# Western Australian Stormwater Management Objectives

**Water Quality**
To maintain or improve the surface and groundwater quality within the development areas relative to pre development conditions.

**Water Quantity**
To maintain the total water cycle balance within development areas relative to the pre development conditions.

**Water Conservation**
To maximise the reuse of stormwater.

**Ecosystem Health**
To retain natural drainage systems and protect ecosystem health.

**Economic Viability**
To implement stormwater management systems that are economically viable in the long term.

**Public Health**
To minimise the public risk, including risk of injury or loss of life, to the community.

**Protection of Property**
To protect the built environment from flooding and waterlogging.

**Social Values**
To ensure that social, aesthetic and cultural values are recognised and maintained when managing stormwater.

**Development**
To ensure the delivery of best practice stormwater management through planning and development of high quality developed areas in accordance with sustainability and precautionary principles.

# Western Australian Stormwater Management Principles

- Incorporate water resource issues as early as possible in the land use planning process.
- Address water resource issues at the catchment and sub-catchment level.
- Ensure stormwater management is part of total water cycle and natural resource management.
- Define stormwater quality management objectives in relation to the sustainability of the receiving environment.
- Determine stormwater management objectives through adequate and appropriate community consultation and involvement.
- Ensure stormwater management planning is precautionary, recognises inter-generational equity, conservation of biodiversity and ecological integrity.
- Recognise stormwater as a valuable resource and ensure its protection, conservation and reuse.
- Recognise the need for site specific solutions and implement appropriate non-structural and structural solutions.

# Stormwater Delivery Approach for WA

**Protect water quality**
*Stormwater remains clean and retains its high value*

Implement best management practice on-site.
Implement non-structural controls, including education and awareness programs.
Install structural controls at source or near source.
Use in-system management measures.
Undertake regular and timely maintenance of infrastructure and streetscapes.

**Protect infrastructure from flooding and inundation**
*Stormwater runoff from infrequent high intensity rainfall events is safely stored and conveyed*

Safe passage of excess runoff from large rainfall events towards watercourses and wetlands.
Store and detain excess runoff from large rainfall events in parks and multiple use corridors.
Safely convey excessive groundwater to the nearest watercourse.

**Minimise runoff**
*Slow the migration of rainwater from the catchment and reduce peak flows*

Retain and infiltrate rainfall within property boundaries.
Use rainfall on-site or as high in the catchment as possible.
Maximise the amount of permeable surfaces in the catchment.
Use non-kerbed roads and carparks.
Plant trees with large canopies over sealed surfaces such as roads and carparks.

**Maximise local infiltration**
*Fewer water quality and flooding problems*

Minimise impervious areas.
Use vegetated swales.
Use soakwells and minimise use of piped drainage systems.
Create vegetated buffer and filter strips.
Recharge the groundwater table for local bore water use.

**Make the most of nature's drainage**
*Cost effective, safe and attractive alternatives to pipes and drains*

Retain natural channels and incorporate into public open space.
Retain and restore riparian vegetation to improve water quality through bio-filtration.
Create riffles and pools to improve water quality and provide refuge for local flora and fauna.
Protect valuable natural ecosystems.
Minimise the use of artificial drainage systems.

**Minimise changes to the natural water balance**
*Avoid summer algal blooms and midge problems and protect our groundwater resources*

Retain seasonal wetlands and vegetation.
Maintain the natural water balance of wetlands.
No direct drainage to Conservation Category Wetlands or their buffers, or to other conservation value wetlands or their buffers, where appropriate.
Recharge groundwater by stormwater infiltration.

**Integrate stormwater treatment into the landscape**
*Add value while minimising development costs*

Public open space systems incorporating natural drainage systems.
Water sensitive urban design approach to road layout, lot layout and streetscape.
Maximise environmental, cultural and recreational opportunities.

**Convert drains into natural streams**
*Lower flow velocities, benefit from natural flood water storage and improve waterway ecology*

Create stable streams, with a channel size suitable for 1 in 1 year ARI rainfall events, equivalent to a bankfull flow.
Accommodate large and infrequent storm events within the floodplain.
Create habitat diversity to support a healthy, ecologically functioning waterway.

**Note:** Selection of appropriate methods should be determined by site conditions.