Melbourne Water

Principles for Provision of Waterway and Drainage Services for Urban Growth

Melbourne Water®

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The Place To Be

Contents

About Melbourne Water

Melbourne Water is owned by the Victorian Government. We manage Melbourne's water supply catchments, remove and treat most of Melbourne's sewage, and manage rivers and creeks and major drainage systems throughout the Port Phillip and Westernport region.

Under the Victorian Government's *Our Water Our Future* action plan, our boundary now extends from high up in the Yarra Ranges across to Ballan in the west, and from the Mornington Peninsula and Phillip Island north to Lancefield, covering an area of approximately 13,000 square kilometres.

We are a significant business, responsible for managing $8.4 billion of natural and built assets. Our annual operating revenue of more than $500 million is earned from water supply, sewage treatment and a catchment rate levied for waterways, flood and drainage management. This is used to fund our operations and infrastructure projects including water, sewerage and flood protection, as well as projects to improve and protect the health of Melbourne's rivers and creeks. We are committed to decision-making based on economic, social and environmental considerations.

An independent Board of Directors is responsible for the governance of Melbourne Water. The responsible Minister is the Minister for Water.

Our people have diverse skills and expertise, and range from environmental scientists to engineers and research and technology specialists, and we place a high priority on building strong partnerships and relationships in the government, industry and community.

Principles for Creating Development Services Schemes

Preface

A specially appointed Review Group of experienced people representing the development industry, local government and Melbourne Water established a set of principles to guide the preparation of development services schemes (formerly known as greenfield drainage schemes), which were adopted as Melbourne Water policy in September 2003.

A number of matters raised during the consultation with industry have been progressed through a joint Working Group.

The Working Group has been meeting regularly (about every three months) since April 2004 to discuss and address various issues relating to development services schemes. In late 2005, the Working Group agreed that it was appropriate to update the original principles and to also incorporate the principles relating to *Redevelopment Services Schemes, Works Outside of Development Services Schemes*, and *Stormwater Quality Offsets* into a combined *Melbourne Water Principles for Provision of Waterway and Drainage Services for Urban Growth* document.

On 1 January 2004, the Essential Services Commission (ESC) became responsible for the economic regulation of the Victorian water industry. This responsibility includes setting prices and service standards for regulated services provided by the State's water businesses.

The ESC has endorsed the development services scheme approach and the manner in which developer charges are calculated whereby the cost of all capital expenditure expected over the life of the scheme is recovered from developers in the form of developer contributions under the *Water Act 1989 (Vic) (the Water Act)*.

(Original) Review Group Members

The members of the Review Committee were:
Mark Bartley, Urban Development Institute of Australia
Chris Betts, Housing Industry Association
Bert Dennis, Urban Development Institute of Australia
Mike Ellis, Municipal Association of Victoria
Simon Holloway, Municipal Association of Victoria
John Maxwell, Association of Land Development Engineers
Fiona Nield, Housing Industry Association
Jim O'Donahue, Association of Land Development Engineers
Ross Young, (Chair) Melbourne Water

Working Group Members

Michael Brown, Melbourne Water
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Introduction

Melbourne Water established a Review Group in March 2003 to review the basic principles that underpin our approach to the creation of development services schemes (formerly drainage schemes). The original document consisted of:

- An endorsed set of 16 principles to guide the preparation and review of development services schemes
- An outline of Melbourne Water and local government drainage responsibilities
- A summary description of development services scheme and development corridor charging models.

This new document consists of a set of revised principles endorsed by the Working Group and industry stakeholder association members.

Melbourne Water

Melbourne Water is responsible for regional drainage, flood plain and waterway management, and for contributing to the protection and improvement of waterway health across greater Melbourne. These responsibilities are managed with a focus on sustainable social, environmental and economic outcomes.

In relation to regional drainage, flood plain and waterway management, Melbourne Water is a:

- Water Corporation and an Authority under the *Water Act*, with waterway management, regional drainage and floodplain management functions under Divisions 2, 3 and 4 of Part 10 of the *Water Act*. These functions include:
  - ensuring that adequate drainage and flood protection standards for development are achieved; and
  - ensuring that the bed and banks of waterways are protected and enhanced.
- Referral authority under the *Planning and Environment Act 1987* with the ability to specify conditions pertaining to the use or development of a property.

Development services schemes are prepared to plan the infrastructure required to ensure new urban development meets appropriate standards for flood protection, water quality, waterway health and amenity. Infrastructure requirements are costed and used to establish contributions under the *Water Act* that will apply to developers to fund the provision of infrastructure.

Drainage infrastructure is planned to service catchments downstream of the top 0.4 hectare in a greenfield development catchment.

Melbourne Water owns and maintains constructed assets downstream of the 60-hectare limit. The remaining assets are transferred to local councils following an agreed process.

Council

Councils are the responsible authorities for planning decisions made with reference to planning schemes that control land use and development. Planning schemes contain State and local planning policies, zones and overlays and other provisions that affect how land can be used and developed.

Councils are also responsible for managing local drainage infrastructure in catchments of less than 60 hectares, including ownership and maintenance of drainage assets.

Development Services Schemes (DSS)

The planning and provision of new infrastructure to support greenfield development within Melbourne Water's operational boundary (waterway management district) is usually managed using a development services scheme.

A development services scheme comprises a drainage strategy for an area together with a pricing arrangement that allows Melbourne Water to require developers to contribute to the cost of the construction of works by Melbourne Water in connection with a development. Planning permit referrals received from councils under the *Subdivision and Planning and Environment Acts* are one trigger for this process.

The strategy consists of functional designs for Melbourne Water (regional) and local council drainage assets, including works such as pipelines, overland flow paths, retarding basins, waterways, wetlands and gross pollution traps and identification of land to be set aside for these purposes.

The strategy ensures that planning for urban development is conducted on a catchment basis and meets appropriate standards for flood protection and environmental performance, including protection and enhancement of waterway and biodiversity values.

The infrastructure within the scheme is funded by financial contributions from developers or landowners when development occurs, with all developable properties contributing on the basis of land area and land zoning. Income from developer contributions is designed to equal planned expenditure of drainage infrastructure over the expected life of a development services scheme (typically 25 years).

Currently, there are in excess of 80 active development services schemes. Priority is given to preparing schemes in areas where new development activity is most concentrated. The aim is to ensure a scheme is prepared within three years of the start of a consistent pattern of significant subdivisional activity.

Annual financial reviews and engineering reviews at least once every five years, are required to ensure that expenditure on drainage growth infrastructure is matched by contributions.

Principles for Creating Development Services Schemes

Overview

Development charges serve two main purposes:

- Provide price signals regarding the cost of provision of drainage infrastructure for development. Reasonable development charges should reflect the cost of servicing developments including identifiable upstream and downstream effects, minimise cross subsidies and signal the relative costs of providing drainage infrastructure for growth
- Provide an equitable means of sharing costs of drainage infrastructure required for urban development.

The principles outlined in this document, together with Melbourne Water's legislative powers and principles adopted by the Council of Australian Governments (COAG) for Water Policy, are designed to provide an integrated solution to drainage, waterway and stormwater quality works including:

- Adoption of an integrated catchment approach to stormwater management
- User based pricing, full cost recovery and removal of cross subsidies that are not consistent with efficient and effective services
- Environmental requirements based on the best available scientific information
- Protection of waterway health and biodiversity values.

The principles are designed to meet the tests of equity, transparency and nexus, while facilitating development in a way that leads to positive social, economic and environmental outcomes.

Tests of the Principles

In order to assess whether a development services scheme accords with the principles set out in this document, the scheme design would be reviewed and the following tests applied to determine that:

- There is a reasonable basis for determination of the scheme boundary
- There is a nexus between contributions and the costs of the infrastructure required and that common costs are apportioned in an equitable manner to achieve a reasonable development contribution amount.

Design Standards for Development Services Schemes

A common set of hydraulic and environmental performance criteria are incorporated into the design of development services schemes. They are:

- All new developments will be provided with 1-in-100 year flood protection consistent with ResCode requirement
- The minor drainage system shall have a capacity to cater for a 1-in-5 year storm event
- Water quality treatment to 'Best Practice'* (currently 45% reduction in total nitrogen and phosphorous, 80% reduction in total suspended solids)
- Protection of the environmental, social (including heritage) and economic values of waterways.

The above criteria form the basis of the development services scheme strategy prepared for the catchment.

* As defined in Urban Stormwater: Best Practice Environmental Management Guidelines (Victorian Stormwater Committee 1999).

The Principles

1. There shall be no formal limit on the size of the scheme area.

The appropriateness of size will vary from scheme to scheme and is governed by nexus between contributing properties and infrastructure provision. This is likely to be closely related to the drainage characteristics of the land.

The minimum sizing of the scheme should achieve a direct relationship between land in the scheme and proposed drainage works, and should have regard to practical planning and administrative requirements.

2. The boundary of a scheme will be determined by the drainage characteristics of the land.

The best boundary for a scheme is the natural drainage topography of the sub-catchment itself. This consists of ridgelines which direct run-off into separate catchments on either side of the ridge and waterways that receive stormwater run-off.

Selecting the natural boundary may be rendered impractical by pre-existing modifications to the topography of the land. These include:

- Railway lines
- Raised roads
- Levee banks
- Other engineering works that redirect drainage flows.

The modifications described above form "constructed boundaries" that may be adopted as a logical alternative to natural boundaries to determine the scheme boundary.

There are also other influences on boundary lines including urban development zones and property titles straddling catchment boundaries.

3. Schemes will be planned to service all developable lots.

Development services schemes will be planned to service all developable lots within the scheme. This usually involves planning infrastructure down to 0.4 hectare lots.

The ownership and ongoing maintenance of drainage assets in catchments of less than 60 hectares within development services schemes will generally be transferred to local councils.

4. Schemes should propose infrastructure to service development that is optimal in terms of cost and performance.

Development services schemes identify the infrastructure required to adequately service land capable of being developed. The scheme consists of an infrastructure plan, which takes into account environmental considerations and an estimate of the cost of works to control the quality and quantity of stormwater run-off.

The design should propose works that are optimal in terms of cost and performance, while protecting environmental and other waterway values.

Development services schemes may include mandatory water sensitive urban design requirements applicable to all developments rather than provision of scheme financed infrastructure.

5. Infrastructure benefits common to more than one scheme will have the cost apportioned.

The cost of infrastructure contained within and specific to a single scheme is costed entirely to that scheme.

The cost of infrastructure servicing multiple schemes will need to be transparently apportioned based on capacity share. This infrastructure may be sited in different locations but will be apportioned according to the benefits derived by the schemes. For example, a retarding basin may be located:

- Downstream of the scheme it services
- Within one of the schemes for reasons of cost effectiveness, but having the effect of enabling more than one scheme to develop.

6. All landowners will receive an equivalent level of service.

Scheme infrastructure will be designed to service all developable lots within the scheme down to 0.4 hectare lots and provide a single drainage outlet to each lot regardless of size.

Owners of large lots will receive an equivalent level of service provided to smaller lots with appropriate drainage works based on engineering judgement.

Appropriate works may include:

- Additional drainage lines
- Upsizing of the stormwater system to enable additional connection points
- Additional infrastructure to low points to facilitate further connection points.

7. Infrastructure designed to accommodate run-off from non-developable land within the scheme boundary will be funded by development contributions.

Works may be required to protect new developments against runoff from non-developable land.

Non-developable land includes:

- Existing reserves and conservation areas
- Flood plains
- Existing roads (including sealed, gravel and paper roads)
- Other land types not zoned for development.

Protection works will generally be funded by the development services scheme. Should the non-developable land subsequently be developed, new infrastructure and scheme charges may apply.

If plans for future roads are presented early enough the required drainage design and related run-off will be accommodated by the development services scheme. Otherwise the organisation creating the new road will be required to pay the relevant contributions and for additional drainage works above the scheme proposal.

If an existing road is widened after the development services scheme has been implemented, where the road widening was not communicated to Melbourne Water prior to implementing the scheme, the responsible road authority is accountable for the drainage works through the road widening but is not required to contribute for the area of the road widening.

Paper roads are public road reservations that are not constructed at the time of the scheme preparation. Paper roads are exempt from contributing to the development services scheme even if they are developed as constructed roads. If paper road areas are purchased for development purposes then the area will be subject to paying contributions to the scheme.

Contributions are always required from the developer for all subdivisional roads.

No contributions are required for existing roads.

8. Scheme infrastructure to service existing developed land within the scheme boundary will be funded by Melbourne Water or Council.

Melbourne Water or in some cases the local council (via private scheme) will meet the costs of servicing existing development within a development services scheme. These areas have either already paid contributions, or are deemed to have contributed to drainage works under arrangements that preceded the establishment of the development services scheme. This is based on the assumption that the density of development is not changing. If the density is changing then a contribution may apply.

9. Infrastructure to service existing and future development external to the scheme will not be funded by development contributions from within the scheme.

Where upstream flows within the natural catchment, but outside the scheme boundary, have been modified by existing urban development (eg. rural townships) or will be modified by expected future urban development, upsizing works within the development services scheme to cater for the modified flows will not be funded by developer contributions to that scheme.

Melbourne Water will participate in the scheme and contribute to the funding of the drainage infrastructure. This contribution will be recovered when the land outside the scheme is ultimately developed.

10. Environmental works downstream of development services schemes will be funded by schemes where upstream development is the cause of the problem.

Costs of works downstream of development services schemes that are attributable to altered flows and waterway pollution from development within the upstream development services scheme will be included in the scheme.

The cost of such downstream works will be incorporated into individual contributing development services schemes based on analysis of relative share of the problem caused by each scheme.

11. Melbourne Water or local councils will meet the cost of improved service standards for existing development within a scheme.

Melbourne Water or the local council (via private scheme) will meet the additional costs incurred in the scheme to increase the standard of flood protection, water quality or to enhance waterway values for existing development to an acceptable level in their respective drainage areas.

Works to improve existing standards may be undertaken concurrently with growth works with costs shared between Melbourne Water (rates funded) and developments (growth). The same arrangement would apply to councils.

12. Contribution rates will be structured to balance income and expenditure over the life of a development services scheme.

Infrastructure within the scheme is funded from contributions received from landowners within the scheme area when they develop properties.

The contribution amount is based on the area of the development and the rate, quantity and quality of stormwater run-off.

Financial modelling will be undertaken upon the establishment of each new scheme to calculate the contribution rate that balances income and expenditure over the life of the scheme after adjustment for the time value of money.

Adjusting for the time value of money involves calculating the costs of the scheme in today's dollars and discounting at an appropriate rate. A contribution rate per hectare is determined which effectively brings the Net Present Value of the combined income and expenditure stream to a zero balance.

13. A robust consultation process will govern the creation of development services schemes.

To ensure interested parties are kept informed and have an opportunity to contribute to the creation of development services schemes Melbourne Water will:

- Inform all interested parties of the proposed scheme area at the commencement of the scheme design
- Exhibit and forward draft scheme proposals to interested parties for comment
- Communicate with respondents and amend scheme details where appropriate
- Submit final draft to interested parties and provide an opportunity for objections which will be considered by Melbourne Water
- Advise interested parties of the adoption of the scheme. Interested parties include landowners within a scheme or potentially affected by a scheme, development industry, and community interest groups (e.g. Friends Group).

Should there be a difference of opinion on the planned scheme, the following dispute resolution process will apply:

- An attempt to reach agreement between the parties by negotiation
- If unsuccessful, present objection to Melbourne Water's Waterways Group General Manager for consideration
- If the outcome is not acceptable to the objector, the proposed scheme would be referred to an independent review panel. The panel may consist of a lawyer, town planner and civil engineer
- During the dispute resolution process Melbourne Water will continue to accept development contributions and facilitate ongoing development activity.

A developer who is required by Melbourne Water to make a contribution to a development services scheme under the relevant provisions of the *Water Act* may object to Melbourne Water in accordance with the procedure set out in section 271 of the *Water Act*.

14. Development services schemes will be adjusted for innovation works that benefit the scheme.

Development services scheme charges will be reduced if developers provide innovative solutions that benefit the scheme and result in significant savings to scheme finances.

Melbourne Water will reward for innovations that financially benefit the scheme. The level of reward will be based on the particular circumstances relating to each innovation. The reward or reduction in scheme contribution will be based on the saving to the scheme; the overall financial benefit of the innovation, and other benefits derived by the developer.

Melbourne Water will reduce scheme water quality contributions according to the percentage of best practice (for Total Nitrogen) that is achieved within the development.

15. Development services schemes will have annual financial reviews and engineering reviews at least once every five years.

Development services schemes require financial, engineering and environmental reviews on a regular basis to ensure costs are neither over nor under recovered and up-to-date requirements are included in the technical provision.

- Financial reviews will occur on a yearly basis
- Engineering reviews (hydraulic and water quality) will occur progressively as the circumstances of the scheme alter with a maximum five-year interval between reviews.

Two months notice will apply for rate increases. Decreases or no alterations to existing rates will apply immediately. The results of reviews will be communicated via Melbourne Water's Land Development Manual website and via email to developers' consultants. For engineering reviews, consultation processes as per Principle 13 will operate for affected landowners. All parties in receipt of a current offer will be contacted.

16. Development services schemes will include land acquisition costs based on the undeveloped broad acre value.

Determining applicable contribution rates for new schemes involves estimating the cost of land to be purchased for scheme purposes and incorporating these estimates into the pricing model.

For a consistent and predictable approach to the valuation of land for scheme pricing purposes, Melbourne Water will:

- Include acquisition costs in development services schemes where the land is otherwise deemed to be developable
- Value the land based on the undeveloped broad acre land value, recognising the underlying zoning and any infrastructure works completed at the date of inspection by a land valuer.

When the time comes to purchase the land, the compensation paid to the landowner is determined using State Government issued valuation guidelines.

Table 1: Summarising the Principles

Principle	Comment
1. There shall be no formal limit on the size of the scheme area.	• The minimum sizing of the scheme should achieve a direct relationship between land in the scheme and proposed drainage works and should have regard to practical planning and administrative requirements.
2. The boundary of a scheme will be determined by the drainage characteristics of the land.	• The best boundary for a scheme is the natural drainage topography of the sub-catchment itself. • Selecting the natural boundary may be rendered impractical by pre-existing modifications to the topography of the land. • The modifications described above form "constructed boundaries" that may be adopted as a logical alternative to natural boundaries to determine the scheme boundary. • There are other minor influences on boundary lines (eg. property titles straddling catchment boundaries).
3. Schemes will be planned to service all developable lots.	• Melbourne Water will plan development services schemes to service all developable lots within the scheme. This involves planning infrastructure down to 0.4 hectare lots.
4. Schemes should propose infrastructure to service development that is optimal in terms of cost and performance.	• The design should propose works that are optimal in terms of cost and performance, while protecting environmental and other waterway values.
5. Infrastructure benefits common to more than one scheme will have the cost apportioned.	• The cost of infrastructure servicing multiple schemes will be apportioned based on capacity share. This infrastructure may be sited in different locations but will be apportioned according to the benefits derived by the catchments.
6. All landowners will receive an equivalent level of service.	• Owners of large lots will receive an equivalent level of service provided to smaller lots with appropriate drainage works based on engineering judgement.
7. Infrastructure designed to accommodate run-off from non-developable land within the scheme boundary will be funded by development contributions.	• Non-developable land includes: – Existing reserves and conservation areas – Flood plains – Existing roads – Other land types not zoned for development.
8. Scheme infrastructure to service existing developed land within the scheme will not be funded by development contributions.	• Melbourne Water or the council will meet costs due to existing development.
9. Infrastructure to service existing and future development external to the scheme will not be funded by development contributions from within the scheme.	• Where upstream flows within the natural catchment but outside the scheme boundary have been modified by existing urban development (eg. rural townships) or will be modified by expected future urban development, upsizing works within the development services scheme to cater for the modified flows will not be funded by developer contributions to that scheme.

Principles for Creating Development Services Schemes

Principle	Comment
10. Environmental works downstream of development services schemes will be funded by schemes where upstream development is the cause of the problem.	• Costs of works downstream of development services schemes that are attributable to altered flows and waterway pollution from development within the upstream development services scheme will be included in the development services scheme.
11. Melbourne Water or local councils will meet the cost of improved flood protection for existing development.	• Melbourne Water or the local councils will meet the additional costs incurred in the scheme to increase the standard of drainage protection, water quality and waterway values to existing development to an acceptable level.
12. Contribution rates will be structured to balance income and expenditure over the life of a development services scheme.	• Financial modelling will be undertaken upon the establishment of each new development services scheme to calculate the contribution rate that balances income and expenditure over the life of the scheme after adjustment for the time value of money.
13. A robust consultation process will govern the creation of development services schemes.	• Melbourne Water will consult with industry, landowners and other interested parties prior to finalising and establishing new development services schemes, including possible mediation and independent review.
14. Development services schemes will be adjusted for innovation works that benefit the scheme.	• Melbourne Water will reward innovation by developers that financially benefit the scheme. • The reward or reduction in scheme contribution will be based on the saving to the scheme; the overall financial benefit of the innovation, and benefit derived by the developer.
15. Development services schemes will have annual financial reviews and engineering reviews at least once every five years.	• Schemes will have annual financial reviews to ensure the contribution rate reflects actual and forecast income and expenditure cash flows. • Schemes will have engineering and environmental reviews at least once every five years to ensure current standards are being met. • Two months notice will apply for rate increases. Decreases or no alterations to existing rates will apply immediately.
16. Development services schemes will include land acquisition costs based on the undeveloped broad acre value.	• For a consistent and predictable approach to land valuation for scheme pricing purposes Melbourne Water will: – Include acquisition costs in schemes where the land is otherwise deemed to be developable – Value the land based on the undeveloped broad acre land value, recognising the underlying zoning and infrastructure works completed at the date of inspection by a land valuer.

Principles for Creating Redevelopment Services Schemes

Introduction

Impacts from redevelopment are most significant in established urban areas designed with no consideration for overland flows associated with larger storm events when the capacity of the constructed drainage system is exceeded.

The provision of new drainage infrastructure to support redevelopment of established areas within Melbourne Water's operational boundary is being managed with the staged introduction of redevelopment services schemes.

A redevelopment services scheme (RSS) comprises a drainage strategy for an existing area together with a pricing arrangement that allows Melbourne Water to require developers to contribute to the cost of the construction of drainage works by Melbourne Water in connection with the redevelopment. Planning permit referrals received from councils under the *Subdivision and Planning and Environment Acts* are one trigger for this process.

The strategy consists of functional designs for additional Melbourne Water assets that are required to mitigate the impacts of redevelopment of an established urban area.

The strategy ensures that planning for urban redevelopment is conducted on a catchment basis and that appropriate drainage infrastructure is provided so that the existing level of drainage service is not compromised.

The drainage infrastructure within the scheme is funded by financial contributions from land development when development occurs, with all developable properties contributing on the basis of the average change in hard surface area. Income is designed to equal planned expenditure over the expected life of a scheme and is calculated on a rolling 25-year period.

Currently, there are 5 active redevelopment schemes with the investigation of 30 new schemes up to 2007. Priority is given to preparing schemes in areas where redevelopment activity is most concentrated. The aim is to ensure redevelopment schemes cover the established areas of Melbourne within ten years.

The Principles

1. Redevelopment within a catchment shall not result in a reduction to the existing level of drainage service.

The existing level of drainage service relates to both the frequency of flooding instances as well as to the existing 100-year ARI flood level and extent.

Redevelopment Services Scheme (RSS) infrastructure is sized to ensure that the 100-year ARI flood level, extent and frequency are not increased due to redevelopment. This ensures that the level of drainage service for smaller events is not diminished, as the magnitude of peak flow change is greatest for the 100-year event.

2. A robust consultation process will govern the creation of Redevelopment Services Schemes.

Council and landowners are key stakeholders in the preparation of RSS.

At the commencement of each RSS investigation, Council input is sought on the location and density of redevelopment that is likely to occur in their municipality, which is then included in the modelling. At the completion of the RSS investigation, Council is asked to provide comments on the overall RSS and to give "in principle" agreement to the proposed alignments selected for any RSS works where they impact on Council assets such as roads and reserves.

Comments on the RSS are sought from the community and interested parties through advertisements in local papers. Unlike Development Services Schemes, it is not feasible to notify potential developers individually.

Industry bodies are also notified and their comments sought on each new RSS.

A developer or landowner who is required by Melbourne Water to make a contribution to a RSS under the relevant provisions of the *Water Act* may object to Melbourne Water in accordance with the procedure set out in section 271 of the *Water Act*.

3. Properties redeveloping within a catchment will be required to contribute to the scheme or required to mitigate the impacts of redevelopment on site.

The adverse effects from increases in hard surfaces due to redevelopment of an individual site can be mitigated on site. This is generally through the combination of on-site detention and Water Sensitive Urban Design (WSUD).

Catchment-wide adoption of on-site detention and WSUD would be required as a RSS will not be viable unless the majority of the catchment is contributing to the RSS. A mechanism to ensure that on-site detention and WSUD is adopted across a catchment does not currently exist.

Whether a scheme is appropriate or on site works are more viable for a given catchment will be based on an assessment of the costs of providing Melbourne Water infrastructure and feedback received through consultation undertaken with council, landowners and industry bodies.

4. The RSS contribution will generally apply to redevelopment of existing residential areas within the catchment irrespective of the existing site coverage.

The existing drainage system was provided and paid for, based on expected land use and the hard surface area assumed for that land use. For residential areas, the assumed hard surface area is dependant on the lot size. For a given residential lot size, the actual hard surface area will vary. However, the charge is based on the average hard surface area for that residential lot size. Accordingly, the existing hard surface area on a given residential lot will not alter the assessment of the RSS infrastructure required and the contribution to be paid.

5. Existing Industrial and Commercial areas being redeveloped will generally not be required to contribute to the RSS unless an impact to the existing level of drainage service can be determined.

When the existing drainage system was provided, a certain level of hard surface area was assumed based on expected land use. For industrial and commercial areas this value was, in general, fairly high. Redevelopment of industrial and commercial areas does not commonly result in increased hard surface area beyond what the existing drainage system was designed for, even if the land use changes to residential.

6. Greenfield contribution rates for sites within RSS catchments will be calculated at the time of scheme implementation and included in the RSS contribution rate.

Any greenfield sites in RSS areas will be identified as part of the RSS investigation. If no drainage contributions have previously been paid for a particular site then charges will apply to develop the site from greenfield to ultimate conditions based on the average change in hard surface area. This allows a greenfield site, in an existing urban area, to develop in a number of stages without the need to alter the RSS.

7. RSS are catchment based and all residential developments will contribute at the same rate.

RSS are generally sized based on drainage catchments for Melbourne Water infrastructure. All properties within a catchment contribute to the increased runoff at the outlet based on the average change in hard surface area. The average change in hard surface area depends on the existing size of the lot to be subdivided and the number of new lots created.

Generally, RSS works will commence at the downstream end of a catchment and proceed upstream as contributions are collected. As redevelopment is likely to occur catchment wide rather than concentrated in one locality the impact on the existing level of drainage service will be greatest at the most downstream point. Given this, all redevelopment in a catchment will benefit from the downstream works and will be required to contribute to the works.

8. Properties with existing buildings that pre-date the RSS will not be required to contribute to the RSS.

Existing dwellings that were occupied prior to the introduction of the RSS do not have to contribute. Documentation in the form of a Certificate of Occupancy issued by the relevant council or other documentation to the satisfaction of Melbourne Water that demonstrates the building has been occupied prior to the commencement of the RSS will be required.

9. RSS generally cover works on Melbourne Water assets i.e. catchments greater than 60 hectares.

RSS are specifically designed to deal with the impact of redevelopment on the level of service provided by Melbourne Water infrastructure. Depending on circumstances it may be necessary for Melbourne Water to do works on Council infrastructure. In these circumstances, Melbourne Water will seek and obtain agreement from Council on any works that will become the responsibility of Council before RSS approval. As for Development Services Schemes, Melbourne Water will collect the contributions required, construct the works and then hand over the completed asset to Council for ownership and maintenance responsibility.

10. When an impact to a waterway is directly attributed to redevelopment, RSS shall also apply to waterway catchments.

If an investigation determines that redevelopment may increase flooding in a downstream waterway, then the RSS may propose mitigation works in the waterway. Any proposed works on waterways must take account of the environmental and social values of that waterway as outlined in the Port Phillip and Westernport Regional River Health Strategy.

11. No Water Quality works are included in RSS.

Achievement of water quality objectives on-site will be required in accordance with the Sustainable Neighbourhoods (Clause 56) provision. Further details may be obtained from Melbourne Water's Land Development Manual.

No contribution rates for water quality are included in RSS charges.

12. RSS will operate until the expected level of redevelopment has been reached.

RSS are long term planning tools that identify all works required to facilitate redevelopment using development locations (e.g. activity centres, along transport routes and infill) identified in the Government's Melbourne 2030 planning policy document.

Principles for Creating Redevelopment Services Schemes

While Melbourne 2030 provides direction for development up until the year 2030 the full impact on the Melbourne Water drainage system will occur some time after that in the majority of catchments.

The RSS will operate until the expected level of development is reached and all works identified in the scheme have been constructed.

13. RSS are financially reviewed each year and an engineering review is undertaken at least once every five years.

As per Development Services Schemes, RSS will be financially reviewed annually and an engineering review will be done at least once every five years.

The financial review will adjust the scheme rate based on the actual level of development and constructed works compared to the predicted level of development and works estimated at the start of the RSS.

The engineering review will re-examine all aspects of the engineering design and update as necessary including undertaking any consultation required.

14. Melbourne Water will fund improvements to the existing drainage system to meet current standards.

Improvements to the existing level of drainage service are the responsibility of Melbourne Water. Enhancement of the existing waterway values is also the responsibility of Melbourne Water. The RSS will only fund the cost of works to accommodate increased run-off from future development so that the existing level of service is not diminished. Developers are not expected to contribute to the cost of fixing existing problems.

15. An annual capital program will be prepared and works will be undertaken on a priority basis from all RSS projects.

Melbourne Water undertakes long-term capital planning with prioritisation of each scheme's work sections based on the following:

- Allocation of funding within the 20-year capital plan and the 3-year Water Plan
- Rate of redevelopment within each catchment
- Estimated cost for the downstream work sections in all RSS
- Effect on the individual scheme rate
- Consideration of the Asset Renewal program to ensure any cost benefit for undertaking combined works can be captured
- Consideration of the Flood Mitigation program to ensure any cost benefit for undertaking combined works can be captured.

16. Melbourne Water will generally undertake RSS works from the downstream end of the catchment to the upstream end of the catchment. If a development contains RSS works, the works could be constructed in conjunction with development, even though it may be "out of sequence".

Works will be undertaken from the downstream end of the catchment first as this ensures that all properties in the catchment receive a benefit from the works. Works may be done "out of sequence" when a development is located adjacent to proposed RSS works. Requiring developers to undertake these works will depend on the financial status of the RSS and the relevant benefit of undertaking the works out of sequence.

Table 2: Summarising the Principles

Principle	Comment
1. Redevelopment within a catchment shall not result in a reduction to the existing level of drainage service.	• RSS infrastructure is sized to ensure that the 100-year ARI flood level, extent and frequency are not increased due to redevelopment
2. A robust consultation process will govern the creation of Redevelopment Services Schemes.	• Council input is sought on the location and density of redevelopment that is likely to occur in their municipality. • Comments from the community and interested parties are sought through advertisements in local papers.
3. Properties redeveloping within a catchment will be required to contribute to the scheme or required to mitigate the impacts of redevelopment on site.	• Whether a scheme is appropriate or on site works are more viable for a given catchment will be based on an assessment of the costs of providing Melbourne Water infrastructure and feedback received through consultation undertaken with council, landowners and industry bodies.
4. The RSS contribution will generally apply to redevelopment of existing residential areas within the catchment irrespective of the existing site coverage.	• The existing drainage system was provided and paid for, based on expected land use and the hard surface area assumed for that land use. Therefore the existing hard surface area on a given residential lot will not alter the assessment of the RSS infrastructure required and the contribution to be paid.
5. Existing Industrial and Commercial areas being redeveloped will generally not be required to contribute to the RSS unless an impact to the existing level of drainage service can be determined.	• Redevelopment of industrial and commercial areas does not commonly result in increased hard surface area beyond what the existing drainage system was designed for, even if the land use changes to residential.
6. Greenfield contribution rates for sites within RSS catchments will be calculated at the time of scheme implementation and included in the RSS contribution rate.	• Any greenfield sites in RSS areas will be identified as part of the RSS investigation. • If no drainage contributions have previously been paid for a particular site then charges will apply to develop the site from greenfield to ultimate conditions based on the average change in hard surface area.
7. RSS are catchment based and all residential developments will contribute at the same rate.	• All properties within a catchment contribute to the increased runoff at the outlet based on the average change in hard surface area. • The average change in hard surface area depends on the existing size of the lot to be subdivided and the number of new lots created.
8. Properties with existing buildings that pre-date the RSS will not be required to contribute to the RSS.	• For contributions to be waived, documentation in the form of a Certificate of Occupancy or equivalent issued by the relevant council that demonstrates the building has been occupied prior to the commencement of the RSS will be required.
9. RSS generally cover works on Melbourne Water assets i.e. catchments greater than 60ha.	• RSS are specifically designed to deal with the impact of redevelopment on the level of service provided by Melbourne Water infrastructure. • Melbourne Water will seek and obtain agreement from Council on any works that will become the responsibility of Council.

Principles for Creating Redevelopment Services Schemes

Principle	Comment
10. When an impact to a waterway is directly attributed to redevelopment, RSS shall also apply to waterway catchments.	• If an investigation determines that redevelopment may increase flooding in a downstream waterway, then the RSS may propose mitigation works in the waterway. • Any proposed works on waterways must take account of the environmental and social values of that waterway as outlined in the Port Phillip and Westernport Regional River Health Strategy.
11. No Water Quality works are included in RSS.	• Achievement of water quality objectives on-site will be required in accordance with the Sustainable Neighbourhoods (Clause 56) provision. • No contribution rates for water quality are included in RSS charges.
12. RSS will operate until the expected level of redevelopment has been reached.	• The RSS will operate until the expected level of development is reached and all works identified in the scheme have been constructed.
13. RSS are financially reviewed each year and an engineering review is undertaken at least once every five years.	• RSS will be financially reviewed annually and an engineering review will be done at least once every five years. • The financial review will adjust the scheme rate based on the actual level of development and constructed works.
14. Melbourne Water will fund improvements to the existing drainage system to meet current standards.	• The RSS will only fund the cost of works to accommodate increased run-off from future development so that the existing level of service is not diminished. • Developers are not expected to contribute to the cost of fixing existing problems.
15. An annual capital program will be prepared and works will be undertaken on a priority basis from all RSS projects.	• Prioritisation of works for each scheme is based on: – Allocation of funding within the 20-year capital plan and the 3-year Water Plan; – Rate of redevelopment within each catchment; – Estimated cost for the downstream work sections in all RSS; – Effect on the individual scheme rate; – Consideration of the Asset Renewal program; – Consideration of the Flood Mitigation program.
16. Melbourne Water will generally undertake RSS works from the downstream end of the catchment to the upstream end of the catchment. If a development contains RSS works, the works could be constructed in conjunction with development, even though it may be "out of sequence".	• Works may be done "out of sequence" when a development is located adjacent to proposed RSS works.

Principles for Funding of Drainage Works Outside of Development Services Schemes

Introduction

In the past, the cost of providing infrastructure to service growth outside of development services schemes was funded from 'Corridor' contributions. Development corridor contributions were based on larger planning areas (not necessarily based on a drainage catchment) and had been in place since 1993. Development corridor contributions only considered Melbourne Water assets, with the developer providing local drainage and water quality improvement works. Development corridor contributions have now been phased out in favour of development and redevelopment services schemes.

With the discontinuation of Melbourne Water Corridor Area and associated charges, Melbourne Water no longer will be collecting contributions to fund the construction of Melbourne Water infrastructure in development areas outside of schemes.

As discussed above in relation to Development Services Schemes and Redevelopment Services Schemes, the *Water Act* entitles Melbourne Water to require an owner of property in its waterway management district to contribute to the cost of the construction of drainage works.

A developer or landowner who is required by Melbourne Water to make a contribution to the cost of the construction of drainage works under the relevant provisions of the *Water Act* may object to Melbourne Water in accordance with the procedure set out in section 271 of the *Water Act*.

Therefore principles are required for the funding of works outside schemes, consistent with the principles developed for Development Services Schemes and Redevelopment Services Schemes. Each development however will be assessed on a case-by-case basis.

The Principles

1. The Developer will be required to contribute to water quality treatment works as a part of the development.

Developers will be required to fund and construct on site water quality treatment to meet Best Practice Objectives for the removal of litter, total suspended solids, total nitrogen and total phosphorus.

2. The Developer will be required to fund the infrastructure necessary to cater for upstream rural flows.

Existing conditions of a site will need to be considered in the development of any property. Existing conditions may include drainage lines conveying upstream rural flow. It is considered reasonable that a developer should fund works to cater for existing conditions on their property.

3. Melbourne Water will fund the upsizing of infrastructure to cater for upstream-developed flows from catchment areas larger than 60 hectares.

In the case where a development has occurred upstream of a developing property and the discharge through the developing property is increased, it is reasonable that the developer should not pay for upsizing of infrastructure on their developing property if the catchment area is larger than 60 hectares. Melbourne Water will fund the 'upsizing' of such infrastructure required to cater for upstream urban flows and the developer will be required to fund an amount equivalent to what would be required to construct infrastructure to cater for rural flows.

Upsizing of infrastructure on the developing property to cater for the property's internal subdivisional developed flows will be funded by the developer.

4. The Developer will be required to fund works to retard flows in their own property if necessary to protect downstream development.

In addition to Principle 2, works to ensure that a development does not create a flood risk for downstream properties will be funded by the developer and located on their own property.

5. Melbourne Water will fund flood mitigation works associated with existing development.

Consistent with Principle 3, Melbourne Water will meet the costs associated with improved flood mitigation works or upsizing of mitigation works due to upstream-developed flows in order to provide protection to existing downstream properties.

6. Melbourne Water will fund basic works for stabilisation, revegetation and protection works to Melbourne Water waterways and creeks caused by upstream development.

Costs associated with basic works such as bank stabilisation, weed eradication and revegetation to a Melbourne Water waterway or open drain due to altered flows resulting from existing upstream development will be funded by Melbourne Water. Timing of works will generally be negotiated between the Developer and Melbourne Water.

7. The Developer will fund additional enhancement of waterways and creeks above basic works.

Any works undertaken by the developer to provide additional aesthetic value to the waterway or a higher level of waterway recreational value to the development will be funded by the developer.

8. Waterway Plans will be prepared by Melbourne Water.

Where a Waterway Plan has been prepared, identified works may be co-funded by Melbourne Water and the developer.

Restoration to degraded waterways on a developing property due to rural practices or existing land uses on the site must be funded by the developer.

9. New roads or crossing of waterways and drains will be funded by the developer or road authority.

Any new road culverts or bridge crossings of existing waterways will be funded by the developer or road authority.

Table 3: Summarising the Principles

Principle	Comment
1. The Developer will be required to contribute to water quality treatment works as a part of the development.	• Developers will be required to fund and construct on site water quality treatment to meet Best Practice Objectives for the removal of litter, total suspended solids, nitrogen and phosphorus.
2. The Developer will be required to fund the infrastructure necessary to cater for upstream rural flows.	• The developer is required to fund works to cater for existing upstream rural conditions on their property as a part of the development.
3. Melbourne Water will fund the upsizing of infrastructure to cater for upstream-developed flows from catchment areas larger than 60 hectares.	• Melbourne Water will fund the upsizing of infrastructure required to cater for upstream urban flows and the developer will be required to fund an amount equivalent to what would be required to construct infrastructure to cater for rural flows. • Upsizing of infrastructure on the developing property to cater for the property's internal subdivisional developed flows will be funded by the developer.
4. The Developer will be required to fund works to retard flows in their own property if necessary to protect downstream development.	• Works to ensure that a development does not create a flood risk for downstream properties will be funded by the developer and located on their own property.
5. Melbourne Water will fund flood mitigation works associated with existing development.	• Melbourne Water will meet the costs associated with improved flood mitigation works or upsizing of mitigation works due to upstream-developed flows in order to provide protection to existing downstream properties.
6. Melbourne Water will fund basic works for stabilisation, revegetation and protection works to Melbourne Water waterways and creeks caused by upstream development.	• Costs associated with basic works such as bank stabilisation, weed eradication and revegetation to a Melbourne Water waterway or open drain due to altered flows resulting from existing upstream development will be funded by Melbourne Water.
7. The Developer will fund additional enhancement of waterways and creeks above basic works.	• Any works undertaken by the developer to provide additional aesthetic value to the waterway or a higher level of waterway recreational value to the development will be funded by the developer.
8. Waterway Plans will be prepared by Melbourne Water.	• Where a Waterway Plan has been prepared, identified works may be co-funded by Melbourne Water and the developer. • Restoration to degraded waterways on a developing property due to rural practices or existing land uses on the site will be funded by the developer.
9. New roads or crossing of waterways and drains will be funded by the developer or road authority.	• Any new road culverts or bridge crossings of existing waterways will be funded by the developer or road authority.

Principles for Stormwater Quality Offsets

Introduction

In recent years the development industry has embraced a more sustainable approach to urban stormwater management. These efforts are being increasingly recognised for the important part they play in protecting our waterways, bays and enhancing urban amenity.

Under the *Water Act*, Melbourne Water's drainage functions include developing and implementing plans or schemes, and taking any action necessary, to improve stormwater quality of water in drainage systems.

Melbourne Water has recently introduced a Stormwater Quality Offsets Strategy to mitigate pollution impacts of urban development. The program has two major aims: (1) to uniformly apply stormwater quality standards for all development and, (2) to integrate various regional, precinct and lot scale initiatives currently underway.

Current best practice for stormwater management encourages an integrated and distributed approach to stormwater quality treatment through water sensitive urban design (WSUD). WSUD treats stormwater at its source, is practical and achievable on large and small-scale developments. WSUD is about integration of water cycle management into urban planning and design.

The offsets program will require developers to contribute to a combined offset fund if best practice objectives for water quality are not met within the development. Melbourne Water will use the funds generated by offsets to construct water quality treatment measures elsewhere in the Port Phillip and Western Port catchments. A developer or landowner who is required by Melbourne Water to make a contribution to the offsets program under the relevant provisions of the *Water Act* may object to Melbourne Water in accordance with the procedure set out in section 271 of the *Water Act*.

Several factors have shaped the style of the offsets program. Firstly, the Government's *State Environment Protection Policy (SEPP)* and Environmental Management Plan (EMP) for Port Phillip Bay provide a strong basis for the use of nitrogen as a currency. Secondly, reduction in nitrogen loads has been found to be the critical factor in the sizing and costing of its treatment infrastructure and hence objectives for phosphorous and suspended sediment will also be met. In addition to government-endorsed objectives, tools for modelling loads and treatment measures are now widely accessible. Finally, Melbourne Water has been able to determine an offset price for treating nitrogen based on an assessment of past and planned regional water quality works.

The Principles

1. All urban developments shall achieve best practice water quality objectives.

In 1999, the Victorian Government introduced objectives for stormwater management to protect the environment from the impacts of urban development. These objectives are contained in "Urban Storm Water: Best Practice Environmental Management Guidelines" prepared by the Victorian Stormwater Committee (1999) and state that:

80% of the suspended solid annual load, 45% of total phosphorus and 45% of the total nitrogen annual load are to be retained to achieve stormwater management objectives.

These guidelines are a referenced document in the State Planning Policy Framework and form part of the attainment program for State Environment Protection Policies including Waters of Victoria.

2. Objectives can be achieved through on-site works, a contribution to off-site works or a combination.

Under the strategy, developers can achieve water quality objectives by either implementing WSUD treatment measures on-site or by paying a contribution to balance the shortfall in on-site nitrogen removal. Contributions will be spent on providing stormwater quality treatment elsewhere in the catchment.

The Sustainable Neighbourhoods (Clause 56) provision requires all new residential subdivisions to meet water quality objectives within the subdivision. Offsets may be allowable for sites less than 1 hectare and where water quality is provided for in the development services scheme.

3. Nitrogen will be used as the common unit of measure for achievement of stormwater quality objectives.

The contributions and effectiveness (performance) of works towards attaining best practice objectives will be assessed using nitrogen as the common unit of measurement. Nitrogen has been chosen as the unit of measurement for two principal reasons:

- Nitrogen was identified as the critical pollutant for Port Phillip Bay (CSIRO study, 1996) and the Government's SEPP and EMP have consequently established a nitrogen reduction target. Nitrogen provides a link (nexus) for all works within the Port Phillip catchment, where nitrogen reduction works will be benefiting the downstream receiving water body.
- Nitrogen has been found to be the critical factor in sizing the dimensions and capital cost of water quality treatment infrastructure. It is assumed that effective removal of nitrogen will imply an effective removal of all other typical stormwater pollutants (CRC for Catchment Hydrology 2002).

4. Outside development services schemes offsets will be based on the cost of regional water quality works designed to achieve equivalent stormwater pollutant load reductions.

In 2004, all Melbourne Water constructed and planned regional wetlands were reviewed in order to establish a scientifically sound offset rate for the removal of nitrogen.

The offset rate will be reviewed periodically.

5. Outside of development services schemes offsets will vary according to landuse and climatic conditions across the catchment.

Pollutant loads from urban landuses across the Port Phillip and Western Port Bay catchments vary largely according to the amount of stormwater runoff. Standard residential rates ($/ha) have been developed for each of the 38 local government areas as they reflect the climatic variability across the region.

6. The water quality contribution in development services schemes will be based on scheme specific costs to achieve water quality objectives.

Since the introduction of best practice water quality objectives for stormwater, Melbourne Water has required stormwater quality treatment measures within "greenfield" developments through the development services scheme development process.

A scheme specific water quality offset rate is determined for each development services scheme based on the combined cost of the works and the reduction in nitrogen load that the scheme achieves.

Where scheme specific water quality works do not meet best practice (in accordance with the Best Practice Environmental Management Guidelines), developers will be required to either undertake works on-site to achieve best practice, or pay an additional offset to water quality works in the broader catchment. This 'top up' water quality rate is based on the number of kilograms the scheme is short of meeting best practice for total nitrogen. The 'top up' rate will be reviewed in conjunction with annual scheme financial reviews.

7. Proposed development services scheme infrastructure will be reviewed in response to developers meeting objectives on-site.

Where a significant proportion of the upstream developing catchment meets best practice on-site, the downstream water quality works proposed for the scheme may no longer be required to achieve environmental performance for the scheme.

An analysis of the cost effectiveness of the proposed scheme works and an analysis of the resulting performance of the scheme will aid in deciding whether to construct the scheme works or not.

Regardless of whether water quality works have been built within a specific scheme, rate reductions will be offered for at-source treatment, even if this results in an over performance of the scheme. In these cases, offset contributions collected from developments outside of development services schemes will be used to fund scheme works.

Table 4: Summarising the Principles

Principle	Comment
1. All urban developments shall achieve best practice water quality objectives.	• 80% of the suspended solid annual load, 45% of total phosphorus and 45% of the total nitrogen annual load are to be retained to achieve stormwater management objectives.
2. Objectives can be achieved through on-site works, a contribution to off-site works or a combination.	• Developers can achieve water quality objectives by either implementing WSUD treatment measures on-site or by paying a contribution to balance the shortfall in on-site nitrogen removal. • Contributions will be spent on providing stormwater quality treatment elsewhere in the catchment.
3. Nitrogen will be used as the common unit of measure for achievement of stormwater quality objectives.	• The contributions and effectiveness (performance) of works towards attaining best practice objectives will be assessed using nitrogen as the common unit of measurement.
4. Outside development services schemes offsets will be based on the cost of regional water quality works designed to achieve equivalent stormwater pollutant load reductions.	• The offset rate is based on Melbourne Water constructed and planned regional wetlands. • The offset rate will be reviewed periodically.
5. Outside of development services schemes offsets will vary according to landuse and climatic conditions across the catchment.	• Standard residential rates ($/ha) have been developed for each of the 38 local government areas as they reflect the climatic variability across the region.
6. The water quality contribution in development services schemes will be based on scheme specific costs to achieve water quality objectives.	• A scheme specific water quality offset rate is determined for each development services scheme based on the combined cost of the works and the reduction in nitrogen load that the scheme achieves. • Where schemes do not meet best practice, developers will be required to either undertake works on-site, or pay an additional offset to meet best practice. • The 'top up' rate will be reviewed in conjunction with annual scheme financial reviews.
7. Proposed development services scheme infrastructure will be reviewed in response to developers meeting objectives on-site.	• Regardless of whether water quality works have been built within a specific scheme, rate reductions will be offered for at-source treatment, even if this results in an over performance of the scheme. In these cases, offset contributions collected from developments outside of development services schemes will be used to fund scheme works.

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