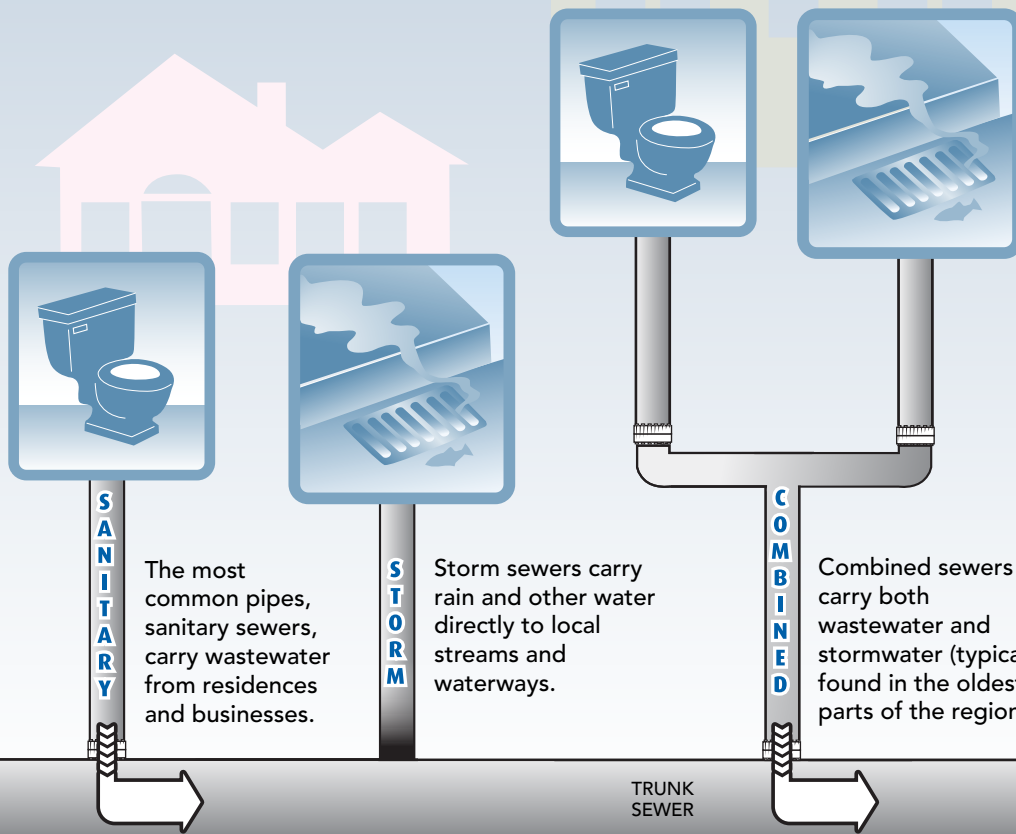


# What happens when I flush?

Wastewater: from your home to treatment and beyond



# What is wastewater?



## Wastewater comes from:

- Flushing toilets, doing laundry, washing dishes, and anything else that sends “used” water into a drain
- Commercial and industrial operations

## What’s in it:

- Soap, food scraps, human waste, oils and other chemicals

## In our region:

- Over 1 billion litres of wastewater are produced every day
- 80% comes from our homes
- Every person produces an average of 500 litres of wastewater per day

## Wastewater: the underground story

Wastewater flows into a sewer pipe that connects to larger pipes under your streets, which then connect to treatment plants.

There are more than 15,000 km of sewer pipes in Metro Vancouver (enough to stretch across Canada and back!)

During heavy rain, combined sewers can overflow directly into waterways. Municipalities are working to separate stormwater pipes from sanitary sewers.

## Why we treat wastewater

The goal of wastewater treatment is to protect and maintain healthy waterways. If pollutants in wastewater are not removed, they flow directly into our rivers and oceans. This can threaten fisheries, wildlife habitat, recreation, quality of life, and public health.

## Healthy waterways need healthy oxygen levels

Organic materials in wastewater use oxygen to break down, using up oxygen needed by fish and other aquatic life. **Biochemical oxygen demand (BOD)** is a measure of the oxygen consumed by wastewater.

**Suspended solids (TSS)** in water block light and interfere with the growth of aquatic life. Suspended solids and biochemical oxygen demand are removed during the treatment process.

1914

Vancouver Joint  
Sewerage & Drainage  
District Formed

1961

Lions Gate  
WWTP\* opens

1963

Iona Island  
WWTP opens

1973

Lulu Island  
WWTP opens

1975

Annacis Island  
WWTP opens

\* WWTP = Wastewater Treatment Plant

**Primary treatment** is largely a mechanical process that removes materials that settle or float. It removes 50 to 60 per cent of total suspended solids (TSS) and 30 to 50 per cent of the biochemical oxygen demand (BOD).

**Screening**

Wastewater is screened to remove wood, stones, plastics and other large debris.

**Pumping**

Wastewater is pumped to a higher elevation so gravity can move it through the treatment process.

**Grit removal**

Pumped air keeps organic materials suspended while forcing grit – sand and gravel – to settle and be removed.

**Removing solids**

In the sedimentation tanks, the heavier ‘sludge’ settles to the bottom and lighter ‘scum’ floats to the top.

**Secondary treatment** is a biological process that removes 90% or more of the materials in wastewater. This includes suspended solids and dissolved materials (biochemical oxygen demand).

**Trickling filters**

As wastewater trickles through this tank, bacteria – which consume organic material – cling to the plastic filter material.

**Solids contact tanks**

Smaller particles join to form larger particles (flocculation process), which then settle more easily.

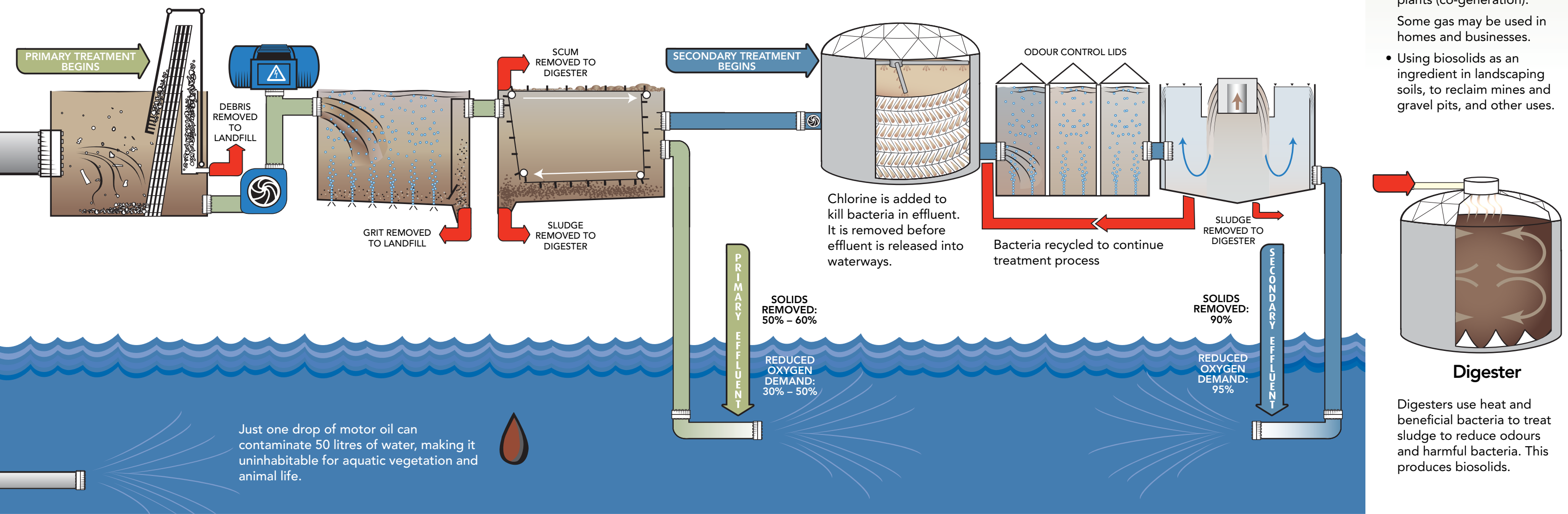
**Secondary clarifiers**

Solid material (sludge) settles and is removed to the digester.

**Rethinking wastewater**

Through innovation, we can develop new ways to use wastewater. Metro Vancouver is recovering resources from wastewater by:

- Enabling municipalities to capture heat from sewer pipes and use it to heat nearby buildings.
- Turning gas from treatment processes into electricity and heat for use in treatment plants (co-generation).  
Some gas may be used in homes and businesses.
- Using biosolids as an ingredient in landscaping soils, to reclaim mines and gravel pits, and other uses.



1979

Northwest Langley WWTP opens

1997

Annacis Island WWTP upgrades to secondary treatment

1998

Lulu Island WWTP upgrades to secondary treatment

2002

Province approves Liquid Waste Management Plan

2010

Iona WWTP upgrades primary treatment process

2011

Province approves Integrated Liquid Waste and Resource Management Plan

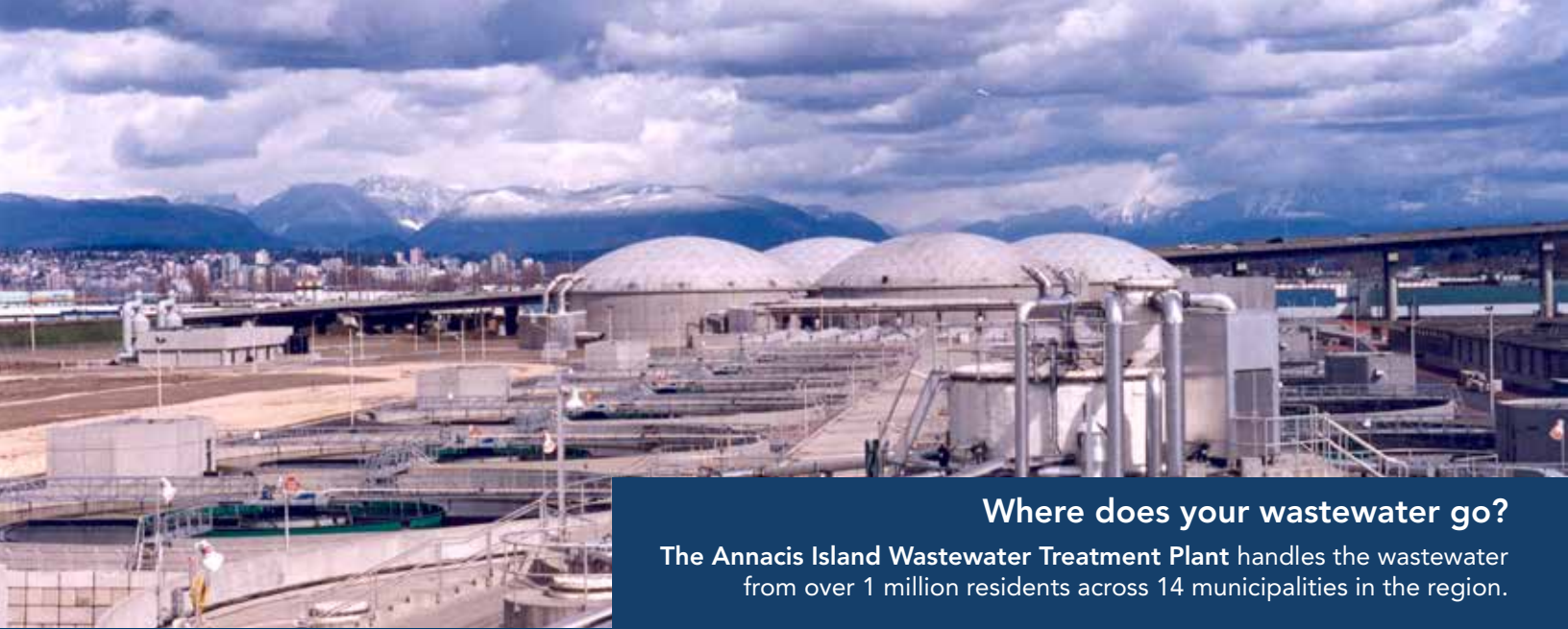
2012

New Lions Gate WWTP consultation and design process

**For the future, Metro Vancouver will:**

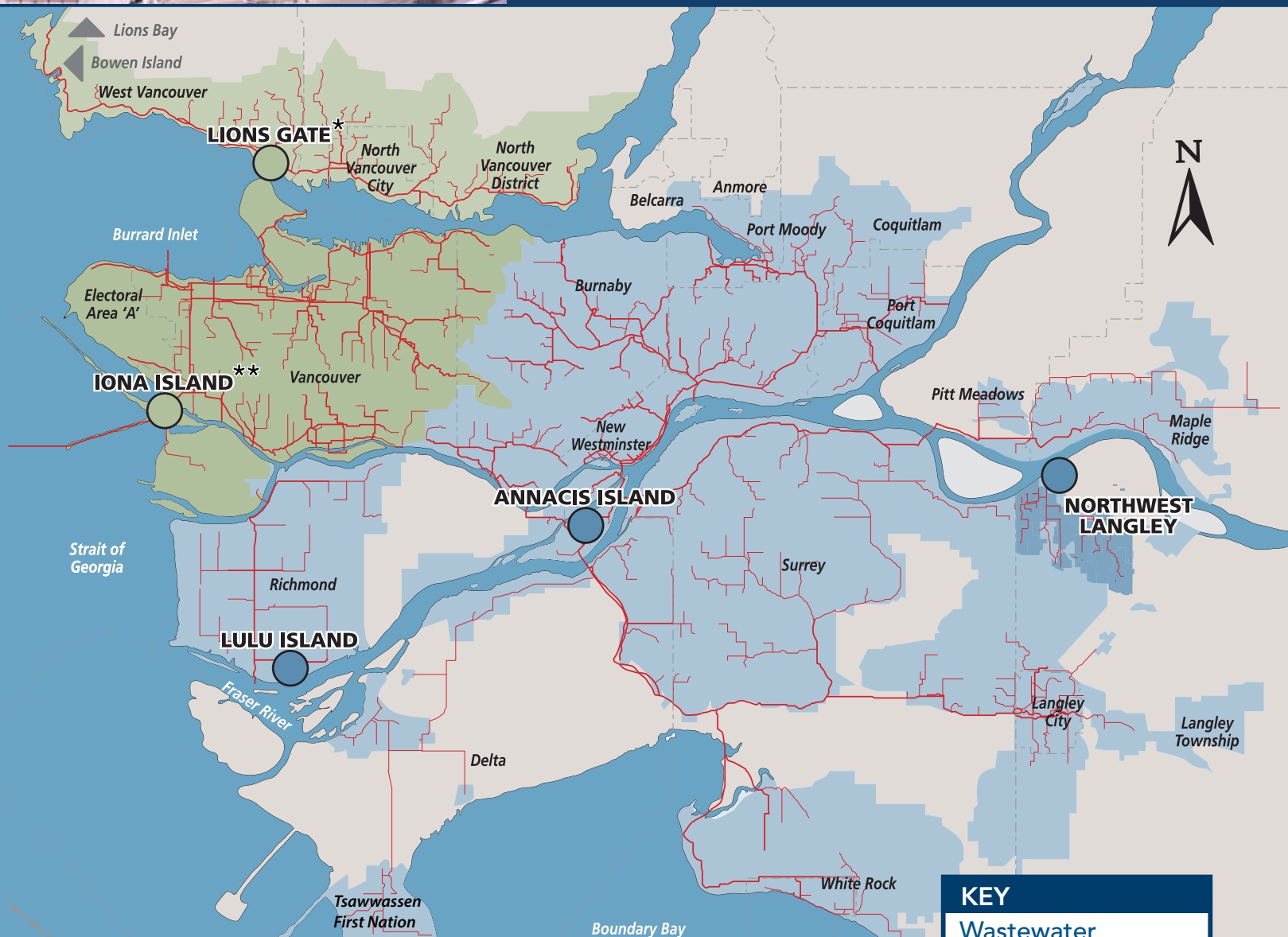
- Replace primary wastewater treatment plants with secondary plants
- Expand the region’s treatment capacity, to service a growing population





## Where does your wastewater go?

The Annacis Island Wastewater Treatment Plant handles the wastewater from over 1 million residents across 14 municipalities in the region.



### Metro Vancouver

is a federation of 22 municipalities, one electoral area and one Treaty First Nation. Its services include providing drinking water, liquid and solid waste management, growth management planning, affordable rental housing and regional parks.

\* Upgrading to secondary treatment plant by 2020

\*\* Upgrading to secondary treatment plant by 2030

### KEY

Wastewater treatment plants:

● Primary

● Secondary

— Wastewater pipes

White area is land that is not provided with Metro Vancouver's wastewater collection and treatment services



Every year we send enough wastewater to our five treatment plants to fill BC Place 177 times. That's a lot of flushes!

## Sustainable wastewater management

We can all play a role in protecting our health and the environment by being careful about what we put in our wastewater.

### Metro Vancouver is working to:

- Reduce pollutants going down the drain by educating residents, business and industry
- Maintain and make the best use of existing wastewater infrastructure
- Expand and upgrade existing wastewater treatment facilities to meet the needs of a growing region
- Find cost-effective ways to keep local waterways healthy

### What you can do:

- Keep paint, pesticides, medicine and chemicals out of the drain (especially products marked as poisonous, flammable, corrosive or explosive). Look for products that are low in phosphates.
- Use smaller amounts of soap, laundry detergent, dishwashing soap and other cleansers. Because our region has soft water, we can use half the amount the package recommends (or less) and still get good results.
- Only put toilet paper and human waste down the toilet. Wipes and other products can clog our sewers.
- Wipe cooking oils and grease with a paper towel and put them in your organics bin for collection.
- Avoid using garburators – composting is a better alternative and puts less strain on our wastewater treatment system.

### To find out more go to:

[www.metrovancouver.org](http://www.metrovancouver.org) (search: wastewater treatment)

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