



**WATERWAY
HEALTH**

**FACT
SHEET**

Volume and velocity in Ipswich waterways



In urban areas the landscape is covered by hard, impervious surfaces such as concrete and bitumen. Rainfall is unable to soak into the soil and instead rushes into waterways causing damage and worsening flooding.

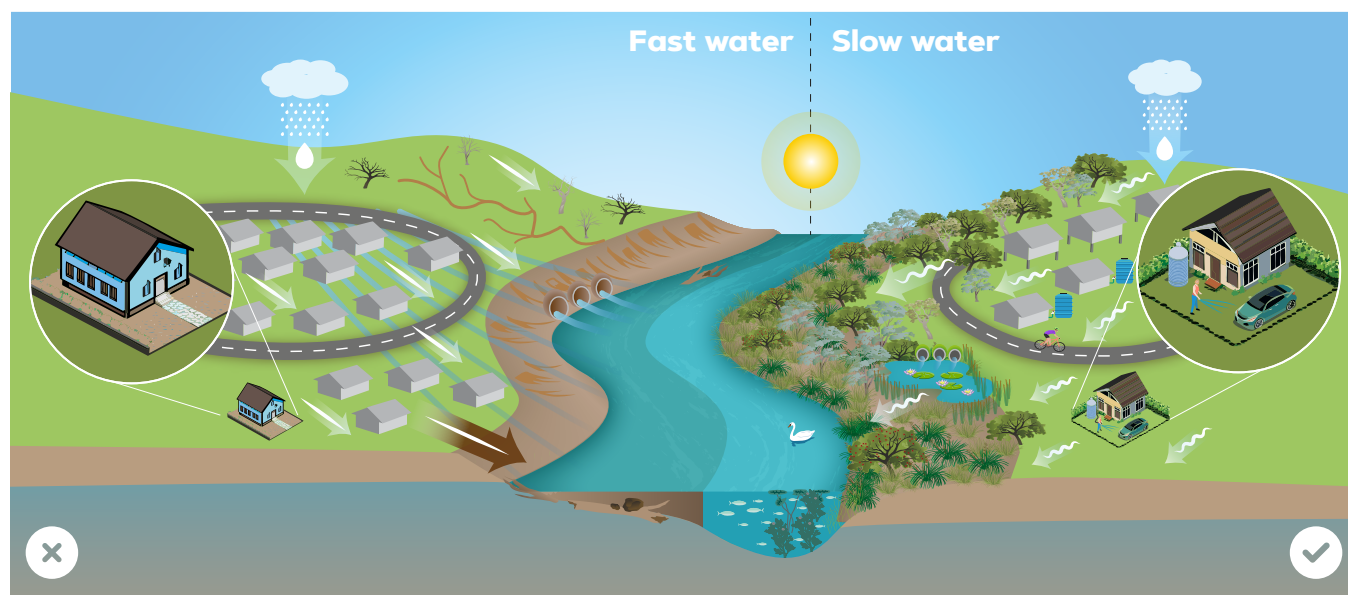
The increased volume and velocity of stormwater runoff is a significant contributor to problems impacting Ipswich waterways. It carries more pollution, worsens erosion and damages vegetation.

Urban planning and design has an important role in the volume and velocity of stormwater that runs off roads, roofs, pavement and other hard surfaces. In the past, stormwater has been seen as a 'nuisance' to be removed as quickly as possible. As a result, natural waterways have been replaced with pipes and concrete channels that remove water quickly from one area but cause issues downstream.

A different approach called 'water sensitive urban design' views stormwater as a valuable resource. One of its aims is to create solutions that slow stormwater runoff and allow it to infiltrate the soil, bringing benefits for our communities, our urban environment and our waterways.



VOLUME AND VELOCITY IN ACTION



FAST WATER: Vegetation clearing reduces the ability of the landscape to absorb water. Floodplains and wetlands are disconnected and built on, removing their function. Hard surfaces such as buildings and roads cover the landscape right up to the waterways. Creeks are turned into concrete underground drainage channels which empty high velocity water straight into creeks and rivers.

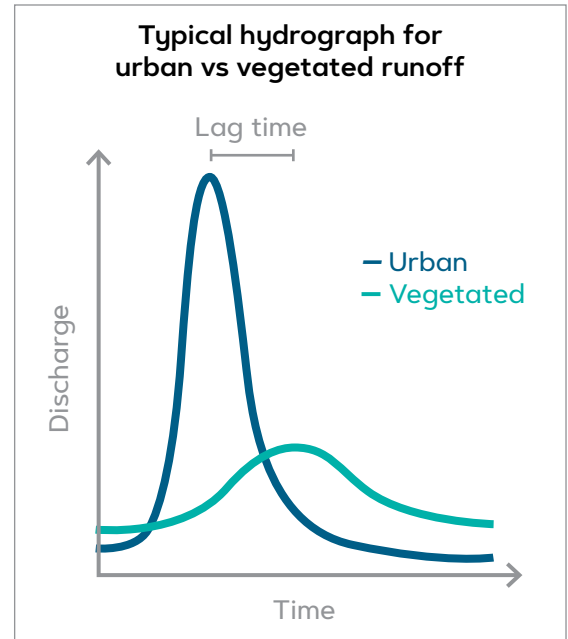
SLOW WATER: Well-vegetated areas capture and slow water so that most of it is absorbed or evaporates. Floodplains and wetlands are preserved in the landscape. Water sensitive urban design features slow and filter urban stormwater runoff and provide benefits such as irrigating sports fields. Households minimise stormwater entering the kerb and pipes by using tanks and diverting runoff to gardens.

IMPACTS OF VOLUME AND VELOCITY

We live in a subtropical climate where we can have sudden storms and rain events that deliver significant volumes of rainfall in a short period of time.

When these volumes of water hit the hard surfaces of an urban area and are transported rapidly through pipes and concrete drains it can cause a range of additional impacts, such as:

- elevated levels of nutrients and pollutants carried from land to water
- waterway channels damaged by erosive force of flows
- damage to vegetation along banks and waterway corridors, removal of in-stream habitat
- damage to infrastructure and downstream communities, which experience higher peak flows
- downstream channels unable to handle volume, water 'backs up' and worsens flooding.



CASE STUDY SMALL CREEK, RACEVIEW

Small Creek was once a meandering stream that flowed into Deebing Creek.

In the early 1980s, as the area became urbanised, the creek was replaced with a concrete drain.

Almost 20 years later, Ipswich City Council launched a significant project to reinstate sections of Small Creek as a living waterway with native vegetation, pools and riffles of running water and community access.

- Thousands of cubic metres of soil were removed to create deeper pond sections
- Concrete aprons under the road were modified to allow fish passage
- Thousands of native plants suited to local waterways were installed.

The benefits of this project included:

- slowing urban stormwater runoff and allowing natural filtration
- removing significant sediment, nitrogen and phosphorous from the waterway each year
- providing cooler water and habitat for native fish species
- reducing the air temperature by up to 2°C around the creek corridor
- providing important path and bikeway connections for residents and school students.



WATER SENSITIVE URBAN DESIGN

With one of Australia's fastest growing populations, Ipswich has seen rapid change in its landscape from forested woodlands and farmland to urban environments.

'Traditional' urban design sees absorbent natural vegetated landscapes replaced with hard surfaces and changed through levelling and grading. Natural waterways are replaced with gutters, pipes and channels. Floodplains and wetlands are built on or cut off from their water source.

A different way of thinking about our cities, called Water Sensitive Urban Design (WSUD) seeks to plan and design urban environments in a way that

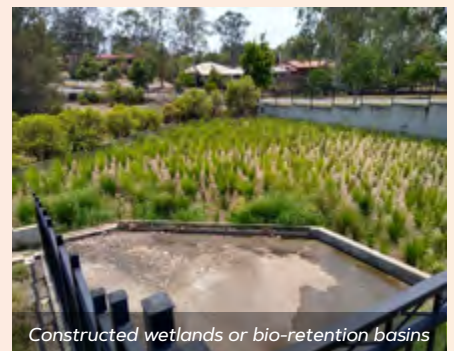
minimises our impact on the natural water cycle and supports healthy ecosystems through the smart management of water.

WSUD is also beneficial for communities as it supports liveable cities with benefits such as urban cooling, increased recreation opportunities and reduced flooding impacts.

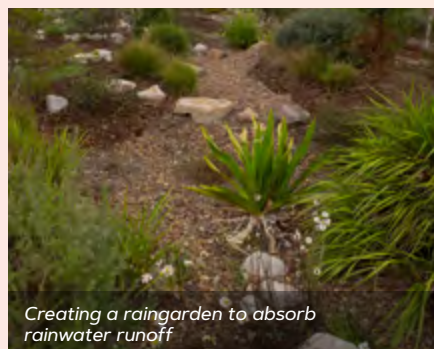
- Minimise impervious areas
- Minimise use of formal drainage such as pipes
- Preserve natural features and functions
- Encourage water to infiltrate the soil
- Use stormwater as a resource.

WHAT DOES WATER SENSITIVE URBAN DESIGN LOOK LIKE?

WSUD can take many forms, here are just a few examples of how it is used in Ipswich:



You can also use WSUD principles at home. It's about seeing stormwater as a valuable resource and using as much of it on your property as you can.



WHAT YOU DO MATTERS!

Storing as much rainfall as we can on our properties can save both money and the environment. Having a rainwater tank and using it effectively is one of the easiest ways of reducing the volume and velocity of urban stormwater runoff.

Benefits of tanks

Tank water can significantly reduce demand for drinking water – and your household water bill – if used for flushing toilets, washing clothes and cars, and watering gardens.

Tanks can also reduce the harm to our waterways caused by too much stormwater by reducing runoff and peak flows.

Using your tank

Make sure to use up tank water. Tanks are fitted with an overflow mechanism, meaning once a tank is full the excess water goes straight into stormwater drainage, losing all your benefits.

In the days leading up to a forecast large rain event, make sure to empty your tank as much as possible. This will provide fresh water to your tank and help reduce runoff entering stormwater drains.

Caring for your tank

Have your tank inspected for the accumulation of sediment on the tank floor.

Make sure to clean your gutters regularly of leaves and debris and install a leaf trap on the inlet. Cut back branches that are overhanging your roof or gutters.

If your tank has a 'first flush' device make sure it is cleaned after each heavy rainfall event.



Make sure your tank inlet, overflow and inspection ports are covered with insect proof mesh to prevent mosquitos and other insects. If any mesh is damaged or missing, replace it as soon as possible.

"Stormwater is a valuable resource and we need to stop it escaping down our drains!"

