

Waterways Direction

PLANNING, PROTECTION AND MANAGEMENT OF THE SHIRES WATERWAYS

Contents

WATERWAYS DIRECTION

| | |
|--|-----------|
| Contents | 2 |
| Executive Summary | 3 |
| Introduction | 4 |
| Challenges | 5 |
| Structure Plan | 6 |
| Aims & Objectives | 8 |
| Context | 9 |
| Key Directions | 16 |
| W1 Manage and Plan for Floodplain Risk and Floodplain Use..... | 16 |
| W2 Effective stormwater system planning..... | 17 |
| W3 Effectively manage the stormwater system..... | 21 |
| W4 Manage the Shire's natural waterways | 25 |
| Monitoring & Review | 29 |
| References | 30 |
| Glossary | 31 |



Broadwater Swamp

The Waterways Direction was adopted by Council on 10 June 2008 Minute No. 415.

This document represents the collaboration of information from a number of sources, including Government Plans and Policies, and plans and policies of Baulkham Hills Shire Council.

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Executive Summary

WATERWAYS DIRECTION

The Waterways Direction provides a statement of direction for the Shire. The Waterways Direction reflects Council's desired approach to guide the planning, protection, management and maintenance of the Shire's waterways.

The Direction has identified opportunities and mechanisms (both regulatory and non-regulatory) to improve the means by which waterways are planned for and managed. It facilitates a whole-of-Council approach to achieving high-quality, ecologically sustainable, and accessible waterway and riparian corridors that meet the needs of the community and the environment. It contains four Key Directions, supported by objectives, strategies and actions. It also identifies responsibility for each action.



Hunts Creek

KEY DIRECTIONS AND OBJECTIVES

W1 Manage and plan for floodplain risk and floodplain use

- Reduce the risk and impact of flooding and flood liability

W2 Effective stormwater system planning

- Water is considered a material planning consideration
- To be an industry leader in water management and planning, by creating a catalyst for change and thinking beyond current 'Best Practice'
- Apply a holistic and multi-disciplinary approach to water planning
- Maximise partnership opportunities in stormwater management and planning

W3 Effectively manage the stormwater system

- Water assets are both maintainable and maintained
- Maximise Water Sensitive Urban Design and Water Re-Use opportunities in the planning and management of water
- Soil controls and potential impacts are considered during planning and construction

- Health and safety is addressed in water planning and management

W4 Manage the Shire's natural waterways

- Natural waterways and riparian land is protected, restored and reinstated
- Holistic and multi-disciplinary approach to natural water management
- Inform and raise awareness amongst community groups and residents of Council's management of water
- Improved waterway health through effective implementation of the Waterways Direction, BHSC Water Guide and works program
- European and Aboriginal heritage is incorporated into the management of water



Introduction

WATERWAYS DIRECTION

Waterway environments can include natural creeks and rivers, rehabilitated channels, constructed wetlands, man-made stormwater systems and detention basins, as well as open water bodies and wetlands.

Within the urban context waterways are often the link along, and between areas of, open space as well as serving an important urban support function. Waterways are an integral part of the rural environment both as a resource and as part of the ecosystem. They are also a source of recreation, providing the community with a “river experience”.



Broadwater Swamp

The Local Government Area of Baulkham Hills Shire straddles the catchments of the Hawkesbury River and the Upper Parramatta River. The northern rural areas of the Shire drain to the Hawkesbury River, while the southern urban areas of the Shire drains to the Parramatta River and ultimately Sydney Harbour.

The Shire has 39 major sub-catchments, being drained by over 900 kilometres of natural and constructed waterways in varying condition, from near pristine to severely degraded.

Council has functional responsibilities for the natural waterways, floodplains and constructed stormwater assets within the Shire, along with obligations under various State Government legislation and policy. Core activities for waterways management include:

- Stormwater system planning;
- Stormwater system management;
- Natural waterways at the urban bushland interface and within rural lands; and
- Floodplain management.

Within the framework of Commonwealth and State legislation and standards, Council has the responsibility to manage portions of the water cycle within its area. While Sydney Water manages the metropolitan water supply and some of the stormwater trunk drainage network in the area, Council manages water functions in relation to waterways and systems, riparian land, floodplains and sustainable stormwater management, treatment and re-use.

The planning and management of waterways within the Shire has up until recently been considered within the broader functions of Council's parks and infrastructure management.

Council now provides for a specific and direct focus on the management of its natural and man-made waterway assets. However, the planning and integration of waterways management with other management elements within Council and the broader planning directions of the State Government are still essential to ensure that an environmentally sustainable, community accepted and cost effective program is developed and delivered. The Waterways Direction seeks to provide this integrated direction for Baulkham Hills Shire Council.



Ducks in Turkey's Nest Reserve Beaumont Hills

Challenges

WATERWAYS DIRECTION

The size and unique diversity of the Shire's waterways presents many challenges for the management of environment and leisure spaces.

Council's primary challenge is to balance the needs of the community and the environment on a daily basis, whilst managing development pressures created by Sydney's increasing needs.

The Waterways Direction, together with other Council Directions, seeks to respond to this challenge.

KEY CHALLENGES







- The extent and size of the Shire's waterways and range of ecosystems encompassed within them.
- The complex and dynamic nature of waterways and catchments, which cross administrative boundaries and requires the coordination and cooperation of a number of stakeholders.
- The need to meet the needs of the current and future population in an economic and timely manner.
- Balancing the opportunities provided by, and the limitations of, environmental and planning legislation.



Cattai Creek in flood, in the vicinity of McClymonts Road

BAULKHAM HILLS SHIRE WATERWAYS STRUCTURE PLAN

KEY

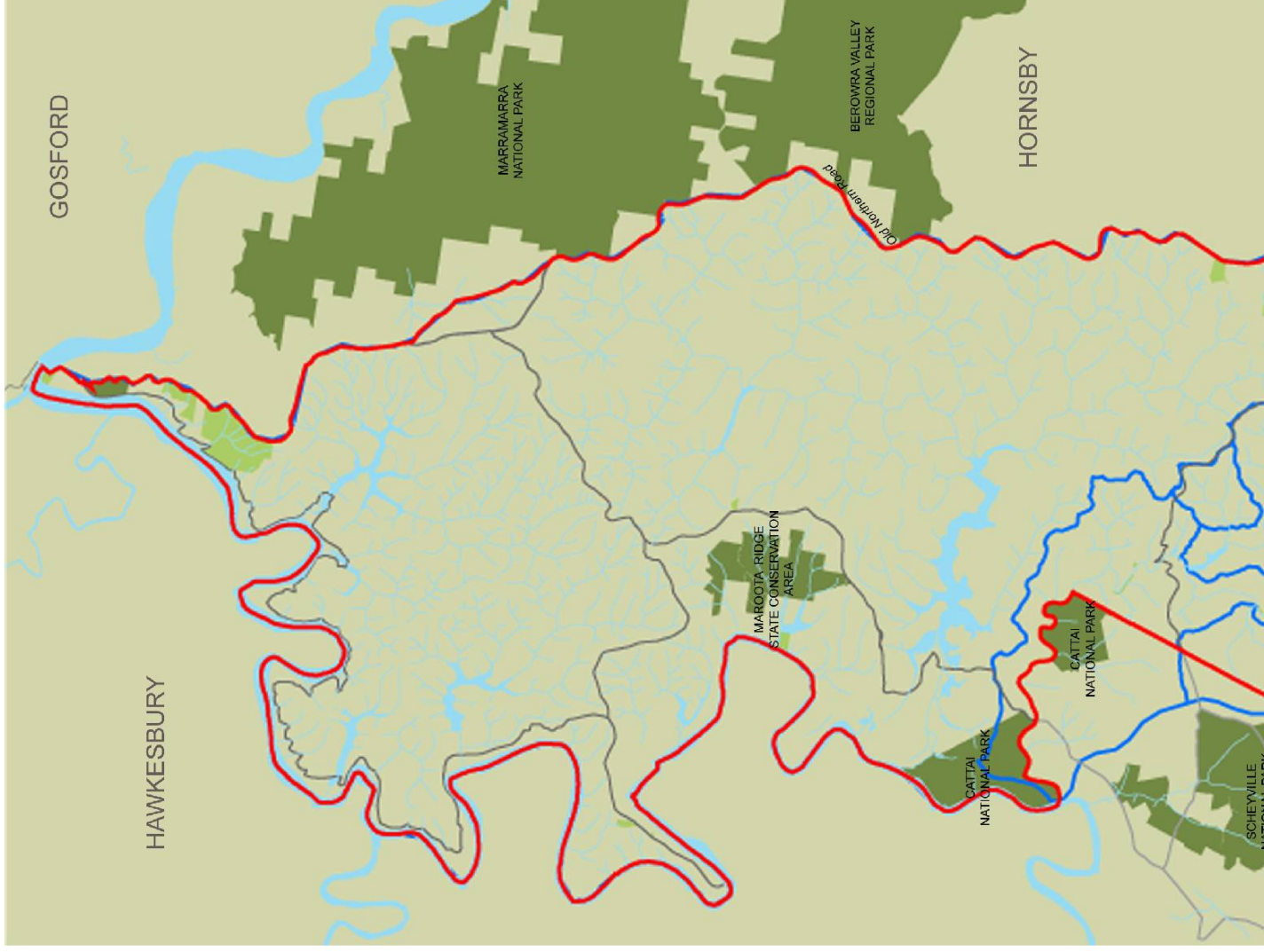
-  LGA Boundary
-  Rural Land
-  Urban Land
-  Water Bodies
-  Catchment Boundaries
-  Major Roads
-  Growth Centre Precinct

OPEN SPACE

-  National, State and Regional Parks
-  Local Parks

CENTRES

-  Specialised Centre
-  Major Centre
-  Town Centre
-  Planned/Potential Town Centre



Stormwater



Blue Gum Creek



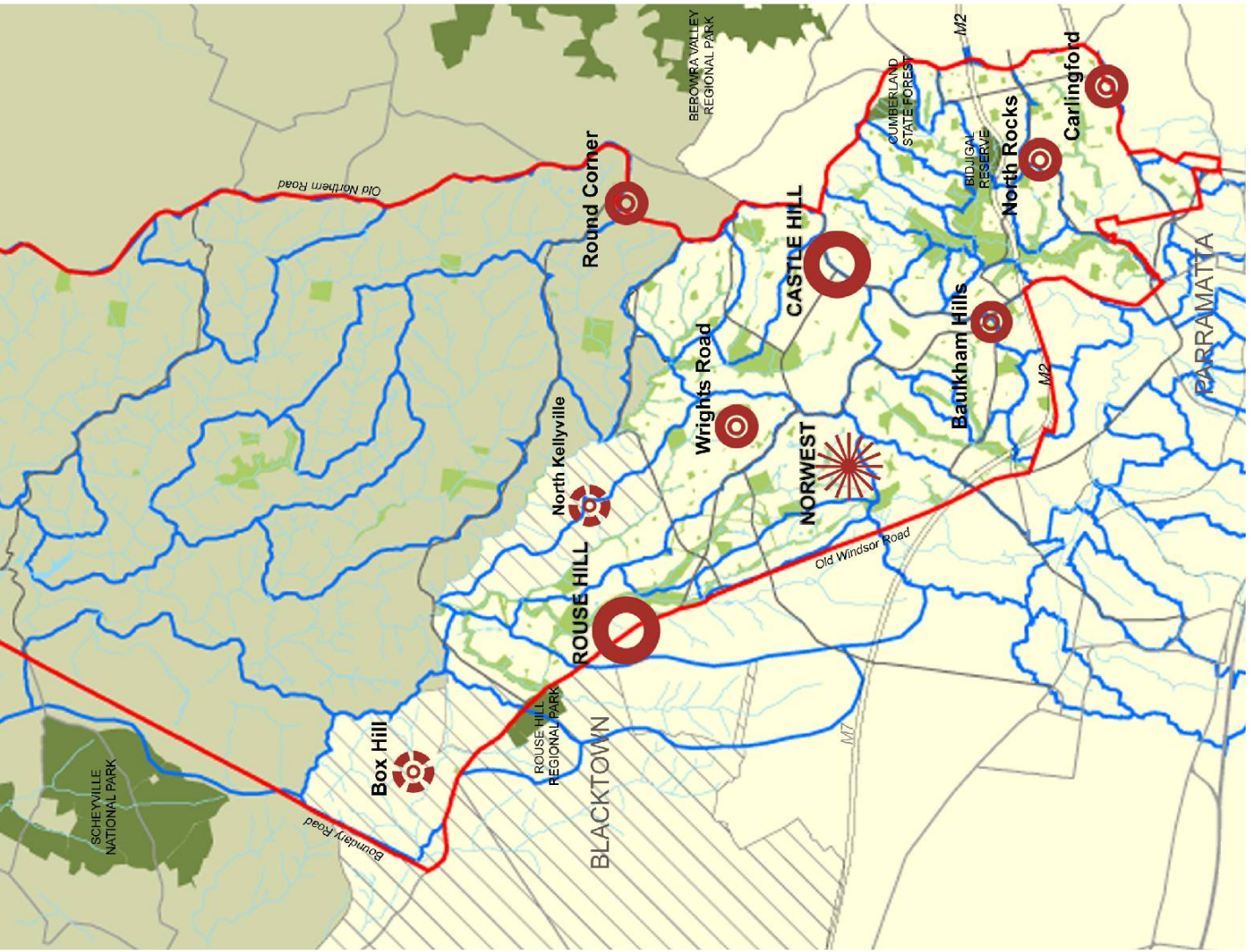
Erosion and Sediment Control



Broadwater Swamp



Water Quality Testing



Aims & Objectives

WATERWAYS DIRECTION

AIM

To provide direction for the long term planning, protection and management of the Shire's waterways in order to meet the existing and future needs of the population.

The objectives of the Waterways Direction are:

- a *To identify and plan for the ongoing protection and management of all the Shire's waterway systems;*
- b *To respond to, and implement State Government legislation, policy and plans;*
- c *To provide integration and correlation between all programs of Council regarding the planning, protection and management of waterway systems within the Shire;*
- d *To inform the drafting of Council's LEP and DCP with regard to statutory provisions concerning stormwater management, floodplain management and waterway systems; and*
- e *To ensure that the natural character of the Shire is preserved and protected.*

The Waterways Direction reflects Council's desired approach to guide the planning, protection, management and maintenance of the Shire's waterways. The Direction has identified opportunities and mechanisms (both regulatory and non-regulatory) to improve the means by which natural and constructed waterways are managed and planned for. It facilitates a whole-of-Council approach to achieving high-quality, ecologically sustainable, and accessible waterways and riparian corridors that meet the needs of the community and the environment.

It is recognised that some aspects of the Waterways Direction will overlap with other Directions, principally the Environment and Leisure Direction, but also the Residential Direction and Rural Lands Strategy. Elements such as open space, bushland conservation and urban development are all related to how waterway systems function. The Waterways Direction will support but not replicate the strategies and actions contained in other Directions.



Webbs Creek, Hawkesbury River

This Direction identifies four key direction areas, supported by objectives, strategies and actions. It also identifies responsibility within Council for each action or target identified. This will assist in monitoring the effectiveness of the Direction and ensure that the document is relevant and valued.

Context

WATERWAYS DIRECTION

One of the principal objectives of the Waterways Direction is to respond to, and implement State Government legislation, policy and targets outlined in its Plans and Strategies. The Waterways Direction also forms part of a suite of strategic work to drive and underpin future land use planning in Baulkham Hills Shire.

It will principally inform the Local Strategy, which will in turn inform the drafting of the Baulkham Hills Local Environmental Plan, Development Control Plan and Contributions Plans.

It is therefore important to understand the context within which the Waterways Direction operates. A summary of relevant State Government programs and Council plans is provided below:

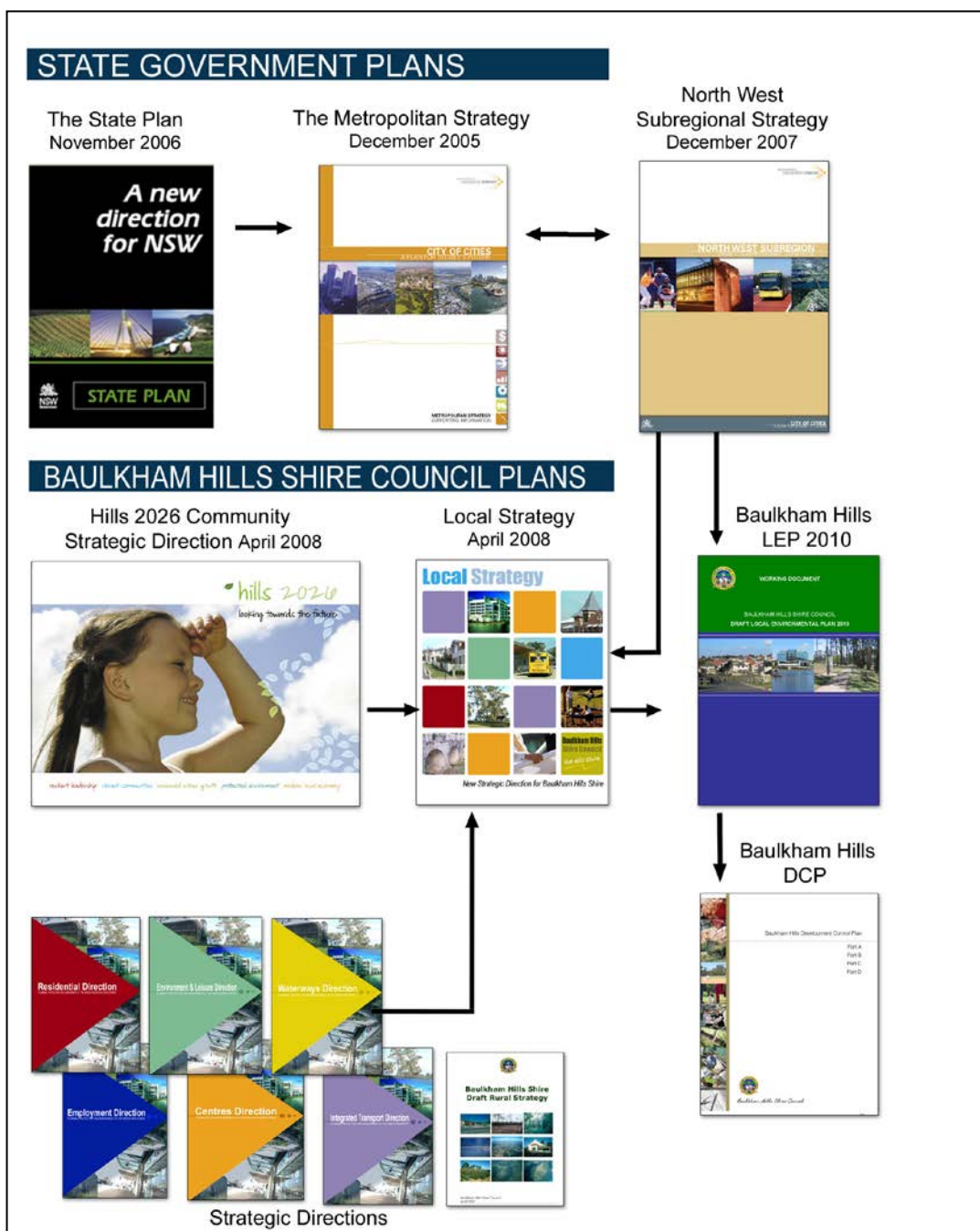


Figure 1 Context of Waterways Direction

Context

WATERWAYS DIRECTION

NEW SOUTH WALES STATE PLAN

The State Plan was launched by the Premier on 14 November 2006 with the overall purpose being to deliver better results for the NSW community from government services. The State Plan identifies 34 priorities under five broad areas of activity and sets targets, actions and new directions for each priority area.

The State Plan targets in relation to Waterways include:

E4 Better outcomes for native vegetation, biodiversity, land, rivers and coastal waterways (Lead Agency: NSW Department of Water and Energy)

Target: Meet NSW Government targets for protection of our natural environment.

"5. By 2015 there is an improvement in the condition of riverine ecosystems.

7. By 2015 there is an improvement in the condition of important wetlands and the extent of those wetlands is maintained."

The strategies and actions contained in the Waterways Direction are consistent with the above State Plan objectives and targets.

STATE GOVERNMENT POLICY

There are a number of other State Government policies, plans strategies and guidelines that guide, direct and influence Council's planning and management of waterway systems.

FEDERAL GOVERNMENT LEGISLATION AND POLICY

A number of Federal Government policies and acts also guide, direct and influence Council's planning and management of waterway systems.

State Government Plans and Policy

- Sydney Metropolitan Catchment Management Authority (SMCMA) Catchment Action Plan
- Hawkesbury-Nepean Catchment Management Authority (HNCMA) Catchment Action Plan
- NSW Flood Prone Land Policy (Floodplain Development Manual 2005)
- NSW State Rivers and Estuaries Policy, 1992
- NSW Biodiversity Strategy, 1999
- NSW Weirs Policy, 2000
- NSW Fisheries Policy and Guidelines for Aquatic Habitat Management and Fish Conservation, 1999
- Policy and Guidelines for Fish Friendly Waterway Crossing, 1999
- Stormwater Management Plans
- UPRCT Green Corridor Vegetation Management Strategy, 1999
- SEPP 4 – Development without consent and miscellaneous exempt and complying development.
- SEPP 19 – Bushland in Urban Areas
- SREP 9 – Extractive Industry (No. 2 1995)
- SREP 19 – Rouse Hill Development Area
- SREP 20 – Hawkesbury- Nepean River (No. 2 – 1997)

METROPOLITAN STRATEGY

“The Metropolitan Strategy, City of Cities: A Plan for Sydney’s Future” was launched by the Department of Planning in December 2005. The Metropolitan Strategy identifies the Sydney basin as the fifth (out of 85 bioregions) most biologically diverse region of Australia. It is surpassed only by areas such as the World Heritage listed wet tropics of Queensland and the Tasmanian wilderness. However 90% of riparian vegetation along rivers within the Sydney basin has been cleared and 50% of fresh water wetlands have been lost.

The Metropolitan Strategy requires Local Government to play a role in improving the health of waterways, coasts and estuaries, particularly the Hawkesbury-Nepean River in the Baulkham Hills LGA. New development is to be located and designed to meet the community’s needs and aspirations for our waterways and contribute to the many initiatives underway to improve the health of Sydney’s waterways. This includes the State Government’s *Metropolitan Water Plan 2004* which addresses population growth, climate change and the environment over the next 25 years.

Local Government can also influence programs that encourage water efficiency in Government facilities and businesses, as well as facilitating compliance with BASIX, the Building Sustainability Index, which requires a reduction of 40% in mains water supply of all new residential homes.



Richard Webb Reserve

To improve the health of waterways, coasts and estuaries, the Metropolitan Strategy requires councils to embed stormwater and catchment objectives and targets into local planning instruments and undertake stream mapping to identify regionally significant riparian corridors important for protection of aquatic and terrestrial biodiversity values and include in local planning instruments.

Local councils are also to work with the Catchment Management Authorities and local communities to link waterway health initiatives with urban renewal through provision of open space, better urban design and coordinated stormwater planning. The improved access to waterways and linkages between bushland, parks and centres is another key strategy of the Metropolitan Strategy.

NORTH WEST SUBREGIONAL STRATEGY

The North West Subregion is made up of the local government areas of Baulkham Hills, Blacktown, Blue Mountains, Hawkesbury and Penrith. Waterways within the subregion flow into two major catchments, the Hawkesbury-Nepean Catchment and the Upper Parramatta River Catchment.

The North West Subregional Strategy provides for the following strategies and actions:

- The Department of Planning and the Department of Environment and Climate Change to prepare a Section 117 Direction and supporting material on how stormwater is to be considered in the development of Draft LEPs and associated planning controls such as Development Control Plans (NWE2.1.1);
- Sydney Metropolitan and Hawkesbury–Nepean Catchment Management Authorities to work with agencies and north west councils to ensure that the aims and objectives of Catchment Action Plans are considered in the future management and planning of local council areas (NWE2.1.2);
- Sydney Metropolitan and Hawkesbury–Nepean Catchment Management Authorities work with State Agencies and north west councils to coordinate a regional approach to riverine values and wetlands, including identifying priority areas

Context

WATERWAYS DIRECTION

for management. Planning studies for any major redevelopment sites will include stream mapping to protect and enhance riparian corridors. (NWE2.1.3);

- Councils to seek advice from the Department of Primary Industries on the use of waterway zonings of the Standard LEP Instrument and other provisions to maintain and improve the health of both large and small waterways (NEW2.1.4);
- North west councils to continue to promote Water Sensitive Urban Design (NWE2.1.5);
- Department of Planning, with appropriate input from natural resource agencies, to prepare Section 117 Directions on how stream mapping is to be considered in protecting regionally significant riparian corridors, as well as broader natural resource issues, in the development of draft LEPs (NWE2.1.6);
- Sydney Metropolitan and Hawkesbury-Nepean Catchment Management Authorities, with the assistance of councils to undertake stream mapping to enable councils to develop planning controls to protect regionally significant riparian corridors (NWE2.1.7); and
- Councils are to plan for land affected by flooding in accordance with the State Government's *Flood Prone Land Policy* (NWE5.3.1).

The Waterways Direction, in particular the strategies and actions, will respond to and achieve many of the North West Subregional Strategy actions. Council will work closely with government departments in preparing the LEP 2010.

Council is preparing waterway and riparian corridor mapping and condition assessments for over 900 kilometres of urban and rural waterways across the Shire that will facilitate the development of a Natural Waterways Asset Management Plan. Likewise, constructed stormwater asset mapping and condition assessment throughout the Shire is being undertaken in preparation for a Stormwater Infrastructure Asset Management Plan.

Currently under development is a document entitled 'BHSC WaterGuide'. BHSC WaterGuide responds to Key Directions of the Waterways Direction together with a number of actions within the North West Subregional Strategy. Additionally, it will provide guidance in the preparation of Council's LEP and DCP which will also support the North West Subregional Strategy.

The Asset Management Plan and BHSC WaterGuide will assist in the development of Council's ongoing Waterways Capital Works Program. A prioritised list of water planning and management actions, the Waterways Capital Works Program supports objectives and actions of the North West Subregional Strategy by:

- identifying priority areas for action;
- supporting objectives of relevant Catchment Management Authority Catchment Action Plans; and
- approaching water planning and management holistically.

Local Government in NSW holds the primary responsibility for planning and management of flood prone lands. Council has an ongoing program of floodplain risk management projects, covering both urban and rural floodplains across the Shire. Council is already carrying out preparations and investigations in the development of Floodplain Risk Management Studies and Plans that address existing, future and continuing flood risks.



Broadwater Swamp

HILLS 2026 – LOOKING TOWARDS THE FUTURE

Hills 2026 Community Strategic Direction: Looking Towards the Future identifies the Shire's direction for the future and demonstrates how Council will align its delivery of services and facilities to support the direction. The Hills 2026 Community Strategic Direction also draws together all of the current Council planning processes under one clear direction, with the Waterways Direction supporting the achievement of identified directions and actions.

A number of actions are relevant to the planning and management of the Shire's waterways. In this regard, Council seeks to:

- Manage and maintain assets and infrastructure under Council's control to meet the needs of our community and future generations;
- Maintain green space to reflect the Shire's natural 'green' character; and
- Monitor the natural qualities of the Shire's waterway networks to ensure pollution is minimised.



Our Vision

Resilient leadership creating vibrant communities balances urban growth protecting our environment and building a modern local economy

BAULKHAM HILLS SHIRE LOCAL STRATEGY

To build on Hills 2026 Community Strategic Direction, a Local Strategy has been prepared. The Local Strategy is the principal document for communicating the future planning and growth of the Shire. It provides detail on the longer term planning for the Shire which ultimately involves all sections of Council, in order to guide future decision making.

The Local Strategy is the key document articulating Council's response to the strategies and actions identified in the NSW Government's planning strategies, including those strategies and actions identified as the specific responsibility of Local Government. The Local Strategy will also be the key document to implement the key themes and outcomes of the 'Hills 2026 Looking Towards the Future', within the context of land use planning in the Shire. The Local Strategy will include a summary of the key directions, strategies and actions contained in the Waterways Direction. In this way the Direction will inform and influence the final Local Strategy.

Context

WATERWAYS DIRECTION



Figure 2 Context of Waterways Direction

BAULKHAM HILLS LOCAL ENVIRONMENTAL PLAN

Council is required to prepare a new LEP in accordance with the State Government's Standard Instrument (Local Environmental Plans) Order 2006, by March 2011. The Standard template prescribes a number of different zones with set objectives, permissible and prohibited uses, standard definitions, and special clauses.

The current Baulkham Hills Local Environmental Plan 2005 includes a Special Uses 5(c) (Trunk Drainage and Conservation) Zone. This zone's local trunk drainage and riparian land in the Kellyville / Rouse Hill Release Area, Balmoral Road Release Area, and Norwest. In other parts of the Shire the local trunk drainage system is contained within land zoned for open space. Local creek systems may also be contained within private land zoned for residential purposes.

The Standard Instrument mandates the following land use zones objectives and landuses which may be appropriate to use in zoning waterways.

The following zones are relevant to the Shire's waterways land:

- Zone RU3 Rural Landscape
- Zone RU6 Transition
- Zone R5 Large Lot Residential
- Zone SP2 Infrastructure
- Zone SP3 Tourist
- Zone RE1 Public Recreation
- Zone RE2 Private Recreation
- Zone E1 National Parks and Nature Reserves
- Zone E2 Environmental Conservation
- Zone E3 Environmental Management
- Zone E4 Environmental Living
- Zone W1 Natural Waterways
- Zone W2 Recreational Waterways

In order to inform the drafting of the LEP the Waterways Direction will highlight matters for consideration in determining which zones, objectives and types of land uses that may be appropriate in various locations.

BAULKHAM HILLS DEVELOPMENT CONTROL PLAN

The stormwater management section of the Baulkham Hills Development Control Plan currently requires Water Sensitive Urban Design (WSUD) measures to be implemented. These include:

- low impact building design;
- low impact landscape design;
- porous paving;
- rainwater utilisation – toilet, hot water;
- on-site filtration system;
- stormwater treatment system;
- infiltration or retention basin; and
- stormwater utilisation – irrigation.

In order to inform the review of the sections of the DCP containing controls on storm water management, the Waterways Direction will highlight matters for consideration.



Norwest Business Park

Key Directions

WATERWAYS DIRECTION

W1 MANAGE AND PLAN FOR FLOODPLAIN RISK AND FLOODPLAIN USE

Local Government in NSW holds the primary responsibility for planning and management of flood prone lands. This is undertaken in accordance with the NSW Government's Flood Prone Land Policy and guided by the Floodplain Development Manual (2005) and the new guidelines and changes to Section 117 Directions and EP&A Regulations on Flood Prone Land [Circular PS 07-003] 2007.

Councils are required to undertake Floodplain Risk Management Studies for all flood prone land within their LGA and adopt and implement Floodplain Risk Management Plans to address existing, future and continuing flood risk.

Mapping of land which is flood prone and incorporating this into Council's LEP and electronic database will provide for increased accessibility for the community and is an important task to assist Council in meeting the principal objectives of floodplain management.

The principal objectives of floodplain management are to:

- Reduce the social and financial costs from the risk associated with occupying the floodplain;
- Increase the sustainable benefits of using the floodplain;
- Improve or maintain floodplain ecosystems dependent on flood inundation; and
- Determining landuse categories which are compatible with the identified flood hazard.

Through implementation of the above floodplain practices and projects, further detailed on the action table below, processes will be in place to assist in achieving these objectives.



Flooding in Glenorie

W1.1

Objective: Reduce the risk and impact of flooding and flood liability

| Strategy | Action | Lead Team |
|--|--|---|
| 1.1.1 Identify land that is subject to flooding within the Shire | (a) Undertake flood studies for the Shire. | Waterways |
| 1.1.2 Increase knowledge and access to information regarding flood prone land within the Shire | (a) Map all flood prone land within the Shire. | Waterways Land and Spatial Information |

W2 EFFECTIVE STORMWATER SYSTEM PLANNING

Water is vital to environmental functionality and urban sustainability, and is a valuable asset and resource, ensuring its value as a material planning consideration. Council has a Stormwater System Planning responsibility to ensure the safe conveyance of stormwater, minimise stormwater impact on receiving waters and minimise health and safety risks to the general public.

Through effective water planning it is envisaged that Council becomes an industry leader by creating a catalyst for change and thinking beyond current 'Best Practice'. Effective water planning will achieve multiple outcomes (social, environmental and economical) through a holistic and multi-disciplinary approach that includes stormwater system planning for not only current but future generations.

Council's Waterways Team is preparing documentation entitled 'BHSC WaterGuide', a technical guideline which responds to and supports the Key Directions in the Waterways Direction.



Stormwater System

BHSC WaterGuide takes an objective driven – outcome based approach that provides a basis for how water is to be planned for and managed within the Shire of Baulkham Hills. BHSC WaterGuide is a holistic and integrated approach to water planning providing:

- direction for action through tabled key directions;
- guidance for innovative planning and management through categorised objectives;
- consistency with proposed development and design checklists;
- an outline of relevant legislation and statutory requirements; and
- mechanisms for review and evaluation to measure effective implementation and changes in catchment condition.

BHSC WaterGuide will provide guidance in the preparation of Council's LEP and DCP with respect to current best practice in stormwater, floodplain and waterways management, and will also provide direction in the delivery of the Works Program and Council's own operations.

Council's Waterways Team is currently progressing on the development of a Stormwater Infrastructure Asset Management Plan and a Natural Waterways Asset Management Plan. Together these plans will facilitate the preparation of a holistic Water Asset Management Plan that will consider all natural and constructed water assets within the Shire. The Water Asset Management Plan will provide guidance to further development of the Waterways Capital Works Program and the planning of stormwater systems for both current and future generations.

The Waterways Capital Works Program provides for a list of actions to manage both natural and constructed waterway systems throughout the Shire. The program supports Key Directions in the Waterways Direction and facilitates the necessary planning to achieve targets and objectives in line with that of current State Government plans, policies and strategies.

Key Directions

WATERWAYS DIRECTION

W2.1

Objective: Water is considered a material planning consideration

| Strategy | Action | Lead Team |
|---|--|-------------------------------|
| 2.1.1 Implement the Waterways Direction. | (a) Develop and have Council approve and adopt the Waterways Direction. | Waterways Forward Planning |
| | (b) Incorporate, where necessary, measures within the Waterways Direction into Council documents such as the Baulkham Hills DCP. | Waterways Forward Planning |
| 2.1.2 Council staff, stakeholders and government agencies are informed and aware of the Waterways Direction and BHSC WaterGuide and apply it where appropriate. | (a) Develop and run a series of workshops and training sessions and distribute letter to stakeholders and government agencies. | Waterways |

W2.2

Objective: To be an industry leader in water management and planning, by creating a catalyst for change and thinking beyond current 'Best Practice'

| Strategy | Action | Lead Team |
|---|--|--|
| 2.2.1 Implement the Waterways Direction and BHSC WaterGuide. | (a) Develop and apply the objectives and principles of the Waterways Direction and BHSC WaterGuide in the development process and project planning, construction and management. | Waterways Forward Planning Subdivision Control |
| 2.2.2 The BHSC WaterGuide to remain up to date and ahead of current trends. | (a) The BHSC WaterGuide is regularly reviewed and the amended version approved and implemented. | Waterways |

Objective: Apply a holistic and multi-disciplinary approach to water planning

| Strategy | Action | Lead Team |
|---|--|--|
| 2.3.1 Regional and catchment wide planning of water at the concept stage of development. | (a) Develop internal and external partnerships and multi-disciplinary teams. | Waterways Forward Planning |
| | (b) Consider multiple environmental parameters and their relationships (e.g. flora, fauna, habitat, heritage, soils) at a site specific, local and regional scale in Development Application Assessment and project planning and design. | Waterways Subdivision Control Development Control |
| | (c) Consider future development needs at the concept stage of subdivision development. | Subdivision Control Development Control Forward Planning |
| 2.3.2 Long term outcome approach to stormwater planning. | (a) Conduct a waterways health and stormwater asset mapping projects to facilitate the preparation of Asset Management Plans and to prioritise (and schedule) a works program. | Waterways |
| | (b) Consider future development and land use in water planning processes and documentation. | Waterways Forward Planning |
| | (c) Consider future community and asset requirements in water planning processes and documentation. | Waterways Operations |
| 2.3.3 Council departments / teams understand the importance of considering holistic water planning. | (a) Guidance for the application of principles and objectives of the Waterways Direction and BHSC WaterGuide is provided through training sessions and workshops. | Waterways |

Key Directions

WATERWAYS DIRECTION

W2.4

Objective: Maximise partnership opportunities in stormwater management and planning

| Strategy | Action | Lead Team |
|--|--|---|
| <p>2.4.1 Develop and maintain communications and partnerships with government agencies, educational institutions and business in stormwater management and planning.</p> | <p>(a) Through networking, contacting potential key partners, attending conferences/workshops etc., develop contacts and partnerships to work collaboratively in stormwater planning and water management projects within the Shire, to expand the scope, share knowledge and resources and improve access to funding.</p> | <p>Waterways Health and Environment</p> |



Cattai Creek

W3 EFFECTIVELY MANAGE THE STORMWATER SYSTEM

Council has the control and maintenance responsibility over the constructed stormwater assets within public land, except within Sydney Water trunk drainage lands. It is estimated that 45% of the constructed stormwater system in the Shire has been mapped, equating to some 375km of stormwater pipelines.

The constructed stormwater system provides an important function in conveying runoff from urban (and some rural) areas, generally for storm events ranging up to the 5 year or 20 year Average Recurrence Interval (ARI) and occasionally up to the 100 year ARI.

In order for Council to be able to properly manage the constructed stormwater system, it must have an accurate and up to date register of all the constructed stormwater assets within its area. Council is currently pursuing the

necessary information to provide a complete record of its stormwater infrastructure to assist in its on-going management.

Water Sensitive Urban Design (WSUD) is also an important component of stormwater management and provides a suite of techniques used to mitigate the impacts of urban development on the water cycle. These techniques, used in conjunction with each other, can achieve a reduction of flow rates generated from existing and new impervious surfaces, remove pollutants generated from the altered land use and harvest and reuse stormwater through effectively reducing the volume of water runoff at the source.

Currently, Council's Baulkham Hills Development Control Plan (BHDCP) requires proposed developments to implement at least two WSUD measures. The Waterways Direction supports implementation of mechanisms, however Council is investigating if the required number of suggested measures is suitable to achieve a desired outcome.

Key Directions

WATERWAYS DIRECTION

W3.1

Objective: Water assets are both maintainable and maintained

| Strategy | Action | Lead Team |
|--|--|---|
| 3.1.1 Maintenance requirements for both natural and constructed water assets are considered during the feasibility and concept design stages of development. | (a) Maintenance requirements and resources necessary for both natural and constructed water assets are identified. The ability of the responsible Council team(s) to meet those requirements and resources is ensured, before progression to detailed design and construction stages of development. (Resources and requirements include but are not limited to maintenance regime, total life cycle costs, personnel, equipment, access, safety). | Waterways Forward Planning Operations Subdivision Control Development Control |
| 3.1.2 Required maintenance of water assets is undertaken. | (a) Ensure the necessary asset management information is transferred to the appropriate Council team(s) when the water asset is approved, prior to construction. | Waterways Subdivision Control Development Control |
| | (b) Monitor water asset maintenance performance, requirements and regime, review and amend as necessary within the asset management program. | Waterways Operations |
| | (c) Regularly monitor ageing infrastructure and identify assets that require maintenance and upgrade. | Waterways |
| 3.1.3 Minimise environmental impact from construction and maintenance work practices. | (a) Training to be provided and appropriate work methods applied. | Waterways Health and Environment Parks and Reserves Operations |

W3.2

Objective: Maximise Water Sensitive Urban Design and Water Re-Use opportunities in the planning and management of water

| Strategy | Action | Lead Team |
|--|--|----------------------------------|
| 3.2.1 Apply the principles and objectives of the Waterways Direction and BHSC WaterGuide. | (a) Incorporate principles and objectives of the Waterways Direction and BHSC WaterGuide into Council's DCP. | Waterways Forward Planning |
| | (b) Develop checklists to be utilised in the development approval process. | Waterways Development Control |
| 3.2.2 Maximise opportunities to design and retrofit Council buildings, car parks and streetscapes. | (a) Identify opportunities and include any projects in the works program. Apply principles of the Waterways Direction and BHSC WaterGuide. Seek possible funding. Showcase as demonstration sites where appropriate. | Waterways |

W3.3

Objective: Soil controls and potential impacts are considered during planning and construction

| Strategy | Action | Lead Team |
|---|--|---|
| 3.3.1 Reduce and minimise the impact of erosive forces on channel form. | (a) Any development is to maintain flows below erosion threshold limits or apply appropriate techniques to minimise erosive impact on channel form. Guidance to this effect to be provided in the BHSC WaterGuide. | Waterways Development Control Subdivision Control |
| | (a) Improve compliance with sediment and erosion control requirements applied during all stages of construction and site establishment (pre and post construction) through enforcement and education programs. | Waterways Health and Environment Compliance |

Key Directions

WATERWAYS DIRECTION

W3.4

Objective: Health and safety is addressed in water planning and management

| Strategy | Action | Lead Team |
|---|--|-------------------------|
| 3.4.1 Minimise risk to health and safety of the public (including maintenance staff). | (a) Identify risks and implement solutions to reduce or eliminate those risks. | Waterways Operations |



Darling Mills Creek

W4 MANAGE THE SHIRE'S NATURAL WATERWAYS

Natural waterways within Baulkham Hills Shire drain to either of two iconic river systems in the Sydney basin. The northern rural areas of the Shire drain to the Hawkesbury River, while the southern urban areas of the Shire drains ultimately to the Parramatta River. Natural waterways within the Shire include rivers, creeks, wetlands and swamps and do not necessarily have to be continually inundated with water to be classed as a waterway.

The management of natural waterways is much broader than water conveyance and water quality. Natural waterways management is concerned with the protection, restoration and rehabilitation of waterways and adjoining land and due to the broad nature of water a holistic and multi-disciplinary approach to waterway management is essential.

Council's responsibility to manage the Shire's natural waterways, under Commonwealth and State legislation, plans, policies and strategies, is principally concerned with the following:

- protection and rehabilitation of terrestrial and aquatic ecology within riparian corridors and riparian lands;
- water quality;
- stream bed and bank stability;
- the societal influence of waterways – the return of a 'River Experience';
- floodplain management; and
- the protection of public and private infrastructure.

Natural waterways management is not restricted to the area of waterway inundated with water but a waterway corridor that includes areas of adjacent land that influences or is influenced by the waterway. This area of land is commonly referred to as riparian land. It is difficult to describe riparian land by a generic set of characteristics, features and buffer widths. There are many complex physical and biological interactions between the land and the water in these areas that do not respond to arbitrary criteria or management boundaries.

The state of the Shire's natural waterways varies greatly from poor to pristine. The mapped locations and assessed condition of all the Shire's natural waterways is not

currently available. However, Council's Waterways Team is currently progressing the development of a Natural Waterways Asset Management Plan that will have the location and condition of all natural waterways within the Shire mapped and relayed into Council's GIS.

In addition to the development of a Natural Waterways Asset Management Plan, the management of the Shire's natural waterways will be directed by the Waterways Direction, the 'BHSC WaterGuide' and the continuing development of the Waterways Capital Works Program.

W4.1

Objective: Natural waterways and riparian land is protected, restored and reinstated

| Strategy | Action | Lead Team |
|---|---|-----------|
| 4.1.1 Identify and categorise natural waterways and riparian land. | (a) Undertake waterways health assessment. | Waterways |
| 4.1.2 Implement findings of the Waterways Health Assessment. | (a) Use results to prioritise the waterways works program and review the prioritised schedule annually. | Waterways |
| 4.1.3 Undertake monitoring and works to improve water quality, quantity and corridor ecology. | (a) Through the works program address increased flows, pollutant control and capture, weed control and removal and waterway corridor enhancement. | Waterways |
| 4.1.4 Reinstatement natural flows and watercourses. | (a) Identification and feasibility studies for watercourse reinstatement. Feasible projects assessed for inclusion in the capital works program. | Waterways |

W4.2

Objective: Holistic and multi-disciplinary approach to natural waterways management

| Strategy | Action | Lead Team |
|--|--|-----------|
| 4.2.1 To manage water holistically by considering catchment wide conditions and processes and multiple environmental parameters. | (a) Develop internal and external multi-disciplinary partnerships. | Waterways |
| | (b) Water projects are to consider multiple environmental parameters and their relationships at a site specific, local and regional scale. | Waterways |
| 4.2.2 Long term outcome approach to natural waterways management. | (a) Water projects are to consider future development, land use, community and asset requirements. | Waterways |

W4.3

Objective: Inform and raise awareness amongst community groups and residents of Council's management of water

| Strategy | Action | Lead Team |
|---|---|---|
| 4.3.1 Enhance awareness of local waterways and encourage participation. | (a) In project identification, planning and/or concept design identify any key locations suitable for public participation activities, placement of informative signage and suitable public access. | Operations Parks and Reserves Waterways |
| | (b) Utilise local media and Council advertising and marketing material to inform and raise awareness. | Waterways Corporate Communications |
| | (c) Support and facilitate community groups and actions to improve the quality of waterways in the Shire. | Waterways Parks and Reserves |

W4.4

Objective: Improved waterway health through effective implementation of the Waterways Direction, BHSC WaterGuide and works program

| Strategy | Action | Lead Team |
|---|--|-----------|
| 4.4.1 Review the implementation of the Waterways Direction and BHSC WaterGuide. | (a) The Waterways Direction and BHSC WaterGuide is to undergo review after every 12 months and five year periods. | Waterways |
| | (b) Recommendations from the review of the Waterways Direction and BHSC WaterGuide are adopted. | Waterways |
| 4.4.2 Assess the effectiveness of the works program. | (a) Individual project evaluations to assess project strengths and weaknesses and site improvements. | Waterways |
| | (b) Monitor catchment health to record any changes in condition (water quality, stream and riparian condition and biodiversity). | Waterways |

W4.5

Objective: European and Aboriginal heritage is incorporated into the management of water

| Strategy | Action | Lead Team |
|--|---|---|
| <p>4.5.1 Identify and acknowledge European and Aboriginal heritage items and values.</p> | <p>(a) Utilise Council's LEP heritage listing and carry out desktop research, studies and site investigations during the project planning.</p> | <p>Waterways Forward Planning Subdivision Control Development Control</p> |
| | <p>(b) Investigate suitable sites to acknowledge heritage items and values in the landscape through the application of art, signage and creative landscape design as directed by the BHSC WaterGuide.</p> | <p>Waterways Parks and Reserves</p> |



Broadwater Swamp

Monitoring & Review

WATERWAYS DIRECTION

Evaluation and review of the Waterways Direction will be vital to its implementation and effectiveness. As a dynamic document, its content will be continually revised and amended to ensure innovation in the planning, management, and design of the Shire's waterway environs.

This will provide Council with an opportunity to monitor the status of completed actions and where targets are met, and will allow the Direction to be tailored to address changing demographic situations, State Government planning policies, and new or updated Council strategies.

Mechanisms for monitoring and measuring the progress of implementation for the Waterways Direction is essential. Much of the work anticipated in the Direction will form the core business and work program of Council's Waterways Section, with specific actions for Forward Planning. It is anticipated that an annual report will be formulated commenting on the progress in Key Direction Areas, objectives, strategies and actions.

It is intended that a major review of the Local Strategy and supporting Directions will be undertaken every five years in line with the regular review of Council's Community Strategic Direction and the LEP. Periodic review may also be appropriate as a result of changes to metropolitan planning policy, new infrastructure projects or completion of new strategic work by Council.

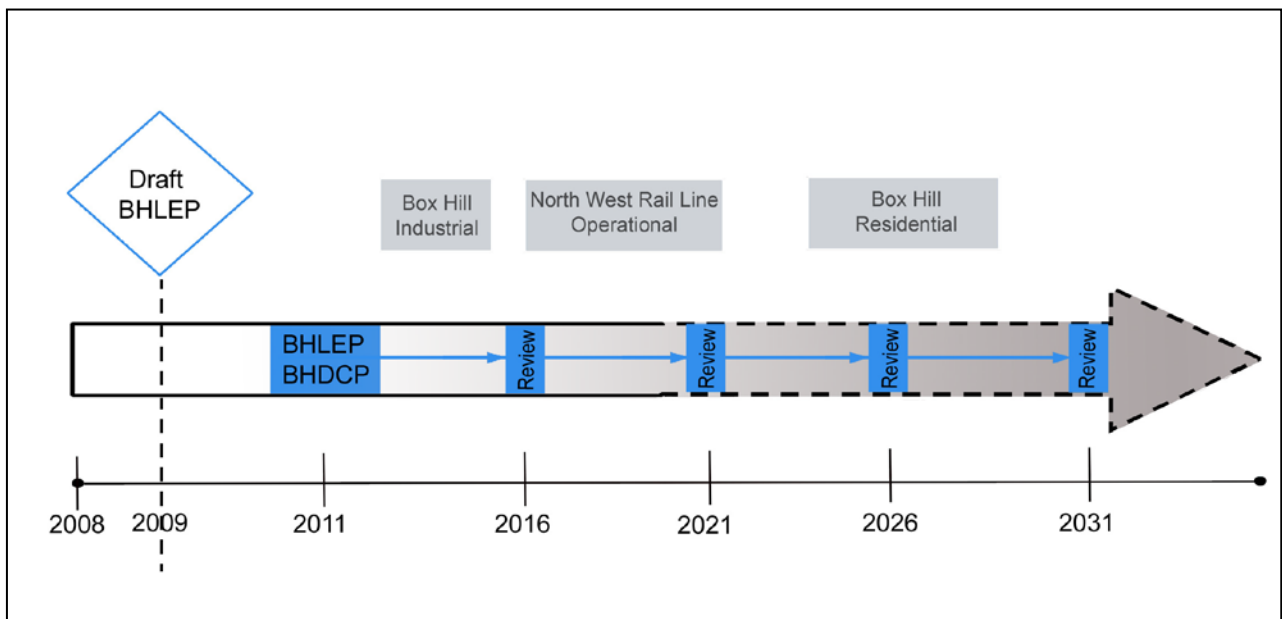


Figure 3 Timeline of LEP Review

References

WATERWAYS DIRECTION

Legislation:

- Environmental Planning & Assessment Act, 1979
- Environmental Planning and Assessment Act Regulation, 2000
- Fisheries Management Act, 1994
- Local Government Act, 1993
- National Parks and Wildlife Act, 1974
- Native Vegetation Act, 2000
- Noxious Weeds Act, 1993
- Protection of the Environment Administration Act, 1991
- Protection of the Environment Operations Act, 1997
- Soil Conservation Act, 1938
- Threatened Species Conservation Act, 1995
- Water Management Act, 2000
- Environment Protection and Biodiversity Conservation Act, 1999 (Commonwealth)

State Plans / Strategies:

- Metropolitan Strategy, *City of Cities: A Plan for Sydney's Future*, and Supporting Information, Department of Planning, December, 2005
- NSW State Plan, NSW Premier's Department, 2006
- Draft North West Subregional Strategy December, 2007
- Standard Instrument (Local Environmental Plans) Order, Department of Planning, 2006
- Sydney Metropolitan Catchment Management Authority (SMCMA) Catchment Action Plan
- Hawkesbury-Nepean Catchment Management Authority (HNCMA) Catchment Action Plan
- NSW Flood Prone Land Policy (Floodplain Development Manual 2005)
- NSW State Rivers and Estuaries Policy, 1992
- NSW Biodiversity Strategy, 1999
- NSW Weirs Policy, 2000
- NSW Fisheries Policy and Guidelines for Aquatic Habitat Management and Fish Conservation, 1999

- Policy and Guidelines for Fish Friendly Waterway Crossing, 1999
- Stormwater Management Plans
- UPRCT Green Corridor Vegetation Management Strategy, 1999
- SEPP 4 – Development without consent and miscellaneous exempt and complying development.
- SEPP 19 – Bushland in Urban Areas
- SREP 9 – Extractive Industry (No. 2 1995)
- SREP 19 – Rouse Hill Development Area
- SREP 20 – Hawkesbury- Nepean River (No. 2 – 1997)

Council Documents:

- Baulkham Hills Shire Community Survey – Report of Results, prepared by Elica Consultants, January 2007
- Baulkham Hills Shire Council State of the Environment Report (annual update)
- Draft Local Strategy
- Environmental Management Plan 2005 - 2010
- Hills 2026: Looking Toward the Future

Other:

Lovett, S. and Price, P. (eds), 2007, Principles for Riparian Lands Management, Land and Water Australia, Canberra

Websites:

Baulkham Hills Shire Council,
<http://www.baulkhamhills.nsw.gov.au>
Department of Environment and Climate Change
<http://www.environment.nsw.gov.au/index.htm>
Department of Planning
<http://www.planning.nsw.gov.au/>
NSW Heritage Office
<http://www.heritage.nsw.gov.au/>
NSW State Plan
<http://www.nsw.gov.au/stateplan/>
Parliamentary Counsel's Office
<http://www.legislation.nsw.gov.au/>
Sydney Metropolitan Strategy
<http://www.metrostrategy.nsw.gov.au/>

Glossary

WATERWAYS DIRECTION

| | |
|------------------------------|---|
| Aboriginal cultural heritage | Aboriginal cultural heritage refers to an archaeological site, land or place with ancestral, spiritual or historical connections or significance for Aboriginal communities. |
| Average Recurrence Interval | Measured in years, this is a term used to describe the frequency or probability of a rainfall event occurring. For example, a 100 year ARI event occurs (or is exceeded) on average once every 100 years. |
| BHSC WaterGuide | A guiding document providing a basis for the planning, design and management of floodplains, stormwater systems and natural waterways within Baulkham Hills Shire. |
| Catchment | An area of land draining to a particular waterway or location. |
| Catchment Action Plan | A document prepared by Catchment Management Authorities that highlights environmental issues of a regional area and identifies actions to address those issues. |
| DCP | A Development Control Plan is a Council document incorporating development controls to guide the preparation and assessment of development applications. |
| Detention basin | A storage area for stormwater runoff which reduces flows in downstream waterways. |
| Drainage land | Land specifically identified for major stormwater management. |
| Ecosystem | A system of interacting and interdependent relationships between a community of organisms and their physical environment. |
| European heritage | European heritage means a building, work, archaeological site, tree or place that is of particular significance to the community. Examples could include evidence of European settlement, significant landscapes, and developments in architecture that are of historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value. |
| Flood prone land | Land susceptible to flooding up to the probable maximum flood (PMF). Also called flood liable land. |
| GIS | Geographical Information System. A computer system that can retain and display numerous facets of land information. |
| LEP | Local Environmental Plan. |
| Local Strategy | The Local Strategy is the principle document for communicating the future planning and growth of the Baulkham Hills Shire to the year 2031. |
| Metropolitan Strategy | The Metropolitan Strategy: City of Cities 'A Plan for Sydney's Future' was prepared by the NSW Department of Planning, to plan for Sydney's growth over the next 25 years. The Strategy has five overarching aims: enhance liveability, strengthen economic competitiveness, ensure fairness, protect the environment, and improve governance. |

| | |
|---|--|
| Natural Waterways Asset Management Plan | A plan setting out the methods and priorities to maintain, improve, upgrade and rehabilitate all natural waterways in the Shire, having regard to matters such as location, condition and performance. |
| North West Subregion | The North West Subregion includes the local government areas of Baulkham Hills, Blacktown, Blue Mountains, Hawkesbury, and Penrith. ^{iv} |
| North West Subregional Strategy | The North West Subregion: Subregional Strategy has been prepared by the Department of Planning to translate the Metropolitan Strategy into a specialised strategy for each local government area grouping in Sydney. |
| Regionally significant riparian corridors | Areas of riparian land thought to be of regional significance due to a high level of aquatic and terrestrial ecological value. |
| Riparian land | Area of land adjacent to a waterway that influences or is influenced by the waterway. |
| Section 117 Directions | Section 117 of the Environmental Planning and Assessment Act 1979, gives the Minister for Planning the authority to incorporate specific directions into Local Environmental Plans. ^{iv} |
| Stormwater Infrastructure Asset Management Plan | A plan setting out the methods and priorities to maintain, improve and upgrade all stormwater assets in the Shire, having regard to matters such as location, condition and performance. |
| Water Asset Management Plan | Considers all natural and constructed water assets within the Shire. It will provide guidance to the development of the Waterways Capital Works Program and water system planning. |
| Water re-use | The collection and use of stormwater for a range of purposes where drinking water quality is not required. |
| Waterways | Any natural or constructed form which serves a water quality, quantity or conveyance purpose, including but not limited to, natural watercourses, piped drainage, channels, detention basins, and wetlands. |
| Waterways Capital Works Program | A prioritised list of scheduled and un-scheduled water planning and management actions. |
| Waterways Direction | One of the strategic directions that form the basis of the key directions in the Local Strategy. |
| WSUD | Water Sensitive Urban Design is a design methodology which seeks to ensure that development is planned, designed, constructed and maintained so as to minimise impacts on the total water cycle. |

Sources:

- ii Growth Centres Commission
- iii North West Subregional Strategy & Department of Planning website
- iv North West Subregional Strategy
- v Baulkham Hills LEP 2005



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