Melbourne Health Environmental Report

2017/18

First in Care, Research and Learning

MELBOURNE HEALTH

Introduction

ABOUT MELBOURNE HEALTH

Melbourne Health is a leading public health service in Victoria, employing over 9000 staff and managing over 1,400 beds. We provide comprehensive acute, sub-acute, general, specialist medical and mental health services through both inpatient and community based facilities through the following services: The Royal Melbourne Hospital (RMH) City and Royal Park Campuses, NorthWestern Mental Health and The Doherty Institute for Infection and Immunity.

In 2017/18 our staff provided care to over 530,000 patients at RMH with over 76,000 emergency attendances and more than 198,000 outpatient appointments.

Melbourne Health has a long standing commitment to minimise its carbon footprint and to be a leader in environmental sustainability within the Victorian healthcare sector.

By thinking green, Melbourne Health continues to promote a culture of caring for the environment, which is supported by the actions and initiatives of both the organisation, our people, patients, consumers and visitors.

Our Strategic Plan 2015-2020 includes sustainability as a strategic priority and our 'Think Green' Strategy 2015-2020 sets our sustainability goals over five years and provides yearly objectives to guide our environmental initiatives.

Our 'Think Green' strategic goals are:

1. Continued improvement in waste segregation and reduction
2. Implement mechanisms to monitor and reduce resource consumption
3. Promote green thinking amongst staff, visitors and partners
4. Encourage sustainable and active transport
5. Foster sustainable procurement

HIGHLIGHTS 2017/18

- Increased energy efficiency
- Better segregation and reduction in overall waste disposal costs
- 3,000 meals per month donated to OzHarvest
- Reduction in Greenhouse gas emissions
- 150+ staff members nominated as Green Champions
- More Thinking Green activities

Energy Efficiency

LIFT UPGRADES

Modernisation works were carried out on lifts 7 & 8 and lifts 9 & 10 at RMH City Campus.

These works applied the latest energy efficiency technologies, including:

- Replacing direct current hoisting machines and generator sets with permanent magnet alternating current type
- Replacing lift control system with variable frequency AC inverter units with regenerative technology
- New group control supervisory panel
- Installing power consumption monitoring devices

An energy consumption baseline was established prior to commencement of works to accurately measure any savings.

Prior to the modernisation, the four lifts consumed 514,550 kWh per year.

Post modernisation the lifts are consuming 96,543 kWh per year.

The works have reduced energy consumption by over 80% and GHG emission by 450 $tCO2_e$ per annum.

Additionally, the group control supervisory system analyses call data and applies this data to direct the lift cars to wait at high call floors, improving passenger flow efficiency and reducing overall passenger waiting periods.

CAR PARK FANS

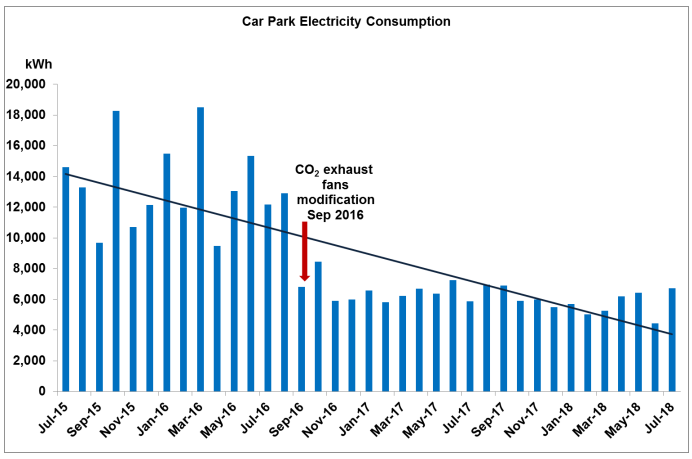
Co_2 exhaust fans used to run on 100% capacity continuously in our underground car park at RMH City Campus.

In September 2016, the original Co_2 sensor and alarm system was reinstated on all levels of the carpark and the fans now only run at full capacity at peak traffic times from 7-10 am and 3:30-8:30pm.

At all other times fans are running at reduced capacity.

If the need arises, fans can be switched to 100% capacity at the push of a button.

As can be seen in the graph below, these modifications have halved the energy consumption of the carpark CO_2 fans.



Total Waste Cost

WASTE COST REDUCTIONS

At RMH City Campus we generated a total of 2,019 tonnes of general waste, clinical waste and recyclables this year, an average of 5.5 tonnes per day.

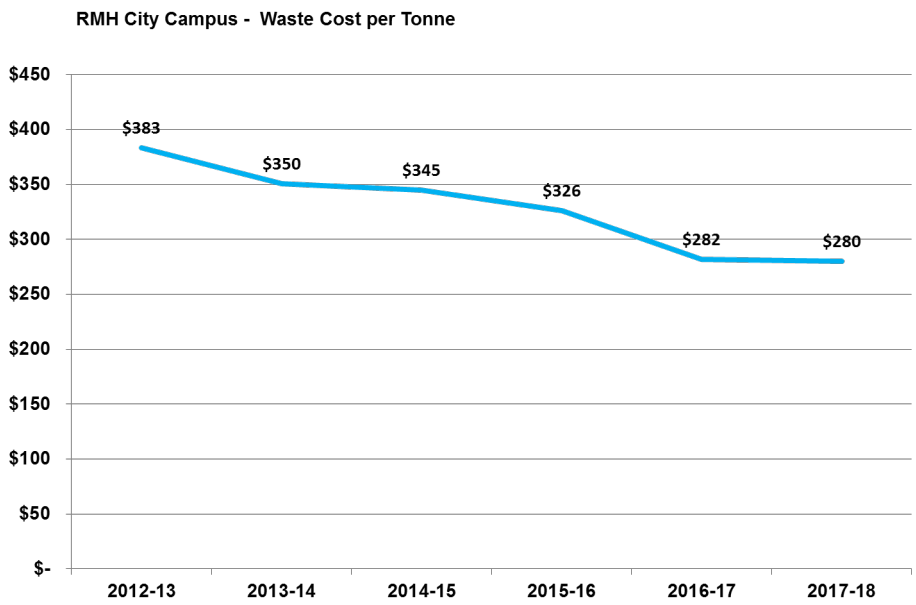
We have been tracking our waste costs over the past 6 years and our total cost per tonne for waste disposal has dropped by 27% since 2012-13. Waste disposal costs per patient treated have also been reduced by 25% over the same period.

Some of this reduction can be attributed to a new waste management contract which commenced in 2015. Mostly however, these reductions occurred because of better waste segregation and increased recycling by staff.

Over the past years, we have focused on better segregation, reducing our clinical waste per patient by 33%.

We have introduced multiple cost neutral recycling options including polypropylene (sterile wrap and disposable curtains), PVC, toner cartridges, metal, aluminium suture packets, single-use steel instruments, mobile phones and little blue towels.

We have also diverted 102 tonnes of food waste from landfill by using an organic waste dehydrator which turns food waste into organic fertiliser. This reduced waste disposal costs and also our greenhouse gas emissions by 194 t CO2-e.



Food Donations

Pictured above (left to right):

OzHarvest driver Matt Cull, Kitchenhand Supervisor Paul Rumpe and Chef Deven Sunassee

REDUCING FOOD WASTE

After watching a TV show called Struggle Street, Brendan Ridley, Melbourne Health Food Services Production Manager, initiated a partnership with OzHarvest and Northpoint Centre in March 2018 to combat both hunger and food waste within our community.

Excess hospital food produced by the Melbourne Health Central Production Kitchen at Footscray, is collected by an OzHarvest driver each weekday and delivered to Northpoint Centre in Tullamarine. Northpoint Centre provides over 1,200 food parcels per week to people in need

The food donated consists of surplus meals which must be prepared each day in case of unplanned events within the hospital or as a contingency for refrigeration breakdowns or spillages.

Melbourne Health provides 100 cooked-chill main meals, 80 modified texture main meals (which can be processed into homemade style soup in the charity kitchen), as well as 60 desserts to OzHarvest each day .

3,000 meals per month are being redistributed to the community since March 2018.

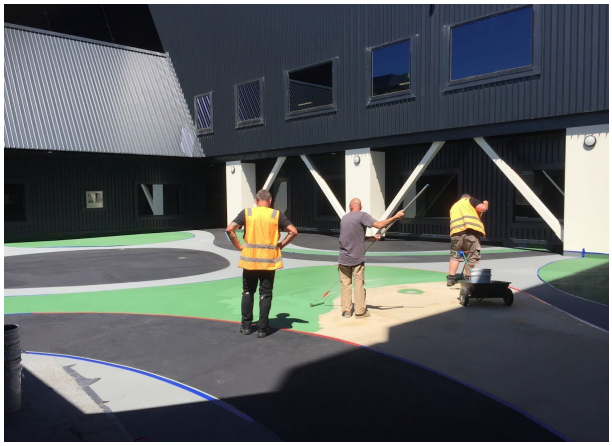
Greening

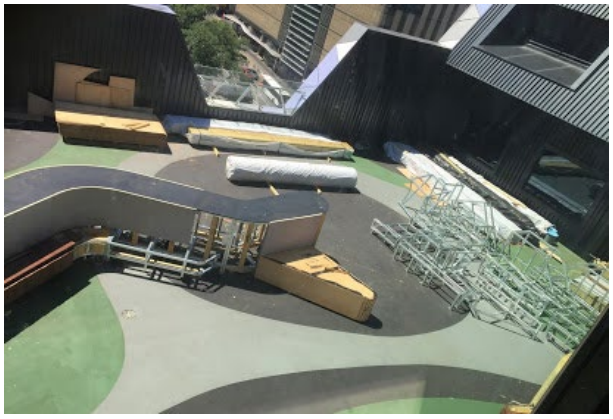
7B ROOFTOP GARDEN

Ward 7B is our Haematology and Bone Marrow Transplantation ward, where some of our most vulnerable patients spend their time.

In May 2018, we were delighted to open the Ward 7B Rooftop Garden for patients and their families to enjoy time away from the ward in a peaceful and welcoming outdoor space.

Before





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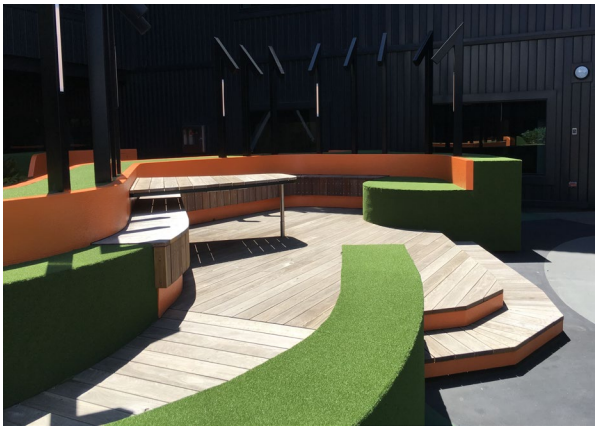


Transport

GREEN COMMUTE WEEK

A Green Commute Week was held October 9-15 to encourage staff to travel to work more sustainably.

During the week we offered free bike checks, promoted the new secure bike cages at RMH Royal Park and RMH City campuses and provided information about greener commuting at a staff BBQ.

We also encouraged staff to send in pictures of their green commute for a chance to win a gift card.

Some of the spectacular photos sent in by staff are pictured on this page.

Pictures provided by Ruth Harper, Joss Dimock and Fiona Gillies

Thinking Green

WORLD SOCIAL WORK DAY

The Social Work department celebrated World Social Work Day on 20 March and the theme was 'Promoting Community and Environmental Sustainability'.

In the lead up to this event the Social Work Department ran a competition to find sustainable ideas to be implemented within their department.

The winner received an eco friendly hamper for a poster encouraging reusable coffee cup use. All entrants received an RMH BYO cup.

SWITCH OFF WEEK

In the average Victorian Hospital, heating, ventilation and air conditioning (HVAC) comprise over half of all energy use and lighting makes up over a quarter of hospital energy costs. Lighting and office equipment also produce a lot of heat - they account for up to15 percent air conditioning energy costs and greenhouse gas emissions.

Our annual Switch Off Week event, culminating in Earth Hour, aims to educate staff about energy saving opportunities and encourage switching off non-essential equipment when not in use.

SUSTAINABILITY EXPO 2016

Our 5th annual Environment and Sustainability Expo on 15 November was again well attended. 161 visitors, including 4 consumers, viewed the displays, talked to suppliers and NGOs and got some information on sustainability initiatives.

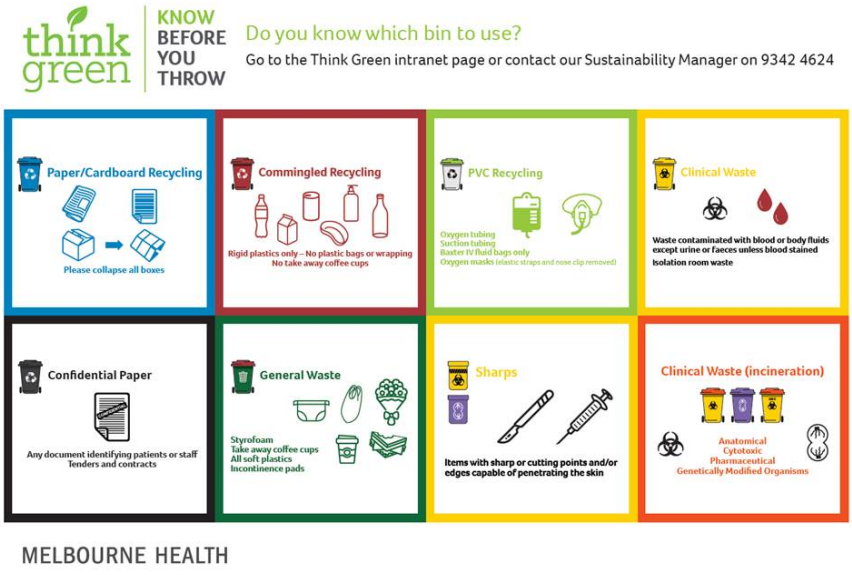
Thinking Green

SUSTAINABILITY GRANT

The Department of Health and Human Services provided a once-off contribution to all public Health Services to be used for sustainability initiatives in 2017-18.

At Melbourne Health, we purchased 1,000 RMH branded BYO coffee cups to encourage staff to reduce the use of take-away coffee cups.

We also developed a new waste poster and two banners to promote correct waste segregation and staff participation in sustainability initiatives.



Consumption Data

NORMALISING FACTORS

Normalising factors refer to indicators that are used to compare environmental performance over time and to allow for any changes in service delivery. The factors below are used throughout this report.

Bed days

The number of in-patient bed days for the reporting period

Patients treated

The number of in-patient bed days, the number of emergency presentations and the number of out-patients for the reporting period

Separations

The number of separations for the reporting period

Floor area

Metre squared of floor space, excluding car parks

Recycling Rate

The Recycling Rate is the total weight of recycled material divided by the total weight of general waste and recycled material

Source: Public Environmental Reporting Guidelines, Department of Health and Human Services, VIC, 2017

Factors City	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Bed days	243,259	229,307	238,591	239,213	245,489	254,824
Separations	89,371	79,714	83,781	89,306	95,022	98,303
Patients treated	462,430	459,921	478,262	485,905	503,771	530,192
Floor area m^2	114,367	114,367	114,367	121,083	127,799	127,799

Factors RPC	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Bed days	52,274	50,994	50,426	57,097	66,383	65,944
Separations	3,091	2,728	2,633	3,310	4,026	3,785
Floor area m^2	25,395	25,395	25,395	25,395	25,395	29,112

Energy

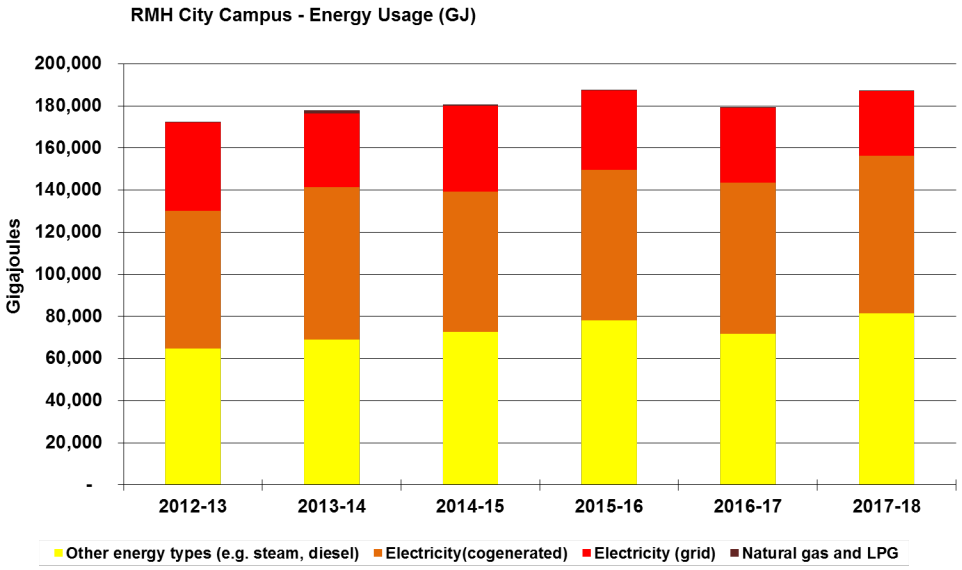
RMH CITY CAMPUS

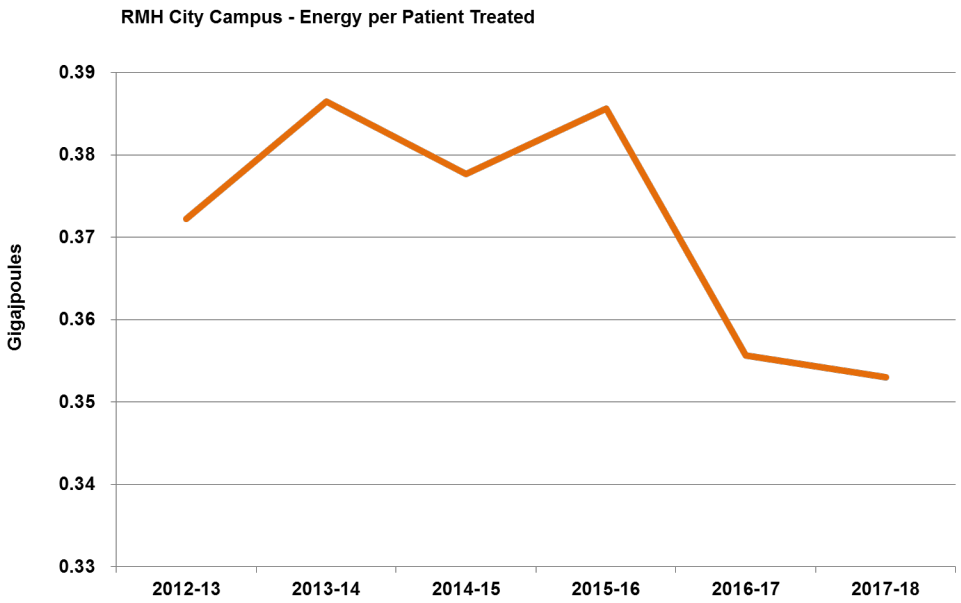
Energy per patient treated further decreased in 2017/18. Cogenerated energy use increased, which produces both electricity and steam by burning natural gas in turbines, and is considered less emission intensive than the grid.

Energy consumption RMH City Campus	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Electricity (Grid)	42,032	34,929	40,613	37,920	35,727	30,749
Electricity (Cogen)	65,332	72,301	66,667	71,336	71,705	75,014
Natural gas and LPG	89	1,502	718	10	12	11
Other (e.g. steam, diesel)	64,698	69,027	72,634	78,126	71,748	81,401
Total (GJ)	172,151	177,759	180,632	187,392	179,193	187,176
Normalised energy consumption						
Energy per floor area (GJ/m^2)	1.51	1.55	1.58	1.55	1.40	1.46
Energy per bed days (GJ)	0.71	0.78	0.76	0.78	0.73	0.73
Energy per separations (GJ)	1.93	2.23	2.16	2.10	1.89	1.90
Energy per patients treated (GJ)	0.37	0.39	0.38	0.39	0.36	0.35

Energy

RMH CITY CAMPUS





Energy

RMH ROYAL PARK CAMPUS

Energy consumption at the RMH Royal Park Campus was lower than in previous years.

Energy per square meter and per bed days is at an all time low since measurements started in 2012-13.

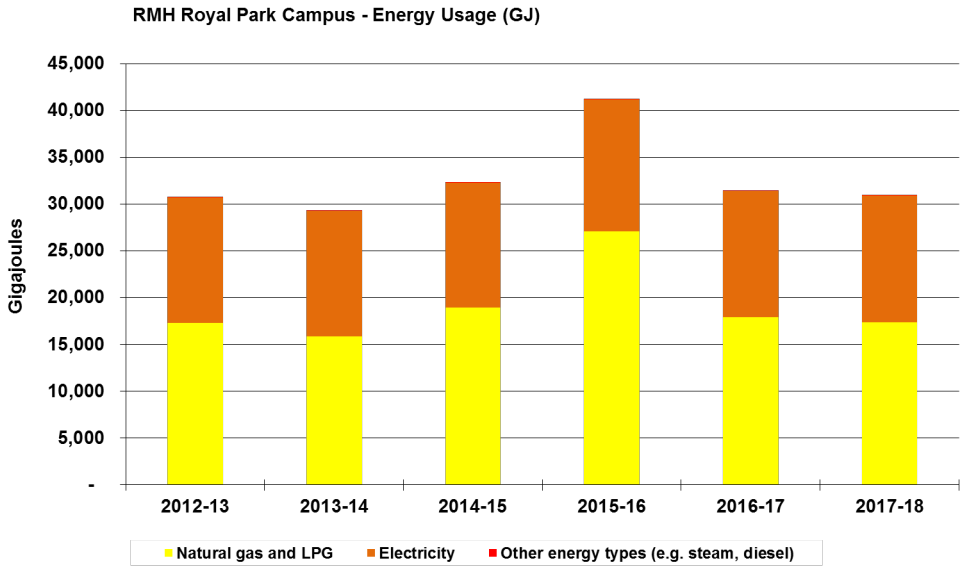
Modernisation of lifts 7 & 8 were completed at the RMH Royal Park Campus this year.

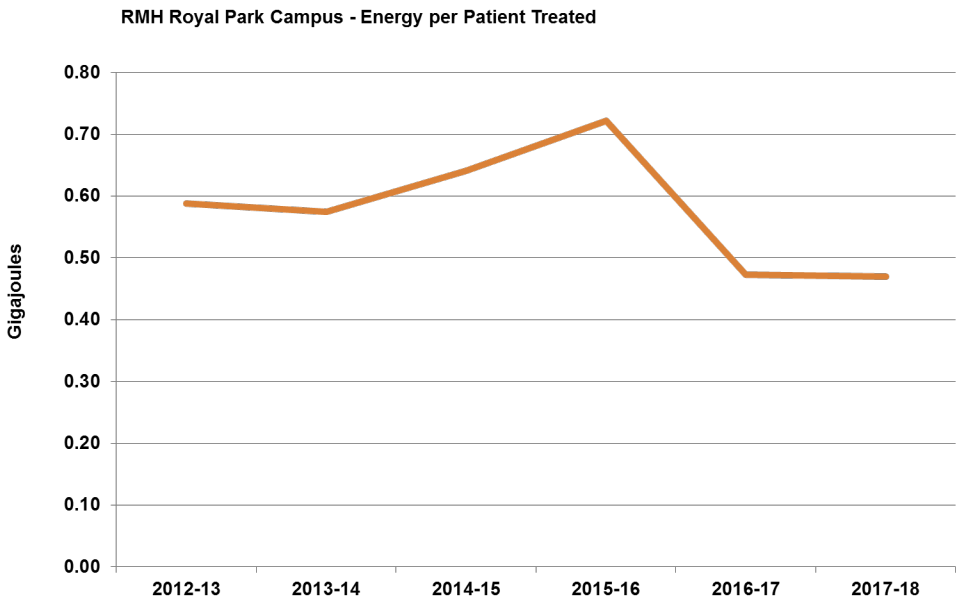
The works have reduced energy consumption by over 50% and GHG emission by 15 $tCO2_e$ per annum

Energy consumption RMH Royal Park Campus						
	2012-13	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**
Electricity (Grid)	13,444	13,458	13,338	14,069	13,461	13,603
Natural gas and LPG	17,302	15,838	18,973	27,104	17,922	17,338
Other (e.g. steam, diesel)	19	19	19	19	19	19
Total (GJ)	30,765	29,315	32,330	41,192	31,402	30,960
Normalised energy consumption						
Energy per floor area (GJ/m^2)	1.21	1.15	1.27	1.62	1.08	1.06
Energy per bed days	0.59	0.57	0.64	0.72	0.47	0.47
Energy per separations (GJ)	9.95	10.75	12.28	12.44	7.80	8.18

Energy

RMH ROYAL PARK CAMPUS





GHG Emissions

RMH CITY CAMPUS

Greenhouse gas emissions at RMH City Campus have declined by 7.5 per cent over the previous year. Greenhouse gas emissions per patient treated declined by 12.5 per cent

The 2,119 tCO2e reduction in emissions is equivalent to taking approximately 500 cars off the road for a year.

SCOPE 1 & 2 EMISSIONS

Scope 1 GHG emissions (direct emissions) are emissions released to the atmosphere as a direct result of an activity at a facility

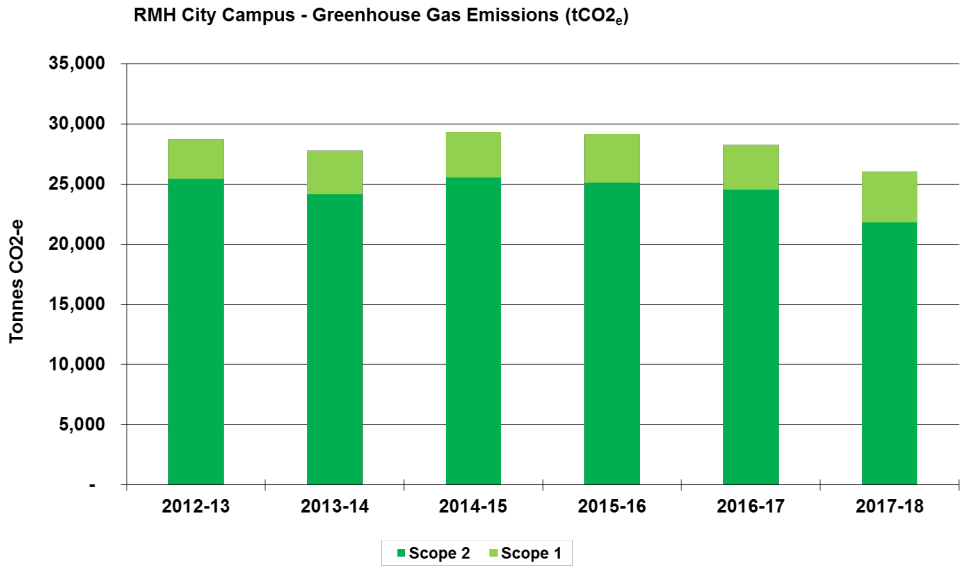
Scope 2 GHG emissions (indirect emissions) are emissions released to the atmosphere from the consumption of energy produced by another facility

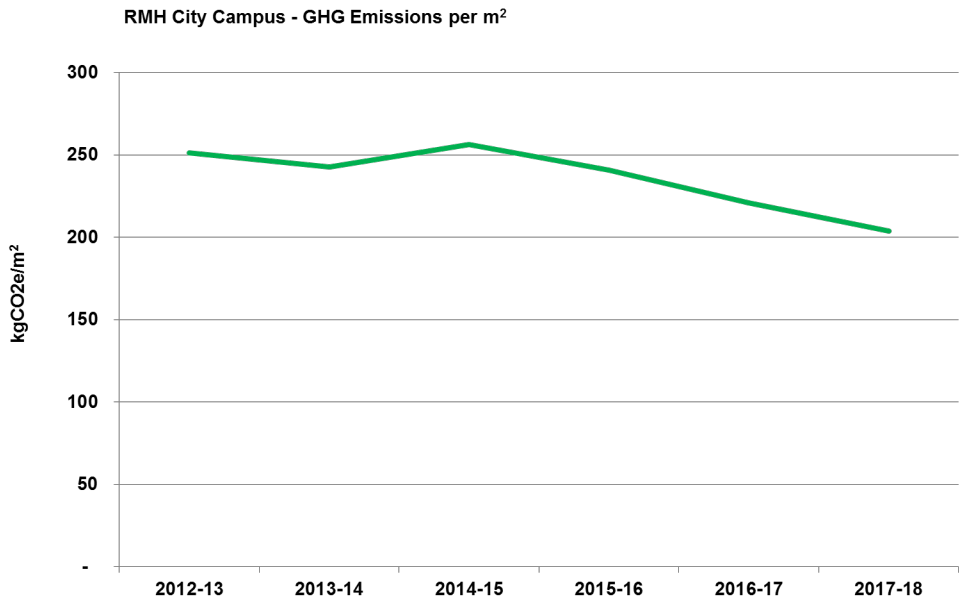
Greenhouse gas emissions RMH City Campus

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Scope 1	3,319	3,612	3,757	4,018	3,694	4,186
Scope 2	25,436	24,142	25,553	25,120	24,442	21,831
Total (tonnes CO2e)	28,755	27,754	29,310	29,137	28,136	26,017
Normalised greenhouse gas emissions						
Emissions per floor area ($kgCO2e/m^2$)	251	243	256	241	220	204
Emissions per bed days (kgCO2e)	118	121	123	122	115	102
Emissions per separations (kgCO2e)	322	348	350	326	296	265
Emissions per patient treated (kgCO2e)	62	60	61	60	56	49

GHG Emissions

RMH CITY CAMPUS





GHG Emissions

RMH ROYAL PARK CAMPUS

Greenhouse gas emissions at the RMH Royal Park Campus have declined again over the previous year and are the lowest level since we began measuring our emissions.

NATIONAL GREENHOUSE FACTORS

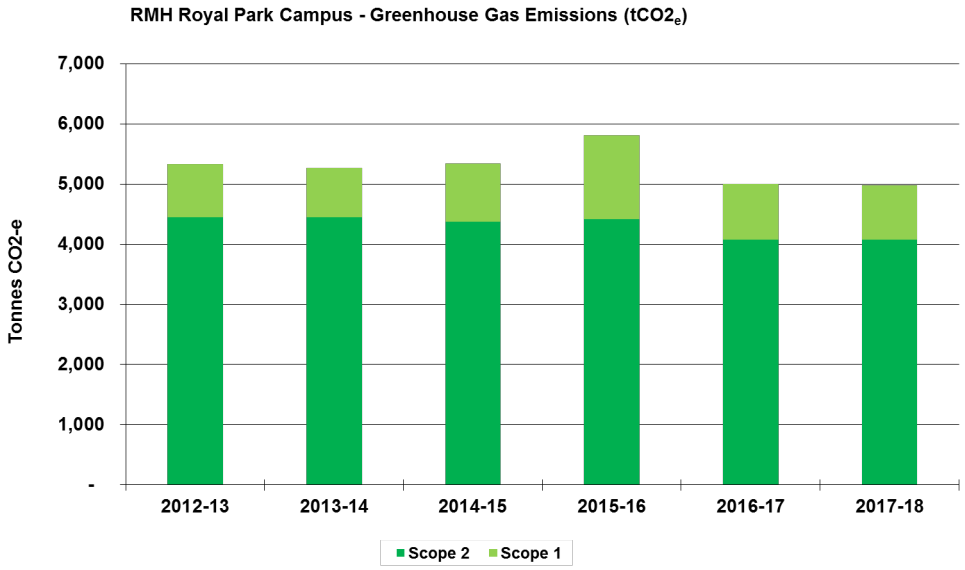
The National Greenhouse Accounts (NGA) Factors is prepared annually by the Department of the Environment and Energy and is designed for use by companies and individuals to estimate greenhouse gas emissions. The published emissions factors are used to convert energy types into Greenhouse gas emissions and are used throughout this report.

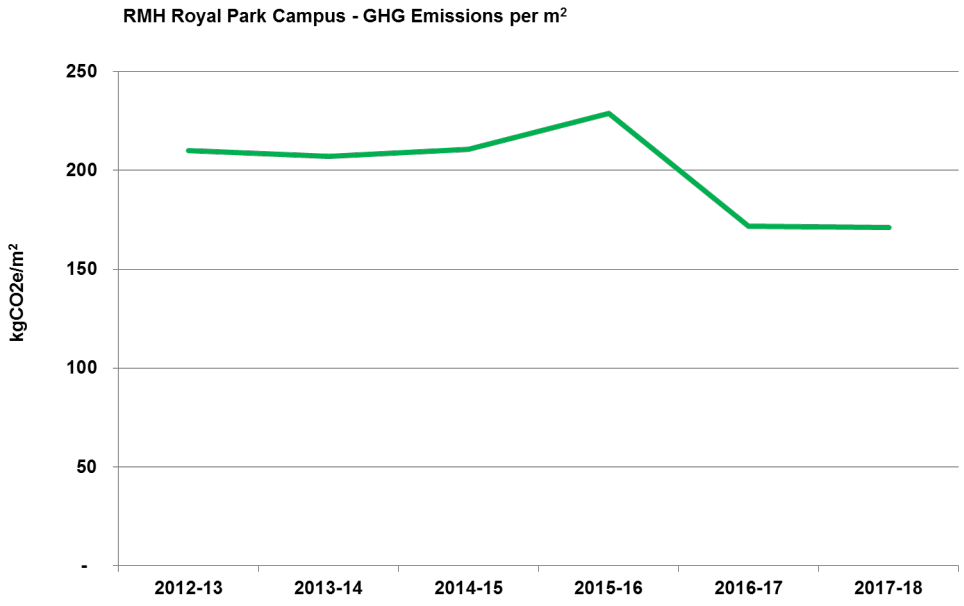
Greenhouse gas emissions RMH Royal Park Campus

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Scope 1	889	814	975	1,398	925	895
Scope 2	4,444	4,449	4,372	4,416	4,076	4,081
Total (tonnes CO2e)	5,333	5,263	5,347	5,814	5,000	4,976
Normalised greenhouse gas emissions						
Emissions per floor area (kgCO2e/m^2)	210	207	211	289	172	171
Emissions per bed days /patients treated (kgCO2e)	102	103	106	102	75	75
Emissions per separations (kgCO2e)	1,725	1,929	1,757	1,757	1,242	1,315

GHG Emissions

ROYAL PARK CAMPUS





Water

RMH CITY CAMPUS

In 2016/17 our water usage has increased at the RMH City Campus.

Water consumption can fluctuate depending on weather conditions, hotter temperatures require more water for heat rejection in our cooling towers.

Please note:

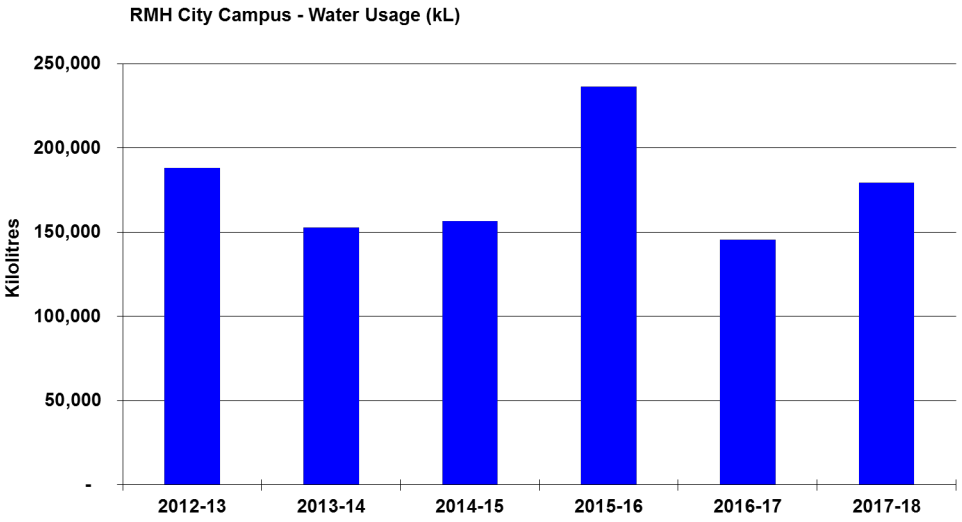
Water consumption in 2015/16 was higher than usual due to construction of four new floors in the B Building and commissioning of new equipment.

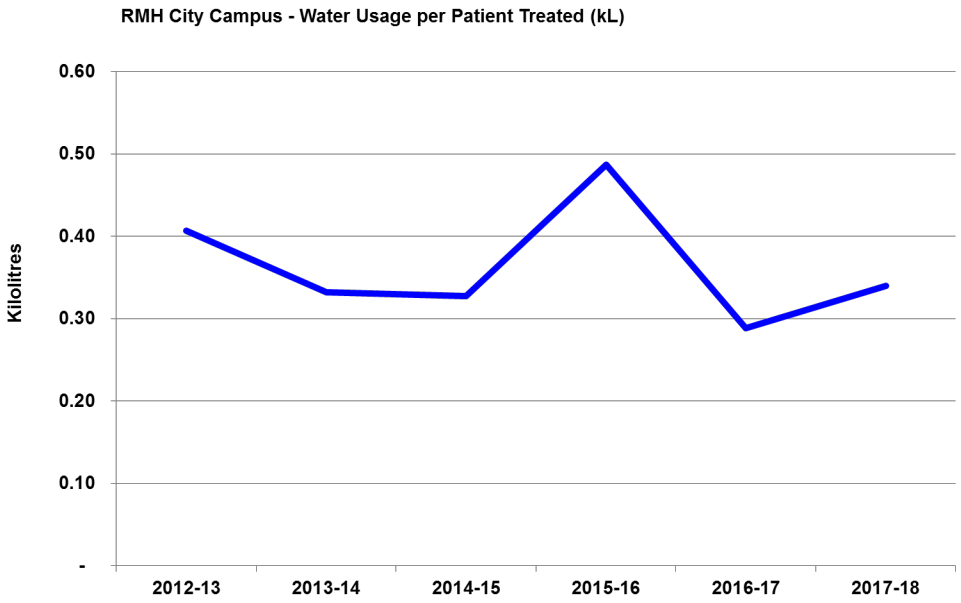
Water consumption RMH City Campus

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Potable water	188,042	152,798	156,660	236,572	145,497	179,582
Reused/ recycled water water	0	0	0	0	0	0
Total (kilolitres)	188,042	152,798	156,660	236,572	145,497	179,582
Normalised water consumption						
Water per unit of floor space (kL/m2)	1.64	1.34	1.37	1.95	1.14	1.41
Water per bed days (kL)	0.77	0.67	0.66	0.99	0.59	0.70
Water per separations (kL)	2.10	1.92	1.87	2.65	1.53	1.83
Water per patient (kL)	0.41	0.33	0.33	0.49	0.29	0.34

Water

RMH CITY CAMPUS





Water

RMH ROYAL PARK CAMPUS

RMH Royal Park Campus total water consumption has decreased further in 2017/18 and is at a consistent six year low of water use for all normalising factors.

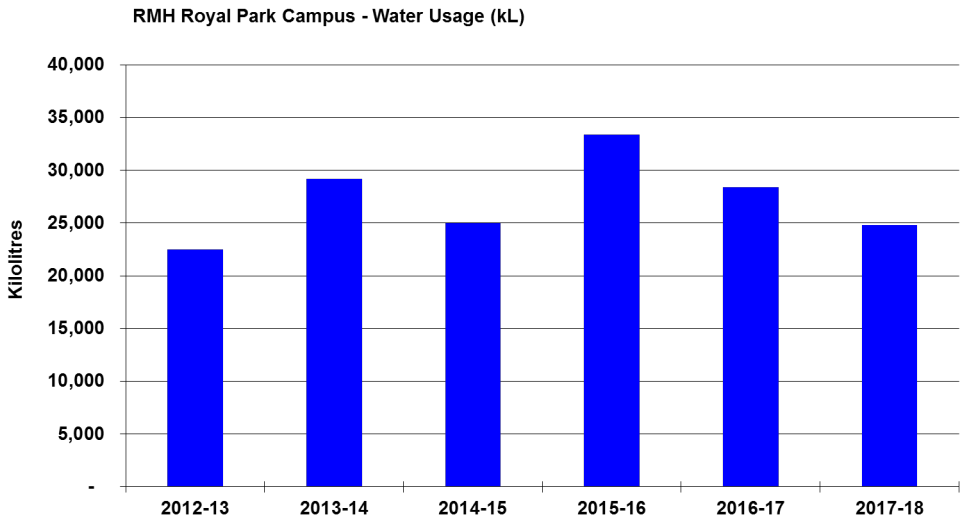
Please note:

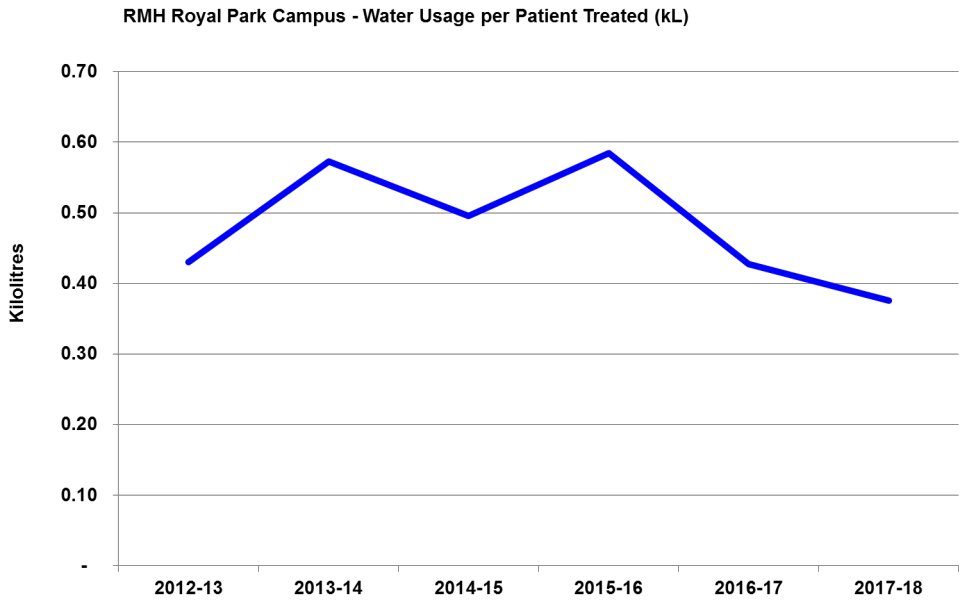
The unusual rise in water consumption in 2015/16 was caused by a plant failure which was subsequently repaired.

Water consumption RMH Royal Park Campus						
	2012-13	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**
Potable water	22,500	29,220	24,971	33,383	28,378	24,795
Reused/recycled water	0	0	0	0	0	0
Total (kilolitres)	22,500	29,220	24,971	33,383	28,378	24,795
Normalised water consumption						
Water per unit of floor space (kL/m2)	0.90	1.15	0.98	1.31	0.97	0.85
Water per bed days/patients treated (kL)	0.43	0.57	0.50	0.58	0.43	0.38
Water per separations (kL)	7.36	10.71	9.48	10.09	7.05	6.55

Water

RMH ROYAL PARK CAMPUS





Waste

RMH CITY CAMPUS

At RMH City Campus we increased our recycling rate and also reduced our general waste by diverting 102 tonnes of food waste from landfill.

Staff in our Emergency Department commenced a trial to recycle single use steel instruments. The instruments, mostly scissors, are sterilised and can then be safely recycled.

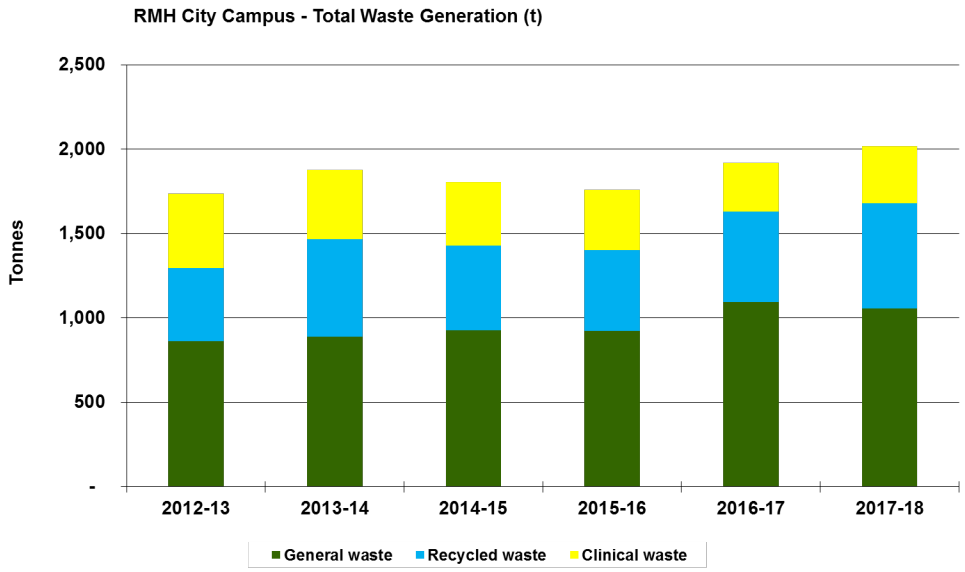
Our total waste generation is still increasing due to the continued increase in patients treated. Other contributing factors include the trend in healthcare towards the use of single use and/or disposable items due to better infection prevention and continued construction and opening of new wards/areas.

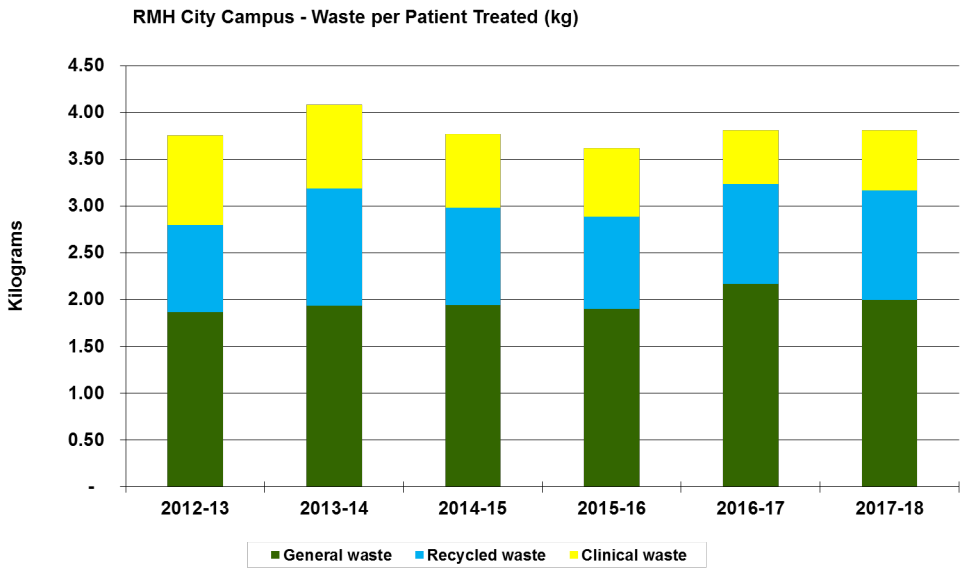
Waste generation RMH City Campus

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Clinical waste	443	412	376	355	289	340
General waste	864	889	928	923	1,094	1,058
Recycled waste	431	577	500	481	537	622
Total (tonnes)	1,738	1,878	1,804	1,759	1,920	2,019
Normalised waste generation						
Waste per bed days (kg)	7.14	8.19	7.56	7.35	7.82	7.92
Waste per separations (kg)	19.45	23.56	21.53	19.70	20.21	20.54
Waste per patient treated (kg)	3.76	4.08	3.77	3.62	3.81	3.81
Waste recycling						
Waste recycling rate %	33	39	35	34	33	37

Waste

RMH CITY CAMPUS





Waste

RMH ROYAL PARK CAMPUS

Recycling rates have increased year on year at RMH Royal Park Campus, with new recycling streams being introduced.

This year we have commenced metal recycling in our Prosthetics & Orthotics Department and single use steel instrument recycling in our Clinical Centre.

We have reduced clinical waste generation at RMH Royal Park Campus by 23% this year through staff education on correct waste segregation practices.

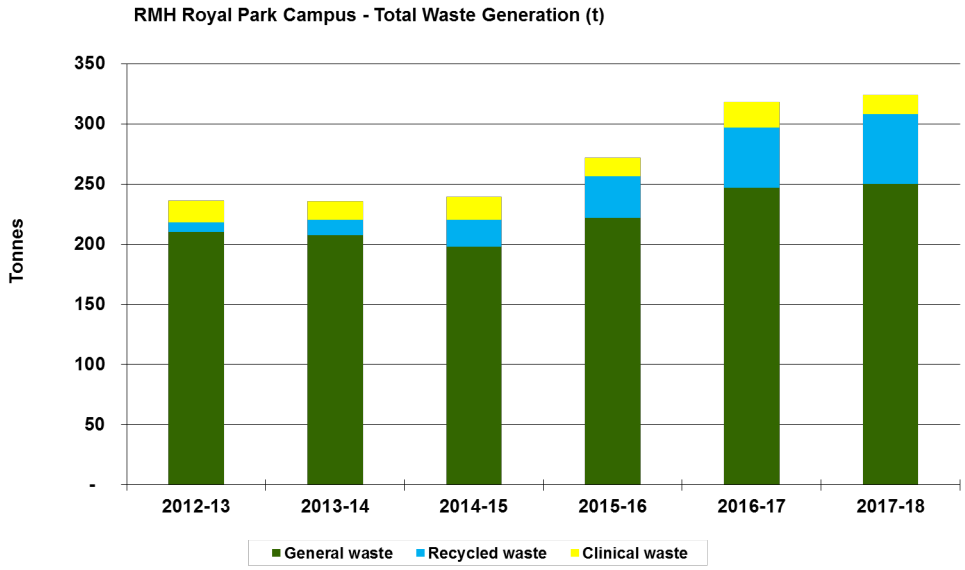
Please note: Clinical waste reported for both campuses does not include sharps; as sharps weight data is not available from the contractor.

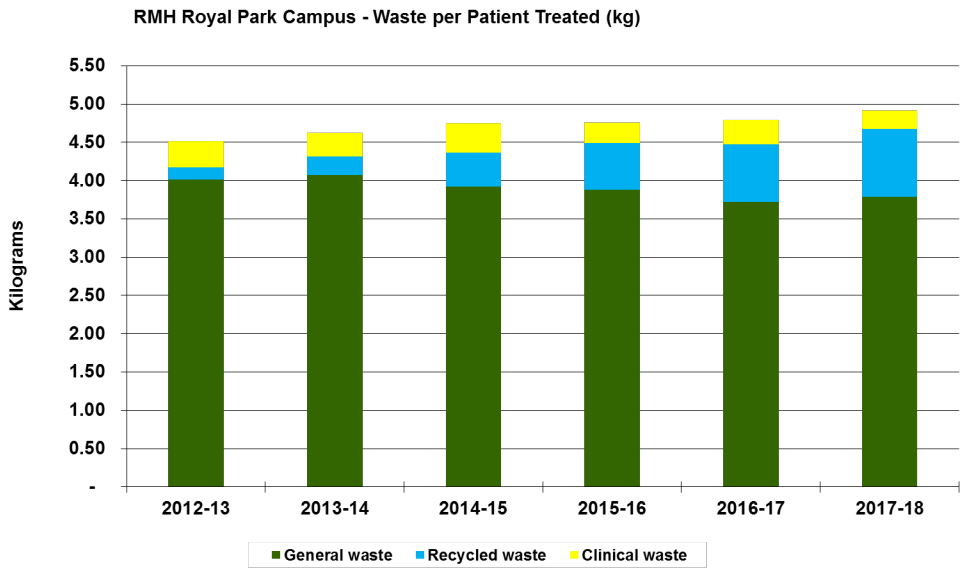
Waste generation RMH Royal Park Campus

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Clinical waste	18	15	20	15	21	16
General waste	210	208	198	222	247	250
Recycled waste	8	13	22	35	50	58
Total (tonnes)	236	236	240	272	318	324
Normalised waste generation						
Waste per bed days / patients treated (kg)	4.51	4.62	4.75	4.76	4.79	6.20
Waste per separations (kg)	76.22	86.39	91.02	82.10	78.99	85.60
Waste recycling						
Waste recycling rate %	4	6	10	14	17	19

Waste

RMH ROYAL PARK CAMPUS





Glossary

REPORT BOUNDARIES

The consumption data in this report reflects environmental performance at the RMH City Campus and RMH Royal Park Campus.

A full set of accurate consumption data is not available for other Melbourne Health sites, as some sites are either co-located within other organisations or utility costs are charged as a flat rate under lease agreements and metering is unavailable.

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