



# **The Royal Victorian Eye and Ear Hospital**

Environmental Management Plan 2015 -18

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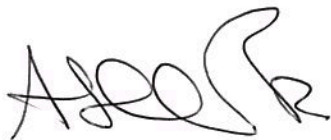
## 1. CEO's message

The Royal Victorian Eye and Ear Hospital (the Eye and Ear) is Australia's leading provider of eye and ear health care. In 2013 the hospital celebrated 150 years of caring for the senses and improving the quality of life of all Victorians. We recognise the critical link between human health and the health of the environment and are committed to reducing our environmental impact.

The Victorian Government has committed to a redevelopment of the Eye and Ear. This project will enable us to build a better hospital for our patients, staff and visitors. Environmental sustainability plays a key role in guiding our operational, future planning and organisational decisions. The redevelopment project is expected to be completed in 2018.

The Environmental Management Plan outlines our key environmental achievements and sets out our environmental objectives and targets. We seek out new and innovative ways to improve our environmental performance through conservation, procurement, reduction, re-use and recycling programs and partnerships with stakeholders.

The hospital endorses the Environmental Management Plan and commits to the environmental improvement targets contained within.



**Ann Clark**  
**Chief Executive Officer**



## 2. Executive summary

The Royal Victorian Eye and Ear Hospital Environmental Management Plan (EMP) outlines the environmental achievements undertaken by the hospital to date, and indicate additional actions proposed for future implementation. Nominal timeframes have been set for proposed future actions, with responsible departments identified for each.

Environmental impacts have been assessed across the following key categories:

- Energy Consumption
  - *Electrical*
  - *Natural Gas*
- Water Consumption
- Waste Management
- Procurement
- Policy and Procedure
- Management and Communications
- Planning and Infrastructure
- Education and Training
- Hospital Services
- Transport
- Community Engagement

The EMP also proposes a monitoring and review schedule which aims to ensure that key environmental performance indicators are continually being measured, and data collection plans specify the origin, frequency, and final destination & purpose of collected data.

The Environmental Management Plan is designed to be closely associated and in-line with the Hospitals *Strategic Plan 2013 – 18* which outlines the hospital's mission, values, and strategic priorities including '*building a sustainable future through the promotion of sustainable and environmentally friendly practices*'.



### 3. Introduction

#### About The Royal Victorian Eye & Ear Hospital (Eye and Ear)

The Eye and Ear has been in operation since 1863 and is one of the world's leading specialist hospitals in eye, ear, nose and throat services. It undertakes half of the State's public general eye surgery, up to 90% of special eye surgery, and all of Victoria's public cochlear implant surgery. It is one of Victoria's largest hospitals in terms of outpatient appointments.

The hospital is also heavily involved in research, and invests in medical research and training through the Ophthalmology and Otolaryngology departments of the University of Melbourne. The Centre for Eye Research Australia (CERA) and the associated Lions Eye Bank are also located within the hospital.

The Eye and Ear is one of approximately 30 major international stand-alone specialist hospitals in both ophthalmology (eye) and ENT (ear, nose and throat) health care and is recognised both within Australia and globally, as a leader in clinical service delivery, teaching and research.

As a part of the Victorian public health system, the Eye and Ear supports the Ecologically Sustainable Development government initiative, and under section 516A of the Environmental Protection and Biodiversity Conservation Act, is required to report on its environmental performance.

In November 2012 it was announced that the Victorian Government would fund the Eye and Ear redevelopment, enabling a better hospital to be built for patients, staff and visitors. The works will include structural upgrades to improve the hospital's layout and enable user-friendly access for current patients and staff. The project will involve the demolition of existing buildings between the Smorgon Family Wing and Peter Howson Wing to allow construction of open plan floors from the ground to the third floor, along with connecting links in the upper floors. Patient and clinical services will be consolidated on lower levels and provide major improvements in the emergency department, operating theatres and ambulatory clinics. It will also provide enhanced same-day beds and new same-day recovery areas. A significant expansion of onsite teaching, training and research facilities will be consolidated on the upper floors.

The work is expected to be completed in 2018, and will allow the Eye and Ear to better meet projected demand for services.

The redevelopment of the Eye and Ear provides an opportunity to enhance models of care, aimed at improving access and the patient experience.

Work will be undertaken to optimise the use of resources in an efficient and sustainable way through enhanced organisational decision support. This will include activities such as implementing changes to the finance system and continuing to implement the Business Intelligence Tool.

All ICT initiatives will be aligned with the Department of Health responses to the ICT Health panel review findings and recommendations. The implementation of an electronic medical record for the Eye and Ear will continue.

In accordance with the Department of Health *Policy and Funding Guidelines 2013-14* the Eye and Ear has complied by publicly reporting and disclosing environmental performance for the 2013-14 reporting year on the Hospitals internet site.

#### Scope

This environmental strategy addresses all relevant aspects of the operation of Eye & Ear, including all agency activities and the delivery of services. The plan describes the procedure, objectives, actions, communications, monitoring and review processes adopted to reduce the hospital's environmental impact.

## 4. Achievements

Information includes achievements from previous years including the previous environmental plan

Figure 1 and 2 indicate the impacts and trends obtained from the energy achievements.

### 4.1. Energy

#### 4.1.1. Heating, Air-Conditioning and Ventilation

Energy used for space heating, cooling and ventilation comprises a large portion of the total hospital consumption.

2011

- Three new steam boilers installed in 2011 to replace two ageing (35yrs) and inefficient models. Improved efficiencies of the new boilers produce equivalent output capacity with less natural gas consumption and a much reduced maintenance requirement.
- Ongoing project underway to repair leaks and replace ageing insulation on steam pipes where identified.
- Steam traps replaced throughout system.
- Inefficient electrical based oil heaters removed throughout the hospital (quantity = 24 removed as of June 2011), in addition to being banned from the internal procurement department purchasing list.
- Hydraulic separator unit(s) installed (June 2011) to improve hydronic heating system reliability and reduce maintenance requirements.
- Existing ageing chiller system replaced with energy efficient air-cooled York model by September 2011.
- Project to repair all inoperable ventilation dampers begun in June 2011 on levels 4 and 5 of the Smorgon Family Wing with other levels to follow.
- Engaged in redevelopment planning stage, Specialist consultants (Waterman AHW Consulting Engineers) to investigate & identify further HVAC system improvement opportunities.

2012

- Undertaken trials to separately condition hospital floors requiring conditioning outside of normal operational hours (ie. those with refrigerated medical supply storage units) to allow shutdown of the main central system.
- Installed electricity smart meters to main building and smaller Hospital offsite buildings to capture data and monitoring of electricity energy
- Reviewed operation of HVAC equipment to ensure performance and efficiency, including:
  - Calibration and operation of fresh air/return air dampers
  - Assessment of older pneumatic control system and integration with electronic controls
  - condition of potentially dirty or blocked cooling coils
- Redevelopment planning included HVAC system zoning to allow greater operational flexibility and corresponding reduction in energy consumption.

### 4.2. Electrical

2010

- Energy Audit (electrical only) completed in July 2010 – identifying major areas of consumption and recommending reduction strategies.



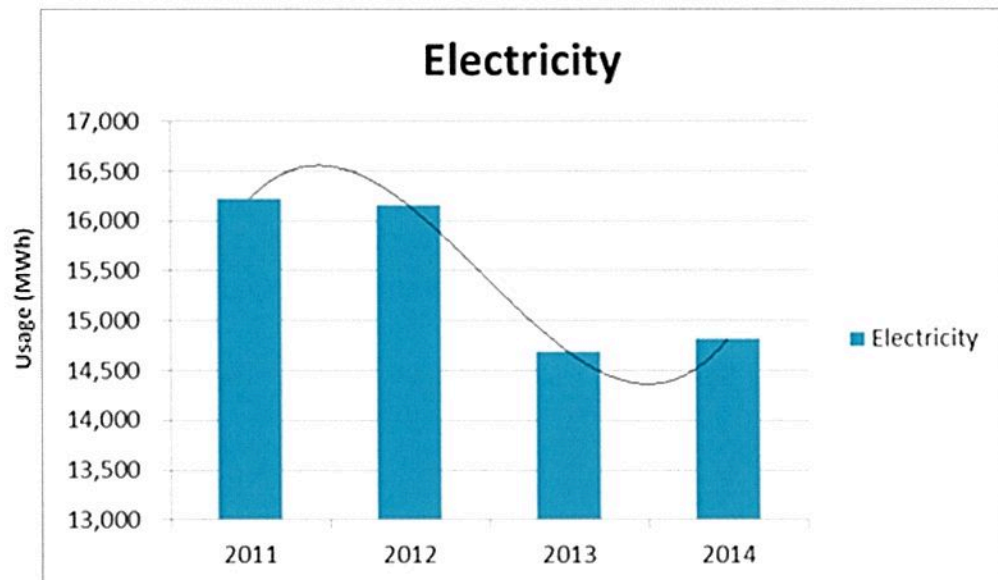
- Security staff switches all un-required lighting off after normal operating hours.

2011

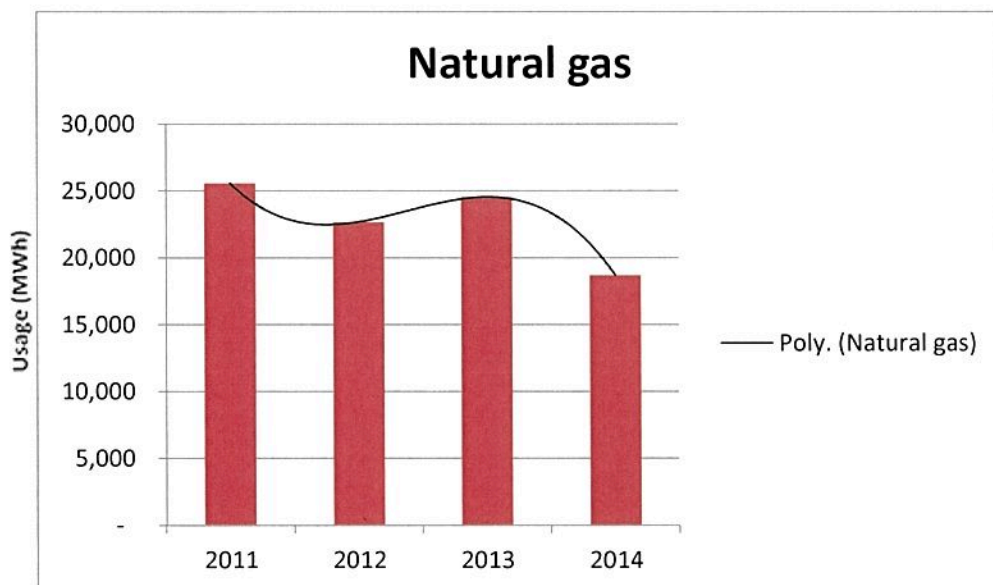
- Cafe refrigerators upgraded to closed type with doors for improved energy efficiency.
- Facilities management department currently trialling installation of improved user-operable window blinds to allow increased natural day lighting to rooms.

2013

- Replaced approximately 1000 Florescent globes to LED globes to create brighter and more efficient lighting replacing fluorescent globes



**Figure 1** – Graph shows electricity usage and trends



**Figure 2**– Graph shows gas usage and trends

### 4.3. Water Consumption

2009

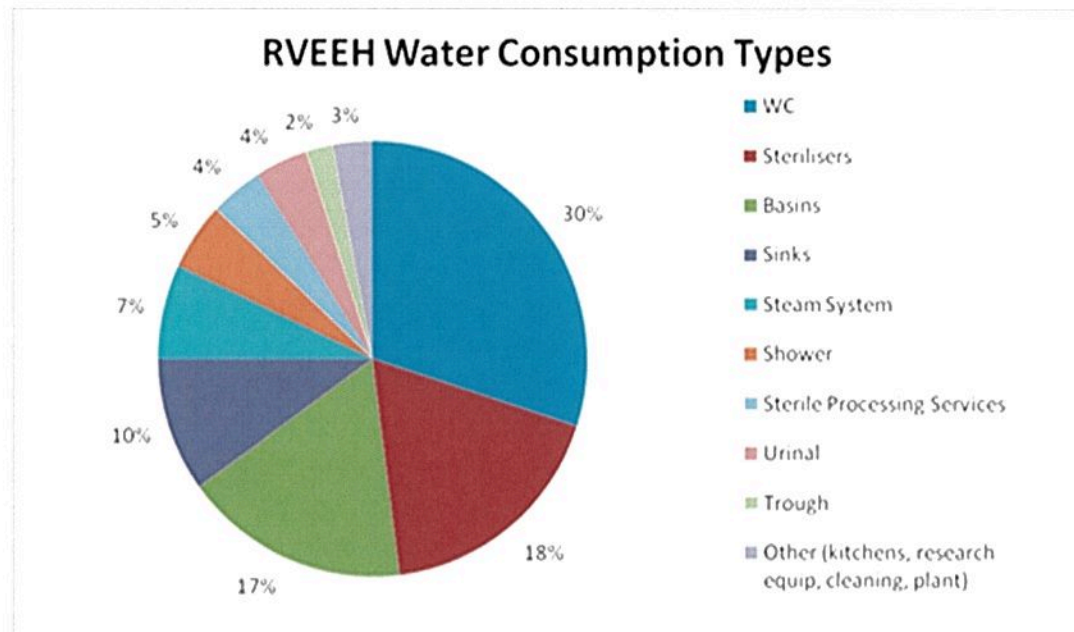
- Water Audit completed in 2009 by RMIT Environmental Engineering students.

2010

- Additional Water Audit undertaken in July 2010 (Water & Energy Savers Pty Ltd) – expanding upon the previous report – identifying key opportunities to reduce overall consumption. Figure 2 indicates the water consumption types as analysed in the audit.
- Completed project to re-route discharged water from sterilizer units to roof storage tanks - for re-use in sanitary flushing (in Aubrey Bowen and Peter Howson Wings). Expected savings in potable water consumption 3,700kL per year (approximately 16% of 2009-10 total).
- Achievement of a 13.5% reduction in water consumption during first half of 2010 as a result of installing water efficient showers, with flow-restrictors to selected basins and sinks.
- Pressure balancing constant flow control valves installed in all basins and sinks.
- Toilet cistern plumbing modified to allow only low-volume sanitary flush option throughout the Howson Wing.
- Installation of new air-cooled chiller units has removed the requirement for roof-mounted mist sprayer devices - previously used to provide additional cooling to older model condensers at temperatures above 35°C (estimated saving of approximately 1,300kL/year).

2013

- Installed water smart check-meters to enable increased accuracy of data collection & monitoring. (main hospital building and other offsite properties)



**Figure 2** – Hospital water consumption breakdown by usage type obtained from Water Audit July 2010.

### 4.4. Waste Management

2010 and ongoing

- Waste management Committee expanded to include energy considerations - incorporating additional representation by Engineering and Information Technology



departments.

- Educational/instructional posters are used to visually show the various bin-types used within the hospital, to educate hospital staff regarding correct waste disposal methods (including recycling).
- Expanded recycling program to include theatre waste resulted in an increase in monthly recycling percentages from 24% up to the target value of 40% in August 2010.
- All fluorescent tubes collected for recycling.
- All printer toner cartridges collected by specialist company for re-use/recycling.
- All wooden delivery pallets returned to supplier for re-use.
- Electrical battery collection/recycle program established.
- Separation of foam recycling and collection program established
- Biodegradable garbage bags used for general waste collection.
- End-of-life computer/electrical equipment, furniture and fittings in good condition are donated to community organisations or charities for re-use where possible.
- Recycling of furniture and fittings during redevelopment staff decanting program.
- Encouraged office staff to remove individual landfill under desk bins and replace with recycling bins for paper & confidentiality.

#### **4.5. Procurement**

- All hospital medical consumables are procured through Melbourne Health – who integrates environmental purchasing standards into their procurement procedure framework. The procedures include preference for environmentally sustainable products where available to advance the sustainable use of resources and reduce adverse environmental impacts.
- Incorporated environmental clauses into tenders and contracts.
- Implemented a new financial management system to improve service efficiency and reduce paper consumption (eliminate requisition books)

#### **4.6. Transport**

- Prior to redevelopment weatherproof and secure bicycle storage facilities installed following a staff bicycle usage survey - sized to hold 36 staff bicycles. (With limited space during redevelopment smaller alternatives will be considered and provided)
- Facilitation of one shower and change-room for usage by staff cyclists.
- Promoted bike facilities and ride to work days.

#### **4.7. Policy and Procedure**

- The Hospitals Environmental Management procedure defines the principles and standards that promote a healthier environment.

#### **4.8. Redevelopment**

- In November 2012 it was announced that the Victorian Government would fund the Eye and Ear redevelopment. This project will enable the hospital to build a better facility for our patients, staff and visitors.
- SKM Environmental Consultants have been engaged to provide sustainable design assistance and guidance to the Eye and Ear redevelopment project team.
- Installed motion and light sensors to control lighting in Hospital offsite properties.
- Incorporated Environmentally Sustainable Design (ESD) into redevelopment & capital works contract and tendering processes.
- Developed processes to ensure life cycle costs are factored into project planning and design phase of the redevelopment.

- Consideration in redevelopment planning stages to ensure that water capture, recycling and reuse opportunities have been included in the design and development of new and retrofitted facilities.

#### **4.9. Behavioural Change**

- 'KeepCup' reusable hot drink mugs distributed to all staff (June 2011)
- (2012) Established totally smoke free workplace, using guidelines "Going smoke free, a guide for health services".
- Incorporated waste programs into induction program for new staff and contractors.

#### **4.10. Hospital Support Services**

2013

- Cleaning services have been converted to microfiber cloths – reducing the consumption of potable water and chemical detergents.
- All inpatient meals are currently prepared off-site, and supplied in recyclable containers, thereby decreasing use of dishwasher.

#### **4.11. Community Engagement**

- The hospital undertook patient mapping and way finding exercise (2010) to better understand the patient experiences at the Hospital. Information was used in redevelopment planning stages to allow and promote improved communications with patients and their families, visitors and staff.
- Previously awarded a grant to conduct a joint project with Centre for Eye Research Australia (CERA) 'Evaluating the Effectiveness of Participation'
- Public reporting and disclose on Hospital environmental performance for the 2012-13 reporting year posted to the Hospital website.

#### **4.12. Information Technology**

2010

- Rationalised printers/copiers and set printing options to duplex and black and white print settings
- Rationalized printers/copiers and set printing options to duplex and black and white print settings

2011

- Rollout of energy efficient flat screens
- I-pads introduced to replace paper for printing of Board & Executive meeting papers.
- Enabled energy efficiency settings on all relevant office equipment (computers, monitors, printers, photocopiers, etc.)

2013

- Adopted a 80% virtual desktop fleet, a thin PC technology, to reduce energy consumption

## 5. Environmental performance

### **Baseline 2011-2014**

Energy	energy GJ)	energy GJ)	energy GJ)	energy GJ)
	FY 2010/2011	FY2011/2012	FY 2012/ 2013	FY 2013/2014
Electricity	16,223	16,154	14,684	14,811
Natural gas	25,570	22,679	24,544	18,706
Other energy types (e.g. steam, diesel)	159	158	153	60
Total energy consumption	41,952	38,991	39,381	35,591

Water Consumption (kL)	Consumption (kL)	Consumption (kL)	Consumption (kL)	Consumption (kL)
	FY 2010/2011	FY2011/2012	FY 2012/ 2013	FY 2013/2014
Water consumption	23,598	22,002	26,655	26,297
Total water consumption (kL)	23,598	22,002	26,665	26,297

**Note:** Water increase from 2012 to 2014 has been due to leaks in ageing pipes

Waste Generation	generation by (kilograms)	generation by (kilograms)	generation by (kilograms)	generation by (kilograms)
Total waste generation by type (kilograms)	FY 2010/2011	FY2011/2012	FY 2012/ 2013	FY 2013/2014
Clinical waste	31,610	30,516	31,165	33,315
General waste	219,431	238,200	203,351	241,200
Recycled waste	178,589	125,900	177,093	179,865
Total waste generated (kilograms)	429,630	394,616	411,609	454,380
Waste recycling rate (percentage)	41.57%	31.90%	43.02%	39.58%

**Note:** Redevelopment commenced 2013, clean up and staff decanting process increased the general waste stream.

## **Environmental objectives and targets (2015-2018)**

The following key objectives have been set to continue to improve the Hospital's environmental performance. Where specific reduction percentages are nominated, these are provided as a target figure only. The actions listed in Section 8 expand on these objectives, and detail specific methods to move towards achieving targets.

### **1. Management and Communications**

- 1.1 Continue to improve and maintain the Hospital's environmental footprint;
- 1.2 Increase stakeholder and client awareness of our environmental sustainability commitments;
- 1.3 Continue to report achievements; and
- 1.4 Ensure environmentally sustainable design targets are considered for all future capital planning works, with environmental assessment to be integrated into key decision-making processes. Capital Works design shall be conducted in accordance with DHS document: '*Guideline for sustainability in health care capital works (July 2010)*'.

### **2. Energy Consumption**

- 2.1 Review energy consumption from key activities annually.
- 2.2 Continue to ensure all future purchases of passenger fleet vehicles are LPG or low emission (example 4 cylinder).

### **3. Water Consumption**

- 3.1 Review and report on water consumption data annually, and assess areas where ongoing improvements can be made.

### **4. Waste Management**

- 4.1 Aim to achieve 40% benchmark level for volume of waste recycled;
- 4.2 Schedule waste audits to assess contamination of waste streams;
- 4.3 Reduce use of materials containing hazardous materials.

### **5. Purchasing**

- 5.1 Support suppliers who will take back their products and packaging for recycling or reuse.



## 6. Action plan

The Royal Victorian Eye and Ear Hospital has commenced extensive redevelopment works,. As such, several large-scale environmental improvement actions (such as upgrading the HVAC system to include area zoning) will be integrated into redevelopment plans, in order to minimise disruption to normal hospital services. The actions below have been specified as those improvements that can be made outside of the redevelopment works. It should be noted that, during the redevelopment the Hospital has to have the capacity to rebuild and continue to function and operate under extreme conditions and therefore is likely to have overall increases in energy consumed and operational costs.

### Responsible Parties

FM	= Facilities Management	CL	= Community Liaison
HSEC	= Health Safety & Environment Committee	HR	= Human Resources
WM	= Waste Management ( <i>including Energy</i> )	CP	= Contracts and Procurement
ICT	= Information, Communications and Technology	MC	= Marketing and Communications
SPR	= Strategic, Planning & Redevelopment		

Management and communications	Timescale	Responsibility	Progress
Review environment procedure every 3 years.	On-going	HSEC	
Make sure environmental sustainability issues (e.g. greenhouse gas emissions and climate change) are considered in reviews of the corporate or strategic plans.	On-going	SPR	
Improve education and awareness of patients and visitors regarding the hospital's sustainable practices.	On-going	MC	
Promote environmental achievements at events, networks, forums , annual reports and website.	On-going	MC, ICT	
Education and training	Timescale	Responsibility	Progress
Encouraging staff to turn off equipment when not being utilised. This may involve targeted communications and signage.	on-going	FM, MC, ICT	
Ensure public reporting of environmental performance, targets and achievements (via annual report on website).	Annually	HSEC, MC	On-going
Encourage staff to submit ideas on how the organisation can reduce its environmental impacts (ie. webpage feedback form, forums).	On-going	HSEC, ICT, MC	
Waste	Timescale	Responsibility	Progress
<b>REDUCE</b>			
Decrease use of goods containing hazardous materials (e.g. PVC, chemicals).	On-going	CP, WM, FC, SPR	
<b>REUSE</b>			
Encourage the re-use of paper that has been printed on only one side as note-taking/scrap paper.	On-going	WM, ICT, MC	
<b>MONITORING AND ASSESSMENT</b>			

<b>Management and communications</b>			<b>Timescale</b>	<b>Responsibility</b>	<b>Progress</b>
Use audits and education programs to reduce rates of contamination in waste streams.			On-going	WM	
<b>Energy</b>			<b>Timescale</b>	<b>Responsibility</b>	<b>Progress</b>
Monitor energy consumption using data from smart meters on an ongoing basis - investigating significant fluctuations in use and high usage outside of normal operating hours			On-going	FM	
<b>Transport</b>			<b>Timescale</b>	<b>Responsibility</b>	<b>Progress</b>
Continue to ensure all future purchased vehicles are fuel efficient models (ie. LPG, 4-cylinder vehicles, hybrid and diesel technology).			On-going	CP	Currently one vehicle fleet only - 4-cylinder fuel efficient model.
<b>Water</b>			<b>Timescale</b>	<b>Responsibility</b>	<b>Progress</b>
Continue to ensure purchased appliances and equipment are high water-efficiency (washing machines, dishwashers, etc.).			On-going	CP, FM	
Continue use of only native and drought-tolerant vegetation for planting in landscaped areas.			On-going	SPR, Gardening contractor	
<b>Purchasing choices</b>			<b>Timescale</b>	<b>Responsibility</b>	<b>Progress</b>
Continue to work with Stakeholders and Melbourne Health to include consideration of: <ul style="list-style-type: none"> <li>• local sourcing</li> <li>• green purchasing</li> <li>• minimising volume purchased</li> <li>• minimising packaging waste</li> </ul>			On-going	HSEC, CP	
Incorporate the use in infrastructure projects of recycled materials and materials that can be reused at end of life.				SPR	
Meet or exceed minimum energy and water efficiency standards when purchasing new white-goods, IT peripherals and other appliances. ( <i>this is a Government target and priority</i> )			On-going	FM, CP, ICT, SPR	
<b>Biodiversity and water quality</b>			<b>Timescale</b>	<b>Responsibility</b>	<b>Progress</b>
Develop and implement Water Sensitive Urban Design (WSUD) policy and guidelines for retrofits and new infrastructure/building works.				SPR	
Consider installing drainage filtration devices (gross pollutant traps or triple interceptors) to prevent litter and oils from entering waterways.				FM, SPR	
Undertake infrastructure maintenance works in a manner that prevents the creation of concrete slurry run-off.				SPR	
<b>Planning and infrastructure</b>			<b>Timescale</b>	<b>Responsibility</b>	<b>Progress</b>
Ensure that building thermal performance upgrade is included in the capital works.				SPR	



## 7. Monitoring, review and continuous improvement

The schedule below has been created to ensure that key environmental performance indicators are continually being measured throughout the year, to enable review and assessment against targets.

### Monitoring schedule

What	How	How often	Records	Who
Electricity use	Retailer main meters, via electricity bill	Monthly	Smart meters and electricity bills	Facilities Manager
Natural Gas consumption	Retailer invoices	Monthly	Usage reports from service provider	Facilities Manager
Water use	Sub meters to monitor peaks	Monthly	Sub meter reports	Facilities Manager
Paper use	Waste monitoring checklist	Quarterly	Usage reports from provider	Purchasing
Fuel use	Monthly bills and vehicle fleet log records	Quarterly	Invoices	Purchasing
Waste	Waste monitoring checklist / contractor data	Quarterly	Use spread sheet to collate data from invoices showing volume of waste & recycling	Purchasing

### Review and progress reporting

- Performance progress and key achievements to be reported publicly through annual report.
- Strategy and targets to be reviewed and updated every four years.

## 8. Conclusion

This Environmental Management Plan demonstrates The Royal Victorian Eye and Ear Hospital's organisational-wide commitment to reducing the adverse environmental impacts associated with the day-to-day operations and activities. It also shows that environmental considerations will be integrated into future policy and procedural decisions, including redevelopment works. Short to medium term objectives are specified in order to guide the hospital, with targets scheduled for review in the future to ensure continual improvement is achieved.