

UNIVERSITY OF KENT/ESTATE STRATEGY 2015-2025

Appendices December 2015



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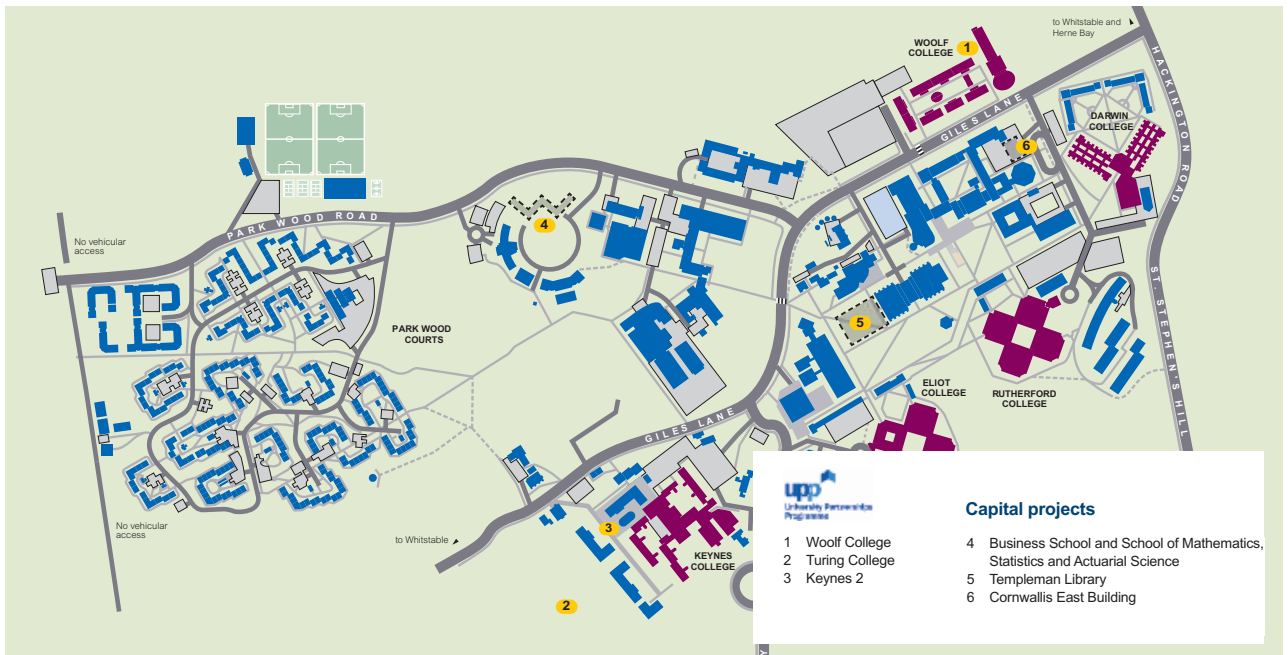
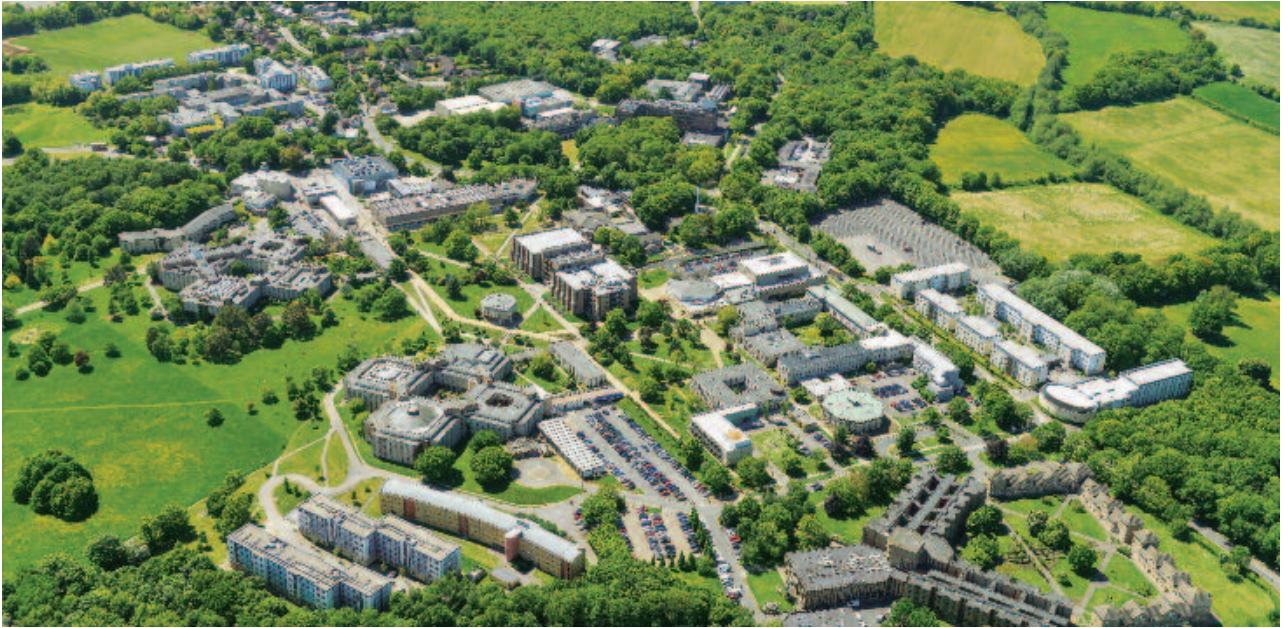
UNIVERSITY OF KENT/ESTATE STRATEGY 2015-2025

Appendices

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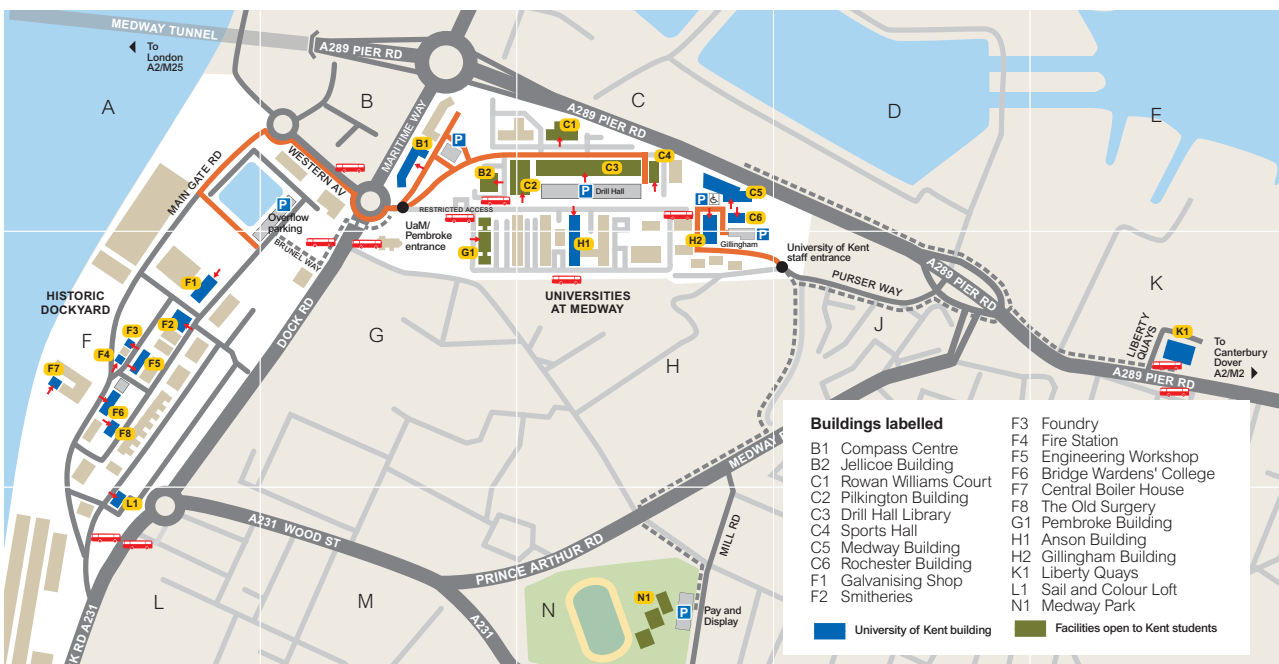
APPENDIX 1



a Canterbury campus

- 300 acre landscaped main campus
- 230 acre farm immediately to the north of the campus
- 45 acre pasture to the east of the campus
 - 12,945 Undergraduates
 - 2,870 Postgraduates

- 3,540 Staff
- 68 non-residential buildings with a GIA of 120,573m²
- Circa 5,500 on-campus student bedrooms by 2014/15



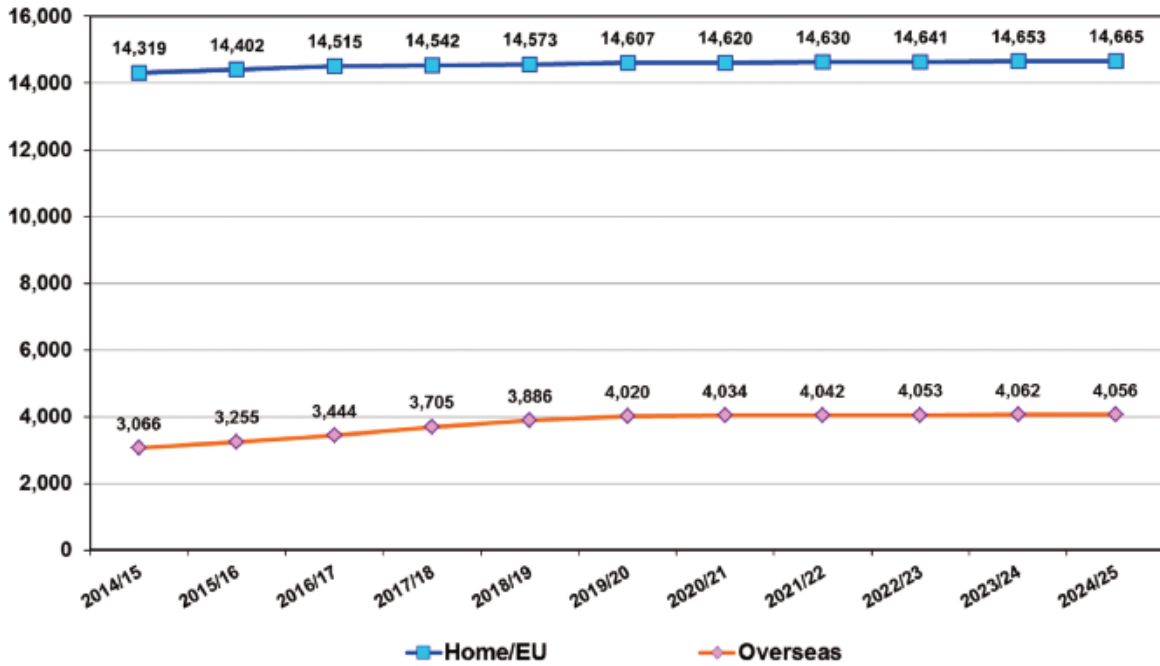
b Medway campuses

- 2,875 Students
- 2,275 Undergraduates
 - 600 Postgraduates
 - 295 Staff
- Three owned and three shared academic buildings on Pembroke site with a total GIA of 14,938m²

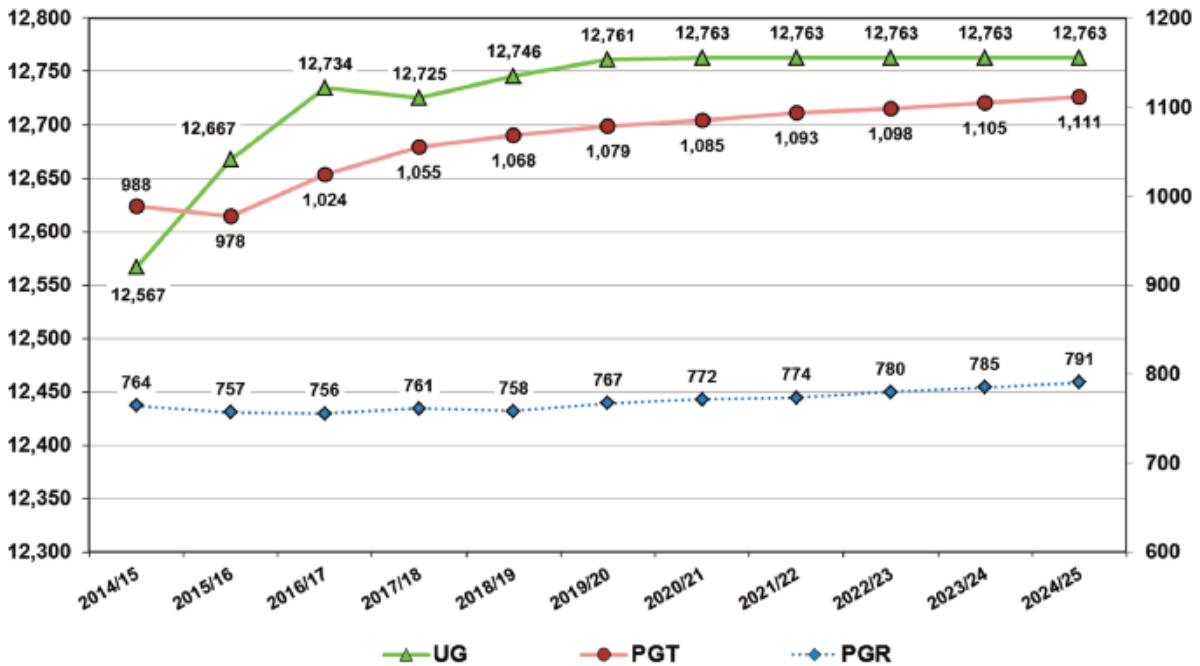
- 10 Leased Listed Buildings on The Historic Dockyard, with a total GIA of 5,696m²
- Compass Centre – 648m² GIA
- Medway Park – 519m² GIA
- 725 guaranteed student bedrooms provided off-campus via a Nominations Agreement with private provider Liberty Living

APPENDIX 2

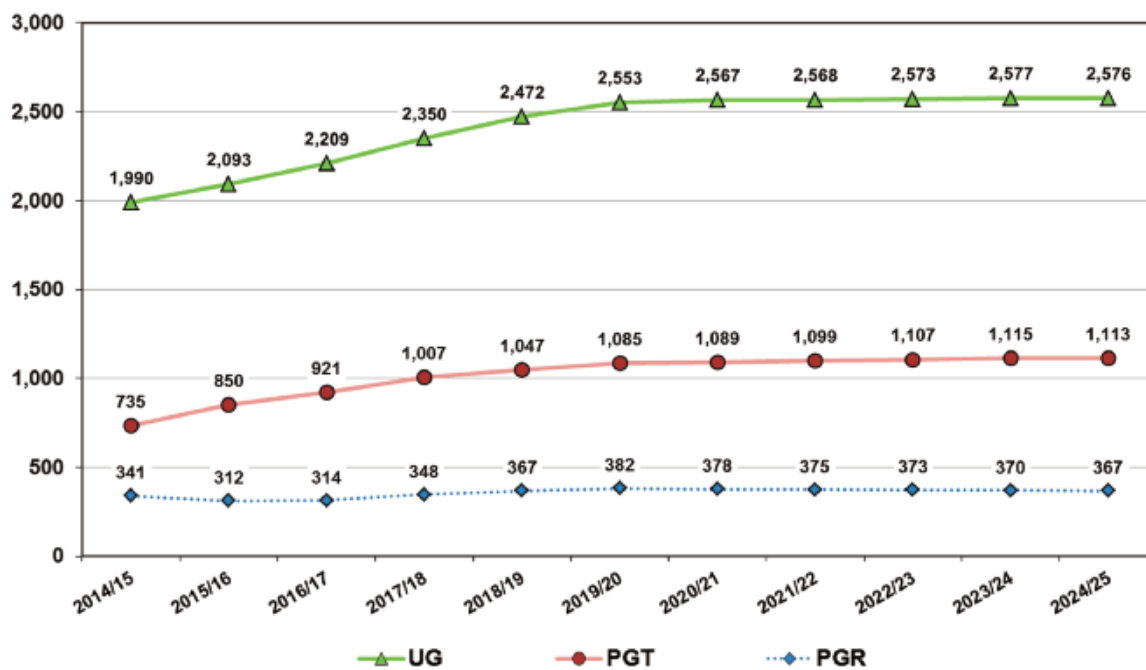
Graph 1: Student load (FTE) numbers and projections by fee type 2014/15-2024/25 (C & M)



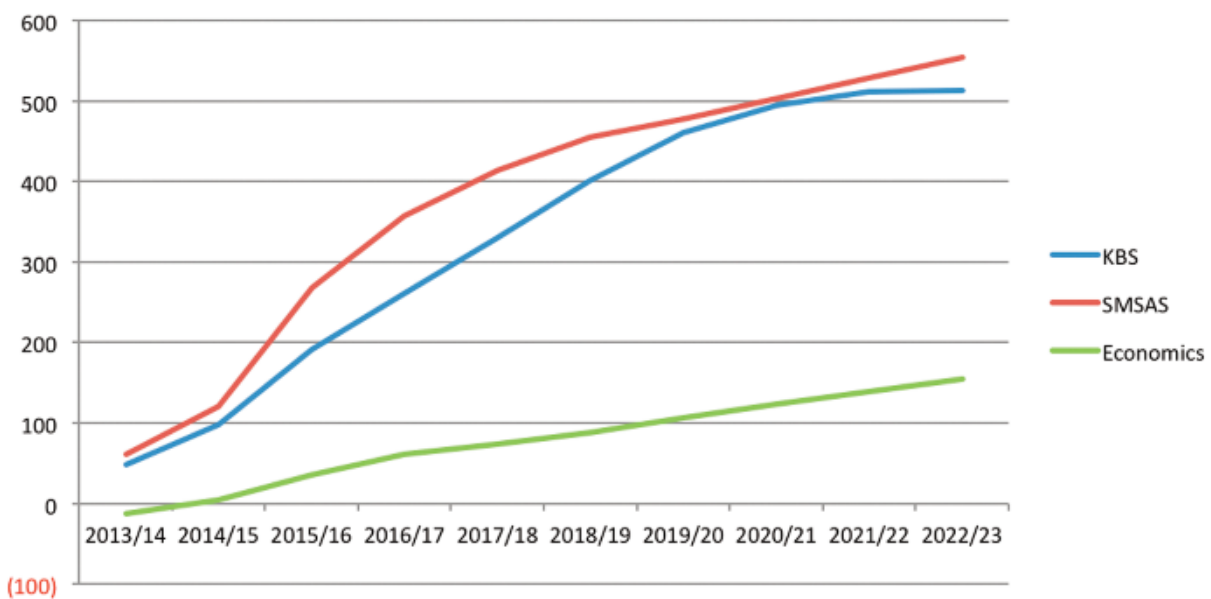
Graph 2: Home/EU student load (FTE) numbers and projections by study level 2014/15-2024/25 (C & M)



Graph 3: OS student load (FTE) numbers and projections by study level 2014/15-2024/25



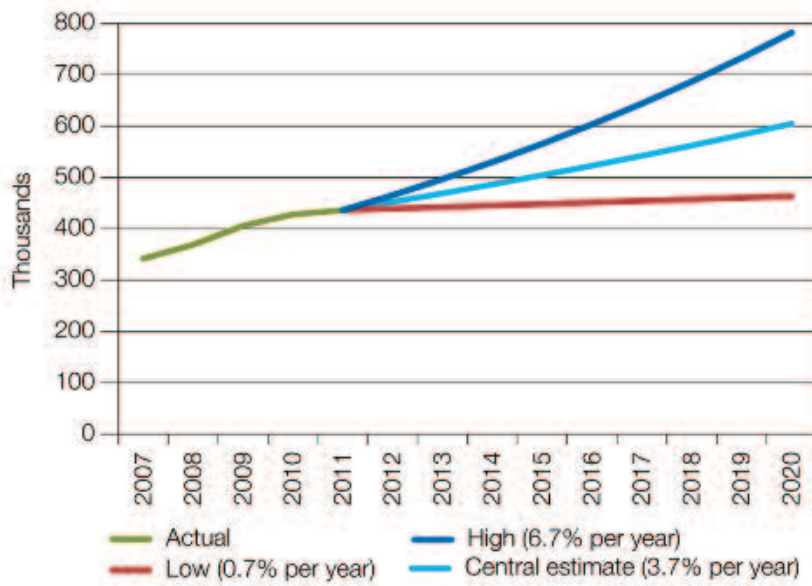
Graph 4: KBS, SMSAS & Economics planned growth to support business case



(100)

APPENDIX 2 (CONT)

Graph 5: Projected growth in international student enrolments in the UK



Source: HESA Student Record & BIS calculations

APPENDIX 3

Student growth scenario calculation table

STUDENT NUMBER PROJECTIONS

JCO-SD Student FTE projections 2014-15 to 2024-25 (Canterbury + Medway)

	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Home/EU	14,319	14,402	14,515	14,542	14,573	14,607	14,620	14,630	14,641	14,653	14,665
Overseas	3,066	3,255	3,444	3,705	3,886	4,020	4,034	4,042	4,053	4,062	4,056
Total	17,385	17,657	17,958	18,246	18,459	18,627	18,654	18,673	18,694	18,716	18,721

Total increase 2014/5 to 2024/25	Averaged over 10 years
2.42%	0.24%
32.30%	3.23%
7.69%	0.77%

Based on JCO/PBIO/UoK/BIS assumptions of +0.77%/+3%/+3.7% growth pa

Home/EU - Year 1-5 as per PBIO projections, year 6-10 as per the UoK growth assumption of +3% pa - applied to new intakes, so ramps up over 3 years

Overseas - Year 1 as per PBIO value for 2014-15, and years 2-10 as per BIS/Willetts growth assumption of +3.7% pa - applied to new intakes, so ramps up over 3 years

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Projections Home/EU	14,402	14,515	14,542	14,573	14,607	14,753	15,048	15,500	15,965	16,444
Overseas	3,255	3,295	3,376	3,501	3,631	3,765	3,904	4,049	4,199	4,354
Totals	17,657	17,810	17,918	18,074	18,238	18,518	18,953	19,549	20,163	20,798

Based on UoK assumption of -3% decline pa

Years 1-5 as per PBIO projections, and years 6-10 as per UoK projected decline of -3% pa - applied to new intakes, so ramps down over 3 years

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Projections Home/EU	14,402	14,515	14,542	14,573	14,607	14,461	14,172	13,747	13,334	12,934
Overseas	3,255	3,444	3,705	3,886	4,020	3,980	3,900	3,783	3,670	3,559
Totals	17,657	17,958	18,246	18,459	18,627	18,441	18,072	17,530	17,004	16,494

DATA/ASSUMPTIONS

The UoK Home/EU growth assumption 3.00%

The Willetts overseas growth assumption 3.70% *[International Education: Global Growth and Prosperity - BIS July 2013]*

The UoK Home/EU and Overseas decline assumption -3.00%

APPENDIX 4

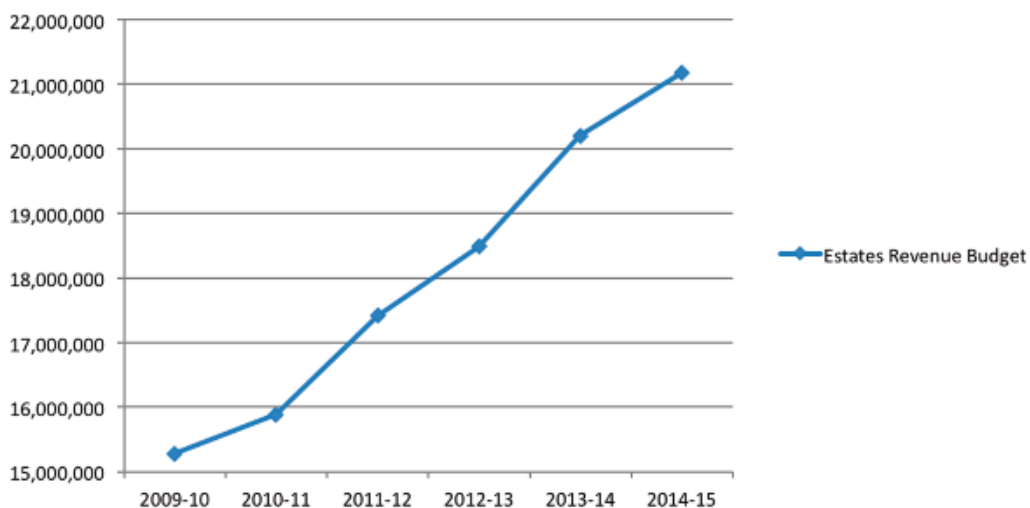
Estates costs

Table 1: Operational and utility costs of the estate during the period 2009-2014

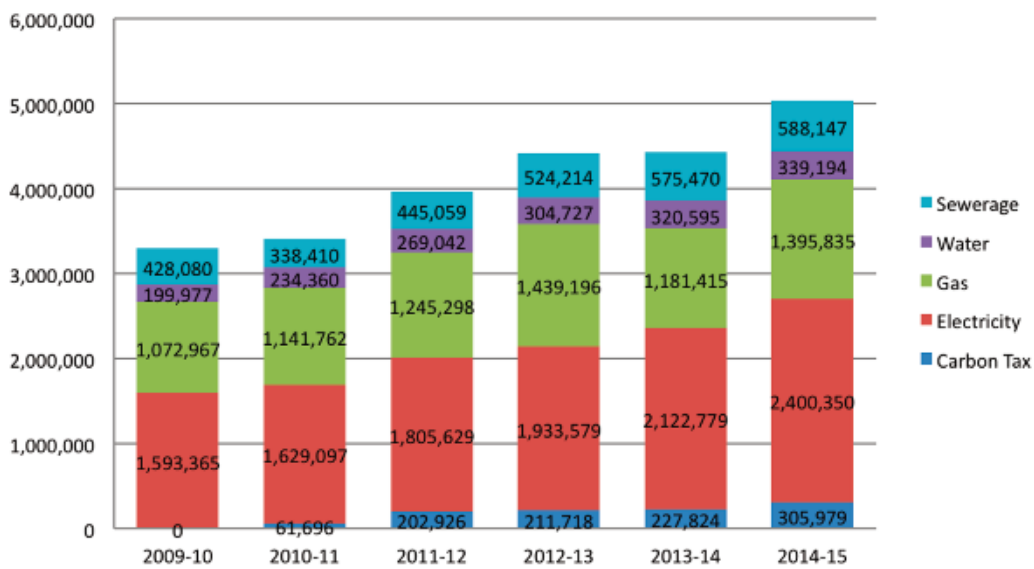
	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	% Increase over period 2009-2014
Pay	4,991,728	5,368,159	5,547,708	5,937,730	6,215,390	6,500,321	30.2%
Non-Pay	10,289,686	10,513,249	11,868,887	12,544,631	13,985,618	14,677,450	42.6%
Estates Revenue Budget	15,281,414	15,881,408	17,416,595	18,482,361	20,201,008	21,177,771	38.6%

	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	
Carbon Tax	0	61,696	202,926	211,718	227,824	305,979	100.0%
Electricity	1,593,365	1,629,097	1,805,629	1,933,579	2,122,779	2,400,350	50.6%
Gas	1,072,967	1,141,762	1,245,298	1,439,196	1,181,415	1,395,835	30.1%
Water	199,977	234,360	269,042	304,727	320,595	339,194	69.6%
Sewerage	428,080	338,410	445,059	524,214	575,470	588,147	37.4%
Total	3,294,389	3,405,325	3,967,954	4,413,434	4,428,083	5,029,505	52.7%

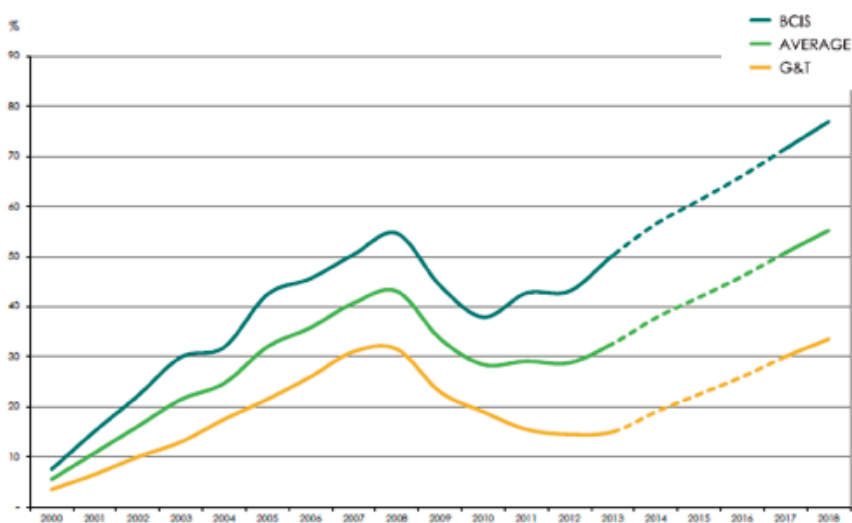
Graph 1: Estates revenue budget 2009-2014



Graph 2: Utilities costs 2009-2014



Graph 3: Tender price trend – UK average



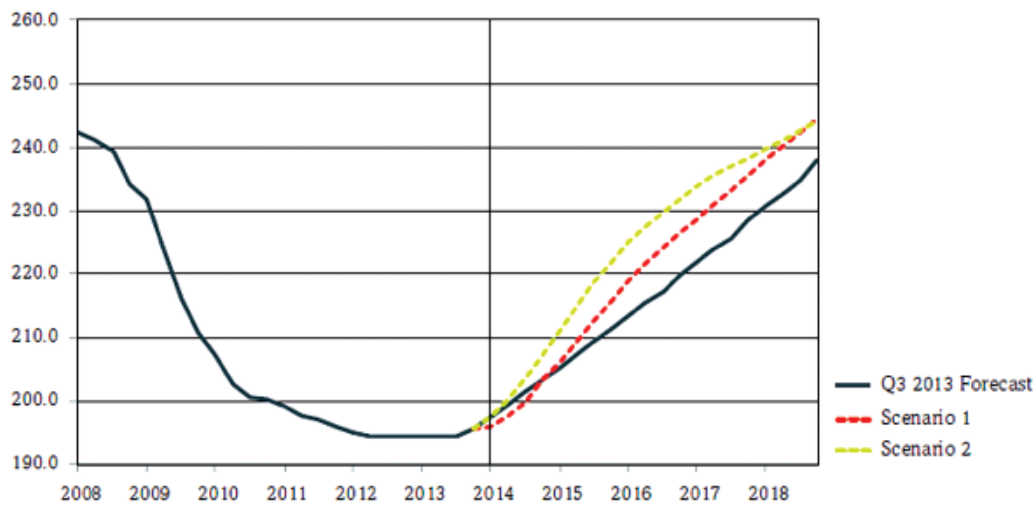
APPENDIX 4 (CONT)

Table 2: Comparison of published forecasts for tender price change

	G&T UK AVER. 4Q TO 4Q	BCIS UK AVER. SEPT 14	G&T LONDON 4Q TO 4Q	AECOM LONDON 2Q14	E C H LONDON 2Q14	SWEET LONDON 1Q14
% CHANGE						
2014	4.00	6.30	6.00	3.80	4.00	3.80
2015	3.50	4.70	4.50	4.80	6.10	4.50
2016	3.50	4.90	4.00	5.20	5.00	4.70
2017	4.00	5.40	3.50	6.10	4.00	5.10
2018	3.50	5.40	3.50	5.00	3.60	3.70

Note: All figures relate to year on year

Graph 4: London tender price index recovery scenarios



APPENDIX 5

Teaching space overview

Current practice, capacity, major issues and recommendations

1.0 Overview

Currently, the University is providing 3.3m² teaching space for every 1m² that is actually in use, as a result of a space utilisation rate of nearly 33%⁹. The Space Management Group¹⁰ (2006) state that this is 'fair' utilisation, with 'poor' utilisation defined as being 25% or lower. Clearly, there are costs associated with this relative inefficiency in space usage, with the potential to reduce maintenance and services costs if the estate were used more effectively. In particular, Schools which currently 'own' departmental teaching space could make a saving on their space charge by transferring ownership to central timetabling, allowing the cost of the space to be split across several Schools, whilst also providing an opportunity to improve the utilisation rate of these rooms. A more detailed analysis of the utilisation of teaching space, which can be seen in section 2.2 of this document, demonstrates a poorer utilisation rate (21%) for departmentally owned space, the data for which includes the majority of seminar type spaces with schools using the CMIS (timetabling) system to record events.

There is significant pressure on teaching rooms with capacities of 200+, to the extent that in the current year they are effectively oversubscribed. All other capacity spaces are very busy, with only the 40-50 seat range showing any opportunity to absorb additional capacity at present.

Vacation usage (conferences etc) is currently excluded from this analysis, and we will incorporate this information into the review in due course.

2.0 Teaching space utilisation rates, demand, peaking and perception

The table below shows the institutions within the Kent peer group, highlighting the number of students and staff, the total space available (gross internal area) and the results of the teaching room utilisation survey in the 2012-13 academic year. Those institutions highlighted in blue are those with a space management policy.

The Space Management Group (2006) suggests the following benchmarks for utilisation rates:

- ■ Good utilisation is greater than or equal to 35%
- ■ Fair utilisation is between 26% to 35%
- ■ Poor utilisation is equal or less than 25%

Table 4: Teaching space utilisation rates – University of Kent peer group (Source: 2012-13 Estate Management Record)
refer to this in space summary section

Institution	Total student FTE	Total staff FTE	Non-residential gross internal area (GIA) (m ²)	Total gross internal area (GIA) (m ²)	Teaching space included in utilisation survey (m ²)	Teaching space per student FTE (m ²)	Utilisation survey – utilisation (descending order)
The University of Bath	10,813	2,648	139,629	216,153	7,529	0.70	50.4%
The University of Lancaster	11,293	2,201	153,180	206,762	6,993	0.62	43.7%
Loughborough University	12,724	2,539	214,292	291,439	9,651	0.76	38.1%
The University of Essex ¹¹	10,115	1,804	119,659	224,134	8,020	0.79	37.5%
The University of Kent	16,510	2,913	137,716	220,555	11,568	0.70	32.9%
The University of East Anglia	13,161	2,816	145,860	230,327	8,867	0.67	31.9%
The University of Reading	11,538	2,779	194,850	194,850	11,733	1.02	28.3%
The University of Exeter	16,999	3,486	180,950	264,537	16,280	0.96	26.3%
The University of Surrey ³	10,513	2,948	147,558	267,564	10,658	1.01	25.9%
University of Durham	14,944	3,518	182,399	373,116	24,982	1.67	24.9%
The University of Sussex	11,814	2,359	147,726	245,282	4,660	0.39	24.3%
The University of Leicester	13,441	3,406	200,895	302,502	10,044	0.75	23.8%
The University of York	14,002	3,106	208,945	339,170	Not submitted to HESA	Not submitted to HESA	Not submitted to HESA

⁹ All utilisation statistics quoted in this document are extracted from the teaching room utilisation survey which was conducted in the 2012-13 academic year and submitted to HESA as part of the Estate Management Statistics (EMS) return. This is the latest dataset published by HESA to allow for comparison against other institutions.

¹⁰ The UK Higher Education Space Management Group (SMG) was set up in 2002 to assist higher education institutions implement best practice in the management of space.

¹¹ At The University of Essex and The University of Surrey, data is gathered from the timetable, not from a space utilisation survey. This would result in any issues arising from cancellations and student attendance being disguised by these figures.

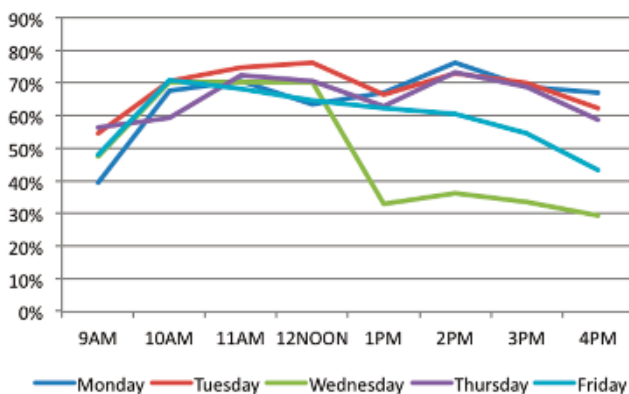
APPENDIX 5 (CONT)

Three of the four institutions with a better utilisation rate than Kent have less teaching space per student, and achieve a higher utilisation rate but may be more laboratory focused institutions. We compare favourably to our typical campus based peers such as UEA, Reading, Sussex and Exeter. The line chart below shows the actual usage of teaching rooms across the week of the utilisation survey. Across the week there is no point at which 80% or more of those rooms surveyed were being used. There are a variety of factors that may cause this, including a discrepancy between the requirements and available room sizes, or a lack of flexibility in the rooms. In addition to these physical barriers, it is also the case that teaching staff may choose not to teach at the start or end of the day (or week) owing to the perceived lack of student engagement at these times. This serves to highlight the complex relationship between space management and other university-wide issues such as student experience, engagement and attendance.

This means that we need to be providing the right size teaching space in the right location, whilst also addressing current perceptions of when is the best time to teach. This requires a programme of renewal (refurbishment), replacement (new build provision), but also requires attitudes to be addressed through (perhaps) new guidance to the Timetabling Office on what constitutes reasonable cause in terms of the avoidance of particular timeslots.

Although spreading the demand for teaching rooms across the week more effectively would be beneficial, a greater challenge is spreading the demand across the year. The University must provide enough teaching rooms for the peak requirement, meaning many are under-utilised outside of those peak times, as shown in Figure 2 below.

Figure 1: Spread of teaching room demand across the week of the utilisation survey 2012-13 academic year



There is a significant difference in utilisation between those teaching rooms which are departmentally owned and those which are timetabled centrally, as shown in Table 5 opposite. Both the frequency of use and occupancy of rooms could be improved by allowing them to be managed centrally thus giving greater flexibility in the number of spaces available to meet the demand. It would also provide a more coordinated approach, facilitating a better spread of demand across the week and the academic year. But a study to establish actual room usage (as opposed to regular timetabled bookings) would be necessary first, to ensure that all events are being captured by the timetabling software. Further investigation into electronic methods of tracking usage should be investigated and trialled.

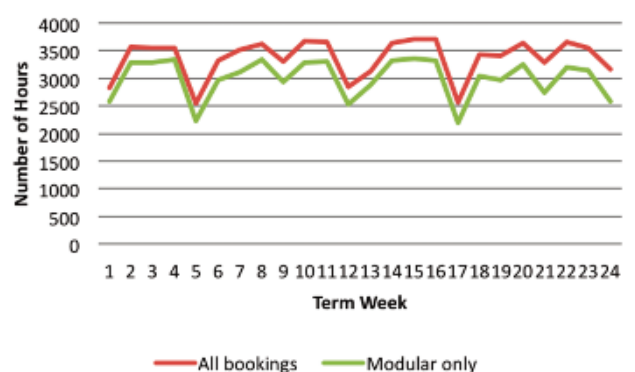
	Average frequency	Average occupancy	Average utilisation
Centrally owned	68%	54%	37.0%
Departmentally owned	55%	39%	21.3%

Table 5: Average utilisation of centrally and departmentally owned teaching spaces

Discrepancies in the supply and demand of varying sizes of teaching room (in terms of capacity) may also create issues for room utilisation. Data from further analysis of the current timetable should help to inform the sizes of future teaching rooms in new developments.

The (preliminary) data in Table 7 opposite shows the difference in utilisation of teaching space at Canterbury and Medway. It is important that the principles of the space management policy are implemented at both campuses to ensure consistency. Further investigation is required following the next teaching room utilisation survey to explore the reasons for the differing utilisation rates at the Canterbury and Medway campuses.

Figure 2: Spread of teaching room demand across the year (Canterbury only), number of hours per week



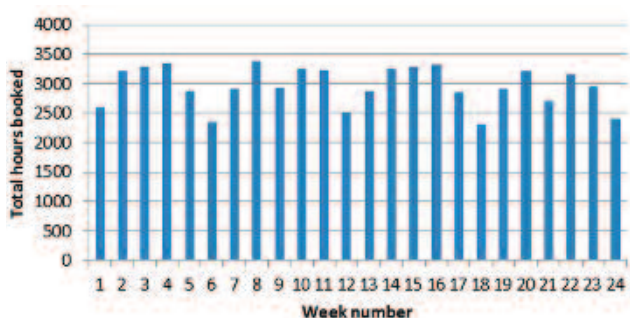
	Frequency	Occupancy	Utilisation
Canterbury averages:			
Mean	68%	54%	37.0%
Median	70%	55%	36%
Range	83%	70%	60%
Medway averages:			
Mean	39%	43%	16.9%
Median	38%	43%	15%
Range	50%	44%	26%

Table 7: Utilisation of teaching spaces at Canterbury and Medway

Overall, the frequency of use at Kent is strong, while the occupancy of rooms is less so. This suggests that in order to improve the utilisation rate, occupancy of rooms should be investigated (further detail in section 4.6), but it will be important to ensure the disaggregation of modular and non-modular bookings, as non-modular bookings are currently allocated to any free space irrespective of capacity. We need to be clear of either exact requirements for sizes of rooms in new developments or we build flexible spaces that can be separated into smaller units or joined into bigger ones. This is more costly, but could provide a more agile response to changes in group sizes/improve flexibility.

Utilisation figures and frequency rates need, however, to be used with caution. These mask large differences in demand in different weeks and at different stages of the timetabling process. The estate clearly has to be able to accommodate demand at peak times, which in 2012-13 ranged from 2305 hours to 3347 hours in one week during regular teaching times (mean 2963 hours).

2012-13 Booked by hours by week



Peaks are further exacerbated at the planning stage of the timetable when Schools are asked to estimate class sizes and the numbers of groups required for each module. The Timetabling Office then produces a draft timetable based on these estimates. However, at this stage, many events cannot be accommodated because of a shortage of rooms and are held pending something becoming available.

The growth in encouraging student choice and lifting caps from modules has resulted in Schools being cautious and over-estimating class sizes. Following On-line Module Registration in March 2014 demand was revised downwards by some 18,000 seat hours which then offered a degree of flexibility back into the timetable. However, the nature of the majority of stage 1 programmes, and also the fluctuations in new student recruitment, mean that even with over-cautious estimations there are frequently events which cannot be accommodated without disruption to other classes at the start of the year. The lack of sufficient rooms, notably, the larger lecture theatres, also results in timeslot changes after timetables have been published to students. This is potentially an issue in relation to the Student Charter and has generated negative student feedback. This means prioritising the development these spaces within planned new academic buildings.

Teaching space is one of the most important types of space at the University, and can impact greatly the student experience. The National Student Survey (NSS) in 2012 highlighted comments such as, "...seminar room is cramped", "some seminar rooms have been too small with some students having to go and find other chairs; this is not acceptable considering the high fees we pay" and "the rooms my classes have been in have been overall very unsatisfactory". Such comments stress the need to have not only well-managed but also well-funded teaching facilities that will allow the University to improve utilisation, and improve comfort and capacities of existing rooms and in turn decommission some of the worst rooms for the benefit of the student experience. A commitment to an ongoing improvement of teaching spaces through a rolling programme of regular refurbishment would address this.

Teaching space review

1.0 Introduction

This section provides a detailed examination of teaching space at the Canterbury campus. This analysis is, in part, a revised and reduced version of a report provided by the Chadwick Crawford Consultancy in June 2013¹², which was based on 2011/12 and 2012/13 timetable information, together with some overall projections of student number growth or reduction over the next five years as suggested by the University.

¹² Chadwick Crawford Consultancy 'Development of an Overall Teaching Space Strategy: Stage One – Analysis', 12 June 2013

including the growth in non-modular events. The frequency of use of such facilities at the beginning of the academic year is already at 80% which is effectively unworkable as it leaves no real flexibility in the timetable for additional requirements.

Modular events relate to the teaching of subject modules identified by the Schools at the beginning of the academic year. Non-modular events relate to 'ad hoc' or non-teaching requirements, such as meetings, examinations, skills and employability sessions which are part of the student curriculum, visits from external parties etc. The demands for non-modular events are increasing and putting increasing pressure on the timetabling function.

An ideal frequency of use might be 60% at the beginning of the year for combined modular and non-modular use, as this would provide the flexibility to absorb additional events at a later stage. This has implications for the number of Lecture theatres required, and would require a commitment to include additional teaching provision in each new academic building.

It may be that the growth in non-modular events is linked to the varying strands of teaching and learning that are emerging with, on the one hand, the formally timetabled lectures and seminars in formal teaching environments and, on the other hand, the more informal studying/learning/socialising events involving group working in more informal environments with mixed seating styles and possibly with some café/refreshment facilities available.

The University's teaching and learning strategy will need to evolve in the light of these changing requirements. Currently, the University has an immediate problem in terms there not being enough lecture theatres with capacities in excess of 100 seats.

3.0 Detailed studies

3.1 Source data

Based on the source data from the 2011-12 timetable, the event data has been sorted/analysed as follows:

- Identified events associated with multiple rooms, separated out to give discrete events in all rooms.
- Identified events associated with standard rooms and with those associated with non-standard 'rooms' eliminated from the analysis.
- Identified 'Teaching' events associated with non-standard (specialised) rooms and eliminated from the analysis.
- Identified only those events which occur in weeks 1 to 24 inclusive, and start at the hours between 9am and 5pm inclusive, Monday to Friday inclusive (that is 9 events of one hour per day), ie 45 timetable hours per week, or 45 hours x 24 weeks = 1,080 hours per year. Events at other

times are eliminated from the analysis. (*Note: The five timetable hours on Wednesday afternoon are excluded from the core timetable week, which has 40 hours. This generates an annual availability of 40 hours x 24 weeks = 960 hours per year. Because relatively few events take place on Wednesday afternoons, there is little difference between the frequency of use data for 40 and 45 hour weeks.*)

- Differentiated between modular and non-modular events.
- Differentiated between main group and sub-group modular events.
- Differentiated between events in centrally-timetabled and private rooms.
- For modular events with zero group size we estimated the group size by multiplying the capacity of the room by the average occupancy for the University.

Some events had group sizes in excess of the room capacity. They were not adjusted, except for the occupancy study (figs. 8a and 8b).

Room with no recorded use were stripped out of the analysis.

The following analysis is therefore based on events in standard teaching rooms, within weeks 1-24, Monday-Friday, 9am-5pm. Further differentiation between modular & non-modular, or main group & sub-group events, is described below.

The location of teaching rooms around the campus, and any other factors constraining the availability of teaching rooms, have not been taken into account.

3.3 Room frequency of use

In most rooms the frequency of use falls in the range 500-800 hours per year (20-32 hours per week) for modular use only; the average was 564 hours = 58% of 960 hours. Modular frequency of use was above 500 hours per year (20 hours per week) in 108 rooms and fell below 200 hours per year (8 hours per week) in 12 of the rooms.

70% or 672 hours modular frequency of use was met or exceeded in about 35% of the rooms.

The average for non-modular frequency of use was 101 hours = 11% of 960 hours. The average for the combined modular and non-modular frequency of use was 665 hours = 69% of 960 hours.

In a few rooms the total frequency of use exceeded the 960 hour annual total of the core timetable (including use on Wednesday afternoons).

APPENDIX 5 (CONT)

Figure 2a: Room frequency of use (hours per year in timetable weeks) for standard teaching rooms (145 rooms – both centrally timetabled and private), weeks 1-24, 9am-5pm. Modular (blue) and non-modular (red) events included. Green line marks University frequency of use target (672 hours per year). Rooms sorted in terms of the room size. (2011-12 data)

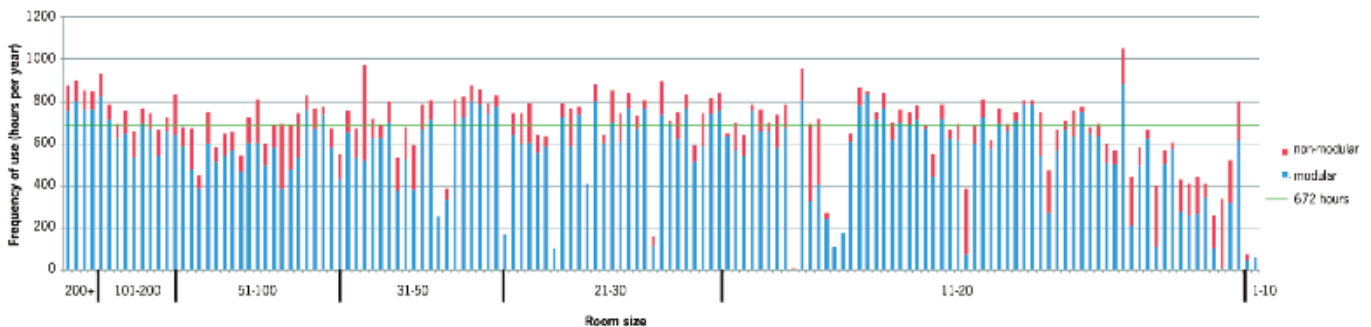
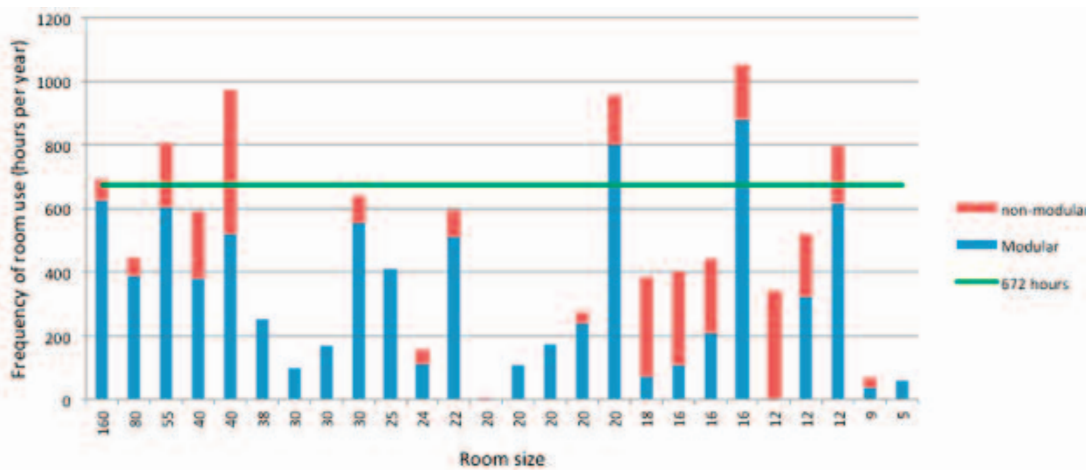


Figure 3b: Room frequency of use (hours per year in timetable weeks) for PRIVATE standard teaching rooms (26 rooms), weeks 1-24, 9am-5pm. Modular (blue) and non-modular (red) events included. Green line marks University frequency of use target (672 hours per year). Rooms sorted in terms of the room size. (2011-12 data)



Many of the low-frequency of use teaching rooms identified in Figure 1 are in this group. The average modular frequency of use of the private rooms was 318 hours per year, ie 33% of 960 hours, and the average non-modular frequency of use of the private rooms was 121 hours per year, ie 12.5% of 960 hours and 55.5% between the two.

It is possible that these rooms have additional use that is not recorded in the timetable.

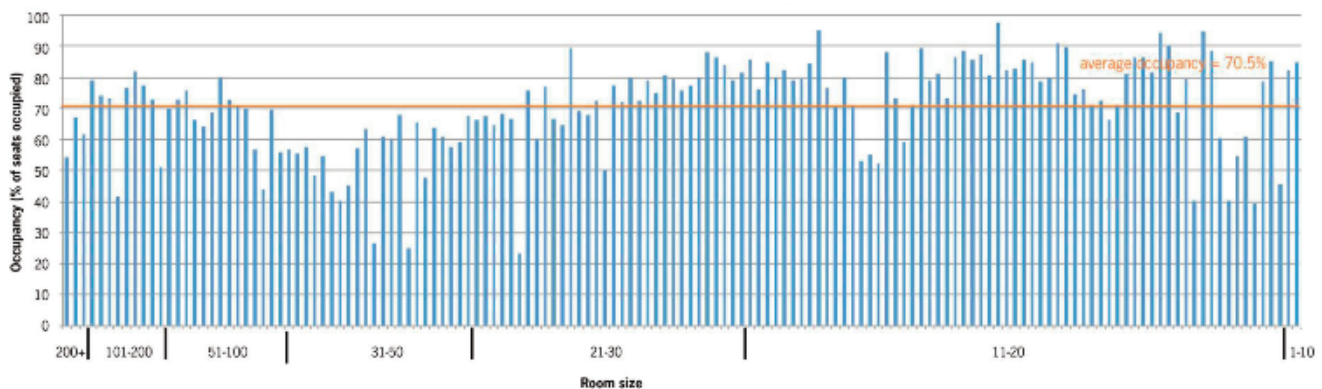
3.4 Room occupancy

The occupancy of a teaching room is the % of seats that are occupied when the room is used, averaged over all the uses in a year. The occupancy data is for modular events. Non-modular events are not included because the event sizes are not known.

The overall utilisation of a teaching room is its frequency of use multiplied by its occupancy. This is the % of available set-hours over the year (960 hours) that are actually used.

The average occupancy for modular events was 70.5%. There is no group size data for non-modular events, so occupancy cannot be calculated.

Figure 4b: Average occupancy of teaching rooms for modular events for 2011–12 teaching rooms (145 rooms), using 2011-12 timetable data. The rooms have been sorted by descending size.



Rooms of size about 30 or larger have lower occupancy than smaller rooms, reflecting the migration of smaller events to larger rooms due to the imperfect match between the activity-size and room-size distributions:

Modular event sizes are based on timetable data, with no allowance for student non-attendance. It is likely that non-attendance would reduce the actual occupancy achieved. The figure of 70.5% is the average of the occupancies of individual rooms; however, larger rooms have lower occupancy than smaller rooms, as shown in the table. When occupancy is weighted by room size, the University's aggregate occupancy is 67%.

The University's aggregate utilisation of teaching rooms for modular events, given by frequency of use x occupancy, is about $58\% \times 67\% = 39\%$ approximately

3.5 Room availability and use

This section is for modular events only, excluding non-modular events.

With 2011-12 data, target availability (blue) exceeds actual demand (red) for all sizes except 1-10 and 11-20. Of the larger sizes, the excess of capacity over demand is smallest in size 101-200, suggesting that there may be most pressure on rooms of this size.

The size distribution profiles of rooms and events are broadly similar with a peak in the size band 11-20, but note that: (i) the rooms profile (blue) is higher than the events profile (red) in the size bands 21-100, and (ii) the events profile (red) is higher than the rooms profile (blue) in the size bands 1-10 and 11-20.

A more efficient room size distribution would more closely follow the event size distribution, so that events could generally

Figure 5a: Timetable hours available in 2012–13 teaching rooms, grouped by room size, assuming 672 hours per year frequency of use (blue); actual timetabled hours for modular events in 2011-12, grouped by the number of students involved (red). Rooms of unknown size are marked '0'.

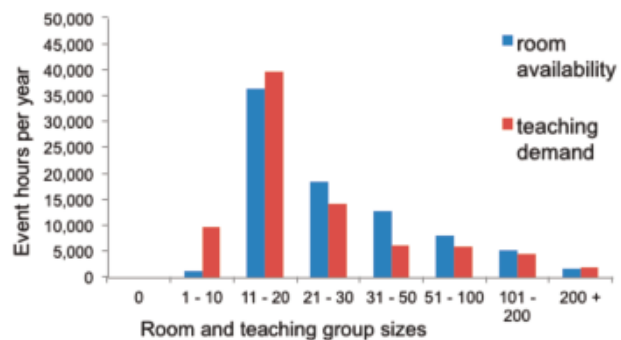
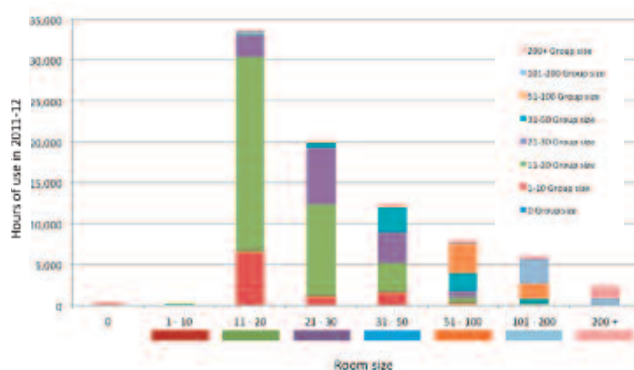


Figure 5b: The use of general teaching rooms by timetabled modular events in 2011-12. Rooms are grouped by size band, and in each size band the colours indicate the breakdown of uses by group size. Rooms and groups of unknown size are marked '0'.



APPENDIX 5 (CONT)

be allocated to rooms of matching size rather than larger rooms, but there is limited scope to achieve this.

This graph shows, for example, that more than half the uses of rooms of size 21-30 are by groups of size 11-20, and that a significant number of groups of size 11-20 occupy rooms of size 31-50. Note that there is hardly any timetabled use of rooms of size 1-10 but this is due in part to these being often private rooms and therefore not all bookings may be recorded.

The graph shows that teaching rooms are often occupied by groups that are smaller than the room capacity. This is the result in part of location issues including preference and collocation to antecedent and precedent events and the disparate nature of the campus and the varying quality and attractiveness of the facilities available. Mitigating factors might include equipment, changes in group size, disabled access etc.

3.6 How teaching rooms are used over the week

An important factor in the University's overall level of efficiency in the use of teaching space is the use of time over the academic year and particularly the timetable week.

The ideal arrangement for maximum efficiency would be to distribute the year's teaching load evenly between all the weeks in the academic year (24), and between all hours in the timetable week (40): then each of the 960 timetable hours in the year would accommodate exactly one 960th of the total teaching load, and the spaces required for teaching would be just large enough for this teaching demand.

In reality some peaks and troughs of demand are inevitable. Because the teaching space must be scaled to accommodate the peak demand, there will be some unused capacity at non-peak times. The greater the peaking of demand, the greater the unused capacity at non-peak times. It is desirable from a space efficiency point of view to minimise the amount of peaking; however, this may conflict with the preferences of staff and students, if some days and times are more popular and others less so.

3.7 Rebalancing of current demand and supply – modular frequency of Use

Room frequency of use and schedule of rooms

Seven values for average room frequency of use were used, from 50% (= 480 hours average use per room per year) to 80% (= 768 hours average use per room per year).

The room demand in each size band can be established by dividing the number of events per year in the size bands by the number of hours of use per year for the relevant value of frequency of use. This gives fractional values. These values have to be rounded upwards, starting with the largest rooms; this allows some smaller events to use spare capacity in the larger rooms, reducing the demand for smaller rooms. When this is taken into account the demand-generated schedules of rooms are shown in the table. As can be seen, with high values for frequency of use, fewer rooms are needed, and vice versa.

frequency of use	1-10	11-20	21-30	31-50	51-100	101-200	200+	total
80%	13	52	19	8	8	6	3	109
75%	15	54	21	8	9	6	3	116
70%	14	60	21	10	9	7	3	124
65%	15	64	23	10	10	7	3	132
60%	18	68	26	10	12	7	4	145
55%	20	74	28	11	12	8	4	157
50%	20	83	30	13	13	9	4	172

The University's 145 rooms match the requirement for 60% frequency of use – which is approximately the currently achieved frequency of use. However, the efficient schedule has many fewer rooms in the 30-100 size bands, and more in the 1-30 size bands, compared to the current rooms. Effectively, the University's 145 rooms contain more seats than an efficient schedule of rooms for 60% frequency of use.

When changes are made to the University's stock of teaching rooms, it is desirable to move the overall schedule of room sizes towards a more efficient size distribution.

Adjustment of the existing room schedule

If some of the existing rooms in the 30-100 size bands, where there is over-supply, were divided to create more small rooms, a lower level of frequency of use could be achievable. This would facilitate a timetable in which more soft constraints could be satisfied, and provide more capacity for non-modular use of teaching rooms.

However the location and layout of existing rooms is a significant constraint and these need to be analysed as part of a comprehensive review as is suggested in Section 4.

In any event it would be helpful to the timetabling function and the effective use of the University's teaching space stock if the private rooms could become part of the centrally timetabled stock.

This analysis is based on the 2011-12 timetable database and there have been some subsequent changes to the room stock for 2013 and 2014 which will impact on these conclusions and recommendations.

4.0 Current issues

On the Canterbury campus there are 122 centrally timetabled teaching rooms, including PC rooms and a specialist film screening room, with a further 91 rooms owned by Schools. Of the latter, 71 are specialist rooms (eg wet labs, rehearsal space) and 20 regular teaching rooms.

The centrally owned teaching room estate consists of a mix of purpose-built teaching rooms and re-commissioned rooms developed from other uses. The latter are frequently less suited to teaching and prove unpopular with teaching staff. There are 26 rooms (21%) which are not accessible by wheelchair and more which are unsuitable for wheelchair users due to over-crowding.

The number of central teaching rooms has not increased over three years (Table 1).

Table 1: Centrally timetabled teaching rooms (not PC rooms)

Room size group	2010-11	2011-12	2012-13*	2013-14
10-15	7	7	7	5
16-20	45	44	44	47
21-40	36	36	38	39
41-60	16	16	14	14
61-100	6	6	5	5
101-200	8	8	8	8
201-471	3	3	4	4
Total	121	120	121	122

**2012-13 saw four rooms being brought on-line mid-way through the year and four rooms being removed. The figures in the table have been normalised to reflect this.*

Demand in these spaces has seen a moderate rise over the last 3 years, with notable increases in non-modular bookings (Table 2). Half of the anticipated non-modular bookings have already been made for 2014-15 only three weeks into term. It is anticipated that the final figure at the end of 2014-15 will outstrip previous years for both modular and non-modular events.

Table 2: Total hours booked (regular teaching hours, central teaching rooms)

Type of booking	2011-12	2012-13	2013-14	2014-15 (at wk 3)
Modular	71659	71094	72097	70790
Non-modular	7990	9266	8269	4214
Overall	79649	80360	80366	75004

4.1 Quality and location

The quality of the centrally timetabled teaching rooms has improved significantly over the last six years with 55 rooms out of 122 having been refurbished. However, there are still some which cannot be improved due to the location or shape of the room.

With a number of refurbishments and changes to seating, there has been a net growth of 119 seats in lecture theatres size 100+. Also, the provision of MarLT2 and latterly the Lupino room for film screenings has released a further potential 960 hours of a 95 seat lecture theatre for general teaching use.

Many rooms have been furnished to achieve the capacities which are in demand but this has resulted in rooms being over-crowded. As teaching styles have become more focused on AV input, layouts and, therefore capacities, should have been revised to enable all students to see the screen. However, demand has made this impossible on a wide scale. In fact, optimising capacity in seminar and classrooms would result in the loss of c 220 seats across campus.

There is a disparity in the quality and suitability of teaching rooms in different sections of the campus. The eastern end, which houses the Schools of Maths, History, English, Politics, SSPSSR and Computing, sees the poorest rooms in terms of layout and location. Rooms in Darwin are particularly

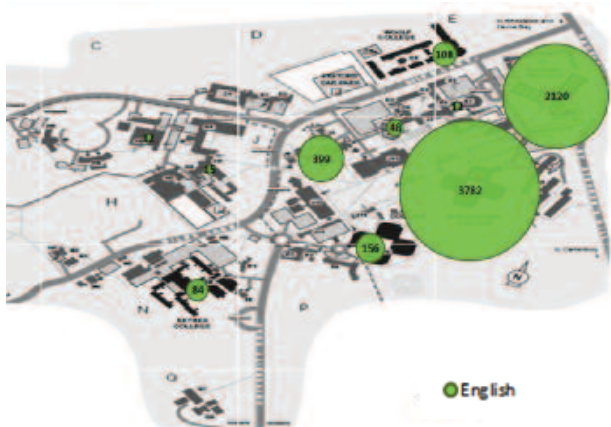
APPENDIX 5 (CONT)



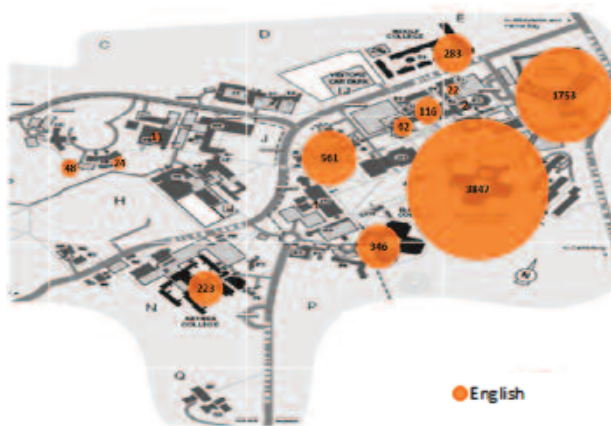
unsuitable due to shape and location, especially those in the Missing Link being located next to bins and the delivery area. Rutherford rooms are also unpopular with some rooms having no natural ventilation and, in the case of the cloister rooms, are long and thin and unsuitable for most classes.

Location close to Schools is important for timely start to classes. Often the ten minute cross-over window between five to and five past the hour is truncated due to over-running classes, crowded corridors inside buildings as well as distance between buildings. Whilst the Timetabling Office endeavours to locate classes close to the home school to minimise travel times this is not always possible especially later in the process when room changes due to class size increases mean lectures are place wherever a room is available (Figure 3).

Figure 3: Location of room allocations start/end 2013-14



School of English original allocations 2013-14



School of English end of year allocations 2013-14

4.2 Other issues include:

- Over-crowding
- Peak weeks/times
- Equipment
- Changes to teaching styles (intensive Monday to Friday courses, flexible classroom layouts)
- Lack of staff for monitoring estate/furniture
- Rooms used by student activities
- In-class assessments
- Modular and non-modular use (ie the ongoing need for meeting rooms).

5.0 Planned and ongoing developments

The proposed use of CMISGo software for room bookings will enhance the room booking process, reducing staff hours spent on room bookings within the Timetabling Office and making the room booking process easier for the user.

Recent refurbishment works have added 119 seats to existing lecture theatres.

The SMSAS/KBS new building (ready for 2016-17) will provide:

- three new and additional lecture theatres (capacity 120, 180 and 300)
- seven seminar rooms (representing net growth of three central rooms)
- one MBA room
- one Bloomberg suite (specialist PC room)
- one PC room

Until the proposed redevelopment or refurbishment of the existing KBS building is completed, it will be desirable to retain the availability of the existing 160 seat lecture theatre, meeting room (18 capacity), symposium room (50), five seminar rooms (12-30), and one IT suite. This is primarily due to the fact that not all Maths and KBS teaching can be accommodated in the new building, and considerable cross-campus teaching would otherwise have to take place if these spaces were not available. Future planning in this area will therefore take this into account, and investigate whether it is possible to maintain the availability of some or all of the existing KBS teaching facilities.

No firm decision has yet been made about the future use of the current Maths 80 seat PC room in the Cornwallis Octagon, though the space it occupies forms an integral part of the plans for the ongoing development and reorganisation of the Cornwallis complex. As current designs for the new KBS building cannot fulfil timetabled demand, the redevelopment of the old KBS building and/or the replacement building for Economics on the same site would ideally accommodate this need.

Essentially, it is key to this development that a full complement of teaching rooms are available at the far western end of campus to accommodate demand from KBS and SMSAS, to avoid the considerable disruption to Maths and KBS teaching arising from travel times between classes.

APPENDIX 5 (CONT)

The new Library development (ready January 2015) will provide:

- A 250 seat lecture theatre
- Eight x c20 seat seminar rooms

Currently, these are not due for timetabled use until 2016-17 (lecture theatre) and 2017-18 (seminar rooms). However, discussions are ongoing between IS and Timetabling over interim mixed use of the Lecture Theatre (timetabled in the morning and library use in the afternoon/evening) for 2015/16.

Cornwallis East (ready September 2015) will provide:

- A replacement for CNE08 (50 seats) – lost as part of the new development
- two x PC rooms (currently housed in a poor quality extension)
- SSPSSR with local teaching space for the relocated Tizard Centre

Overall, this represents no net growth, but considerably improves the quality of the spaces replaced.

6.0 The way forward/proposals leave in

6.1

It is proposed that the University considers the further development of an overall teaching space strategy, to be undertaken in three stages:

Analysis – the current analysis is based primarily on 2011/12 data and needs to be revised to reflect current issues and timetable data.

Review – following the revision of the analysis stage there should be a review of the current University stock in terms of:

- floor areas/capacity (number of seats)- this will vary with the teaching style
- specialised features- flat or tiered- AV/IT etc
- quality (good/upgradeable/bad)
- access and convenience
- location on campus
- how we plan for, and assess the true impact of teaching space in new build projects

Strategy – following on from the review, an overall strategy should then be developed.

Alongside (or within) this, the following should be pursued as a priority:

6.2

A commitment to an enhanced programme of replacement and renewal is required to both improve our existing stock through cyclical refurbishment, and to allow decommissioning of the worst spaces through new build replacement – either stand alone or as part of the provision of each academic building.

6.3

A further analysis of demand patterns, and the identification of all of the constraints experienced by the Timetabling Office, eg the anecdotal view of lower demand on Monday mornings and Friday afternoons, which can then be assessed and appropriate policy guidance developed.

6.4

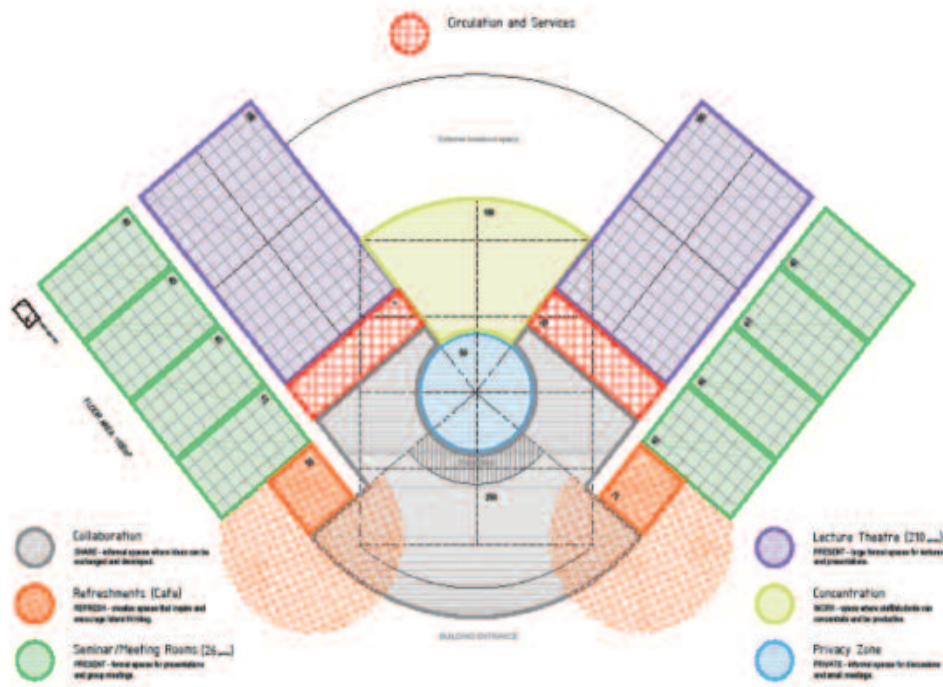
A review of departmentally owned teaching and meeting spaces, with a clear mandate to recommend changes to existing management structures to improve their utilisation. This would include a thorough assessment of current use and a requirement to adopt (where it has not already been adopted) the use of CMIS to record all events. A full review of the benefits of CMISGo to be included in this exercise.

6.5

Consideration and adoption of the recommendations contained in the Space Management Policy – Guidelines and Procedures (Appendix 3b) as they relate to teaching space.

APPENDIX 6

Diagram 1: A theoretical template for the ground floor of new academic buildings



APPENDIX 6 (CONT)

Photograph 1: Example of innovative work space – meeting pods



Photograph 2: Example of innovative work space – Hunt Library stairs 2009



Photograph 3: Example of innovative work space – variable study carrels



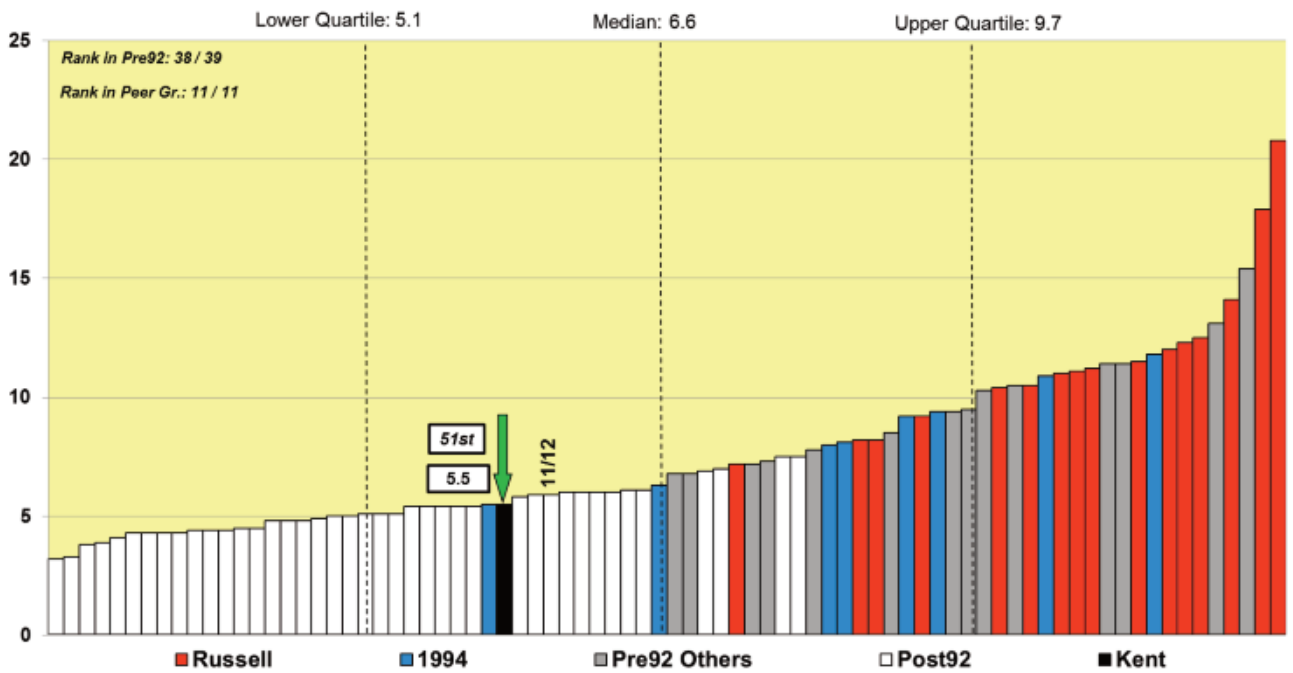
Photograph 4: Example of innovative work space – Blizzard Cell and Molecular Science Labs, meeting spaces over laboratories. Queen Mary's, London, 2005



APPENDIX 7

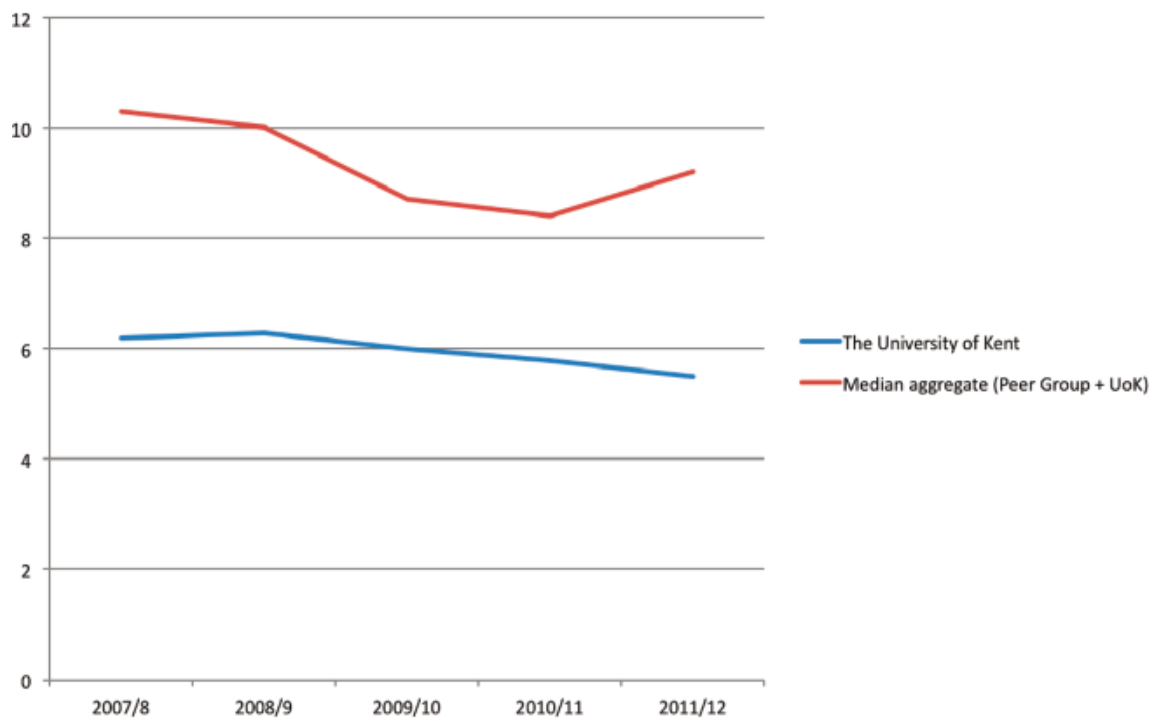
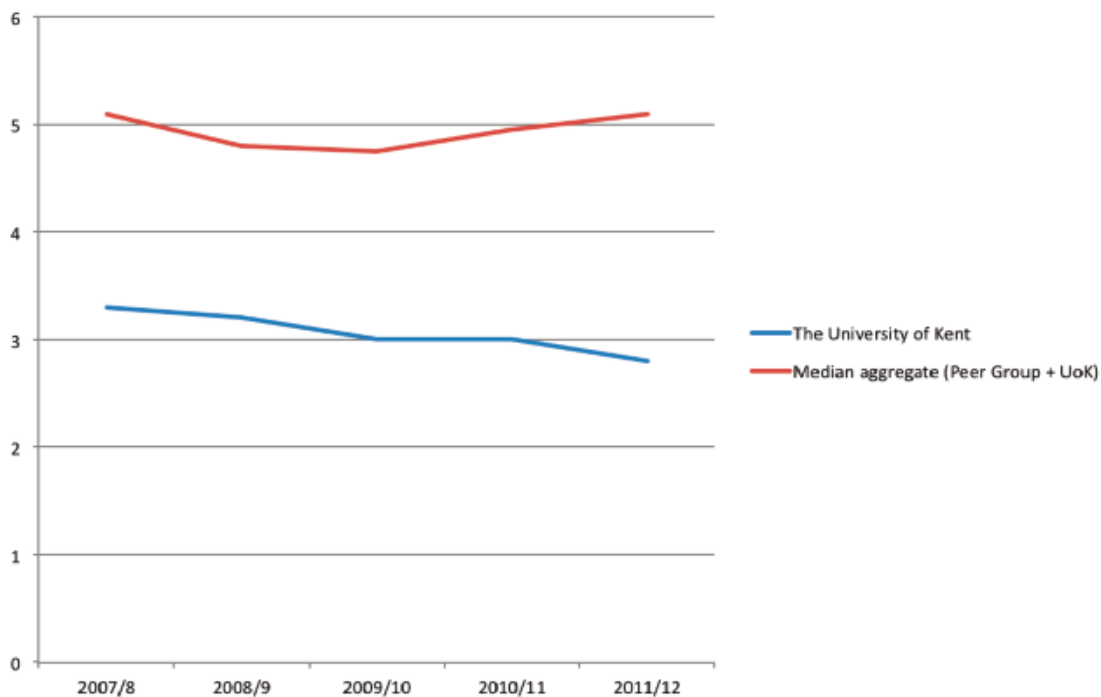
Progress against 2009-2014 Estate Strategy

Graph 1: Total non-residential NIA (D12) per student FTE (D4) 2011/12



Planning and
Business
Information
Office

Note: Non-Specialist institutions only.
NIA = Net Internal Area
Source: HESA

Graph 2: Estates Management Record total non-residential space per student FTE (m²)Graph 3: Estates Management Record – academic space per student FTE (m²)

APPENDIX 8

Sustainability Report

1.0 Introduction

Developing sustainable campuses at Canterbury and Medway is key to ensuring the long-term viability of the Institution. This will be achieved, from an Estates perspective, by a sustained reduction in energy consumption; reducing the University's carbon footprint, thereby mitigating the impact of current and future carbon taxes; reducing dependence on diminishing operational resources such as fossil fuels; conserving water; reducing the environmental footprint; and progressively replacing business critical infrastructure systems that are reaching the end of their operational life.

For this to succeed, it must be supported by a financial plan that takes a medium to long-term view on the return on capital investment.

The University Environment Policy dated March 2014 provides a framework for setting and reviewing environmental objectives and targets. It is documented, regularly reviewed, maintained and communicated to all staff and students.

The University acknowledges that its day-to-day business practices have some environmental impact and is committed to managing these. To enhance its environmental performance the University operates an Environmental Management System (EMS) to ISO 14001 standards.

2.0 Energy efficiency and carbon reduction

The University's Canterbury and Medway campuses have a significant carbon footprint which, for 2012-13, was 18,863 tonnes of CO₂. This includes carbon dioxide emissions arising from gas and electricity use, University vehicles and grounds maintenance machinery, business travel, waste, water supply and waste water treatment.

The carbon footprint currently excludes staff and student commuting.

2.1 Energy efficiency

The University of Kent's energy performance stands up well against peer group campus universities in the HESA Estate Management Record.

Periodic energy audits are conducted to identify the scope for reducing energy consumption. Every opportunity is taken to invest in energy efficiency measures funded from capital and revenue budgets and grants.

Action: The University will actively monitor energy consumptions and invest in energy efficient systems and equipment.

The HEFCE Salix Revolving Green Fund is a grant funding programme to encourage investment in energy efficiency. The University successfully applied for a grant and an initial investment of £400k was secured on the understanding the savings would be reinvested in the programme. Since the programme started £558k has been invested in a diverse range of 22 projects including thermal insulation, lighting upgrades, thermostatic radiator valves, cooling plant upgrades and plate heat exchangers.

Energy conservation projects planned or implemented include:

- Installation of a networked building energy management system into existing buildings on campus and all new buildings.
- Replacement of inefficient lighting with low energy sources and the provision of lighting controls in buildings.
- Installation of energy efficient LED street, car park and footpath lighting.
- Replacement of single glazed windows with high performance double glazed units.
- Provision of enhanced thermal insulation to lofts, flat roofs and cavity walls where appropriate.
- Installation of variable speed inverter drives to optimise the performance of ventilation and heating systems.
- Improvements to student houses including high efficiency boilers, networked heating controls, low energy lighting and replacement double glazed windows.
- Upgrading of data centre cooling systems with energy efficient plant and hot aisle / cold aisle containment.

Action: The University will continue a rolling programme of energy efficiency projects financed by capital and revenue budgets and loan funded.

2.2 Carbon reduction

The University is required to participate in the UK Governments mandatory Carbon Reduction Commitment Energy Efficiency Scheme (CRC) the baseline year for data collection being 2009. Since Phase 1 of the CRC started in 2010 there have been a number of simplifications so the main elements now comprise a tax levied on certain CO₂ emissions and publication of participants' performance. The simplified scheme takes account of non-domestic gas and electricity consumed and recognises the contribution of renewable energy sources. During Phase 1 carbon credits were charged at £12 per tonne of CO₂. The corresponding emissions and charges for each year of Phase 1 being:

Year	Emissions tCO ₂	Cost £
2010-11	17,659	211,908
2011-12	17,473	209,676
2012-13	18,204	218,448
2013-14	17,776	213,312

Phase 2 commenced on 1 April 2014 for a period of five years. The cost of carbon credits has been increased by 33% to an average of £16 per tonne. Carbon can be purchased in the Forward Sale every June at the discounted price of £15.60 per tonne or in the Buy to Comply Sale every September at £16.40 per tonne.

The Carbon Trust Standard is awarded to organisations that have genuinely reduced their carbon footprint and are committed to making further reductions year on year.

To achieve the Carbon Trust Standard organisations must:

- accurately measure their carbon footprint including their electricity, gas and oil consumptions, the fuel consumed by of owned transport and carbon emissions arising from all forms of business travel;
- demonstrate an absolute reduction in CO₂ emissions;
- provide robust evidence that carbon is being managed in an appropriate manner through effective governance, accurate carbon accounting and energy efficiency programmes.

The methodology on which the Carbon Trust Standard is based is rigorous, objective and pragmatic and builds on established international measurement standards. Independent assessors appointed by the Carbon Trust use the methodology to assess applicant organisations against the Standard and their recommendations are subject to independent moderation. It is important to note that the Carbon Trust will not take into account the campus woodland for CO₂ offsetting in calculating the carbon footprint.

Organisations that achieve certification under the Carbon Trust Standard benefit from:

- the right to use the Carbon Trust Standard logo;
- enhanced standing in the community;
- improved student and staff recruitment and retention;
- brand reputation and market differentiation.

In February 2009 the Carbon Trust confirmed certification of the University of Kent under the Carbon Trust Standard for a period of two years. In 2011 the University achieved reaccreditation for a further two years and in 2013 again achieved reaccreditation until August 2015.

Action: The University will comply with applicable carbon reduction legislation and strive to meet the exacting standards of the Carbon Trust Standard.

2.3 Major capital projects

Refurbishments

Where practicable, energy saving measures will be incorporated into all major building refurbishments. These measures may include the installation of high-efficiency

lighting and controls; the extension of the central BEMS or individual, modern heating controls; replacement high-efficiency boilers; the installation of high-performance windows and doors; and the installation of wall and loft insulation. Where possible, water conservation devices will be fitted to toilets, kitchens and beverage preparation areas.

New buildings

All new buildings will be designed to achieve a minimum Building Research Establishment Environmental Assessment Method (BREEAM) 'Very Good' rating which is also now a condition to obtain planning consent from Canterbury City Council. Where practicable, we will also seek to achieve an 'Excellent' rating which will require the incorporation of a renewable energy source.

During the design process, consideration will be given to: increasing insulation levels above statutory requirements; incorporating a renewable energy source; harvesting rainwater for use in non-potable applications such as toilet cisterns; incorporating high-efficiency glazing and window systems; using heat recovery systems; extensive use of lighting and small power controls; the use of renewable construction materials such as timber; the use of construction materials made from recycled materials such as pulverised fuel ash blocks; optimising the design to minimise waste materials; minimising the impact on the surrounding environment; and sourcing construction materials locally to minimise long vehicular journeys.

2.4 Energy Performance Certificates (EPCs) and Display Energy Certificates (DECs)

It is a statutory requirement for all new buildings, on completion, to be issued with an EPC that details its design energy consumption.

In May 2008 the Department for Communities & Local Government issued guidance on DECs and Advisory Reports for existing public buildings. This initially applied to public buildings with a usable area greater than 1,000m² but has subsequently been extended to include buildings over 500m².

On the Canterbury campus 32 buildings have been certified together with a further two buildings on the Medway campus. The DEC certificates are prominently displayed in each building. The surveys that are carried out by accredited consultants have identified a number of poor performing buildings. Details are in Appendix 10.

Action: Poorly performing buildings will be targeted to improve their energy performance.

APPENDIX 8 (CONT)

2.5 Behavioural change

In 2009 the University was one of 20 selected to participate in the DEFRA funded Degrees Cooler programme to encourage pro-environmental behaviours among University staff. The programme encouraged staff teams to work towards bronze, silver and gold awards.

After the initial two years the scheme was rebranded as Green Impact Universities & Colleges and the University of Kent continued to participate. Students are recruited under the employability initiative to undertake the voluntary roles of Green Impact project assistants and auditors. At the 2013-14 awards ceremony a record number of 29 teams were recognised for their achievements in reducing the environmental impact of their schools and departments.

Action: Promote positive environmental actions through targeted behaviour change programmes.

3.0 Carbon Management Plan

The Carbon Management Plan 2010 to 2020 sets out the University's vision for reducing energy consumption and carbon emissions. In broad terms the University will:

- Strive to achieve recognition as a University committed to promoting a sustainable future by example, leadership and good practice.
- Promote awareness among staff, students and the wider community of the University's energy performance and in so doing encourage positive lifestyle changes.
- Set a target for reducing energy consumption and CO₂ emissions against a 2005 baseline.
- Reduce energy use and carbon emissions by investing in cost effective efficiency measures.
- Ensure operational staff are suitably trained and are updated as necessary to achieve the best possible return on investment in energy efficiency measures.
- Explore the opportunities for exploiting alternative fuels and new technologies.
- Reduce the impact of staff and student travel by promoting cycling, public transport and car sharing.
- Seek to achieve BREEAM 'Excellent' or 'Very Good' ratings for new University buildings.
- Where practical incorporate energy efficiency measures into annual building maintenance and refurbishment programmes.
- Explore the opportunities for grants and innovative financing options to fund the carbon reduction investment programme.

In looking to achieve a long-term, sustainable future, the University cannot rely on being able to secure affordable supplies of energy generated by the finite resource of fossil fuels. In the short term, the University needs to invest in plant and equipment that uses less energy or fuel more efficiently. In the medium term, this investment should be used to install

renewable energy systems. Current experience suggests that these systems are more cost effective when used for larger scale projects. However, as more manufacturers enter into the market the economics should improve.

Feasibility studies into the application of large scale renewable energy sources include a 3MW biomass district heating boiler, a 1.5MW wind turbine and a 2MWp photovoltaic array with the capital cost of each technology being estimated at circa £2m.

Whilst a quantity of biomass material could be obtained from local woodland it would be necessary to supplement this with significant quantities of wood chip or pellet fuel from commercial suppliers. The unfavourable price of this fuel compared with natural gas, plant attendance and increased maintenance costs make this option less attractive.

The height of the mast needed for the wind turbine would render it visually intrusive and unlikely to receive planning consent even if sited on the University's farm land. Furthermore other factors such as the topple distance, shadow flicker and existing cellular telephone masts in the locality render this proposal economically unattractive.

The cost of photovoltaic cells has fallen dramatically in recent years rendering a large scale project viable. The potential site which slopes to the south is not overlooked by neighbours so is likely to be less contentious in planning terms. Once installed the operating and maintenance costs are small and the ground below the panels can still be grazed. Consumption of grid electricity results in the greater proportion of the University's overall carbon emissions so self-generation is an attractive prospect.

4.0 Waste management and recycling

Waste and recycling is one of the most visible areas of the University's sustainability agenda and demonstrates the commitment to staff, students and visitors. The University Estates Department is responsible for waste management and works hard to reduce overall waste, increase the percentage of waste that is recycled and, where possible, avoid the use of landfill to dispose of any waste.

The University recognises the importance of ensuring its waste is always managed in a responsible, sustainable and legally compliant manner that prevents pollution and helps progress the University towards continuous environmental improvement.

This section of the Estate Strategy outlines the University's commitment to improving the way it manages its waste and supports how we plan to meet the objectives and commitments; to be implemented over a period between 2014 and 2020. The Strategy is also accompanied by incremental targets according to the waste hierarchy and a key commitment to become a 'zero waste to landfill' organisation.

Drivers for sustainable waste management

The following drivers are fundamental influences to the way in which we currently manage our waste, and how our waste will be managed in the future.

Legal compliance

Ensuring we are compliant with all waste management legislation is of upmost importance to the University. We will strive to ensure that we fully recognise and understand our legal requirements and how these impact on our waste operations. At all times we aim to manage our waste in line with our Duty of Care responsibilities and in a manner which does not cause damage or pollution to the environment or harm to human health.

Some of the key pieces of legislation that apply to waste management at the University include (but are not limited to). The EU Waste Framework Directive 2008.

- Environmental Protection Act 1990
- Environment Act 1995
- The Hazardous Waste (England and Wales) Regulations 2005
- The List of Waste (England) regulations 2005*
- The Environmental Permitting (England and Wales) Regulations 2010
- The Waste (England and Wales) Regulations 2011
- The Waste Electrical and Electronic Equipment Regulations 2013
- Waste Batteries and Accumulators Regulations 2009*
- The Animal By-Product (Enforcement) (England) Regulations 2013 **FIO – no legal compliance for University of Kent*

Since the last Estates Strategy there have been significant changes in this area and now operational controls and a formal Legal Register have been developed to ensure our legal compliance with all relevant environmental legislation as part of the University's Environmental Management System (EMS). In addition, the University uses the Cloud Sustainability Waste Expert system in relation to legal compliance, training and monitoring.

With the new software we can now begin to undertake a full assessment of the current compliance position and help identify areas where improvements can be made.

Financial implications

We recognise that promoting sustainable waste management across the campuses will have beneficial financial implications. The cost of disposing of waste to landfill is becoming increasingly expensive and the use of landfill to dispose of waste is therefore not a financially feasible long term plan. Therefore, it is preferable in economic terms, as well as environmental terms, to use alternative treatment options for the University's waste.

Note: The current rate of Landfill Tax is £80 per tonne until the 1st April 2015 where future rises will be linked to UK inflation rates. Therefore, as well as the environmental impacts of landfilling waste, the costs of landfill disposal is a key driver for the University to move towards its goal of becoming an entirely 'zero waste to landfill' organisation.

Improving environmental performance

Effective environmental management and the implications this has on the University's wider sustainability impacts and performance is at the heart of everything the University does.

The University has made strong commitments to improving its environmental performance, through the implementation of an Environmental Management System (EMS) certified to ISO 14001. This EMS helps the University ensure continuous improvements in environmental performance by helping to identify and control the environmental impacts of its activities, products and services. Waste and recycling is also a key aspect that is covered by the EMS.

Some of the key environmental benefits that the University hopes to achieve through the implementation of a sustainable management system include:

- Reducing our demand on natural resources from resource consumption.
- Reducing our demand on natural resources through waste management practices, including the use of land for landfill and use of energy for recycling and recovery processes.
- Reducing pollution and contamination risks from poor waste management.
- Reducing our greenhouse gases associated with landfilling waste – (the decomposition of waste in landfill releases methane which is a greenhouse gas 20 times more potent than carbon dioxide. Landfill sites in the UK are responsible for approximately 3% of all greenhouse gas emissions.)
- Reducing our wider indirect carbon emissions associated with procurement of goods and waste management operations.

Education, reputation and image

Setting an educational example through sustainable waste management of how we manage our waste is very important to the University. As a leading academic institution, we firmly recognise the important role we play in providing a clear, educational example on the importance of responsible waste management, to staff, students and wider stakeholders.

It is hoped that the development and implementation of the Waste Management Strategy can help promote our wider ideals and objectives on sustainability, and help to communicate our principles of following best practice by managing all waste according to the waste hierarchy and progressing towards becoming a 'zero waste to landfill' organisation.

APPENDIX 8 (CONT)

National strategy and targets

The University is familiar with National Policy and Strategy on waste management and understands the impact this will have on how we will be expected to manage our waste in the future. This includes the UK's drive towards sustainable waste management through the implementation of the waste hierarchy.

Key strategic documents that the University recognises include:

- Waste Prevention Programme for England (2013)
- Waste and Resources Evidence Plan (2013)
- Government Review of Waste Policy in England (2011)
- Anaerobic Digestion Strategy and Action Plan (2011)
- National Policy Statement for Hazardous Waste (2013)
- A Strategy for Hazardous Waste Management in England (2011)
- Waste Strategy for England (2007)

Key principles of sustainable waste management

The waste hierarchy

The Waste Management Strategy presented by the Estates Department is firmly based on the principles of the waste hierarchy model, which is the cornerstone of best practice waste management within the EU.

The waste hierarchy sets out the "most favourable" and "least favourable" options for waste management, starting with waste prevention as the most favourable option and disposal as the least favourable option.

Waste Prevention → Preparing for Reuse → Recycling → Other Recovery → Disposal

Although initially introduced as a best practice concept for sustainable waste management, the waste hierarchy is now incorporated into EU law. In 2008 the Revised EU Waste Framework Directive required all member states to introduce the use of the waste hierarchy into their national waste management laws. The requirements for managing waste according to the waste hierarchy now apply to all organisations in the UK that generate waste and are implemented in England through the Waste (England and Wales) Regulations 2012.

The waste hierarchy



Zero waste (zero waste to landfill)

The University considers the concept of 'zero waste' to be a key principle of sustainable waste management and interprets the concept of zero waste as 'zero waste to landfill', which in practice is currently the most achievable aspiration given the current waste management treatment and disposal options available to us.

Estates has worked with its waste contractors to increasingly divert waste from landfill. The majority of the University's waste is currently recycled, with the remaining waste being recovered through Energy from Waste (EfW) processes.

A core objective of this Strategy is to progress towards becoming a 'Zero Waste to Landfill' organisation by fully eliminating landfill disposal from our waste management processes and therefore diverting 100% of our waste from landfill.

Wider resource efficiency

Resource efficiency is all about using natural resources in the most effective way, as many times as possible whilst minimising the impact of their use on the environment. Being resource efficient not only has significant environmental benefits, but it is also an important business process that can generate significant financial savings.

The University recognises clearly that waste costs money, not only through the costs of contracts and disposal, but also through the intrinsic value of the materials that are wasted.

To become more resource efficient makes good business sense and this is a concept that the Estates Department aims to consider when managing all of its resources along with exploring waste prevention techniques; greater reuse of materials; scope 3 carbon emissions and energy and water consumption associated with its waste management operations.

Waste management at the University of Kent

Our waste streams

A wide range of different waste materials are produced across the University. These include general waste, mixed recyclables and food waste. However, more complex waste streams, including hazardous waste, are also produced including waste electrical and electronic equipment, fluorescent tubes, waste batteries and clinical waste.

Some of the waste materials which are produced by the University include, but are not limited to:

- General waste
- Mixed recyclables – including paper and cardboard, plastics and metal cans.
- Food waste – currently disposed as general waste.

- Glass waste
- Confidential paper
- Waste electrical and electronic equipment (WEEE) – including desktop computer, laptops, printers, white goods and other domestic appliances.
- Fluorescent tubes
- Batteries
- Clinical waste
- Toners and cartridges
- Hazardous chemicals – including pesticides, herbicides, paints, solvents and other chemicals.
- Construction waste
- Scrap metals

The University/Estates understands the importance in managing all of these waste streams in a legally compliant manner and in line with the waste hierarchy, and works closely with all of its waste contractors to ensure its waste can be managed in the most sustainable way possible.

The University operates a mixed recycling system across all of its sites. Waste materials that can be disposed within the mixed recycling include paper and cardboard, plastics (including plastic bottles and plastic bag) and metal cans. As part of this Strategy, Estates, on behalf of the University, will continue to explore opportunities to further promote its recycling and ensure the most environmentally sound and cost-effective options can be secured for the management of these materials.

Waste collection points are provided at strategic locations across the Canterbury and Medway campuses within communal areas, academic areas, staff offices and on-site accommodation. The system that has been adopted across the University is the collection of segregated general waste and mixed recyclable, including paper, cardboard, plastics and metal cans.

Separate facilities for segregated glass waste are provided in key catering and dining areas. Separate facilities for the collection of segregated batteries, toner cartridges, confidential waste and clinical waste are also provided where required.

Our waste management performance (historical)

The University understands the importance of data analysis in helping to understand the types and quantities of waste produced and the most appropriate waste management options for our waste. We work closely with our waste contractors to ensure the data we have is as comprehensive and accurate as possible so we can continuously measure and monitor our progress.

Estates now uses specialist software to input, track and analyse our key waste data, including production figures, reuse, recycling and recovery rates, financial performance and total waste on a per site and per head basis.

Following a review of available waste management data, the department recognises there are existing limitations in the quality and accuracy of our waste data. The baseline year for this Waste Management Strategy has been set at 2012/2013, based upon the most accurate data to hand. Targets and objectives have been set against the following statistics on recent waste management performance at the University of Kent.

In 2012/2013, the University:

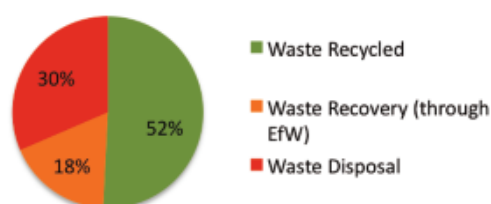
- Produced approximately 1,900 tonnes of waste a year at its Canterbury and Medway sites*.
- Recycled approximately 990 tonnes of all general waste and mixed recyclables.
- Recycling rate of 52%.
- Recovery rate of 18% (General waste to EfW)
- Disposed of 30% of waste to landfill.

It should be noted that in 2012/13 the University made the transition from disposing of general waste to landfill, to recovery through utilisation of an EfW facility. Since April 2013 the University has diverted approximately 99% of all general waste and recyclables from landfill by recovering any general waste that could not be recycled through Energy from Waste (EfW) processes.

**This value includes all general waste and recyclable materials collected through all waste contracts operating at these sites, but it does not include construction, demolition or excavation wastes.*

The proportion of waste recycled, as a percentage, compared to the proportion of waste recovered through EfW for the same time period is presented in the following graph.

Waste management by percentage, August 2012-July 2013



A key part of the WM Strategy will be to implement systems that capture and report on our waste management performance, including the collation of accurate data which will be analysed against the waste hierarchy.

APPENDIX 8 (CONT)

Working with our waste contractors, from 2014 the University will be collecting data on the following:

- The total weight of waste produced.
- The weight of waste by material type, including:
 - The total weight of general waste.
 - The total weight of mixed recyclables.
 - The total weight of segregated recyclables – such as cardboard and glass.
 - The total weight of other segregated wastes – such as WEEE or scrap metal.
- The final treatment or disposal methods used for all waste in line with the waste hierarchy, including details of the final location for all waste.
- Statistics on how all waste was managed proportionately, including:
 - The reuse rates (as a percentage) achieved for each waste material.
 - The recycling rates (as a percentage) achieved for each waste material.
 - The recovery rates (as a percentage) achieved for each waste material.
 - The disposal rates (as a percentage) achieved for each waste material.
- Details on any incidents, such as major spillages or leaks.
- Any rebates or incomes generated from the waste materials.
- Any other information which is deemed necessary to help us improve our waste management performance.

Our vision

Environmental Policy

The Environmental Policy outlines the University's commitments to environmental protection and to enhancing our own environmental performance through the implementation of our environmental management system (EMS) to ISO 14001 standards. The Environmental Policy also aims to provide a framework for setting and reviewing environmental objectives and targets. This document was signed by the Vice-Chancellor and Chair of the Council of the University of Kent in March 2014 and in conjunction with the Waste Management Strategy provides our overarching vision.

A copy of Environmental Policy is also provided within the appendices for the Waste Management Strategy and at www.kent.ac.uk/safety/env/pages/env-policy-2014.html.

Waste management strategy aims and objectives

Key objectives have been developed to outline how the University intends to meet its Waste Management commitments. These are outlined below; our objectives are also accompanied by incremental targets, including targets against the waste hierarchy.

The key objectives for the Waste Management Strategy is to:

- Embed the principles of the Waste Management Strategy throughout the University of Kent Canterbury and Medway campuses.
- Maintain legal compliance in all of our waste management practices.
- Ensure continuous improvement in all of our waste management practices.
- Develop and implement the most efficient and effective waste management options, in line with the waste hierarchy.
- Effectively communicate and consult on the University's waste management aims, objectives and targets and the progress made against them.
- Effectively monitor and report on our waste management performance.
- Develop and implement effective awareness and behaviour change campaigns.

Waste management targets

The University has previously set a number of targets for the management of its waste. These have included a target to increase its recycling by total weight to 50% by 2011/2012 and a further target to increase the recycling rate to 55% by 2012/2013. Both these targets were successfully met by the University and a core component of the Waste Management Strategy is the establishment of new, incremental targets to help us continuously improve our waste management performance. This includes targets against the waste hierarchy against a baseline year of 2012/2013.

The targets set are over a period of six years until 2020 and in line with the 'two year' short term, medium term and long term timescales; these targets, as well as our performance against them, will be reviewed on a regular basis to ensure they remain relevant to the University.

As part of the Waste Management Strategy incremental targets have been set to reduce the total waste production by 20% by 2020 compared to 2012/13 levels, and to reuse 10% of its waste by 2020.

We will explore a number of options to minimise waste and increase reuse, and will aim to:

- Within the context of the EMS support the Procurement/Environment Teams embed the consideration of the whole life cycle of products purchased – including disposal.
- Develop and roll-out awareness and behaviour changes campaigns for staff and students on the importance of waste prevention and minimisation.
- Develop partnerships with appropriate charities and other third sector organisations to maximise opportunities to reuse waste materials.

- Explore other opportunities to establish legally compliant re-use schemes for waste materials, such as WEEE, batteries, furniture, stationery and toners/cartridges; and prioritise these schemes over the recycling of these materials.

Maximising recycling and recovery options

Where waste cannot be prevented or reused, the University will maximise options to manage this waste according to the next most favourable options of the waste hierarchy by using recycling and recovery methods.

Currently the University recycles more than 60% of its general waste and mixed recyclables. The remaining materials from this waste that cannot be recycled are recovered through Energy from Waste (EfW) processes. As part of the WM Strategy, we have set incremental targets to increase the recycling rate to a rate of 80% by 2020, whilst reducing its reliance on recovery options.

Our strategic objectives and targets for waste

This section outlines what the University is aiming to achieve over the short, medium and long term timeframes within our Waste Management Strategy, which covers a period of six years, from 2014 until 2020, and our key objectives have been grouped into 'two year' periods.

The establishment of clear short, medium and long term objectives will enable us to carefully measure our progress against our key goals and milestones. Our progress against these objectives will be reviewed on a regular basis. Overviews of the timeframes that have been applied to our Strategy are provided in the Table below.

Short, medium and long term milestones

Short term	Medium term	Long term
1-2 years	3-4 years	5-6 years
2014/15-2015/16	2016/17-2017/18	2018/19-2019/20

Short term goals

Within the first two years we have set goals that aim to set a strong foundation on which further improvements can be made. Within the short term the key priorities for the University will be to ensure full legal compliance with our waste management, as well as focussing on streamlining our waste management practices, procedures and monitoring regimes to ensure we can start to improve our waste management in line with the Waste Hierarchy.

In addition, we will focus on identifying 'quick wins' to enable us to improve our reuse and recycling rates across the University.

Within years 1 and 2 of our strategy, the key focuses for the University will be to:

- Develop and implement revised waste management procedures for the management of all waste to help staff fully understand their operational requirements for managing waste and to ensure all waste is managed and disposed of in a legally compliant manner.
- Review contractor and operational performance to ensure the legally compliant, responsible, efficient and sustainable management of all of our waste.
- Establish an effective training, support and engagement programme for all applicable staff at the University with waste management roles and responsibilities.
- Review existing facilities across the Canterbury and Medway campuses to ensure they are appropriate for the University's future waste segregation, reuse and recycling objectives. Where appropriate, the University will look at providing new internal and external facilities to maximise the segregation and recycling of waste.
- Establish an effective monitoring and reporting system to measure our waste management performance and progress against key objectives and targets.
- Develop and initiate awareness and engagement campaigns for staff and students on sustainable waste management and recycling.
- Establish 'zero waste to landfill' targets within the current and future waste contracts, and the feasibility of eliminating landfill from the University's waste management options by diverting 100% of all waste from landfill.

Medium term goals

Within years 3 and 4 we will aim to build upon the successes of the short term achievements. This will include a growing focus on managing waste higher up the waste hierarchy by starting to shift the priority to waste prevention and reuse over recycling and recovery options. Our medium term goals will also provide greater focus on achieving our 'zero waste to landfill' objectives and the development and promotion of waste prevention initiatives.

Within years 3 and 4 of our strategy, the key focuses for the University will be to:

- Increase focus on waste management options to consider more favourable options higher up the waste hierarchy, including an increased focus on waste minimisation and reuse, as well as recycling.
- Undertake in-depth monitoring of our waste management performance to review progress against our short term objectives and targets.
- Invest in behaviour change campaigns that will promote waste minimisation across the University, in addition to recycling initiatives. The University will address waste minimisation within academic and commercial areas of our campuses, as well as within student residences.

APPENDIX 8 (CONT)

- Consider the feasibility of food waste segregation from commercial kitchen and catering areas and explore the opportunities to measure and manage this food waste through composting, anaerobic digestion or other recovery options if suitable.
- Explore and establish effective waste prevention measures by improving links with procurement processes across the University.
- Investigate new, novel solutions for further increasing our recycling rates across the University.

Long term goals

Within years 5 and 6 we will increase the focus on waste prevention, minimisation and the achievement of 'zero waste to landfill'. By the long term phase of the Waste Management Strategy the University will have aimed to have embedded reuse and recycling as standard practice across its sites, and will be looking to move beyond this to maximise opportunities at the top of the waste hierarchy.

Within years 5 and 6 of our strategy, the key focuses for the University will be to:

- Achieve 'zero waste to landfill' by diverting 100% of all our waste from landfill.
- Undertake an in-depth review of waste management across the University to identify where further improvements can be made in waste prevention and minimisation.
- Explore on-site waste management technology options to maximise waste minimisation, recycling and recovery options on the University sites.
- Develop and embed sustainable procurement procedures that consider waste management at all levels of the University's procurement and purchasing systems.

Targets against the waste hierarchy

We have set The University incremental targets against the waste hierarchy to drive forwards continuous improvement in our waste management. The targets cover the six year period of this Strategy until 2020 and are based upon a baseline of our waste performance in 2012/2013. The targets that have been set are presented below.

The University recognises waste prevention as the most favourable option of the waste hierarchy and targets to reduce our waste against known 2012/2013 levels have been set. By 2020 we are aiming to have reduced our waste production by 10%.

Where possible, the University will also look to maximise reuse options by working with charities and other third sector organisations to repair, refurbish and reuse any unwanted materials. Our target is to achieve the reuse of 15% of our waste by 2018 and to maintain this and improve our waste prevention and recycling rates.

The University has previously set recycling targets, including targets to increase recycling rates to 50% by 2011/2012 and to 55% by 2012/2013. Both of these targets were successfully met by the University and current recycling rates are reported at approximately 60%. The University aims to build upon our existing recycling success to make continuous improvements in recycling performance and help us achieve our target of 80% recycling by 2020. This will coincide with a reduction in the amount of waste recovered through Energy from Waste (EfW) as we push our waste management processes higher up the waste hierarchy.

The University has worked with its waste contractors to increasingly divert waste from landfill. The majority of the University's general waste and recyclables is currently recycled, with the remaining waste being recovered through EfW processes. EfW generates a very small amount of 'ash' waste that is disposed to landfill, but with this exception the University is diverting the vast majority of its waste from landfill. The University has a desire to achieve 'zero waste to landfill' by diverting 100% of our waste from landfill. In line with this, the University has set targets to dispose 0% of its waste, either through incineration without recovery or landfill, from 2014.

The University intends to avoid using disposal to manage any of its waste through the entire period of this Strategy.

Waste management targets according to the waste hierarchy (excluding building contractors waste)

Year	Waste prevention*	Waste reused	Waste recycled	Waste recovered (EfW)	Waste disposed (landfill)	Waste disposed (incineration)
2014/15	0%	0%	60%	40%	0%	0%
2015/16	0%	5%	65%	35%	0%	0%
2016/17	5%	5%	70%	25%	0%	0%
2017/18	5%	10%	75%	15%	0%	0%
2018/19	10%	15%	75%	10%	0%	0%
2019/20	10%	15%	80%	5%	0%	0%

APPENDIX 9

Table 1: EMR data 2013-14

EMR Data 2013-14									FINAL		
Display Energy Certificates											
Non Residential:											
	Operational Rating										
Building	A	B	C	D	E	F	G				
Becket Court	0	0	80	0	0	0	0				
Stacey (Biosciences)	0	0	0	3,297	0	0	0				
Cornwallis Complex	0	0	0	0	15,010	0	0				
Darwin College	0	0	0	4,171	0	0	0				
Jennison (Electronics)	0	0	0	0	0	5,169	0				
Eliot College	0	0	8,332	0	0	0	0				
Eliot Extension	0	0	932	0	0	0	0				
Estates / Maintenance	0	0	3,546	0	0	0	0				
Gillingham Building	0	0	2,796	0	0	0	0				
Grimond Building	0	1,375	0	0	0	0	0				
Ingram Building	0	0	0	0	0	0	8,015				
Jarman Building	0	0	2,683	0	0	0	0				
Kent Buisness School	0	0	1,688	0	0	0	0				
Keynes College	0	0	0	11,341	0	0	0				
KRDC	0	0	1,372	0	0	0	0				
Mandela	0	0	536	0	0	0	0				
Marlowe Building	0	0	6,263	0	0	0	0				
Medway Building	0	0	4,001	0	0	0	0				
New Sports Pavilion	0	0	1,020	0	0	0	0				
Registry	0	0	0	2,077	0	0	0				
Registry Extension	0	0	0	1,023	0	0	0				
Rutherford College	0	0	9,412	0	0	0	0				
Rutherford Extension	0	0	929	0	0	0	0				
Sports Centre	0	0	0	6,353	0	0	0				
Templeman Library	0	0	0	12,955	0	0	0				
The Venue	0	1,868	0	0	0	0	0				
Woolf Academic	0	2,087	0	0	0	0	0				
Total m²	0	5,330	43,590	41,217	15,010	5,169	8,015				118,331
Residential:											
	Operational Rating										
Building	A	B	C	D	E	F	G				
Becket Court	0	0	2,518	0	0	0	0				
Bossenden Court	0	0	3,029	0	0	0	0				
Darwin College	0	0	0	5,889	0	0	0				
Eliot College	0	0	5,896	0	0	0	0				
Kemsdale Court	0	0	5,252	0	0	0	0				
Keynes College	0	0	0	3,694	0	0	0				
Nickle Court	0	0	5,152	0	0	0	0				
Rutherford College	0	0	4,561	0	0	0	0				
Stock Court	0	0	1,610	0	0	0	0				
Tyler Court A	0	0	0	3,922	0	0	0				
Tyler Court B	0	0	4,212	0	0	0	0				
Tyler Court C	0	0	4,257	0	0	0	0				
Total m²	0	0	36,487	13,505	0	0	0				49,992
<p>Notes: i) Black text - Rating unchanged from 2012-13 ii) Green text - Rating better than 2012-13 iii) Red text - Rating worse than 2012-13 iv) The figures in the cells are gross internal floor areas in m² v) Gross internal floor areas updated from KSW schedule dated Jan 2014 vi) All GIAs exclude commercial space</p>											
Ref: NHS / E11 / 10 30.04.15											

APPENDIX 11

Ten year Capital Plan

Table 1: 2014 Funding Strategy indicative costs (2014 prices)

Note: Option 1 is the current Capital Programme and excludes the Science Building. Table 1 is an exercise undertaken in 2014 and informed the decisions for the 2014/15 programme and what is now the current 2015/16 programme. Option 1 is funded through the EIB Loan and £60m investment in the future. Anything in addition to Option 1 can only be finance through additional surpluses from what is already forecast.

Indicative potential Estates expenditure for discussion only	Total Expenditure - 10 year capital programme (14/15-23/24)			
	Current Approved/ Indicative Plan £000	Estates Strategy - Option 1 £000	Estates Strategy - Option 2 £000	Estates Strategy - Option 3 £000
Pots				
Major Building Projects	103,494	151,542	211,542	265,014
Estates Strategy - Major Projects	30,649	50,106	50,106	50,106
Refurbishments & Infrastructure	52,422	68,422	68,422	68,422
Kent Hospitality Refurbishments	30,517	39,667	39,667	39,667
Capital Equipment	31,431	31,431	31,431	31,431
System Developments	13,894	18,894	18,894	18,894
Contingency	8,800	8,800	8,800	8,800
Less: non capital items included above	(5,000)	(5,000)	(5,000)	(5,000)
Total Expenditure	266,205	363,861	423,861	477,332
Current planned Loan funding	79,000	79,000	79,000	79,000
Other External Funding	9,890	9,890	9,890	9,890
Total Funding required	177,315	274,971	334,971	388,442
Potential Additional Borrowing - assume drawdown in 2016/17	65,000	65,000	65,000	65,000
Current surplus - budgeted at 2% total income	54,978	54,978	54,978	54,978
Add back: net depreciation	175,742	175,742	175,742	175,742
Annual average surplus - current budget	23,072	23,072	23,072	23,072
Additional surplus required to maintain 40 days cash reserves by 23/24 (Annual average)				
Assuming only current planned borrowing	805	10,673	16,673	19,220
Assuming maximum borrowing (planned + available headroom)	519	8,346	14,345	16,892
Average Annual Surplus as % total income				
Assuming only current planned borrowing	2.3%	5.9%	8.1%	9.0%
Assuming maximum borrowing (planned + available headroom)	2.2%	5.0%	7.2%	8.1%
Assumptions:				
The Current Approved/Indicative Plan shows the expenditure in the 10 year capital programme approved and FRC June 2013				
Capital expenditure excludes new residences (except replacement of Darwin college) as it is assumed that they will be built under PFI-type contracts				
No receipts from asset sales are assumed				
See separate table for breakdown of major build & refurbishment projects included in the options above				

APPENDIX 11 (CONT)

Graph 1: Capital Expenditure 2013/14-2024/25 (2014 Funding Strategy)

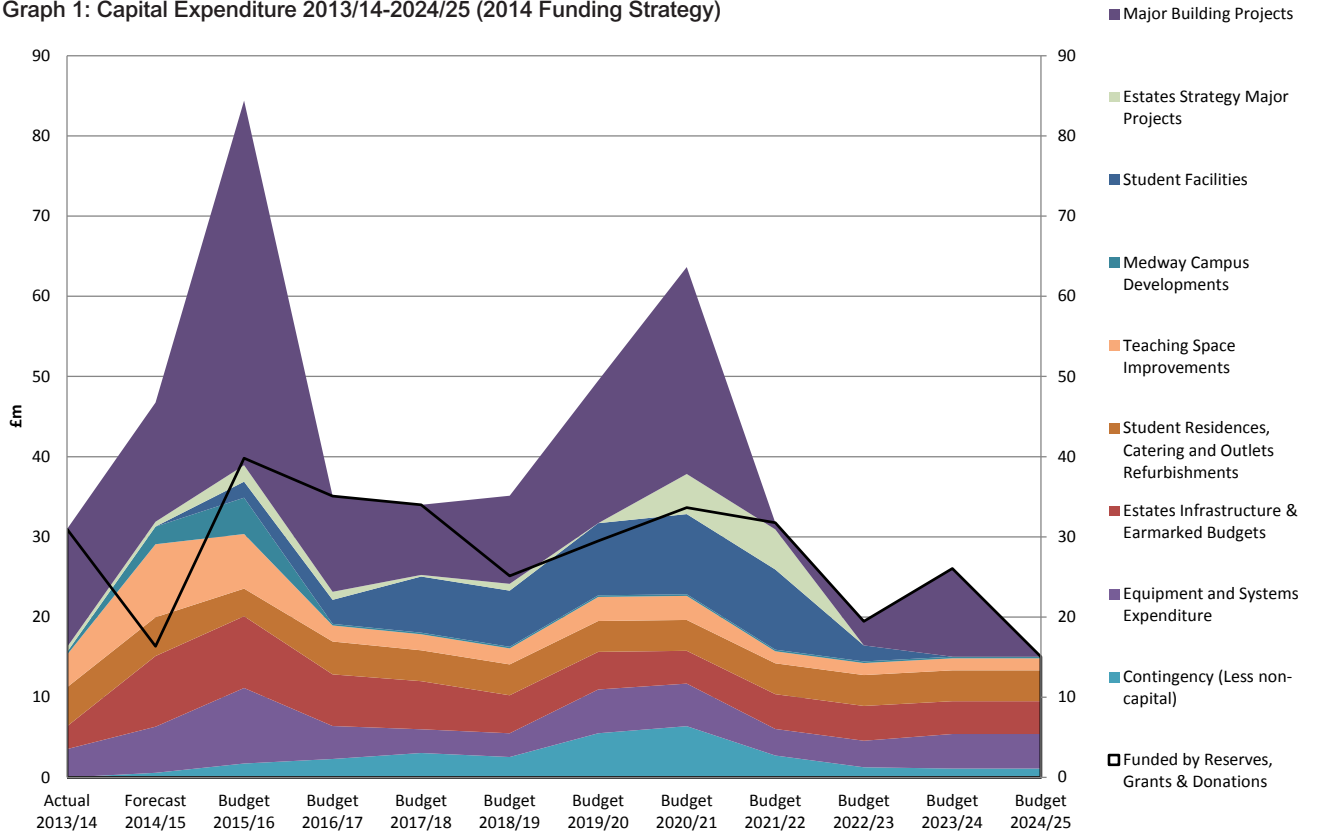


Table 3: Approved current (2015/16) Ten Year Capital Plan

	Total Expenditure (£000)		
	2015/16* - 2019/20	2020/21 - 2024/25	Total Expenditure - (15/16-24/25)
Summary of Draft Capital Programme - May 2015. Based on option 1 of Estates Strategy.			
Major Building Projects & Student Facilities			
Law Building	4,334	-	4,334
Templeman Library - Extension	7,523	-	7,523
Templeman Library - Phase 3: Refurbish	6,492	2,805	9,297
New Academic Building (KBS/SMSAS)	32,543	-	32,543
KRDC Expansion (Economics)	14,000	-	14,000
Innovation Facilities	5,000	-	5,000
New Academic Building (Relocate Schools from Rutherford + refurb bedrooms)	22,760	2,340	25,100
Student Admin Building	25,000	-	25,000
Student Activities Building	3,000	22,000	25,000
Sciences Building	5,000	30,000	35,000
Capitalised interest in relation to projects above	2,783	-	2,783
	128,435	57,145	185,580
Estates Strategy Major Projects			
Cornwallis East	1,035	-	1,035
Other Academic Space Developments	2,303	-	2,303
Sport Facilities (Sports Pitches + Swimming pool)	2,098	10,000	12,098
Medway Academic Spaces (Sail & Colour loft + other developments)	882	-	882
Large PV Array	2,000	-	2,000
	8,318	10,000	18,318
Refurbishments & Infrastructure Projects			
Teaching Space Refurbishments	3,465	2,500	5,965
Space Rationalisation	8,004	5,500	13,504
Refurb Rutherford Extension for Dean, KIE & Research Services	1,000	1,000	2,000
Perception Upgrades	2,094	2,000	4,094
Major Refurbishments (includes Ingram overcalding + refurb of space vacated by SMSAS / Economics)	8,449	5,000	13,449
Canterbury Social & Student Facilities	4,605	3,000	7,605
Medway Social / Informal Learning Spaces (includes C4 site + Galvanising Shop)	4,447	1,000	5,447
Academic Services Developments & Refurbishments	1,952	500	2,452
Residences & Catering Major Refurbishments	19,099	19,250	38,349
Facilities Upgrades & Refurbishments	2,750	2,750	5,500
Infrastructure Improvements	8,073	5,000	13,073
Security / Access / Health & Safety / Disability Enhancements	1,152	1,200	2,352
Carbon Reduction Projects	1,494	1,250	2,744
	66,586	49,950	116,536

APPENDIX 12



“Legislative Risk Mitigation” Report (March 2015)

1 Terms of reference	p40
2 Key findings	p40
3 Further analysis	p43
4 Interpretation	p45
5 Recommendations	p47
Appendix 1 – Definition of appraisal terminology	p49

1 Terms of reference

1.1 Appointment

Drake & Kannemeyer was appointed by The University of Kent in February 2014 to carry out a non-intrusive Condition survey of the entire estate including the identification of Non-compliance with statutory requirements. The physical surveys were completed by May 2014 and delivered to the University in the form of reports and accompanying database in September 2014.

In March 2015 the firm was appointed to assist the University in the mitigation of risk associated with the items in the survey relating to Statutory Non-Compliance.

1.2 Objectives

The purpose of the Condition Surveys was to provide a comprehensive, reliable and independent account of the building stock and the extent to which the physical estate failed to comply with relevant legislation. The report estimated the expenditure required to bring the Estate to a sound and operationally safe condition subject only to routine maintenance.

The March 2015 risk mitigation exercise was initiated to identify high risk items from the survey that required immediate action and to assist the senior estates team in programming the remaining issues into a five year plan. This was to include the identification of Non-compliance issues for which the University already had budgetary undertakings.

1.3 Scope

The survey was carried out on the majority of buildings owned and/or occupied by the University. External works were also considered including roads, paving, car parks, mains distributions, meter houses sewers etc.

The appraisal considered a time period of 10 years and works required to be completed within that period have been graded, prioritised and risked in accordance with the methodology attached in Appendix 1. Costs stated in this report are based on a base date of quarter 4 2014 and unless otherwise stated all figures exclude VAT and professional fees.

The study was confined to the condition of existing buildings; it did not assess any need for additional accommodation, functional improvement or betterment. Certain minor repair costs are included which could be considered day-to-day maintenance issues.

1.4 Execution

The surveys were carried out by teams of professionally qualified building surveyors and services engineers who visited each building within the scope of the commission. The data gathered during the survey was reviewed by a system of quality control then entered into a database for consolidation, analysis, and reporting.

The risk mitigation exercise was carried out by the Partner who managed the original survey.

1.5 Co-operation

Throughout the commission we received a high level of co-operation from the University staff. This task could not have been completed on time without their assistance for which we are most grateful.

1.6 Standards

The Condition Surveys were carried out in accordance with the Higher Education Funding Council's requirements and guidance. In addition the firm complied with the RICS guidance for Condition Appraisals; BMI Special Report: "Legislation Non-Compliance and Condition Appraisal Systems" published by Building Maintenance Information Limited.

It should be noted that Condition Surveys are not structural surveys and they do not provide detailed estimates; they provide general guidance to the condition of buildings and the order of costs to bring buildings to a sound condition defined as grade "B" (See Appendix 1).

Surveys proceeded by visual inspection of the buildings, identification of the current University position on legislation (enforcement notices received etc.) and by pricing the work shown to be necessary on each building. In addition each building was identified by a unique building number, classified by function, floor area, age and number of storeys along with summary notes relating to both building fabric and engineering services. Large or complex buildings were broken into sub blocks or floor levels to facilitate recording condition defects in manageable groups.

Each element of each building was surveyed by undertaking a non-intrusive walk-through inspection. A coarse 4 point grading system (A, B, C or D) was assigned together with the cost of putting the element in good order and the year by which the remedial works should be carried out. In addition a risk assessment was applied to each item; in accordance as described in Appendix 1.

NB: It should be noted that all costs are net of professional fees, contingency and VAT unless specifically noted. This means that the “Real-world” cost may be at least one and a half times the values stated after due allowance has been made for these factors.

2 Key findings

2.1 Non-compliance with legislation

£7,453K is required to comply with safety and legislative requirements. This relates to such issues as health and safety, fire, electrical safety, etc. affecting both physical buildings and the external works associated with the sites. This figure is an overall reduction from the comparable result from last survey carried out by the firm in 2008 as shown in Table 2.1 below. The 2008 survey figures have been inflated by 12% based on the BCIS BMI All-in Maintenance Cost Indices.

It is noteworthy that the greatest reduction has been achieved in the Residential estate which, as advised by the estates team, has been the main focus of capital and maintenance expenditure in the intervening years. It can also be seen that the Academic estate has deteriorated slightly in terms of Legislation compliance.

In the survey grade “C” items are those where the item is advisory or where there may be the possibility of deferment. Grade “D” or “DX” items denote there is non-compliance with legislation or a significant health and safety risk observed by the surveyor. Please see Appendix 1 for the definitions of the terminology used in the survey reports.

D or DX graded items account for just over half (54%) of the total cost. Of these, there are 91 individual DX graded items totalling £506K. Table 2.2 shows the number and value of these entries by grade items the current survey.

Table 2.1: Statutory non-compliance cost for 2014 and 2008 surveys. An inflationary index of 12% has been applied to the 2008 figures

Site	Campus	2014 £K	2008 £K
C001	Canterbury Academic Campus	£3,216	£2,741
C002	Residential/ Collegic Campus	£4,043	£7,771
M001	Medway Academic Campus	£194	£57
Total		£7,453	£10,569

Table 2.2: Cost by grade and number of occurrences for 2014 survey

Grade	£K	Number of Items
C	£3,406	1,775
D	£3,540	2,505
DX	£506	91
Total	£7,453	4,371

2.2 Timing of expenditures

The appraisal identified the pattern of expenditure identified in Table 2.2 to return the University’s buildings to compliance with statute. The figures represent the cost of complying with the Legislative requirements that affect buildings and services. This does not necessarily mean compliance with current building standards for new construction, as statutory requirements are generally not retrospective. The costs are divided between physical non-compliances and statutory tests and inspections that are required for items such as electrical testing and asbestos management.

Failure to carry out compliance works can pose a serious risk to individuals and may also result in disruption to the occupation of buildings and/or potential prosecution of the Institute. For these reasons we recommend that all D and DX Grade items, be reviewed and given high priority. This information is augmented by the risk assessment ranking for each defect and non-compliance; items with “High” Risk Ranking should be given urgent consideration and “Significant” risk items should be programmed for in the short to medium term.

The appraisal assumed that all buildings were to be retained in their current use and the costs identified reflect renewal, repair or compliance remedial works to bring the estate to a sound operational and safe state.

Table 2.3: Statutory non-compliance cost by year by category

Year	Total £K	Statutory non-compliance	Statutory test
1	£4,046	£2,983	£1,063
2	£2,204	£2,090	£114
3	£270	£250	£20
4	£421	£416	£5
5	£280	£276	£5
6	£84	£84	£0
7	£32	£32	£0
8	£52	£52	£0
9	£32	£32	£0
10	£32	£32	£0
Totals	£7,453	£6,615	£838

3 Further analysis

3.1 Analysis of floor area/age of building

The estate is made up of 91 buildings with a gross internal floor area of 213,954 m². The majority of the University (64%) was built before 1980 and is therefore at least 35-40 years old; approaching the end of useful and economic life. Typically buildings have a design life of 60 years and therefore significant investment is required to bring the buildings to a compliant state and to sustain them in that condition. Table 3.1 below shows the floor area, number of buildings and cost/m².

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APPENDIX 12 (CONT)

Table 3.1: Floor Area, number of buildings and cost/m².

	2014 Survey
Floor Area (GIFA) m ²	213,954
Number of Buildings	91
Non-Compliance Cost/m ²	£34.8

3.2 Distribution of non-compliance cost items

It is noteworthy that the costs are characterised by a large number of relatively low value items mixed with a small number of large ticket items. Table 3.2 below shows the spread of costs and the proportion of the cost represented. If costs below £5K are excluded; 57% of the cost can be attributed to just 260 items out of a total of 4,334.

Table 3.3 lists the top 20 individual Non-compliance issues with the largest remedial cost in descending order. These account for just over 16.2% of the total costs and should therefore be subject to further analysis and management action. All but one of the items relate to the residential estate.

Table 3.4 shows the top 20 Non-compliance cost by building in descending order summing 60.7% of the overall total.

Table 3.2: Spread of statutory non-compliance costs

Cost Band	Number	Cost	% Cost
>=£100K	2	£200	3%
>=£50K<£100K	13	£802	11%
>=£20K<£50K	50	£1,412	19%
>=£10k<£20K	76	£1,065	14%
>=£5k<£10k	119	£764	10%
>=£1K<£5K	1,114	£2,192	29%
<£1K	2,960	£1,017	14%
Totals	4,334	£7,453	100%

3.3 Expenditure by statutory non-compliance element

General health and safety issues including such items as Workplace Regulations, lift safety, glazing standards, access protection and safety etc. comprised 16.1% (£1,197K) Fire safety issues accounted for 38.0% (£2,865K) of the total, including such items as fire alarms, emergency lighting, means of escape, structural fire precautions etc. Housing provisions, in relation to the Residential estate account of 19% of the total (£1,425K). Table 3.5 show the total cost of each Main Element grouping. See appendix 1 (p49) for the full list of Main and Sub Elements.

Table 3.3: Top 20 non-compliance cost survey items

Building	Description	Cost £K	% Cost
RC Rutherford College	Upgrade study bedroom and wing office doors to half hour fire resistance.	£100	1.3%
EC Eliot College	Upgrade study bedroom and wing office doors to half hour fire resistance.	£100	1.3%
PA/PC Purchas Court	Provide additional sink and oven/hob and cupboard units	£68	0.9%
PA/LC Lypeatt Court	Provide additional sink and oven/hob and cupboard units	£66	0.9%
PA/NI Nickle Court	Recommend 'Whiterock' to shower walls and vinyl sheet to floors. Phased (34%)	£64	0.9%
DC Darwin College	Improve sanitary facilities	£64	0.9%
PA/KE Kemsdale Court	Recommend 'Whiterock' to shower walls and vinyl sheet to floors. Phased (34%)	£64	0.9%
DC Darwin College	Improve sanitary facilities	£64	0.9%
PA/NI Nickle Court	Recommend 'Whiterock' to shower walls and vinyl sheet to floors. Phased (33%)	£63	0.8%
PA/KE Kemsdale Court	Recommend 'Whiterock' to shower walls and vinyl sheet to floors. Phased (33%)	£63	0.8%
PA/KE Kemsdale Court	Recommend 'Whiterock' to shower walls and vinyl sheet to floors. Phased (33%)	£63	0.8%
PA/NI Nickle Court	Recommend 'Whiterock' to shower walls and vinyl sheet to floors. Phased (33%)	£63	0.8%
PA/FC Farthings Court	Replace all showers with 'Whiterock' to walls and vinyl to floors Phased (50%)	£60	0.8%
DC/2X Darwin Houses – Phase 2	Replace all study bedroom doors with half hour F.R. standard, including transom panels.	£50	0.7%
DC/1X Darwin Houses – Phase 1	Replace all study bedroom doors with half hour F.R. standard, including transom panels.	£50	0.7%
PA/FC Farthings Court	Install intumescent strips and smoke seals to all study bedroom doors	£46	0.6%
PA/WC Willows Court	'Whiterock' to shower walls and vinyl to floors (Phased 50%)	£40	0.5%
PA/BC Bishopden Court	'Whiterock' to shower walls and vinyl to floors (Phased 50%)	£40	0.5%
CL Ingram	Check Illumination levels. Allowance to improve as necessary	£40	0.5%
PA/HC Homestall Court	Replace all showers with 'Whiterock' to walls and vinyl to floors. Phased (50%)	£38	0.5%
Sub Total		£1,206	16.2%
<i>Remaining Buildings</i>		<i>£6,247</i>	<i>83.8%</i>

Table 3.4: Top 20 non-compliance cost buildings with proportion of floor area

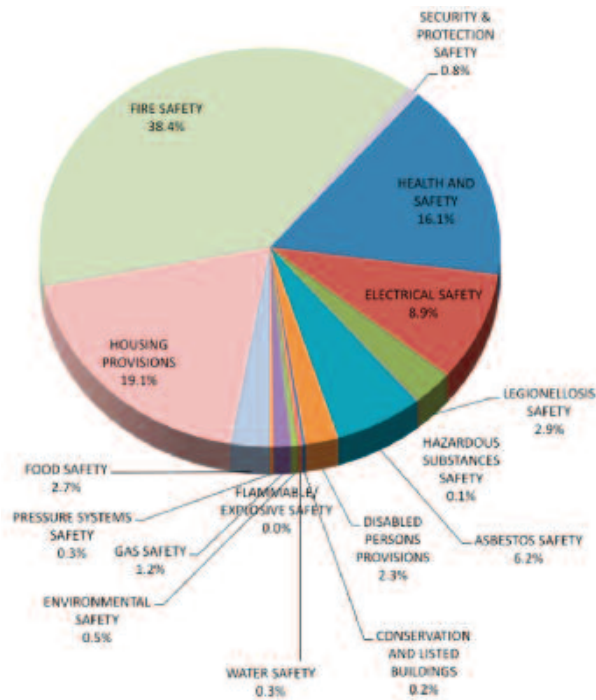
Building	Floor area	% Floor Area	Cost £K	% Cost
DC Darwin College	10,059	4.7%	£478	6.4%
99 The Site	-	0.0%	£389	5.2%
RC Rutherford College	13,973	6.5%	£312	4.2%
PA/KE Kemsdale Court	5,252	2.5%	£289	3.9%
LI Templeman Library	12,955	6.1%	£282	3.8%
CL Ingram	7,899	3.7%	£278	3.7%
PA/NI Nickle Court	5,152	2.4%	£273	3.7%
EC Eliot College	14,228	6.7%	£270	3.6%
PL Marlowe	5,983	2.8%	£217	2.9%
PA/PC Purchas Court	3,925	1.8%	£216	2.9%
PA/LC Lypeatt Court	3,788	1.8%	£214	2.9%
PA/EC Ellenden Court	1,798	0.8%	£175	2.4%
KC Keynes College	15,035	7.0%	£165	2.2%
CO/GU Cornwallis Gulbenkian	2,139	1.0%	£164	2.2%
PA/FC Farthings Court	2,699	1.3%	£153	2.1%
PA/BO Bossenden Court	3,029	1.4%	£141	1.9%
BL Stacy Building	3,085	1.4%	£136	1.8%
PA/DC Denstead Court	1,357	0.6%	£131	1.8%
EL Jennison Bdg (Electronics)	5,169	2.4%	£123	1.7%
EC/BC Becket Court	2,598	1.2%	£116	1.6%
Sub Total	120,123	56.1%	£4,524	60.7%
<i>Remaining 71 Buildings</i>	<i>93,831</i>	<i>43.9%</i>	<i>£2,929</i>	<i>39.3%</i>
Totals	213,954	100%	£7,453	100%

Table 3.5: Cost by main element

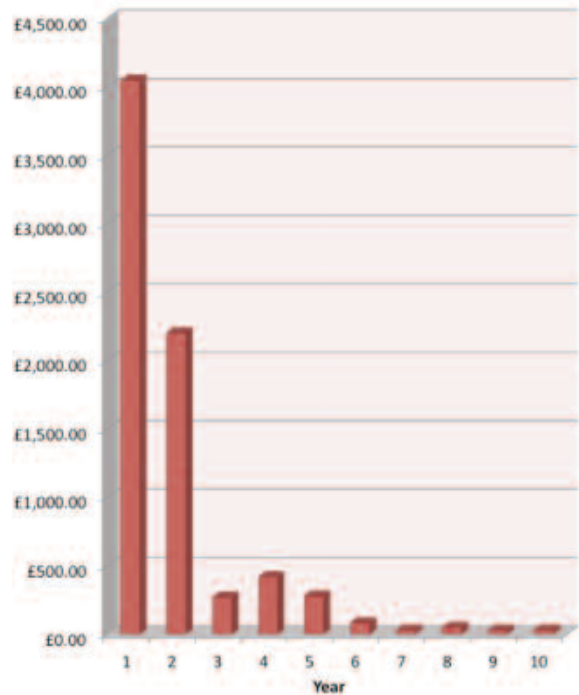
Element Code	Element name	Cost £K
1	Health and Safety	£1,197
2	Electrical Safety	£662
3	Legionellosis Safety	£215
4	Hazardous Substances Safety	£6
5	Asbestos Safety	£461
6	Disabled Persons Provisions	£173
7	Conservation And Listed Buildings	£15
8	Water Safety	£22
9	Environmental Safety	£38
10	Gas Safety	£89
11	Flammable/ Explosive Safety	£0
12	Pressure Systems Safety	£20
13	Food Safety	£204
15	Housing Provisions	£1,425
16	Fire Safety	£2,865
17	Security & Protection Safety	£60
Total		£7,453

APPENDIX 12 (CONT)

3.3: Percentage cost of statutory non-compliance by main element



3.4: Cost of statutory non compliance by year



3.4 Analysis of condition by grade and year

From table 2.2 it can be seen that 45.7% of the cost is graded C, the remaining 54.3% graded D and DX. There are relatively few DX items (91) and these should be reviewed and actioned as a matter of priority.

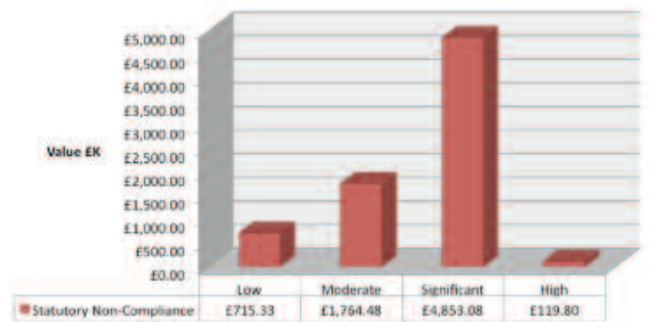
Analysis of Statutory Non-compliance cost by year covers a 10-year period in this report. This is a judgement of the individual surveyor and whilst these assessments in the first 3 years reflect fair accuracy, forecast replacement, repair or renewal beyond a 3-year span is subject to unforeseeable factors including effects of weather, variations in demand of installations, changes in the nature and extent of occupancy, etc.

Statutory compliance costs are concentrated in the early years of the programme and this is expected given the nature of the issues. Items identified for Year 1 account for 54% of the cost at £4,046K.

3.5 Risk assessment

Chart 3.5 below illustrates the total cost by each risk category. Significant and High risk items are those which pose a significant threat to the Health and Safety of building users or have the potential to impact the function of a building. Items

3.5: Cost by risk assessment



with these risk rankings should be reviewed and implemented as a matter of priority. High and significant risk items represent 67% (£4,973K) of the cost. The remaining items are categorised as Low or moderate risk total 35% of the total cost (£2,480K).

The high risk issues are contained in just 138 individual items with a total cost of £120K. These should be reviewed and remedied as matter of priority.

4 Interpretation

4.1 Investment level required

The total cost of addressing Legislation Non-Compliance identified in the survey was £7,453K. From Table 2.3 it can be seen that £6,245K relates to physical issues and £1,207K to cyclical test and inspections on an annual or quinquennial basis.

Within our assessment the test and inspection figure only identifies the first instance of cyclical test and inspect items ie an annual lift test will only appear in year 1 and not a further nine times in the preceding years.

Further analysis of the cyclical test cost reveals that £630K relates to annual inspections eg Legionella and Fire Alarm tests and £575K for 5 yearly fixed wire electrical testing. The small balance of £2.4K relates to one-off testing.

4.2 Timing

In undertaking the appraisals, the surveyors and engineers noted their preferred years for expenditure.

Statutory lapses potentially put lives at risk and these should be reviewed and remedied within the timescales identified. Certain non-compliances can be remedied by management action such as decommissioning dangerous equipment, vacating space or introduction of management arrangements in place of physical compliance works etc. We strongly recommend that Grade D/DX items should be reviewed and dealt with in year 1.

There may be a measure of deferment possible for “C” graded items and low-moderate risk items which is explored in greater depth in Section 4 of this report.

4.3 Budgets

A portion of the cost identified in the survey is already allowed for within the Estates Departments annual budget. Through discussion with the Estates Team; Table 4.1 below indicates in broad terms the current budgets against the total costs identified in the survey.

The annual funding of Statutory Compliance is derived from a number of sources; a specific Health and Safety budget of £79K, a General Revenue budget, a Disabled Adaption Budget of £100K and a Security Access Budget of £100K. In addition there is a Long Term Maintenance budget of £2,000K, although this is totally committed to general repairs and maintenance across the estate.

To an undetermined amount; Capital projects and Kent Hospitality also indirectly contribute towards Non-compliance issues as departmental upgrades and residential refurbishments which subsume issues relating to the specific areas being worked upon. This contribution would, however, fluctuate depending on the scale and nature of the projects and therefore cannot be relied upon as a reliable source of budget.

4.4 Shortfall

It can be seen from Table 4.1 that there is a significant shortfall between the level of need and the current funding in four areas;

Table 4.1: Comparison of survey cost and current budget

Element code	Element name	Cost £K	University Annual Budget
1	Health And Safety	£1,197	Health & Safety Budget £79K including Fire Safety.
2	Electrical Safety	£662	Academic Estate: LTM budget £10K for physical repairs and £20K for testing. Residential – £2K for testing.
3	Legionellosis Safety	£215	General Revenue budget of £90K for physical repairs and £10K for Testing. LTM budget £110K.
4	Hazardous Substances	£6	Out of general Health & Safety Budget
5	Asbestos Safety	£461	Academic Estate: Management out of general LTM budget and removals part of Capital Projects. Residential: Kent Hospitality Budget as part of refurbishments.
6	Disabled Persons Provisions	£173	£100/PA – Relates to adaptations for specific members of staff or students.
7	Conservation	£15	Would be budgeted for in a project where applicable
8	Water Safety	£22	Budgeted for in Legionellosis Safety above.
9	Environmental Safety	£38	General Revenue budget of £50K
10	Gas Safety	£89	General Revenue budget of £75K and LTM budget of £8K.
11	Flammable/ Explosive Safety	£0	Out of general Health & Safety Budget
12	Pressure Systems Safety	£20	General Revenue budget of £28K for Insurance Inspections.
13	Food Safety	£204	Costed to Catering department direct.
15	Housing Provisions	£1,425	Kent Hospitality Budget as part of refurbishments.
16	Fire Safety	£2,865	Included in Health and Safety Budget £79K
17	Security	£60	Security and Access budget £100K
Total		£7,453	

CONTINUED OVERLEAF

APPENDIX 12 (CONT)

Health and Safety, Electrical Safety, Asbestos Safety and Fire Safety. Other Non-compliance issues are broadly budgeted for.

To understand the shortfall it is necessary to look at the four underfunded issues in greater detail as each topic contains a mixture of one-off improvement costs and on-going cyclical test and inspection costs.

4.5 Health and Safety

Table 4.2 shows that the majority of the cost (£1,120K) relates to one-off physical improvements and the balance of £77K relates to annual test and inspections, mainly for insurance inspections of Lifts (£70K). The annual budget for Health and Safety of £79K would only just cover the annual test and inspect items and does not make tackle the one-off physical improvements identified below.

Table 4.2: Breakdown of Health and Safety cost

Element name	Total £K	Statutory compliance £K	Statutory test or inspection
Lifts Safety	£85	£15	£70
Equipment Protection	£18	£18	£0
Access Protection	£368	£365	£2
Noise Levels	£8	£8	£0
Glazing	£6	£6	£0
General Lighting	£113	£113	£0
Heating	£48	£48	£0
Ventilation	£139	£139	£0
Staff Facilities	£10	£10	£0
Sanitary Facilities/ Hygiene	£14	£14	£0
Workplace Environment	£26	£26	£0
Safety Notices	£52	£52	£0
Safety	£286	£281	£5
Occupiers Liability	£2	£2	£0
Pest Control	£22	£22	£0
Totals	£1,197	£1,120	£77

4.6 Electrical Safety

The majority of the cost relates to quinquennial Electrical testing (£511K) and the balance relates to physical improvements and updating "As Fitted" records; see Table 4.3 below. Given that the average cost in any year would be in the order of £100K and that the budget for this work is only £22K there is a significant underfunding of this issue and therefore Electrical Testing will fail to be carried out at the required intervals and remedial works not attended to in a timely manner.

Table 4.3 Breakdown of Electrical Safety cost

Element name	Total £K	Statutory compliance £K	Statutory test or inspection
Testing	£511	£0	£511
As Fitted Schematics	£50	£50	£0
Distribution Boards	£50	£50	£0
Bonding & Safety	£50	£50	£0
Totals	£662	£151	£511

4.7 Asbestos safety

The University does not have a specific budget for Asbestos Management and so any removal or Encapsulation work is funded out of the General LTM budget unless it can be associated directly with a capital project. Table 4.4 below shows that the majority of cost relates to removal and encapsulation (£446K) with the balance attributable to surveys and Asbestos Management.

The cost stated is not the cost to remove all asbestos from the estate, but rather the cost of managing specific known issues identified in the various Asbestos registers. The cost of removing all asbestos would be many times this figure and has not been determined by the survey. The Health & Safety Executive's standard advice is to leave asbestos in place until a major

APPENDIX 12 (CONT)

refurbishment takes place where the occupiers are decanted or to mitigate risk by encapsulation and though management procedures.

Table 4.4: Breakdown of Asbestos Safety cost

Element name	Total £K	Statutory compliance £K	Statutory test or inspection
Survey/ Test/ Register	£15	£0	£15
Control of Exposure	£446	£446	£0
Totals	£461	£446	£15

4.8 Fire Safety

Fire Safety is budgeted for by the General £79K Health and Safety budget. This sum is more than accounted for in issues identified in Table 4.2 above. Table 4.5 below shows that there is a requirement of £2,576 for one-off improvements and annual revenue cost of £289K for tests and inspections. Fire Safety appears, therefore, to be severely underfunded which is of concern given that student and staff may potentially be at risk and that even a small fire can cause a building to be inoperable due to smoke damage.

Table 4.5: Breakdown of Fire Safety cost

Element name	Total £K	Statutory compliance £K	Statutory test or inspection
Fire Safety	£48	£48	£0
Structural Integrity	£3	£3	£0
Compartmentation	£65	£65	£0
Fire Stopping	£133	£133	£0
Horizontal Escape Routes	£1,249	£1,249	£0
Vertical Escape Routes	£119	£119	£0
Escapes/ Exits	£35	£35	£0
Fire Alarms/ Detection	£158	£82	£77
Emergency Lighting	£250	£183	£67
High Fire Risks	£319	£319	£0
Sign Posting	£77	£77	£0
Fire Risk Assessment	£50	£0	£50
Fire Fighting	£0	£0	£0
Spread of Flame	£39	£39	£0
External Lighting	£9	£9	£0
Hose Reel	£1	£1	£0
Lightning Protection	£311	£216	£96
Totals	£2,865	£2,576	£289

5 Recommendations

The report has highlighted that Statutory Non-Compliance has improved since the previous survey, which is welcome. This has been achieved through the Estates organisation focussing on higher risk issues, particularly within the Residential estate. The challenge for the University is to continue this improvement across the whole Estate, mainly through increased funding in four key areas described in the previous section.

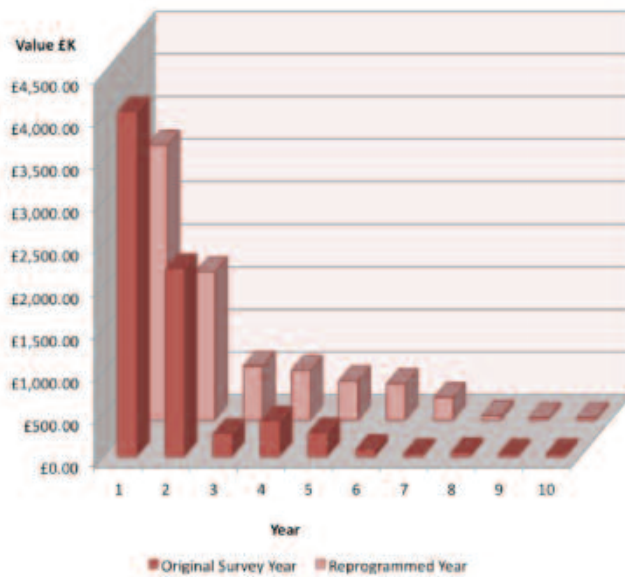
In addition it may be possible to defer lower risk “C” Graded items identified in the survey in an attempt to smooth out the cost over the next five years.

5.1 Prioritise “High Risk” and “DX” graded items

We recommend that the University reviews all “High Risk” and “DX” Graded items in the survey, most of which will overlap, in order to manage these and plan for their mitigation in the short term ie within the next 12 months. Following this a second exercise should be undertaken to review “Significant Risk” and “D” graded items.

APPENDIX 12 (CONT)

5.1 Cost of statutory non compliance by year and programme year



5.2 Budgetary provision

We would recommend the following budgets are established and funded;

Increased budget for General Health & Safety to get on top of historical backlog. Currently the budget only covers the costs of cyclical testing and on this basis will not fund the improvement of physical Health and Safety risk items. If the backlog of items were to be removed within five years this would amount to a nett additional requirement of £224K each year.

Increased budget for Electrical Testing in the order of £80K each year. This will become increasingly important as the Electrical Services reach the end of their useful and economic life, which will be true of buildings that are more than 30 years old.

Increased budget for Asbestos Management and Removals/ Encapsulation in the order of £100K.

Increased budget for Fire Safety Issues based on an annual fund of around £60K for testing and an additional funding of physical improvements in the order of £500K. The latter should be subject to a formal risk assessment by a fire risk consultant in order to satisfy the requirements of The Regulatory Reform

Table 5.1: Legislation elements with possible deferment

Main element name	Element name
Health And Safety Environment, Pest Control	Noise Levels, General Lighting, Heating, Ventilation, Staff Facilities, Sanitary Facilities/ Hygiene, Workplace
Disabled Persons Provisions	External Circulation, Entrances/ Reception, Horizontal Circulation, Sanitary Provision, General Accommodation
Food Safety	Internal Fabric, General Arrangements, Fixed Equipment, Stores
Housing Provisions	Kitchen Provision, Sanitary Provision, General Arrangements
Fire Safety	Emergency Lighting
Security & Protection Safety	CCTV

Table 5.2: Effect of re-programming

Year	Original survey year	Reprogrammed year	Change
1	£4,046	£3,227	-£819
2	£2,204	£1,739	-£465
3	£270	£634	£364
4	£421	£583	£163
5	£280	£460	£180
6	£84	£427	£343
7	£32	£267	£235
8	£52	£52	£0
9	£32	£32	£0
10	£32	£32	£0
Totals	£7,453	£7,453	

(Fire Safety) Order 2005 as it is a Statutory requirement that fire risk is actively managed.

Through risk assessment it may be possible to mitigate physical alterations through Fire Engineering solutions such as improved Fire detection. The effect of this can only be determined on an individual case by case basis and is beyond the scope of this report.

5.3 Programming of lower risk and “C” Graded issues

Table 5.1 lists the Non-compliance issues that can be considered as advisory or lower risk that could be deferred without undue risk to the University. Table 5.2 and Chart 5.1 indicate the effect of deferring these items. The deferred items should be subject to more detailed risk assessment to confirm that this programming is acceptable to the University.

Appendix 1 – Definition of appraisal terminology

Statutory non-compliance appraisal

1 Gradings

The compliance grades employed have the following meanings:

- Condition C Reasonably foreseeable lack of compliance with legislation observed by the surveyor or identified by the responsible authority who have offered a time span for works to be carried out.
- Condition D Lack of compliance with legislation or imminently dangerous breach observed by the surveyor.
- Condition DX Lack of compliance with legislation or imminently dangerous breach observed by the surveyor or identified by the responsible authority who have issued a warning or directive requiring works to be carried out within a specified period.

2 Scope

The works included in the appraisal are those cost significant works required to bring the various buildings into compliance with legislation identified by the Client as applicable to the accommodation.

The appraisal takes the same form as the condition appraisal in that it is non-intrusive in nature. It is therefore impossible for the report to give an authoritative view that the accommodation complies with legislation when much of the relevant evidence is likely to be hidden. In addition the work necessary to achieve compliance depends on the interpretation of the regulations

made by the local officers designated under the various Acts. This appraisal cannot abrogate these responsibilities or anticipate decisions that might be taken.

3 Costs

Costs given are in £'000s or £'s as indicated and are based on price levels at the time of the appraisal. They are exclusive of Value Added Tax and Professional Fees and no allowance has been made for inflation or betterment.

4 Repair and renew

Repair or renewal costs relating simply to condition have been included within the condition appraisal. Where such elements are also defective in relation to legislative requirements the costs and the description of the necessary works have been included in the compliance appraisal and a note to this effect inserted in the condition appraisal.

5 Limitations

These appraisals provide general guidance only to the cost and scope of the works necessary to bring the buildings into compliance with the relevant legislation. They do not purport to be detailed estimates or to guarantee that all work or costs necessary to meet requirements that may subsequently be imposed by the responsible authorities have been included in the compliance appraisal. As is the case with the condition appraisal the fact that the building is suffering from various deficiencies does not necessarily mean that those deficiencies should be repaired; it may be more sensible to change the use of the building or dispose of it.

6 Risk

RISK = CONSEQUENCE X LIKELIHOOD

Likelihood

1	Rare	– in > 10 years
2	Unlikely	– in > 10 years
3	Possible	– in < 5 years
4	Likely	– in < 1 year
5	Certain	– in < 6 months

Consequence

1	Insignificant	– No injury/ breach of guidance or procedures
2	Minor	– Minor injury/ ill health. Breach of legal requirement.
3	Moderate	– Moderate injury/ ill health, statutory obligations. Improvement notice issued.
4	Major	– Major/ significant injury or long-term incapacity/disablement. Prohibition notice issued.
5	Catastrophic	– Fatality and/ or permanent incapacity/ disability. Prosecution.

APPENDIX 12 (CONT)

Risk Ranking			4	99	Hazardous Substances Safety
1-6 "Low"	–	addressed through agreed maintenance programmes or included in the later years of estate strategy.	5	1	Survey/ Test/ Register
			5	2	Control of Exposure
			5	99	Asbestos Safety
8-10 "Moderate"	–	addressed by close control and monitoring. They can be effectively managed in the medium term so as not to cause undue concern to statutory enforcement bodies or risk to safety. These items require expenditure planning for the medium term.	6	1	External Circulation
			6	2	Entrances/ Reception
			6	3	Horizontal Circulation
			6	4	Vertical Circulation
			6	5	Sanitary Provision
			6	6	General Accommodation
12-16 "Significant"	–	require expenditure in the short term but should be effectively managed as a priority so as not to cause undue concern to statutory enforcement bodies or safety.	6	99	Disabled Persons ProvisionS
			7	1	External Renovations
			7	2	Internal Renovations
			7	99	Conservation And Listed
20-25 "High"	–	must be addressed as an urgent priority in order to prevent catastrophic failure, major disruption or deficiencies in safety liable to cause serious injury and/or prosecution.	Buildings		
			8	1	Main Supplies
			8	2	Distribution
			8	3	Tanks
			8	99	Water Safety
			9	1	Effluent Discharge/ Drainage
			9	2	Waste Disposal
			9	3	Specialist Precautions
			9	99	Environmental Safety
			10	1	Meter Housings
			10	2	Installation
			10	99	Gas Safety
			11	1	Site Storage
			11	2	Pumps
			11	99	Flammable/ Explosive Safety
			12	1	Schematics/ Testing
			12	2	Plant
			12	3	Distribution
			12	4	Storage
			12	99	Pressure Systems Safety
			13	1	Internal Fabric
			13	2	General Arrangements
			13	3	Lighting
			13	4	Heating/ Ventilation
			13	5	Fixed Equipment
			13	6	Stores
			13	99	Food Safety
			14	1	Temperature Control
			14	2	Ventilation Control
			14	3	Lighting
			14	4	Noise
			14	5	Fabric
			14	6	Special Precautions
			14	7	Monitoring/ Alarms
			14	99	Animal Procedures Safety
			15	1	Kitchen Provision
			15	2	Sanitary Provision
			15	3	General Arrangements
7 Element List					
Element Codes					
Element code	Sub element	Element name			
1	1	Lifts Safety			
1	2	Equipment Protection			
1	3	Access Protection			
1	4	Noise Levels			
1	5	Glazing			
1	6	Task Lighting			
1	7	General Lighting			
1	8	Heating			
1	9	Ventilation			
1	10	Staff Facilities			
1	11	Sanitary Facilities/ Hygiene			
1	12	Workplace Environment			
1	13	Safety Notices			
1	14	Safety			
1	15	Ionising/ Radiological Protection			
1	16	Occupiers Liability			
1	17	Pest Control			
1	99	Health and Safety			
2	1	Testing			
2	2	As Fitted Schematics			
2	3	Distribution Boards			
2	4	Bonding & Safety			
2	99	Electrical Safety			
3	1	Cooling Towers			
3	2	Cold Water Storage			
3	3	Hot Water Storage			
3	4	Water Distribution			
3	99	Legionellosis Safety			
4	1	Survey/ Test/ Log			
4	2	Fume Extraction			
4	3	Ventilation			

15	99	Housing Provisions	16	14	Spread of Flame
16	1	Fire Safety	16	15	Dry Riser
16	2	Structural Integrity	16	16	External Lighting
16	3	Compartmentation	16	17	Hose Reel
16	4	Fire Stopping	16	18	Lightning Protection
16	5	Horizontal Escape Routes	16	99	Fire Safety
16	6	Vertical Escape Routes	17	1	CCTV
16	7	Escapes/ Exits	17	2	Intruder Alarms
16	8	Fire Alarms/ Detection	17	3	External Lighting
16	9	Emergency Lighting	17	4	Occupiers Liability
16	10	High Fire Risks	17	5	General Arrangements
16	11	Sign Posting	17	99	Security & Protection Safety
16	12	Fire Risk Assessment			
16	13	Fire Fighting			



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