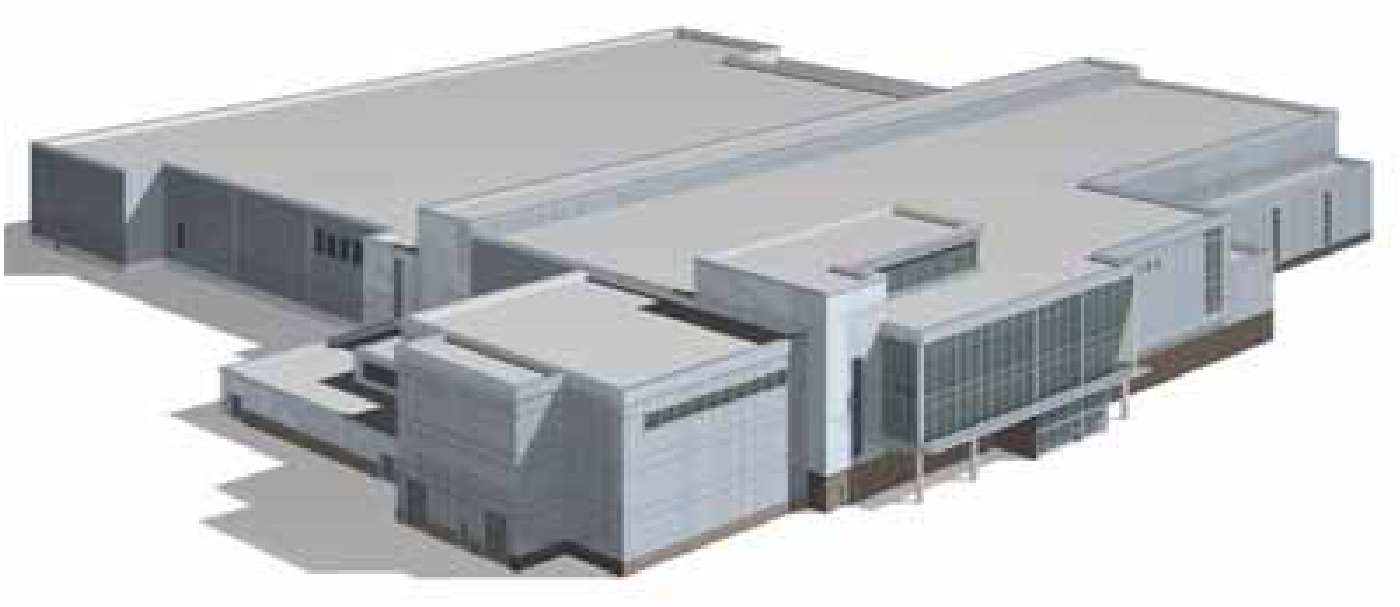
Average water main replacement $/m



Water main program funding



Questions?



Supporting the long-term health and well being of our community

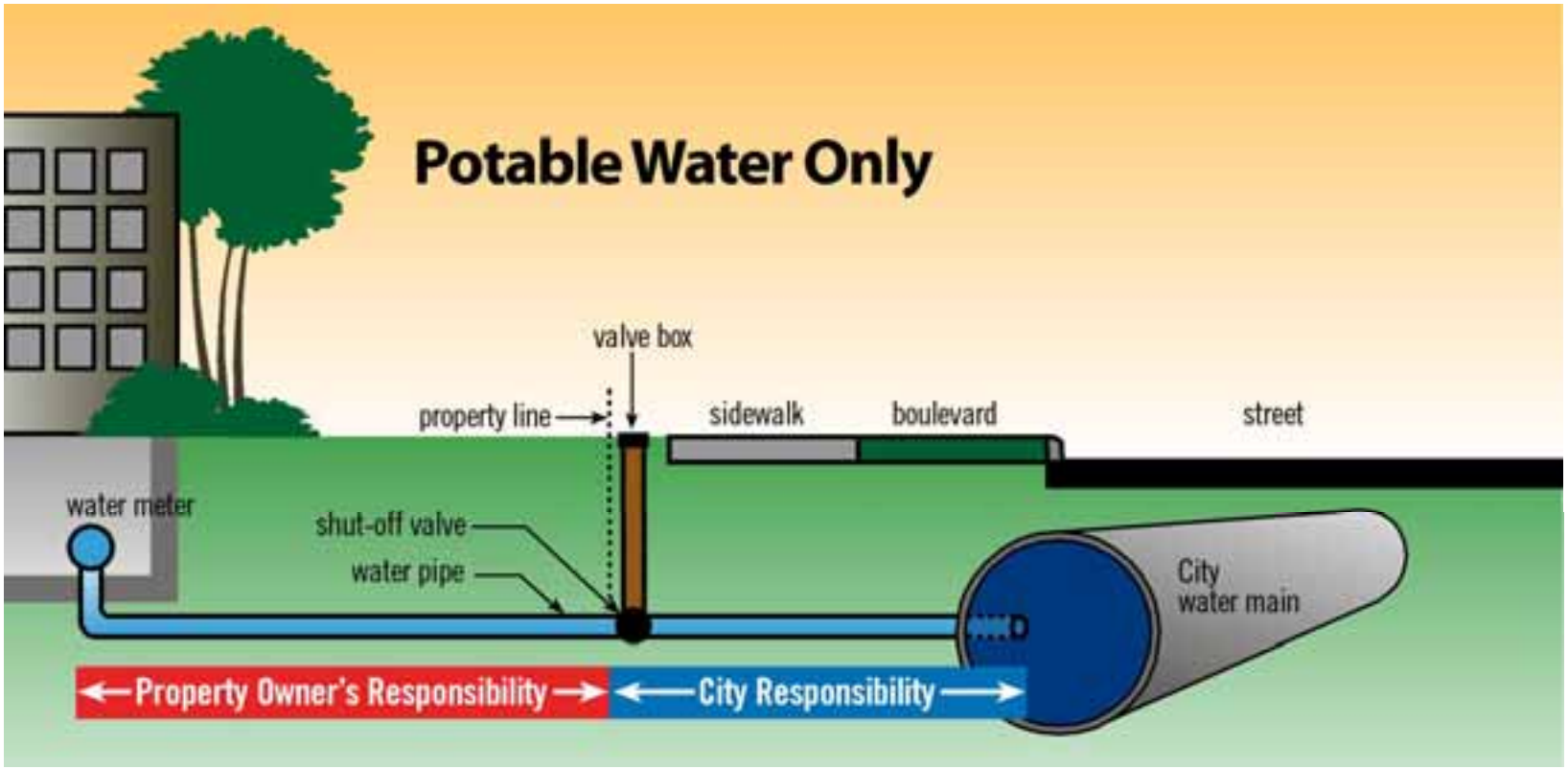
Maintaining Your Private Water Service Infrastructure

Dan Wiwchar, Local Services Engineer

Your water system – No fire protection

- A water service for potable water and/or for use in business processes, but not for fire protection
- You own the water pipe from your building up to the shut-off valve (usually near your property line)

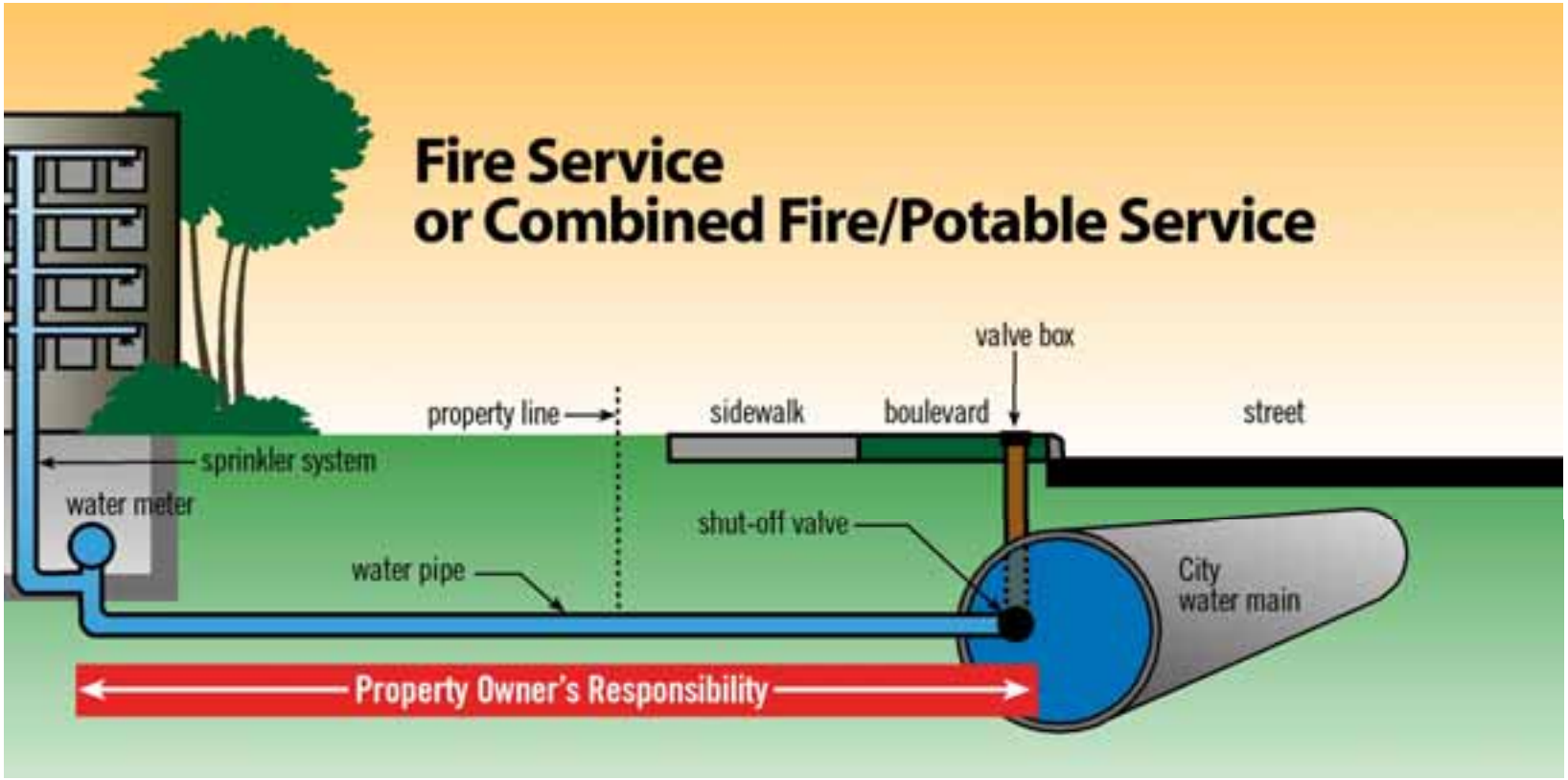
Your water system – No fire protection



Your water system – With fire protection

- Fire protection is a water service that includes sprinklers and/or hydrants
- You own this water pipe from your building to the City's water main, including all pipes, tees, sprinkler systems, valves, valve boxes, hydrants, and plumbing
- A combined fire and potable water service (one pipe serves both purposes) is treated the same way as a fire service

Your water system – With fire protection



You benefit from regular maintenance of your water system

- Ensures that your system will continue to work properly
- Prevents pipe failures which may cause extensive damage to your property and others
- Eliminates service disruptions which may result in costly business downtime
- Is more economic and less disruptive than emergency repairs

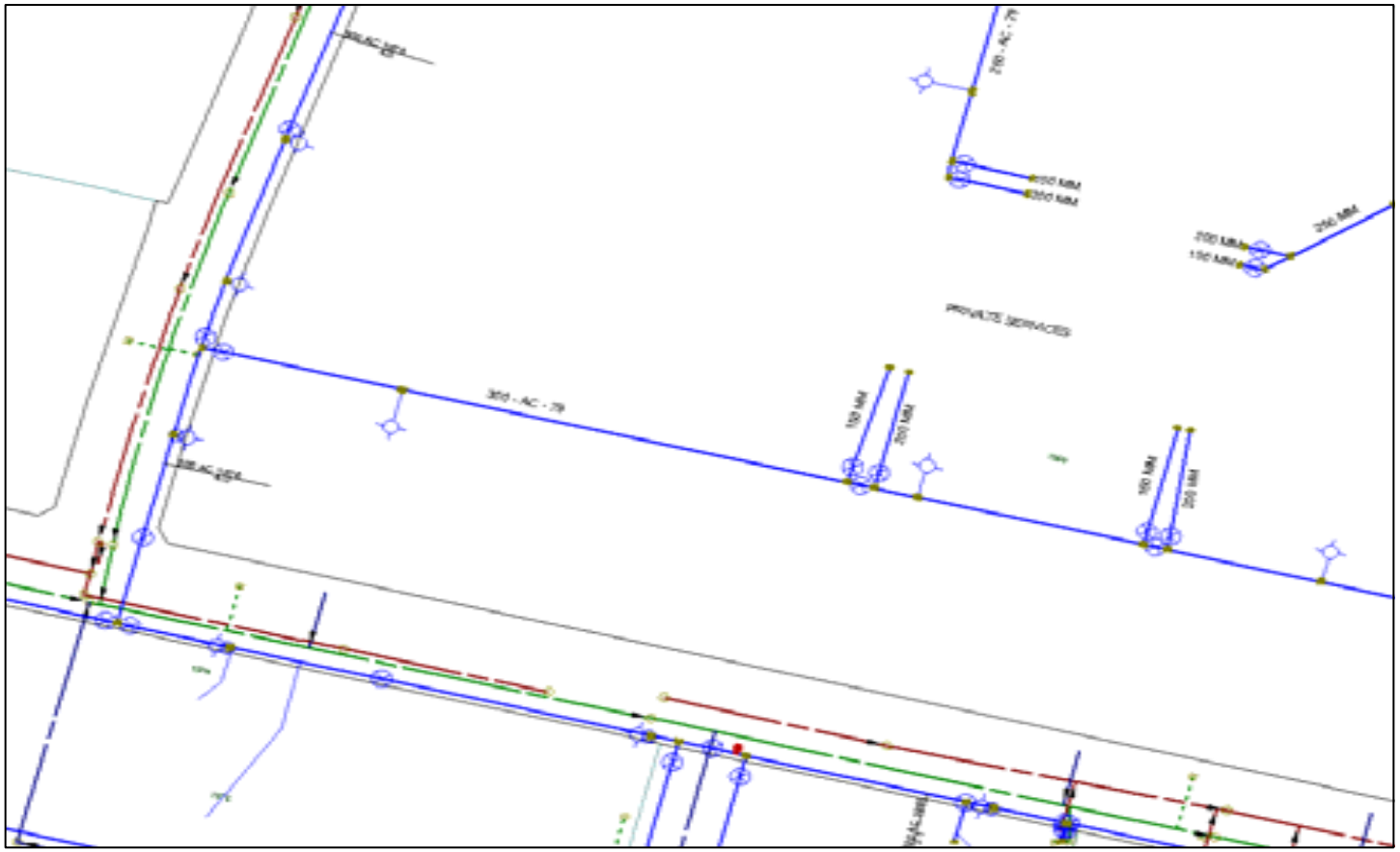
Recommended maintenance activities

- Accurate mapping of pipe & valve location
- Pipe condition assessment (inspection)
- Pipe rehabilitation
- Cleaning / flushing
- Valve exercising and maintenance
- Hydrant maintenance
- Emergency planning

Accurate mapping

- A key factor in your ability to maintain and repair your pipes and valves
- Gives us information which could improve service to you (in the event of a water main break)
- We may be able to help you locate your service valves
- To give us your water system information, contact Ken Dalton:
  - by email at kdalton@winnipeg.ca or
  - by phone at 986-4453

Accurate mapping



Pipe condition assessment

- Inspect and if necessary repair/replace your service connection or private water main system if your business depends on a reliable water supply
- Qualified engineers can tell you which condition assessment technique is best suited to your system

Pipe rehabilitation

- Various techniques are available
- If your business is dependent on a reliable water supply, you might choose to rehabilitate your water pipes before they cause any service disruption

- Qualified engineers can tell you which rehabilitation technique will best address your pipe system needs

Clean your private water system

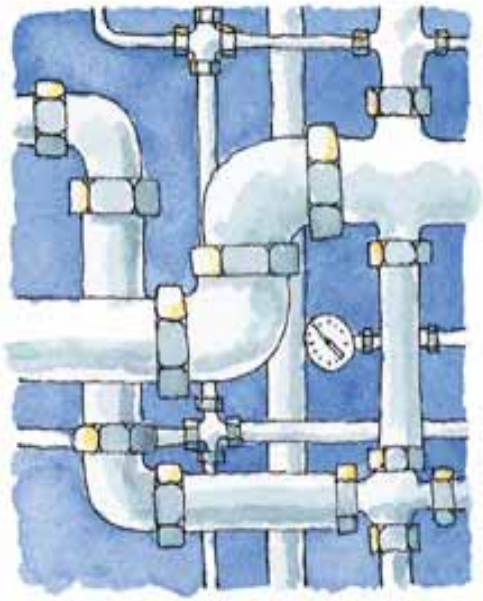
- Clean your water system regularly
- Coordinate cleaning of your private water system with our water main cleaning program

Maintenance of your internal plumbing is key to high quality water!

- Regular flushing of internal plumbing may be required to maintain high quality water
- Maintain backflow prevention devices according to manufacturer's recommendations and test annually

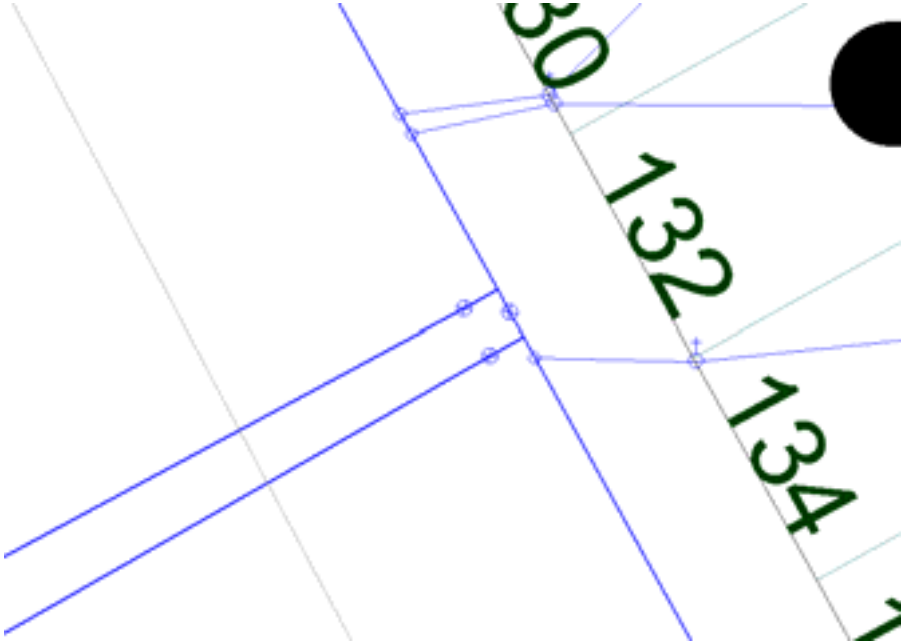
Maintenance of your internal plumbing is key to high quality water!

- Consider using filters or other water treatment systems if your business operation requires consistently high quality water
- Maintain these water treatment systems according to the manufacturer's recommendations
- Heat recovery/cooling that sends water back to the City water main is not permitted



Increasing reliability of supply

- Install two services, with a valve between the services and have inter-connections inside the building



Increasing reliability of supply

- Install two valves on the water main – one on each side of your water service

Emergency planning

- Emergencies can and do occur!
  - pipe breaks (external or internal)
  - internal water quality problems
  - loss of supply or pressure

Emergency planning

- Include pipe breaks in your emergency plan
  - leak detection alarms
  - external/internal pipes mapped
  - procedures (posted on the wall)
  - communication plans
  - access to equipment
  - training and exercises

Summary

- Regular maintenance of your water system is important to your business
- If you need more advice regarding inspection and rehabilitation, contact a qualified professional engineer
- Use experienced, qualified contractors
- Build a reliable water supply
- Ensure you have an emergency plan

Case study

School Divisions in Winnipeg
Valve Location Program 2007

Manitoba Association of School Trustees
Hayhurst Elias Dudek Inc. (HED)
Water and Waste Department

Case study

- Two recent incidents in the Winnipeg School Division caused approx. $2.3 million in damages from their broken water pipes
- Feb/07 - Manitoba Association of School Trustees and their insurer contacted us to discuss a damage prevention strategy
- Apr/07 – we met with Maintenance Supervisors of all 8 Winnipeg School Divisions and the Winnipeg Technical College

Maintenance of private water system

- Accurate mapping - know where your pipes and valves are
- Pipe condition assessment - know age/condition of your pipes
- Valve maintenance - make sure all your valves are accessible and in working order
- Reliable water supply – double valving or two water services
- Emergency planning - early flood detection, response plan and know internal plumbing

Valve location program

- We assisted with:
  - locating the shut-off valve at each school
  - valve condition assessment and service box adjustment
- School divisions are responsible for repairing their valves

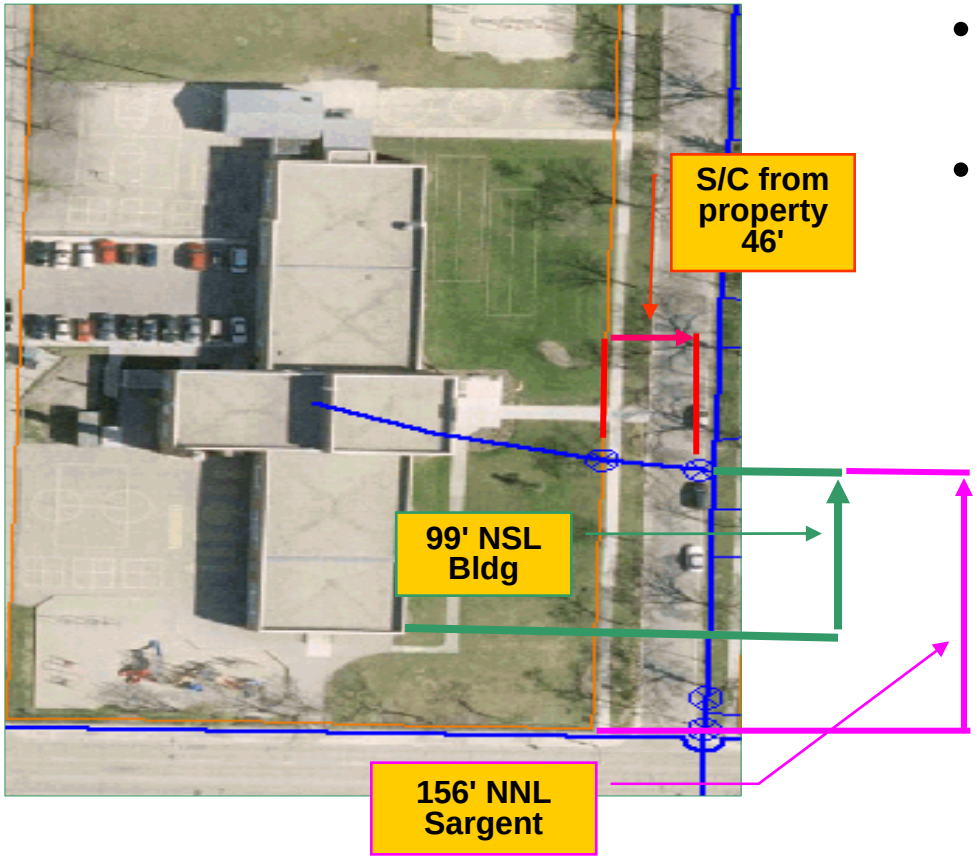
Our role

- We provided:
  - aerial photo with measurements for each of the 265 schools in the city
  - a contact to assist with valve location, assessment and adjustment

School division role

- School division maintenance staff:
  - located valves for each school during spring and summer
  - created maps showing valve location
  - attached maps to each school's emergency plan
  - will provide detailed information for us to include in our GIS

School in the West End



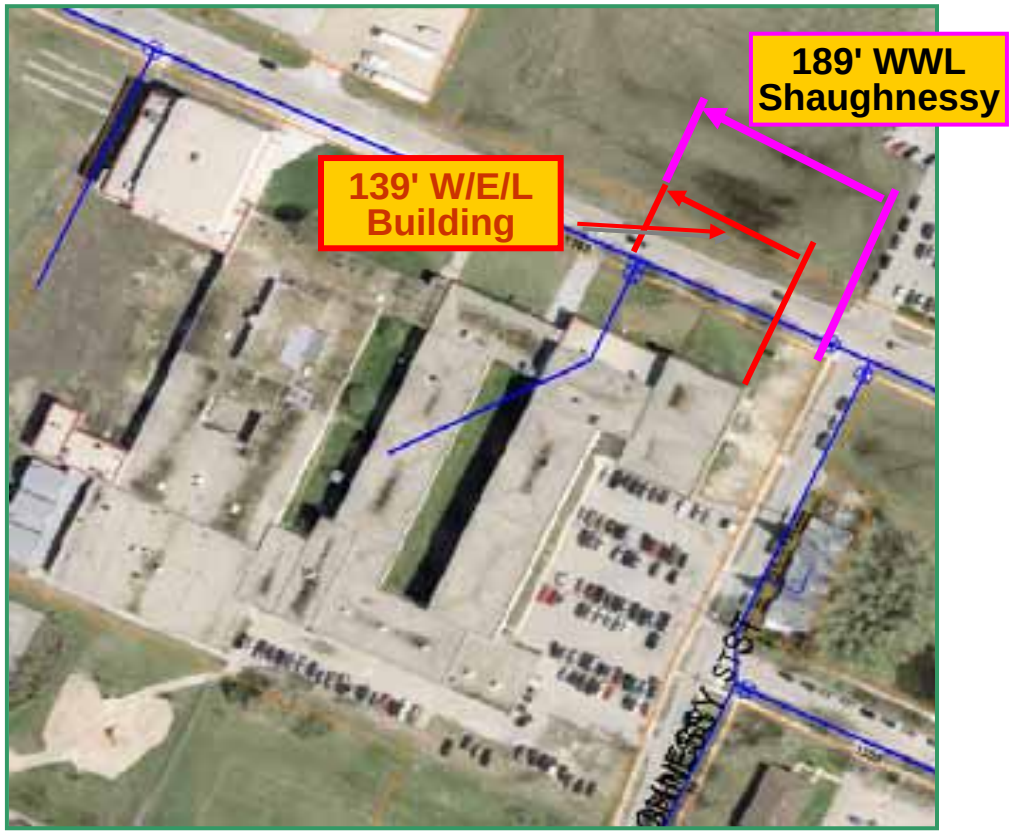
- This is a fire/domestic service
- Only the measurements for the valve at the water main are recorded

Stop cock from property 46'
- valve is 46 feet from the property line of the school

99' NSL Bldg
- 99 feet North of the South line of the building

156' NNL Sargent
- 156 feet North of the North line of Sargent Ave.

School in the North End



139’ W/E/L
- 139 feet West of the East line of the building

189' WWL Shaughnessy
-189 feet West of the West property line of Shaughnessy St. serviced from Redwood Ave.

Valve box – Good condition

Valve box at proper grade

Valve box at proper grade with hinged lid intact

Valve box – Poor condition

Valve box below grade - needs to be raised or repaired

Valve box needs to be repaired

Results

- We made approximately 2 dozen service calls to assist with valve location or adjustment
- Maintenance staff at schools who participated know where their control valves are
- We expect to continue with the program in Spring 2008

Questions?

Backflow Prevention and Update on Overstrength Charges for Hauled Wastewater

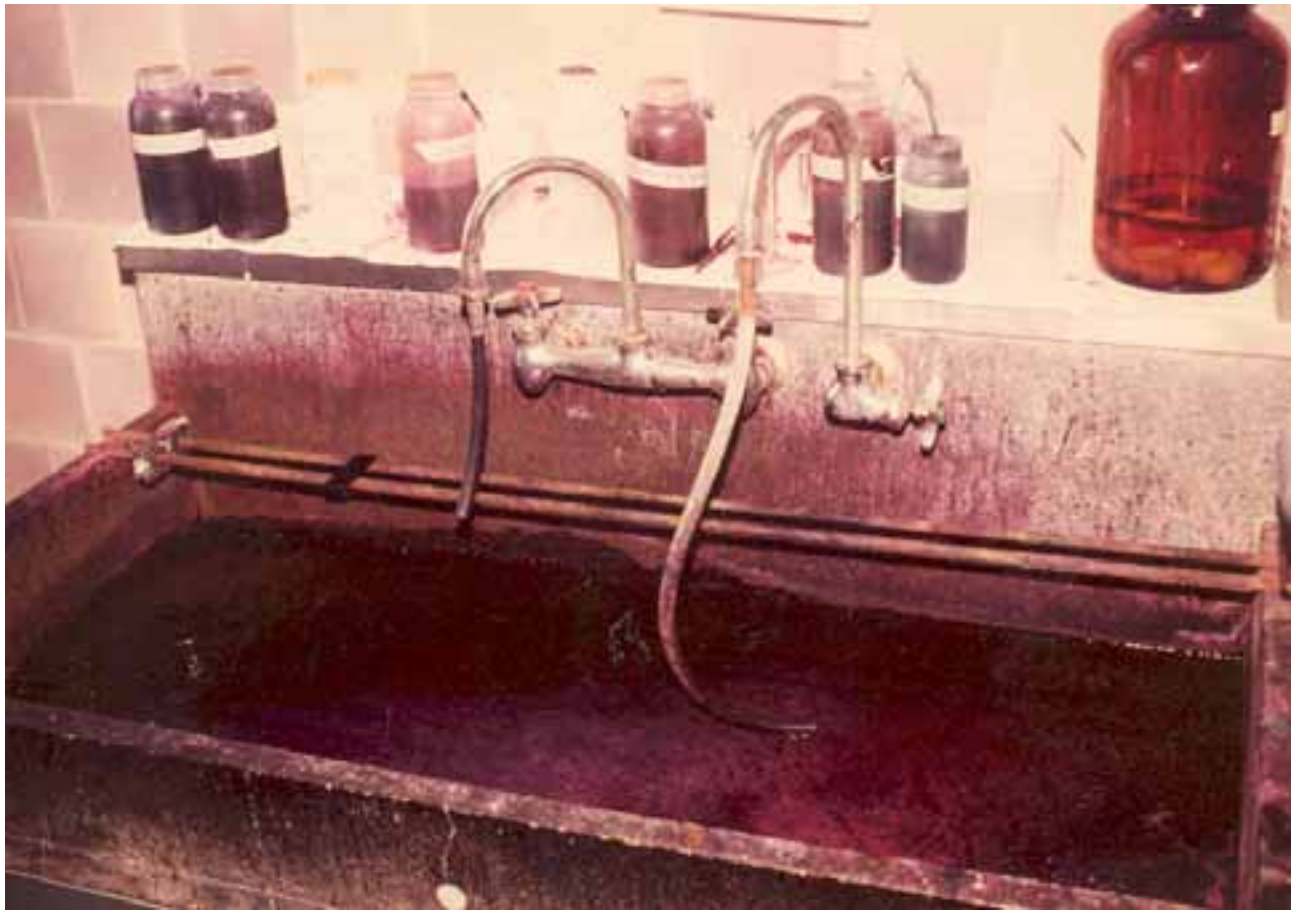
Kelly Kjartanson,
Manager of Environmental Standards

Why is preventing cross-connections and backflow important to you?

- Protect the public water supply
- Ensure a safe water supply throughout your private water system
- Protect your employees and customers
- Protect your business operations
- Avoid liability
- Waterworks By-law prohibits cross connections and backflow

Example of a cross-connection

Example of a cross-connection



What is a cross-connection?

- An actual or potential connection between a potable water system and any source of pollution or contamination
- Occurs when a liquid pollutant backflows into potable water – reverse direction of flow
- Backflow is caused by:
  - backpressure
  - backsiphonage

How do you prevent a cross-connection?

- Install a backflow prevention device (e.g., reduced pressure principle backflow device)

What do you need to do to prevent backflows?

- Consult your building designer or contractor
- Obtain a plumbing permit to install testable devices
- Use a journeyman plumber to:
  - identify the need for backflow prevention devices
  - conduct annual testing
- Install two devices in parallel in critical locations so processes won't be interrupted when devices are being tested or repaired

Our cross-connection and backflow control program

- Inspect new construction and major renovations
- Approve the type of backflow prevention device and installation
- License testers
- Ensure the backflow program is carried out
- Enforce the by-law
- Contact us at 986-5858

Hauled Wastewater Update

New disposal rates for haulers

- Effective July 1, 2007
- Base rate was increased to $2.51 per kilolitre
  - for both normal and overstrength hauled wastewater
- We have continued to bill the base rate to the haulers – monthly
- This cost increase has likely been passed on to you if you hire wastewater haulers

New rates for commercial customers

- Effective July 1, 2007
- Additional fee for overstrength hauled wastewater
  - based on volume of hauled wastewater
  - $1.12 / Kg biochemical oxygen demand (BOD), where BOD is greater than 2,400 mg/L
  - $0.73 / Kg total suspended solids (TSS), where TSS is greater than 5,500 mg/L
- We will bill the overstrength surcharge to you the commercial customers (quarterly)

Identifying overstrength hauled wastewater

- We are characterizing hauled wastewater by:
  - sampling individual businesses (e.g., existing overstrength customers)
  - sampling representative businesses to characterize a group (e.g., restaurants, portable toilets, car washes)
- We are analyzing wastewater for the following parameters:
  - biochemical oxygen demand
  - total suspended solids
  - total nitrogen
  - total phosphorus
  - pH

Status of program

- Haulers
  - billing is on schedule
- Commercial customers
  - wastewater characterization is underway
  - overstrength billing procedure is behind schedule (invoices will likely not be issued until early 2008)
- Overstrength hauled wastewater customers
  - wastewater discharge licences not required

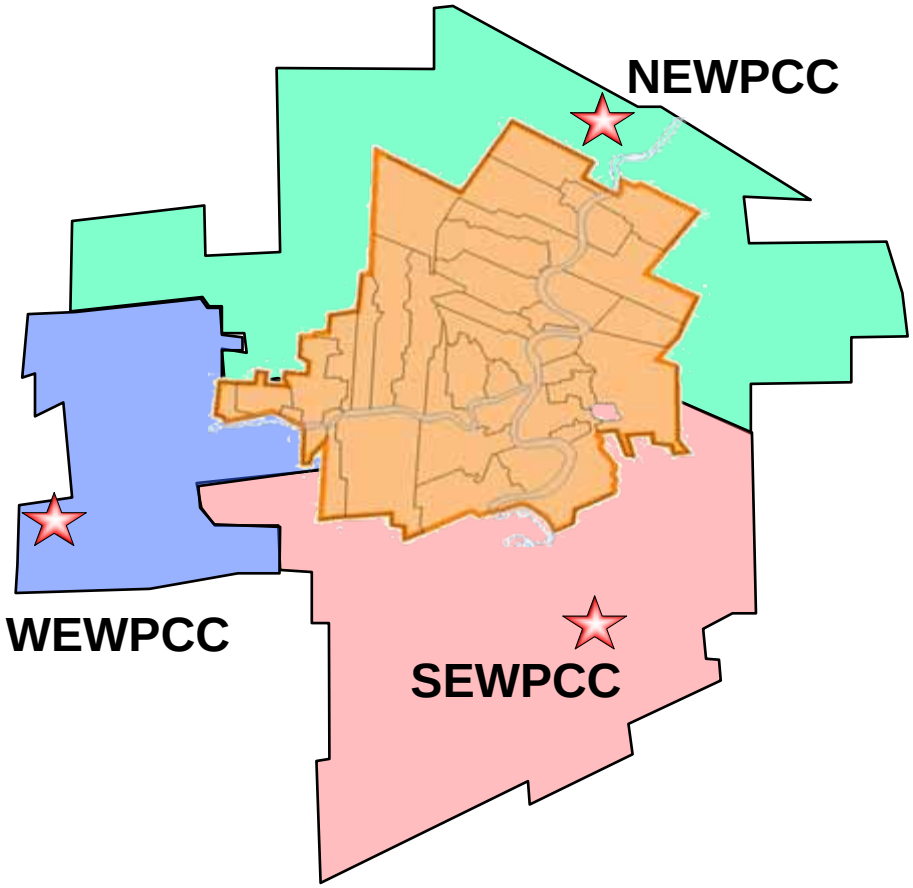
Questions?

Protecting and Improving Our Sewer System

Kas Zurek, Design and Construction Engineer

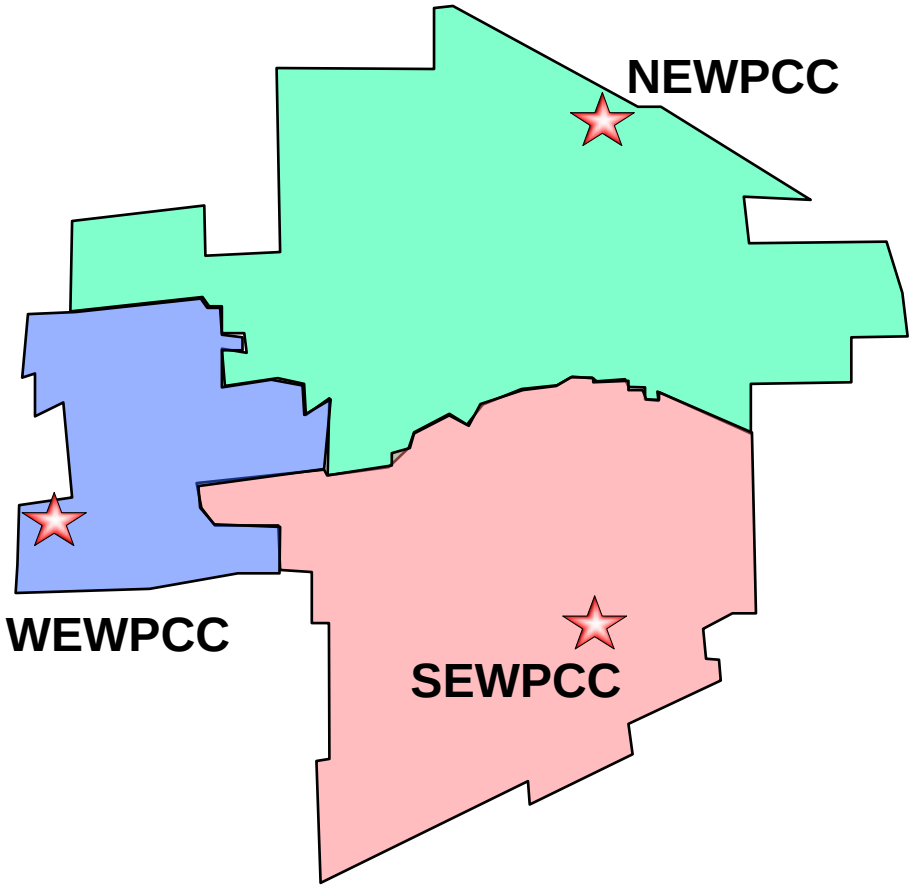
Winnipeg sewer system

- 1,057 km of combined sewers



Winnipeg sewer system

- 1,286 km of wastewater sewers
- 1,110 km of storm sewers



Sewer infrastructure has an approximate replacement value of $4 billion

- Before 1998
  - repairs were done **reactively** (after major problems had already developed)

After 1998

- Sewer cleaning and inspection program (proactive approach)
- Annual budget of $12 million
  - $3 million for cleaning and inspection
  - $9 million for rehabilitating and replacing deteriorated sewers

Sewer cleaning and inspection program

Why do we clean sewers?

- To remove built-up debris
  (e.g., grease, tree roots, road sand)
- To prevent blockages and sewer backup

Why do we inspect sewers?

- To assess sewer condition and complete repairs before collapse and possible danger to public

How do we clean sewers?
Step 1

- High pressure water jets force dirt and debris down the sewer towards manholes

How do we clean sewers?
Step 2

- Vacuum trucks remove the dirt and debris from the manholes

How do we clean sewers?
Step 3

- Debris is hauled to Brady Road Landfill

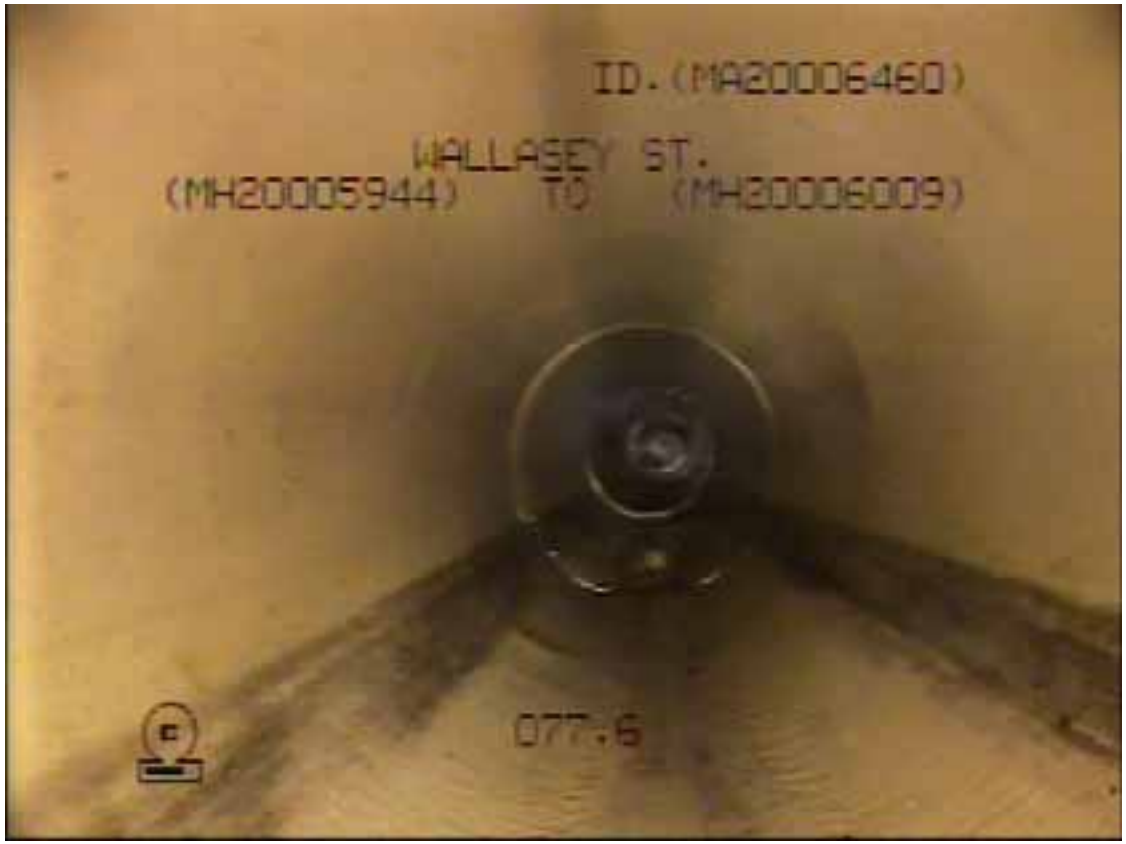
How do we inspect sewers?

- After cleaning we insert a remotely operated video camera into the sewer

How do we assess the condition of the sewers?

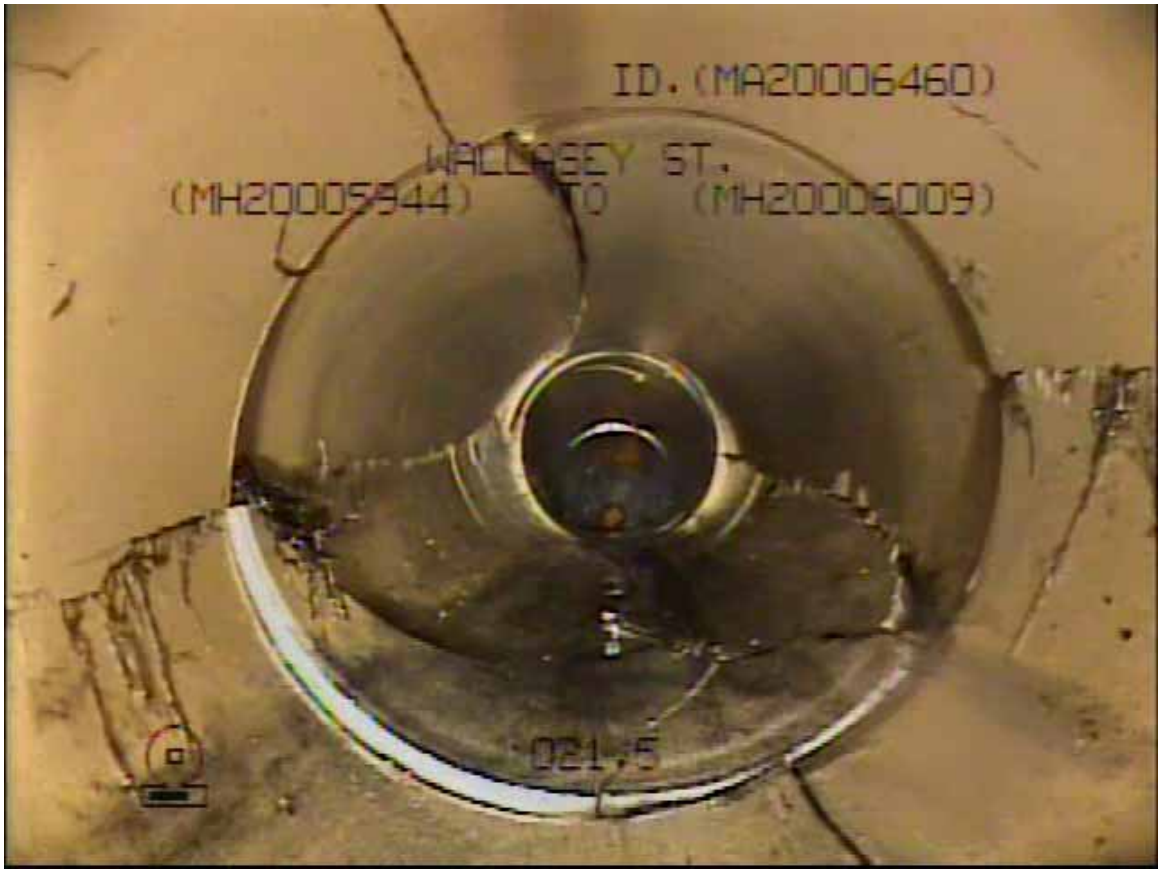
- Nationally accredited pipeline inspectors
  - catalogue the defects along the pipe
  - rate the overall conditions of the pipe segments
  - develop rehabilitation strategies based on the condition
  - create a prioritized work program for rehabilitation

Typical pipe conditions – Good



Typical pipe conditions – Fair

Typical pipe conditions – Poor



Typical pipe conditions – Failed

How much have we spent?

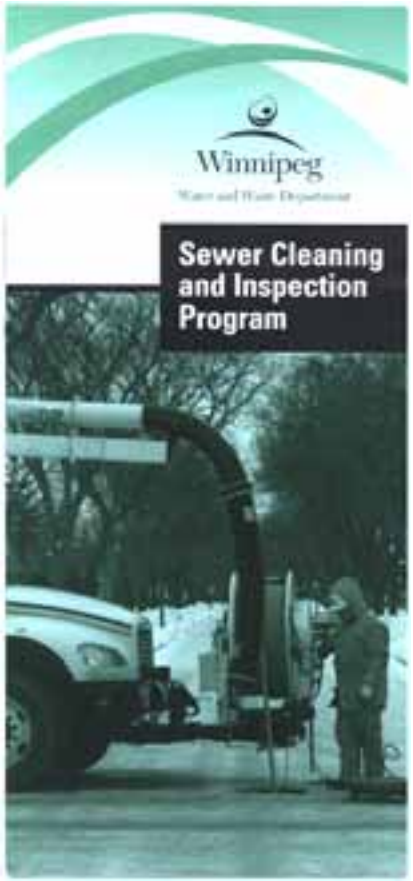
- Since 1998, we have:
  - spent about $90 million on rehabilitating and replacing sewers
  - identified $200 million in required work so far

How much will we need to spend?

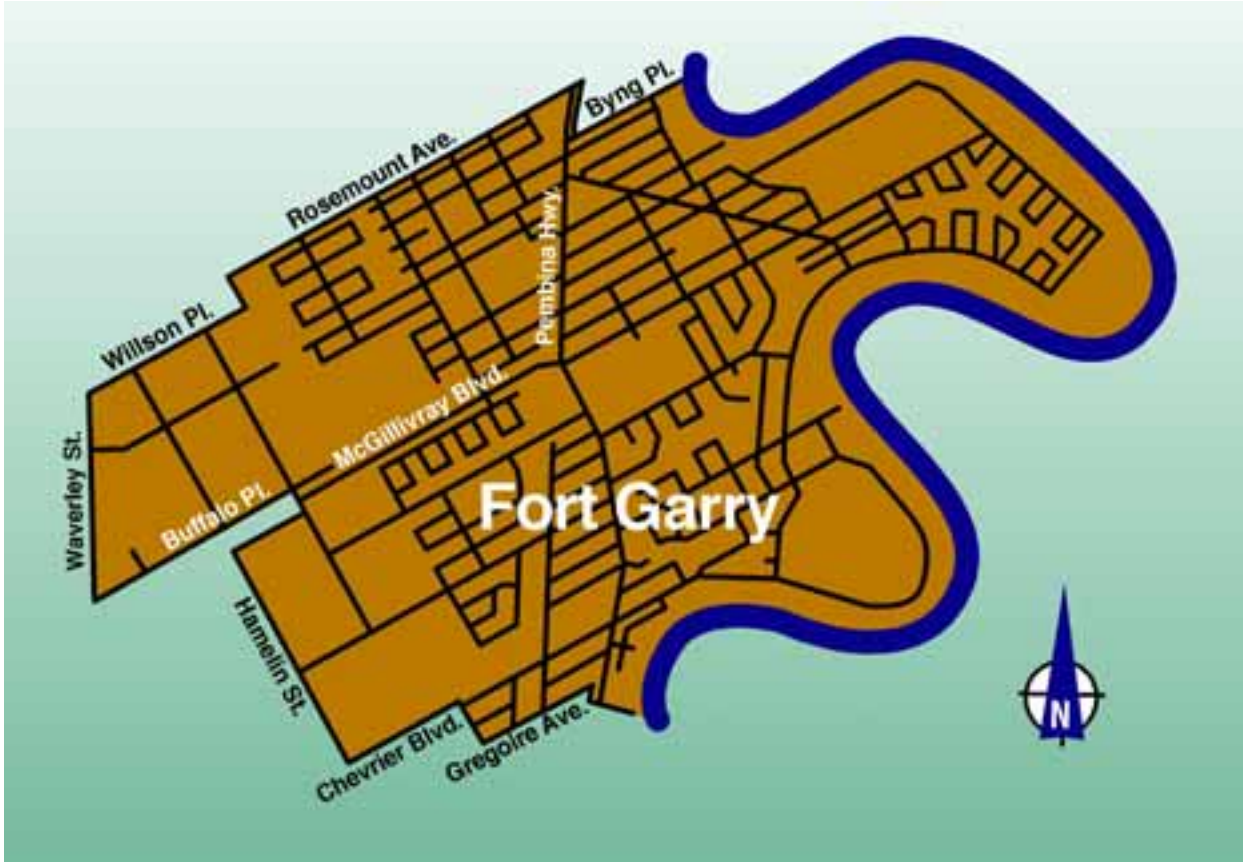
- As we continue inspecting the remainder of our sewer system, we:
  - expect the amount of work required to increase significantly
  - will review the amount of funding needed

How will you know when we are cleaning and inspecting sewers in your area?

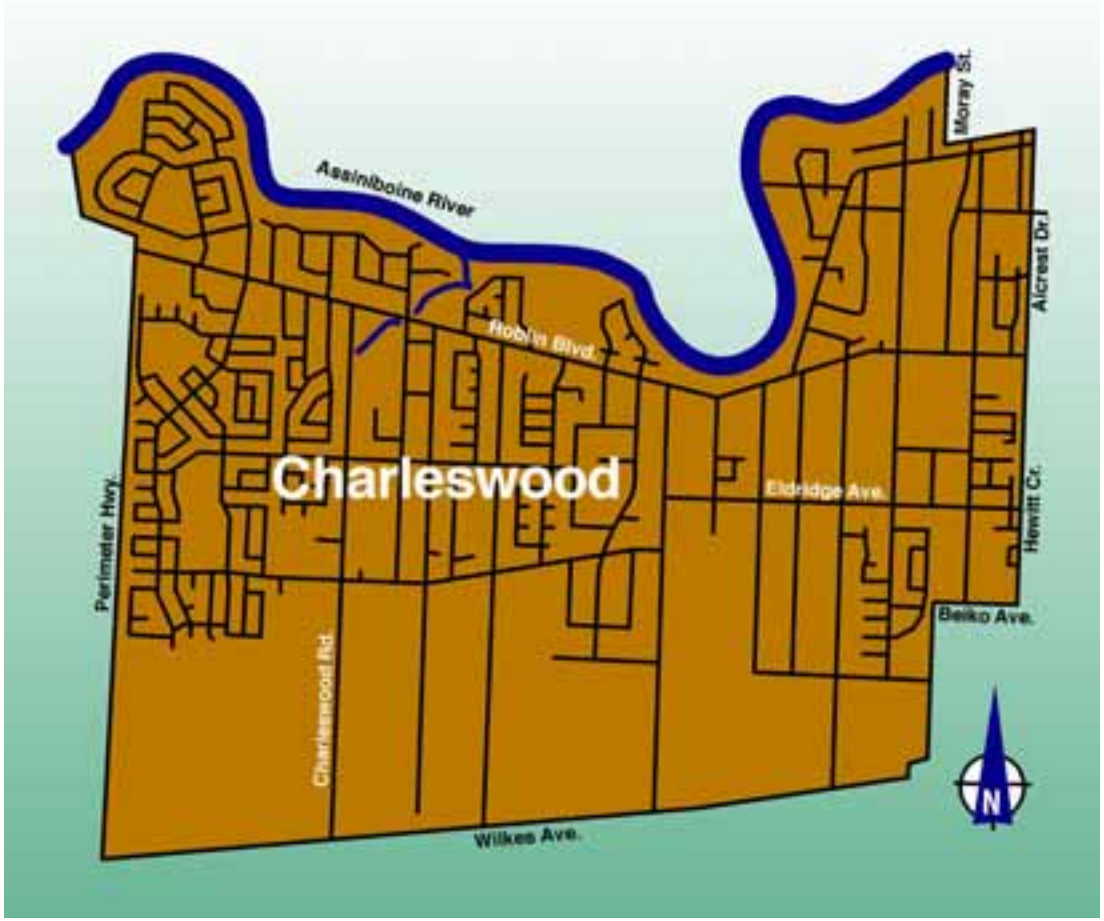
- We deliver an information package to residents and businesses 1 - 2 days before the cleaning
- We post the sewer cleaning area on our web site



2008 sewer cleaning area



2008 sewer cleaning area

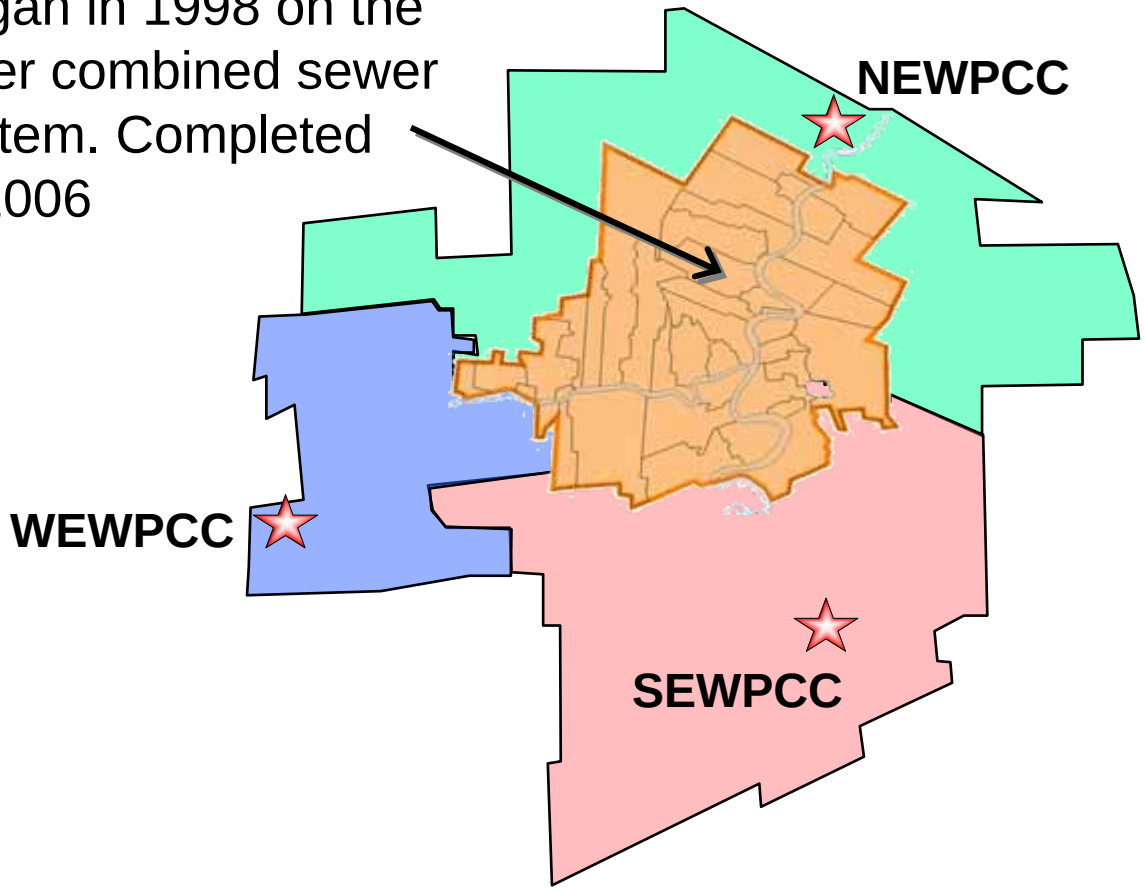


Will sewer cleaning and inspection affect your business operations?

- Sewer service continues as usual during cleaning
- Businesses served by larger sewers – won't notice the cleaning
- Businesses served by smaller sewers – air pressure in the sewer can sometimes cause water to splash out through toilets, sinks and drains
- Can be some traffic disruptions (e.g., lane closures and detours around cleaning equipment)

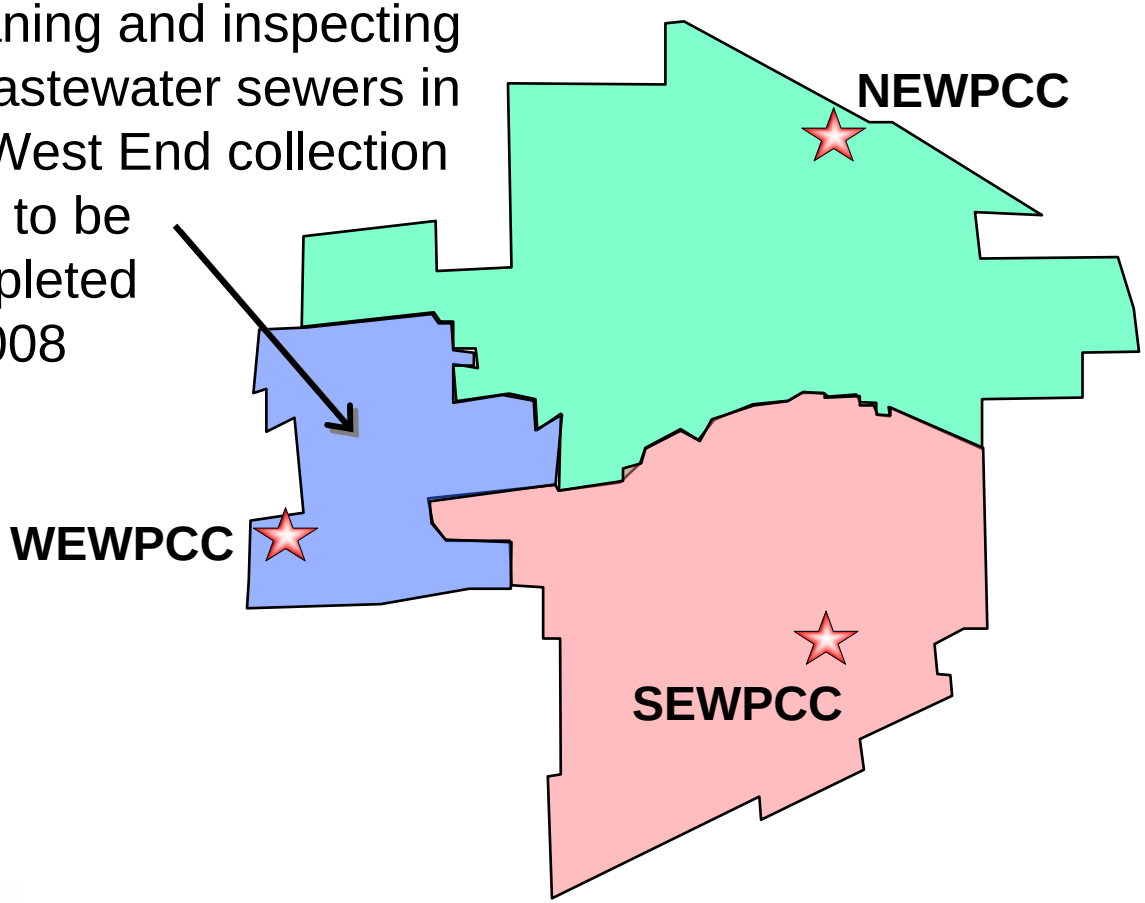
Progress and future plans

Began in 1998 on the older combined sewer system. Completed in 2006

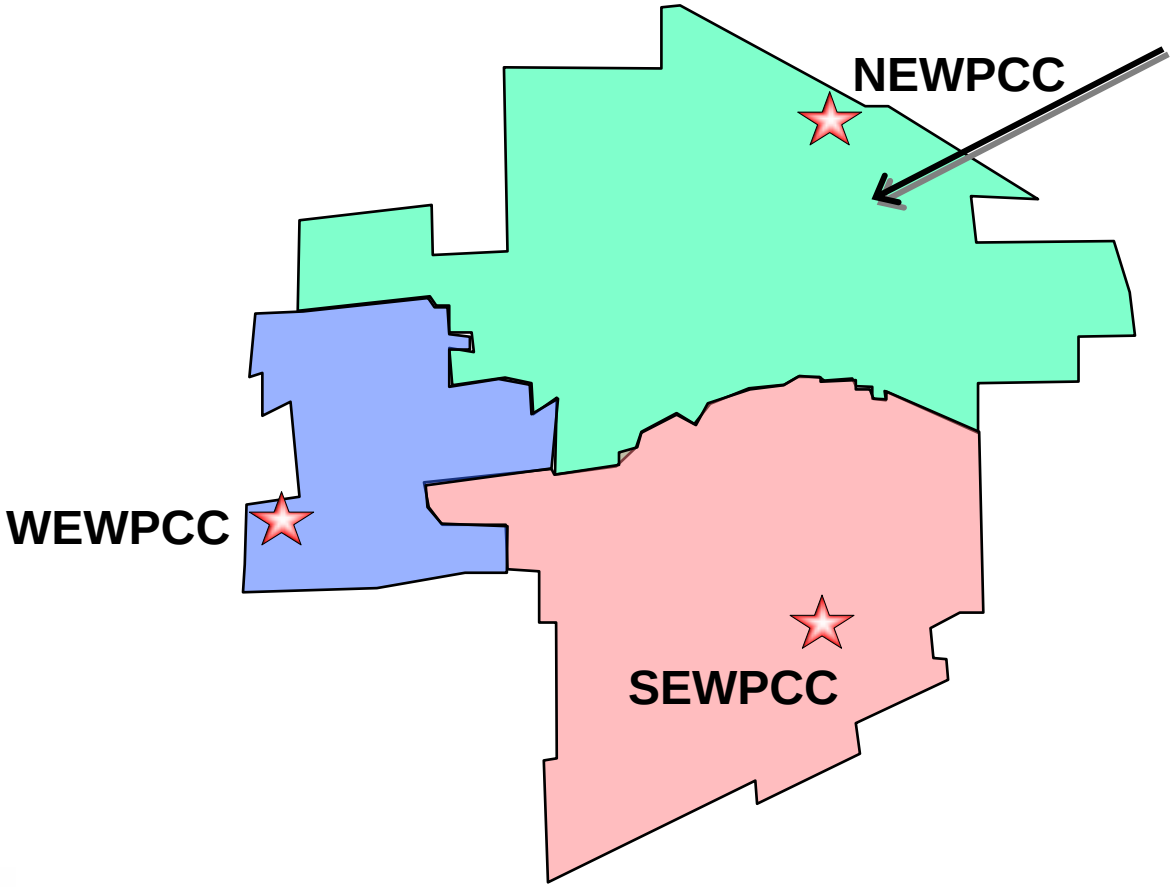


Progress and future plans

Cleaning and inspecting of wastewater sewers in the West End collection area to be completed in 2008

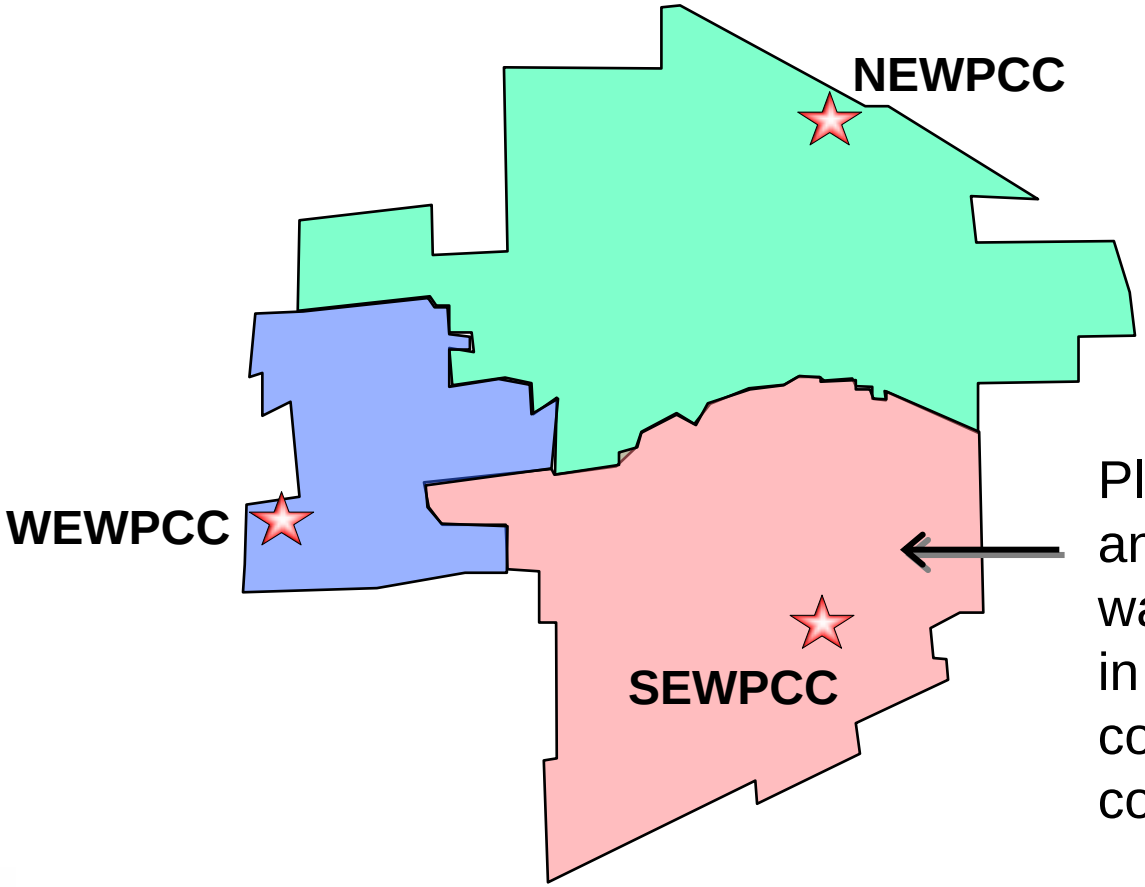


Progress and future plans



Planned cleaning and inspection of wastewater sewers in the North End collection area from 2009 to 2011

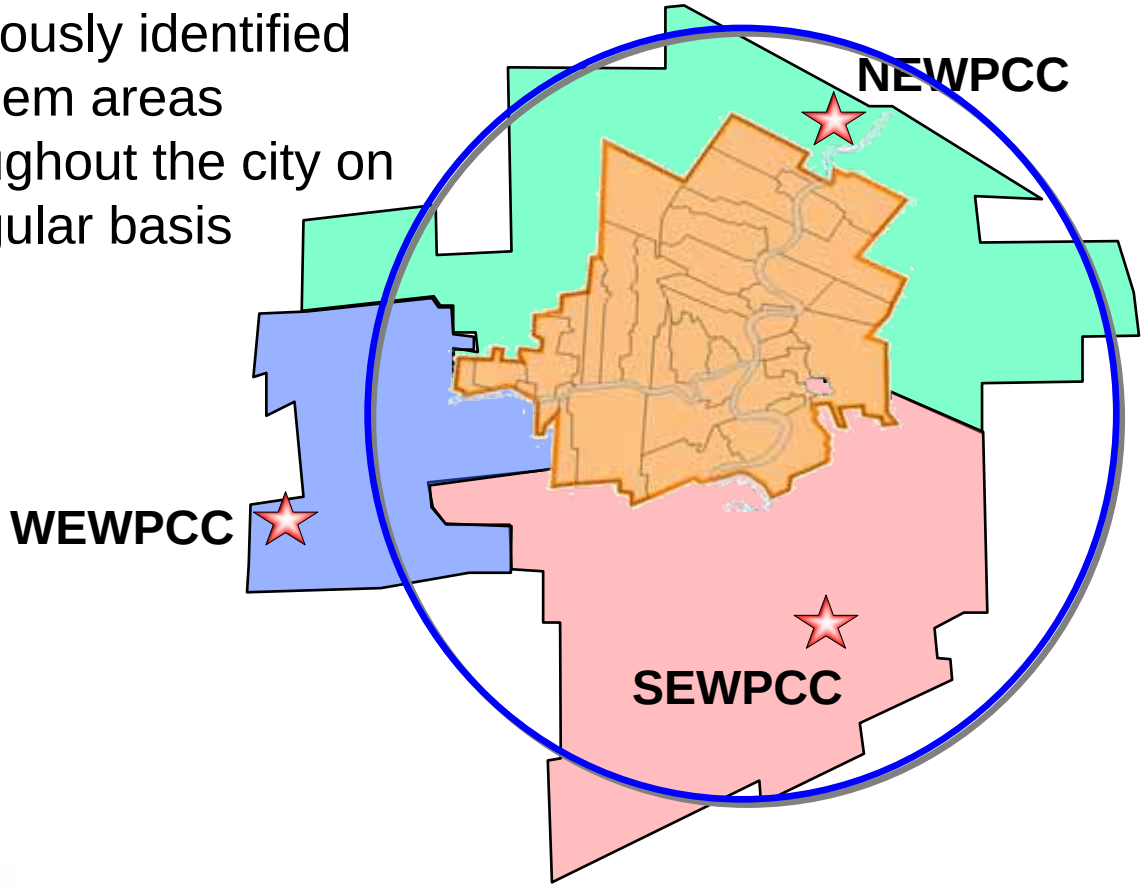
Progress and future plans



Planned cleaning and inspection of wastewater sewers in the South End collection area to be completed by 2014

Progress and future plans

Continue to reinspect all previously identified problem areas throughout the city on a regular basis

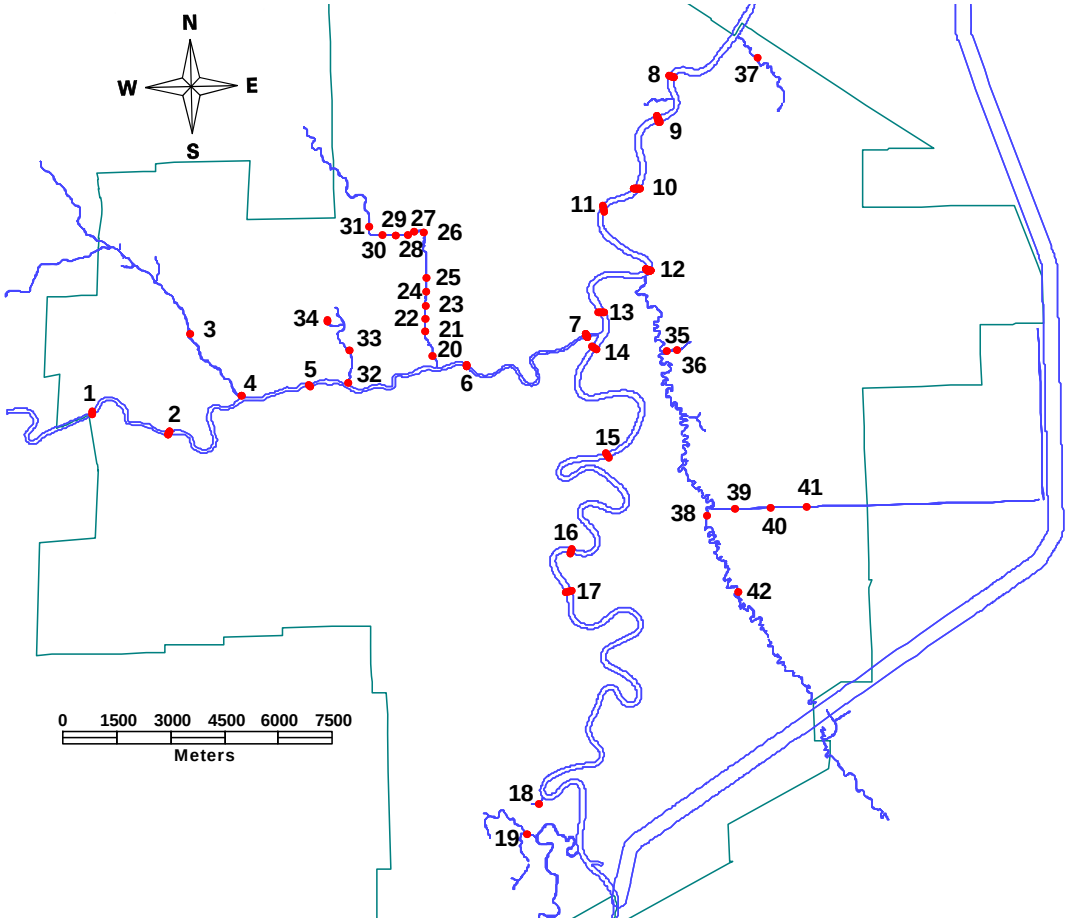


A Critical Component of Our Sewer System – River Crossings

Wastewater sewer river crossings

- 56 sewer pipes transport wastewater across rivers at 42 locations
- The pipes are under several feet of riverbed

Existing river crossings



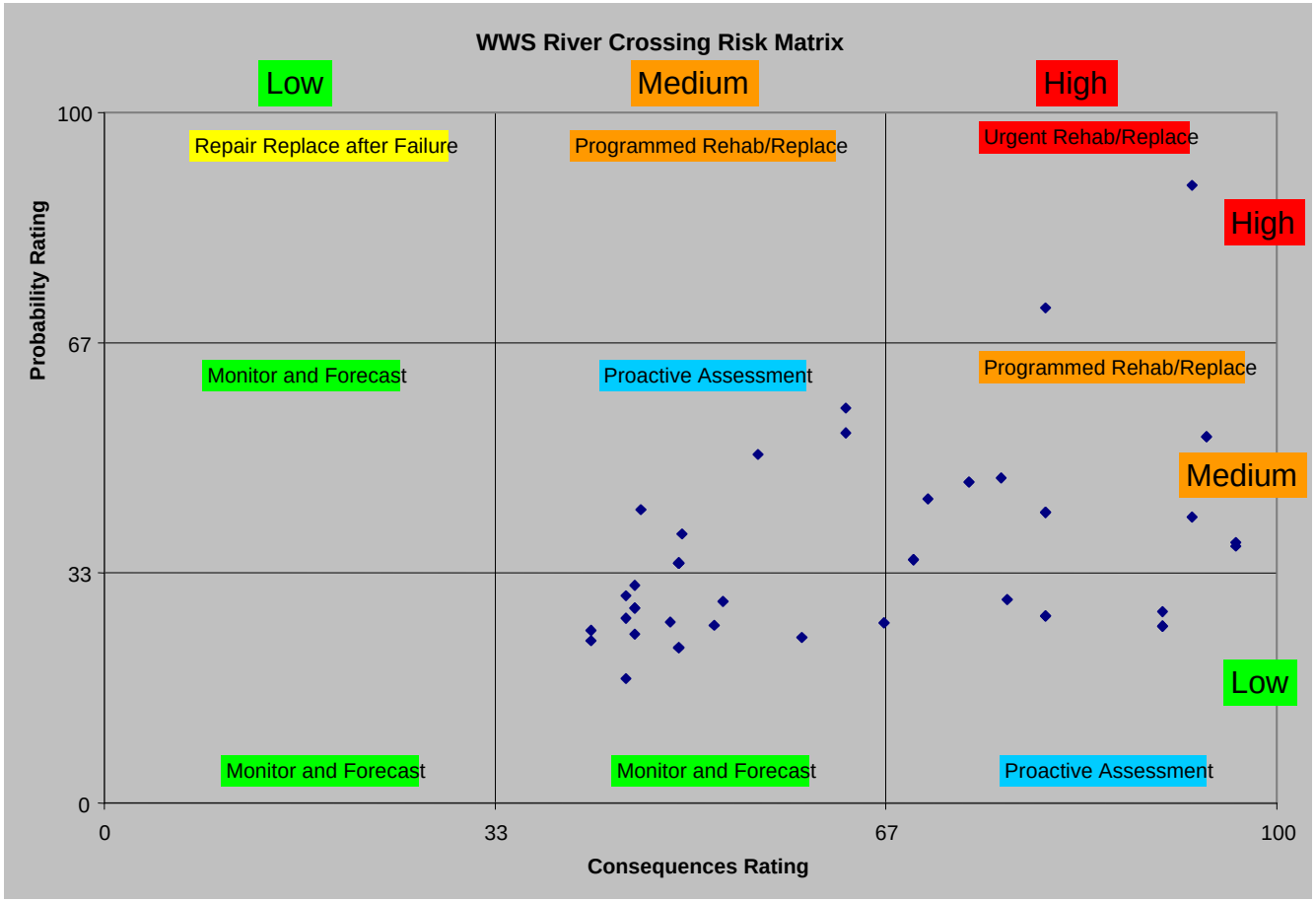
Sewer leak in 2003 was a reminder!

- A sewer pipe failure crossing under the Assiniboine River at Ash Street reinforced the need to be proactive

Progress since 2003

- Completed a risk assessment of all sewers at river crossings
- Replaced sewers at three river crossings
- Will replace one more this year
- Budgeted more than $10 million over the next 10 years to replace other at-risk river crossings

Assessing the condition of these sewers



River crossing by horizontal directional drilling

Advanced technology to drill beneath river

Pipes fused on opposing bank

Pipes pulled back

Pulling back pipes

Questions?

- For more information, go to www.winnipeg.ca/waterandwaste/sewage/

Tips on Maintaining Your Private Sewer Infrastructure

Bill Watters, Field Service Operations Engineer

Your sewer infrastructure – What is it?

- Sewer line(s)
  - carry wastewater from your facility to the City's sewer system
  - you own your sewer right up to the City's sewer main
- Pumps
  - for weeping tile flow
  - for wastewater

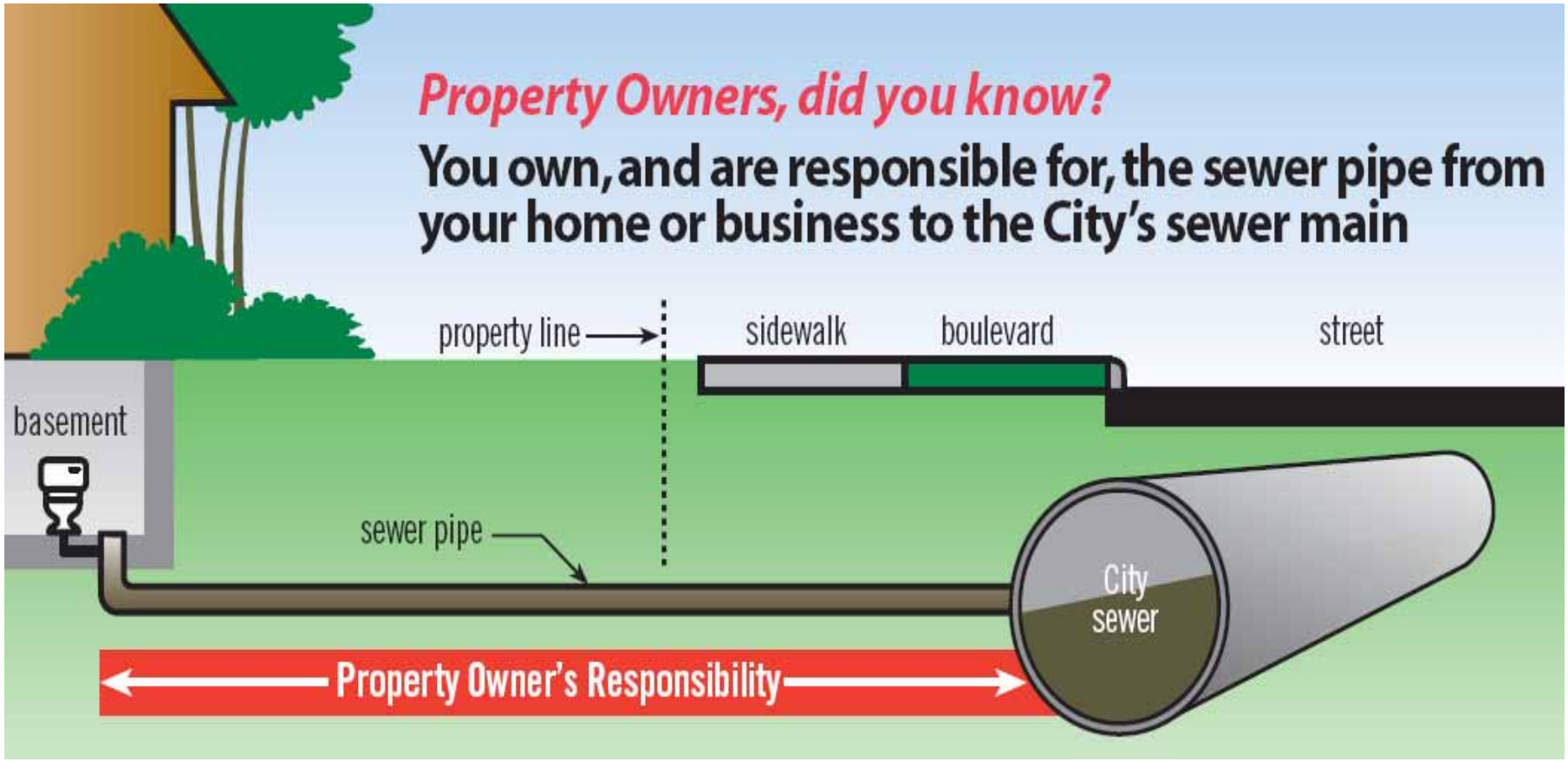
Your sewer infrastructure – What is it?

- Valves
  - backwater valves for preventing City sewer backup
  - isolation valves for the maintenance of pumps
- Manholes
  - for inspecting and maintaining your sewer line
  - for collecting rainfall runoff
  - for sampling wastewater

Your sewer infrastructure – What is it?

- Catch pits
  - for collecting sand and debris and keeping it out of your sewer line
- Ditches
  - for managing rainfall runoff
- Treatment systems
  - to reduce the strength of your sewage
- Grease traps
  - to collect grease and keep it out of your sewer line

You own your sewer pipe



Why is maintenance important?
- Pay now or pay later -

- Cheaper than an emergency repair
- Ensures that your infrastructure works properly at all times
- Prevents sewer backups
- Eliminates costly down time from a business shutdown
- Increases safety (workers and the public)
- Reduces your liability

Every system is different – Know yours

- Make sure your maintenance manager knows your system
  - age, size, material, and location of your sewer line
  - pumps, valves, catch pits, or manholes
  - location where your sewer line connects with the City's system
- Be aware of the Sewer By-law and how it affects you

Develop a plan for regular inspections and maintenance

- Inspect manholes for signs of deterioration (yearly)
- Inspect pumps and valves regularly and perform maintenance as recommended by the manufacturer
- Inspect storm drain openings

Develop a plan for regular inspections and maintenance

- Maintain safety grates
- Clear vegetation from drainage ditches
- Arrange for your sewer line to be cleaned and televised
- Only hire licensed, qualified contractors

Typical sewer problems – Grease

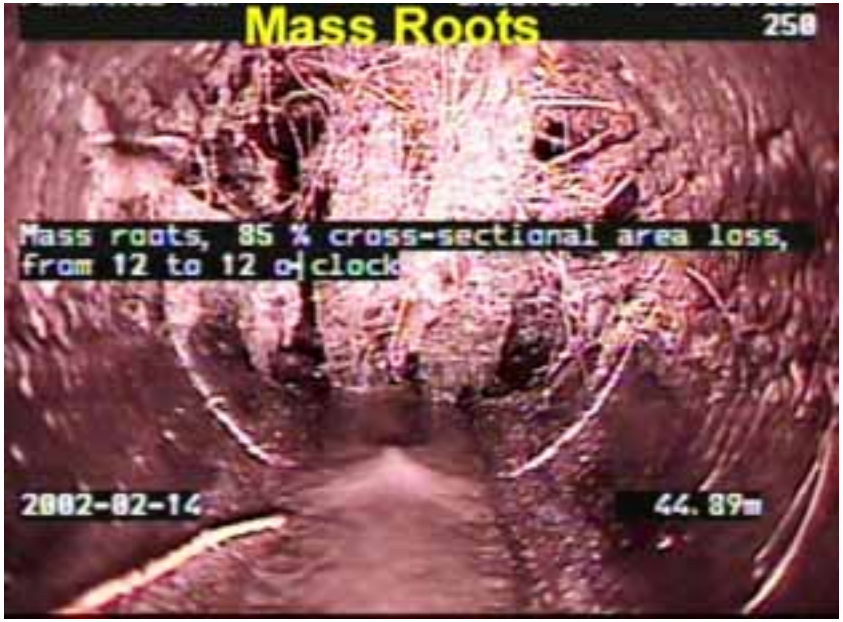
Grease – Problems

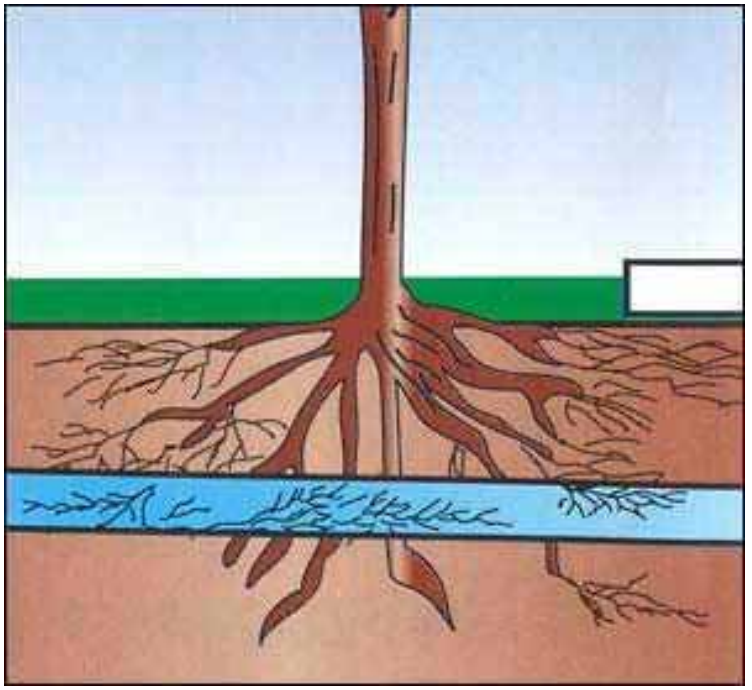
- Grease:
  - does not dissolve in water
  - congeals in the sewer and eventually blocks it, causing sewer backup
  - combines with other debris to form a solid blockage that is hard to remove

Grease – Solutions

- Don’t let grease go down the drain
- Maintain your grease traps
  - Sewer By-law requires that you clean your grease trap and keep records of maintenance
- Call a licensed, qualified contractor to clean your line if a grease blockage occurs

Typical sewer problems – Roots





Tree roots – Problems

- Sewer pipes can deteriorate and develop small cracks over time
- Tree roots actively seek out moisture and can get into your sewer line through these cracks
  - can catch debris and grease and clog up the sewer
  - reduce sewer capacity
- As tree roots grow they can accelerate the deterioration of your sewer line

Tree roots – Solutions

- Call a contractor to cut roots
  - tree roots will regenerate and will likely require cutting annually or bi-annually
- Landscape with plants that have shallow root systems
- Remove the problem tree (if it's on your property)

Items that don't belong in the sewer

- Types of items that don't belong in the sewer:
  - rags
  - oil and grease
  - animal by-products (e.g., bones, feathers, fish scales)
  - leaves and grass clippings
  - construction materials
  - corrosive or hazardous chemicals

Items that don’t belong in the sewer

- These items can:
  - cause problems on your sewer line (block your line or damage your pumps or valves)
  - accumulate and cause problems on the City’s line
- What goes into the sewer can end up in our rivers
- Some hazardous materials may pass through our system untreated and disrupt the treatment process.

Items that don't belong in the sewer

- Don't use the sewer as a garbage can
- Clean up any spills or debris at your site
- Educate tenants/workers on proper disposal methods and what does and doesn't belong in the sewer
- Clean out your sump pits, catch pits and grease traps regularly
- Check our sewer by-law for the list of restricted materials

Typical sewer problems – Settled or collapsed line

Settled or collapsed sewer line – Problems

- Dips or cracks can form in the sewer due to ground settlement or improper installation
  - dips are prime locations for sediment or grease buildup which can lead to a blockage
  - cracks can lead to ground washout and sewer collapse

Settled or collapsed sewer line – Solutions

- Inspect and televise your line about every 10 years
  - early detection of a problem will result in less extensive repairs
  - early detection allows you to plan your repair, rather than having an unplanned disruption to your business
- Watch for signs of collapse (e.g., sunken ground, cracked pavement above your sewer line)

Sewer collapse or blockage on your property

- You are responsible for the entire repair
- We have a list of licensed contractors you can contact
- We recommend you obtain at least three estimates from different contractors

Sewer collapse or blockage on City property

- You are still responsible for the repair
- You may qualify for financial assistance under ‘Schedule B’ of the Sewer By-law

Financial assistance under Schedule B

- Applies to sewer repairs requiring excavation within the public right of way
- Does not apply to cleaning and maintenance of the sewer line
- Does not apply to special connections
- If you qualify, you pay a deductible and the City pays the remaining costs of the repair
- Deductible is $1000.00 for businesses

Schedule B

- We may ask you to:
  - undertake additional attempts to clean your sewer line at your own expense
  - arrange and pay for a video inspection of your sewer line
  - provide records of maintenance history of your line
  - allow us to conduct inspections
- A sewer repair usually takes 4 - 7 days – you may be without your sewer service during this time
- We can guide you through this process (986-5858)

Summary

- Know your system
- Regularly inspect and perform regular maintenance on your system
- Be responsible – don't dump things into the sewer that don't belong there
- Only hire licensed, qualified consultants and contractors
- Always remember… SAFE WORK

Questions?

Sewer By-law and Wastewater Treatment Update

Nick Szoke,
Senior Wastewater Planning Engineer

Why do we have a sewer by-law?

- Ensure proper, safe, and reliable operation of the wastewater collection and treatment system
- Protect public health and safety
- Protect the environment
- Protect property and wastewater systems
- Regulate the direct and indirect discharge of wastewater and pollutants to the sewer system
- Establish legally enforceable compliance requirements

Why do we need to revise the by-law?

- Heard from public at 2003 CEC hearings
  - the existing by-law is not current
    - many uncontrolled substances making their way into the sewer and passing through treatment plants
- CEC recommended that we put in place:
  - pollution prevention (source control)
  - more stringent quality and quantity restrictions
  - improved by-law enforcement program
  - a “made for Winnipeg” by-law

What are the key changes to the by-law?

- Prevent disposal of contaminants of concern
- Encourage treatment of contaminants at source
- Improve enforcement
- Increase penalties for violations
- Reduce “red tape” – write the by-law in plain language

How could the changes affect you?

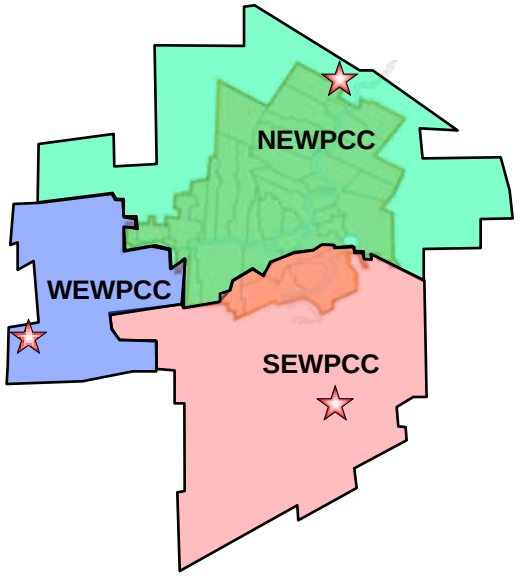
- Limits on some pollutants
- Some pollutants may be prohibited
- You may:
  - be required to prepare pollution prevention plans, including material substitution, material elimination, and/or treatment at source
  - pay a surcharge for high levels of nitrogen and phosphorus in wastewater discharges
  - see our inspectors more often

We are behind schedule

- Pollution prevention program complex aspect
  - consulting with Toronto
  - staffing requirements major consideration
  - prioritized sector by sector roll out, including info package
- Once completed, will seek Council approval to proceed with public consultation
- Invite you to participate
  - we'll get back to you on the schedule

Wastewater Treatment Update

Wastewater treatment plants



	NEWPCC	SEWPCC	WEWPCC
			
Population Served	374,000	160,000	86,000
Recorded 2005 ADWF[1]	160	50	27
ADWF Design Capacities[2]	302	59	32

[1] Average Dry Weather Flow (ML/d)

[2] CBOD treatment process

Why do we need these upgrades?

- We now have Environment Act Licences for all three plants with treatment requirements and dates for compliance:
  - reduce phosphorus by 10% and nitrogen by 13% by 2007/08
  - reduce nitrogen by 47% and phosphorus by 65% by 2014
  - reduce bacterial levels to meet provincial guidelines for recreational use of the rivers by summer 2006/07

What are the upgrades to our wastewater treatment system?

- Nutrient removal at all three treatment plants
- Expand South End plant to support population growth for next 25 years
- Effluent disinfection
  - added ultraviolet light disinfection to two of our three treatment plants
  - determining if effluent disinfection required at third plant

Nutrient reduction at the North End plant

- Nutrient removal under construction
  - can't shutdown plant
- Estimated at $34 million for both
- Phosphorus removal in operation since May 2007
- Nitrogen removal under construction, in operation Aug 2008

Nitrogen reduction

Phosphorus reduction

Full biological nutrient removal at the West End plant

- Under construction
  - can't shutdown plant
- Estimated at $37 million
- Construction started Oct 2006
- Phosphorus removal in operation since November 2007
- Estimated operation date is late 2008

Full biological nutrient removal at the West End plant

- Under construction
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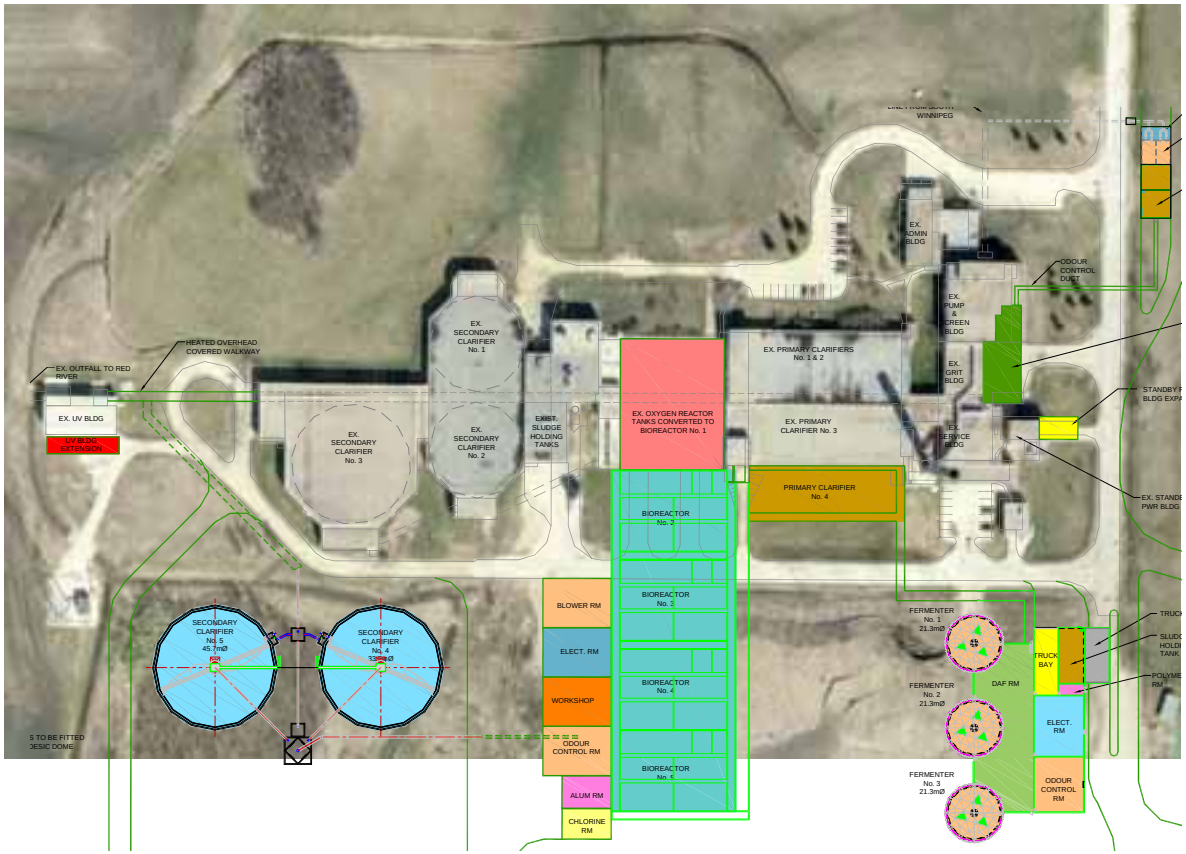
Biological nutrient removal and expansion at the South End plant

- Engineering started Jan 2006
- Estimated at $203+ million
- Estimated completion date in Dec 2012

Biological nutrient removal and expansion at the South End plant

- Engineering started Jan 2006
- Estimated at 203^{+} million
- Estimated completion date in Dec 2012



North End plant full biological nutrient removal

- Master plan and biosolids studies underway
- Estimated at 400^{+} million
- Estimated completion date Dec 2014

North End plant full biological nutrient removal

- Master plan and biosolids studies underway
- Estimated at 400^{+} million
- Estimated completion date Dec 2014

Program considerations

- Our current estimate for all wastewater treatment system improvements is $1.2 billion
  - plant upgrades estimated at $670 million
  - Federal and Provincial governments have earmarked $67 million for program
- Need to continually update cost estimates, buoyant economy and active construction market driving up costs

Program considerations

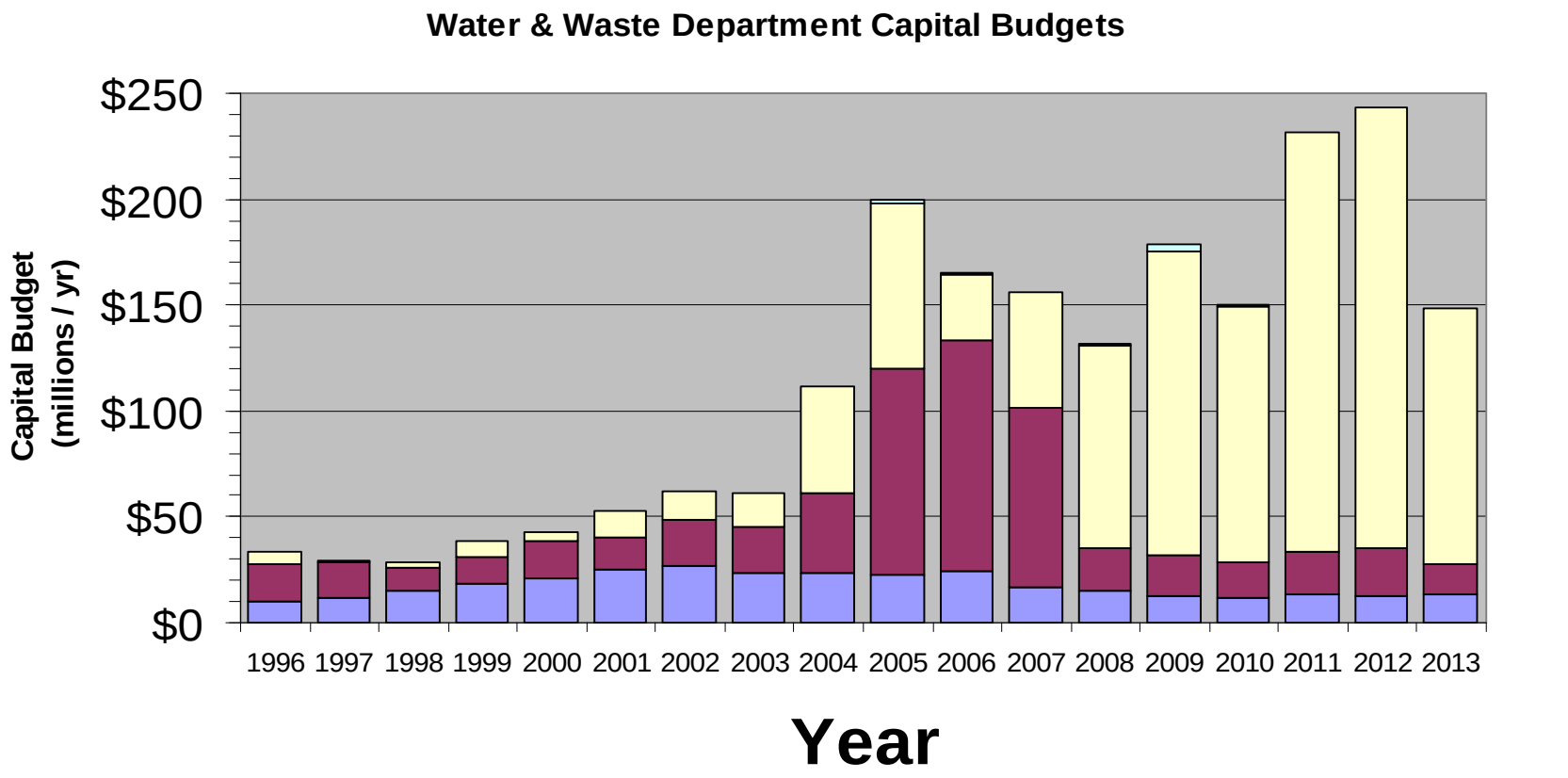
- Need to be mindful of concurrent major capital projects:
  - limited resources and diminishing competition
  - basic economics…
    - laws of supply and demand apply

Questions?

2008 Water and Sewer Rates

Barry MacBride, Director

Capital budget 1996-2013



Summary

- Rates are increasing much faster than inflation due to required improvements:
  - to remove nitrogen and phosphorous in treated wastewater
  - to reduce combined sewer overflows
  - for water treatment
  - to reflect the impact of increased construction costs

Customer impact

	Annual Consumption cubic feet	2007	2008	Increase	
				$	%
Residential	8,400	$ 694	$ 775	$ 81	11.6%
Small Restaurant	56,000	$ 4,248	$ 4,786	$ 538	12.7%
Large Restaurant	626,000	$ 44,094	$ 50,104	$ 6,010	13.6%
Foundry	8,987,000	$ 600,260	$ 686,541	$ 86,281	14.4%

- 2008 combined rate is $8.57 per 100 cubic feet (block 1) or $3.02 per 1,000 litres
- Average monthly cost residential is $64.57
- 3.31 litres per penny

How we determine rates

- We forecast revenue requirements over the next ten years
  - capital and operating costs
  - financing reserves, cash to capital (“pay as you go”), debt
  - transfers to other funds
- We forecast sales over 10 years
- We develop a rate plan so that revenue requirements are met over time

Rate approval process

- Based on our 10 year forecast
- We recommend a one year rate change to our Standing Policy Committee and if they agree, they pass it on to Executive Policy Committee and Council
- You can be involved
  - Standing Policy Committee on Infrastructure Renewal and Public Works
  - Executive Policy Committee
  - City Council

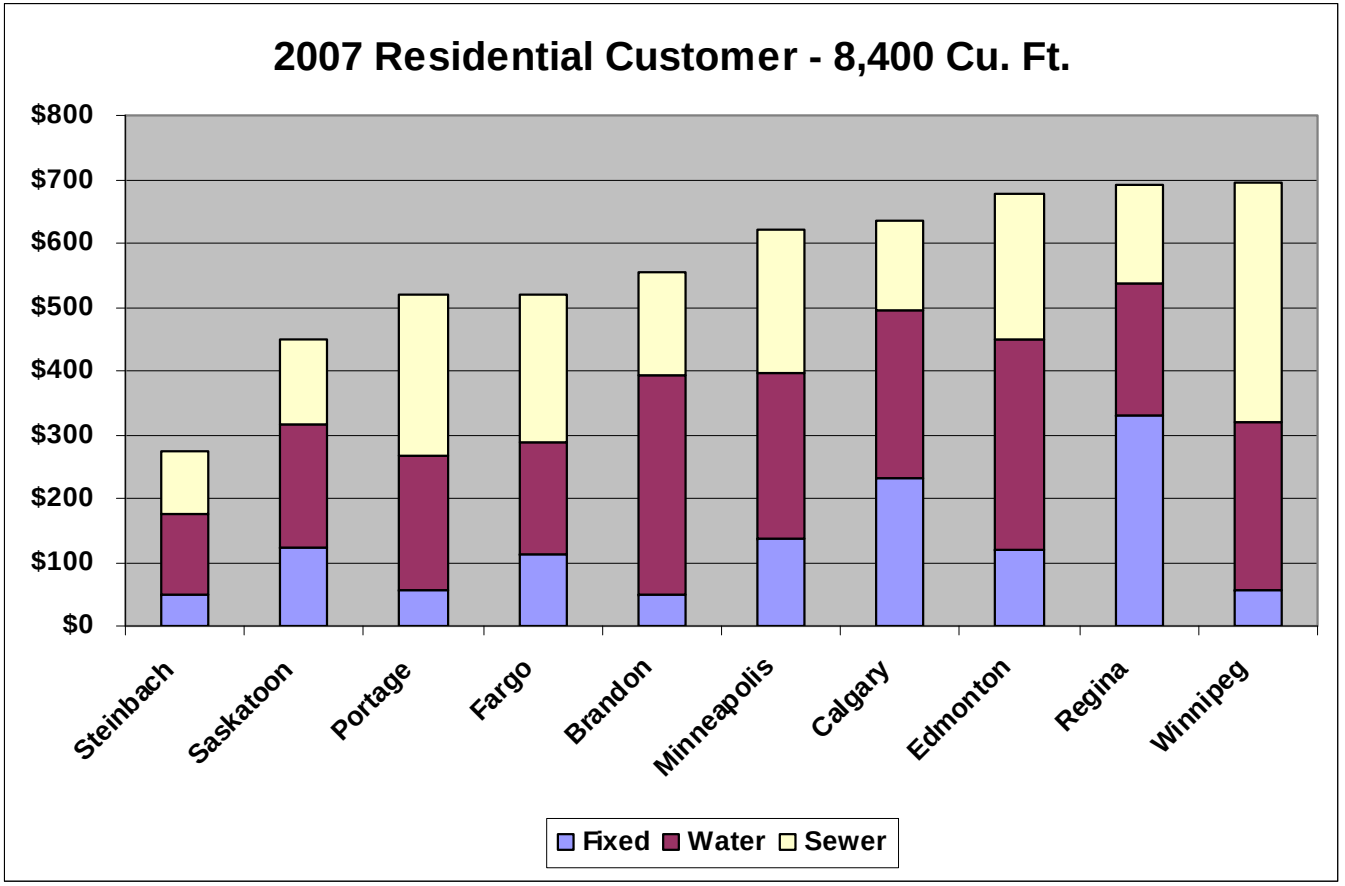
Wastewater cost projections are increasing

Wastewater Improvement Projects	2008 Rate Plan	
Capital Cost Estimates ($millions)		
Component	Cost (millions)	
Disinfection	$	24.74
Effluent Nutrient Control	$	668.39
CSO Control Program	$	450.72
Biosolids Program	$	62.73
TOTAL Environmental Projects	**$**	**1,206.59**
CEC Additional Recommendations	$	8.47
Misc upgrades not in above	$	2.80
GRAND TOTAL	**$**	**1,217.86**

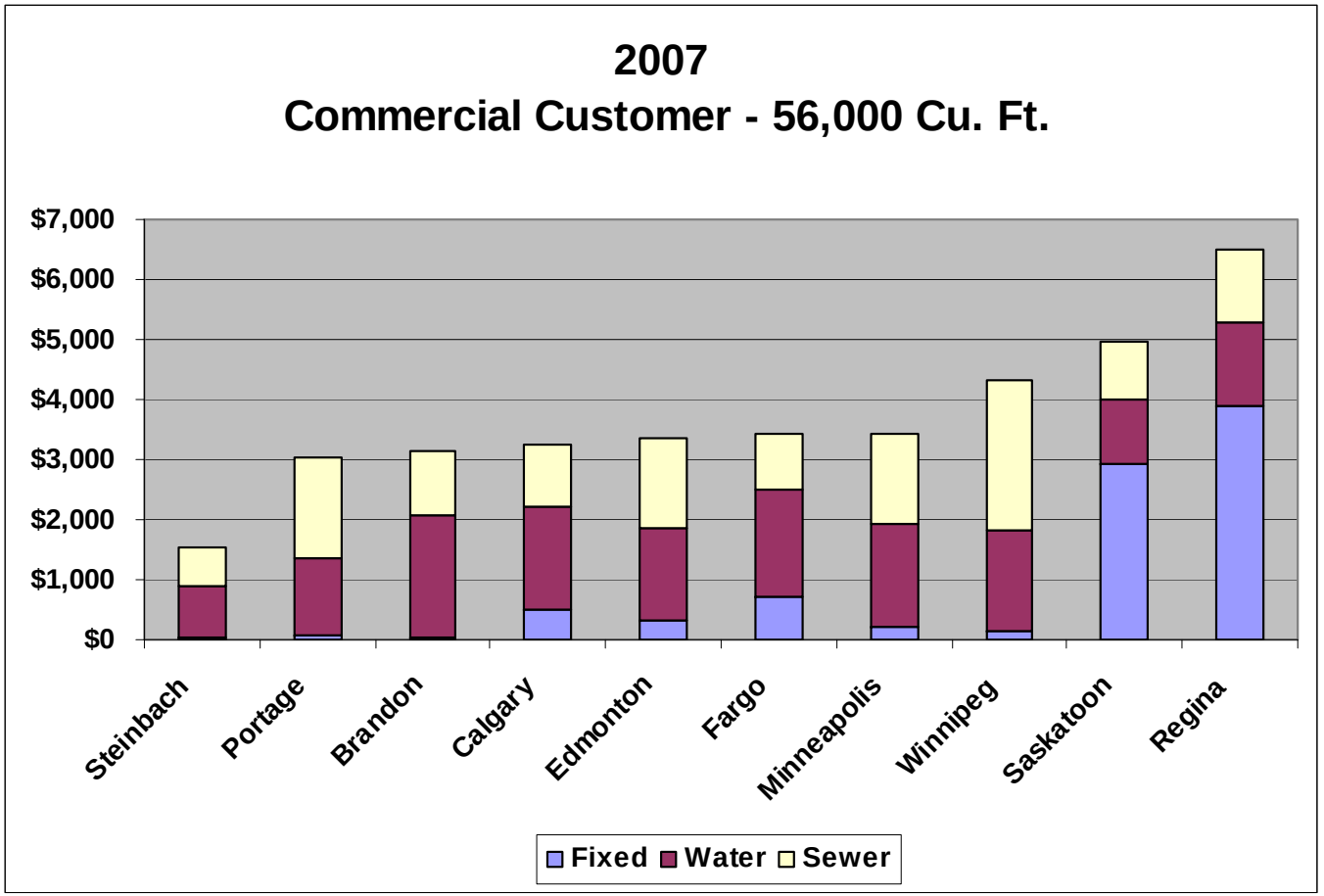
2008 rates

- Sewer rate increase from $4.46 to $5.12
- Water rate increase from $3.15 to $3.45
- The recommended combined water/sewer rate increase for 2008 is, unchanged from the 2007 projection
- Ten year combined water/sewer rate projections same as last year
- Funding for the water main renewals be increased by $3 million to be funded from water rates on a pay-as-you go basis

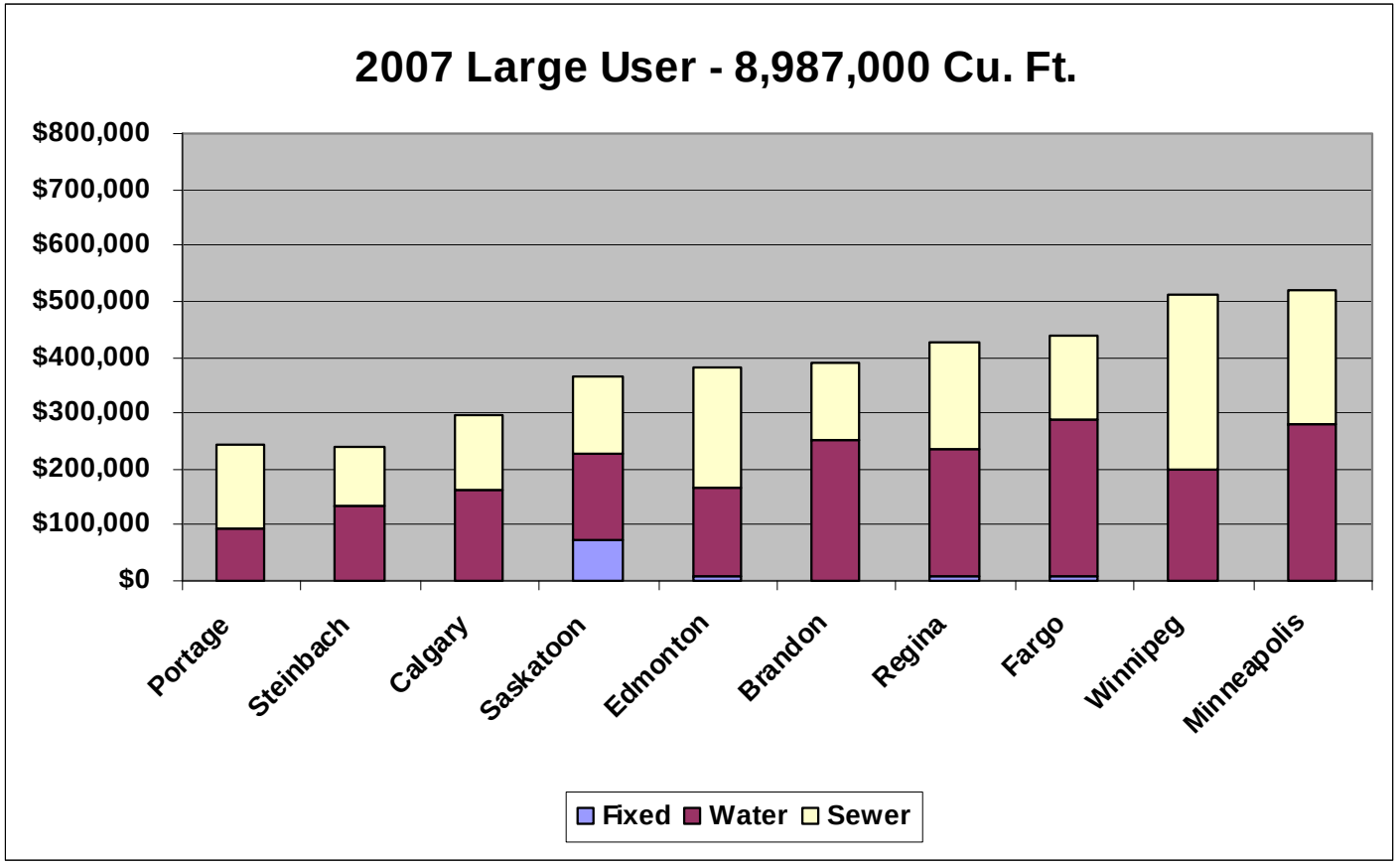
Residential rate – Benchmarking



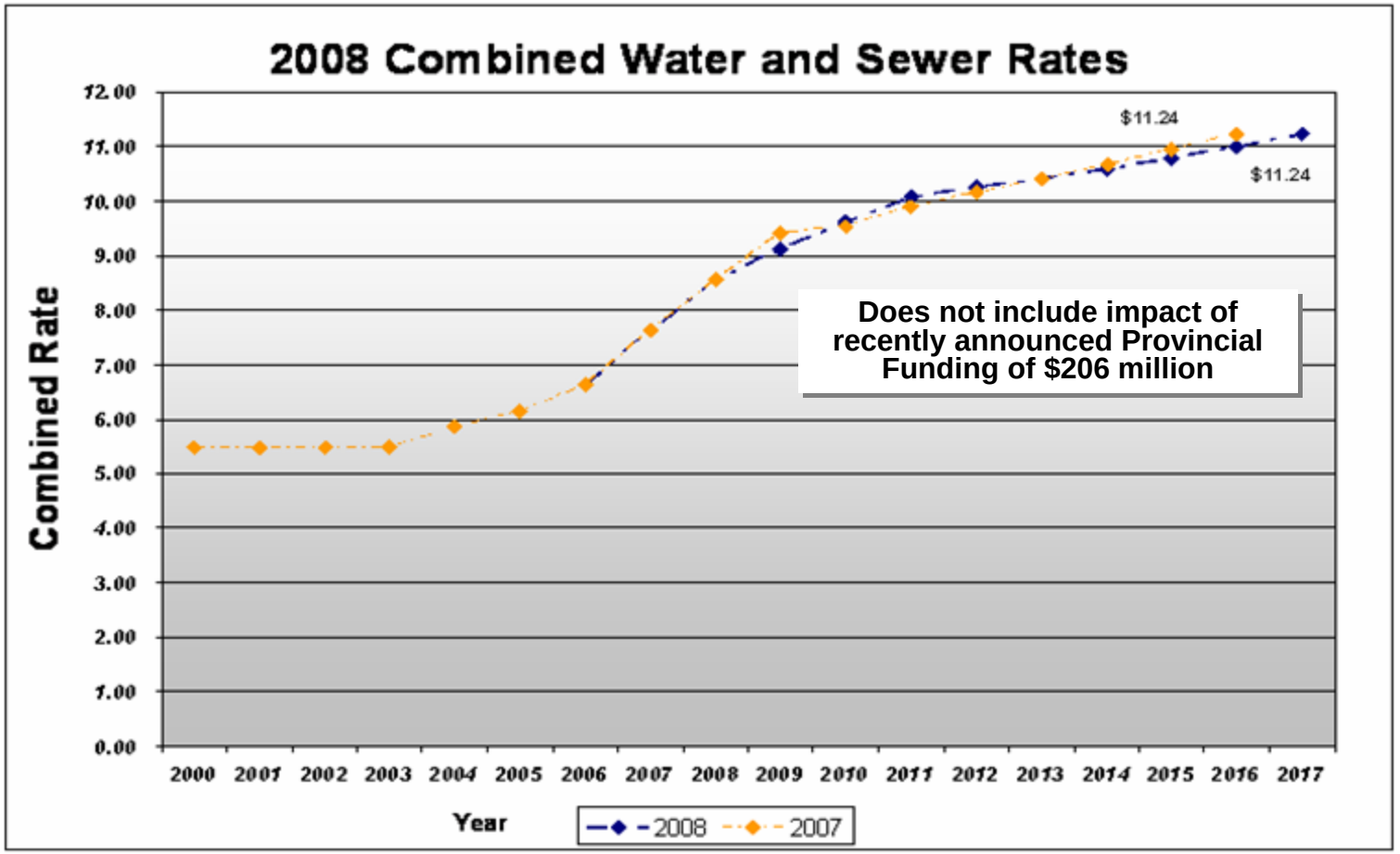
Commercial rate – Benchmarking



Large industrial rate – Benchmarking



2008 vs. 2007 combined rate forecast



Rates – Future projects

- Cost of service rates
- Winter cost averaging
- Land drainage utility

Question Period and Closing Remarks

Barry MacBride, Director

www.winnipeg.ca/waterandwaste/