London School of Hygiene & Tropical Medicine

Estate Strategy

LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE

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London School of Hygiene & Tropical Medicine Estate Strategy

1.0 Introduction

London School of Hygiene and Tropical Medicine Estate Vision and Plan.

The London School of Hygiene & Tropical Medicine (LSHTM) is a world-leading centre for research and postgraduate education in public and global health.

The School`s mission is to improve health and health equity in the UK and worldwide; working in partnership to achieve excellence in public and global health research, education and the translation of knowledge into policy and practice.

LSHTM is a world-leading school of public and global health, working with partners in the UK and around the world to address the critical issues for health in the 21st Century. It is comparable in size to a number of full-service universities, and is the most research intensive higher education institution in the UK. It is an entirely postgraduate institution, which attracts international students both from Europe and the rest of the world.

The School provides a focus for national and international collaboration in teaching and research, integrating laboratory science, clinical research, population studies and social sciences to address the broad issues of health. The range and depth of the School's expertise are unique in Europe, and this critical mass and multidisciplinary approach makes it a world leading centre in its field. The quality and relevance of its work is demonstrated by the impact of its research publications and its contribution to policy and practice both in the UK and worldwide.

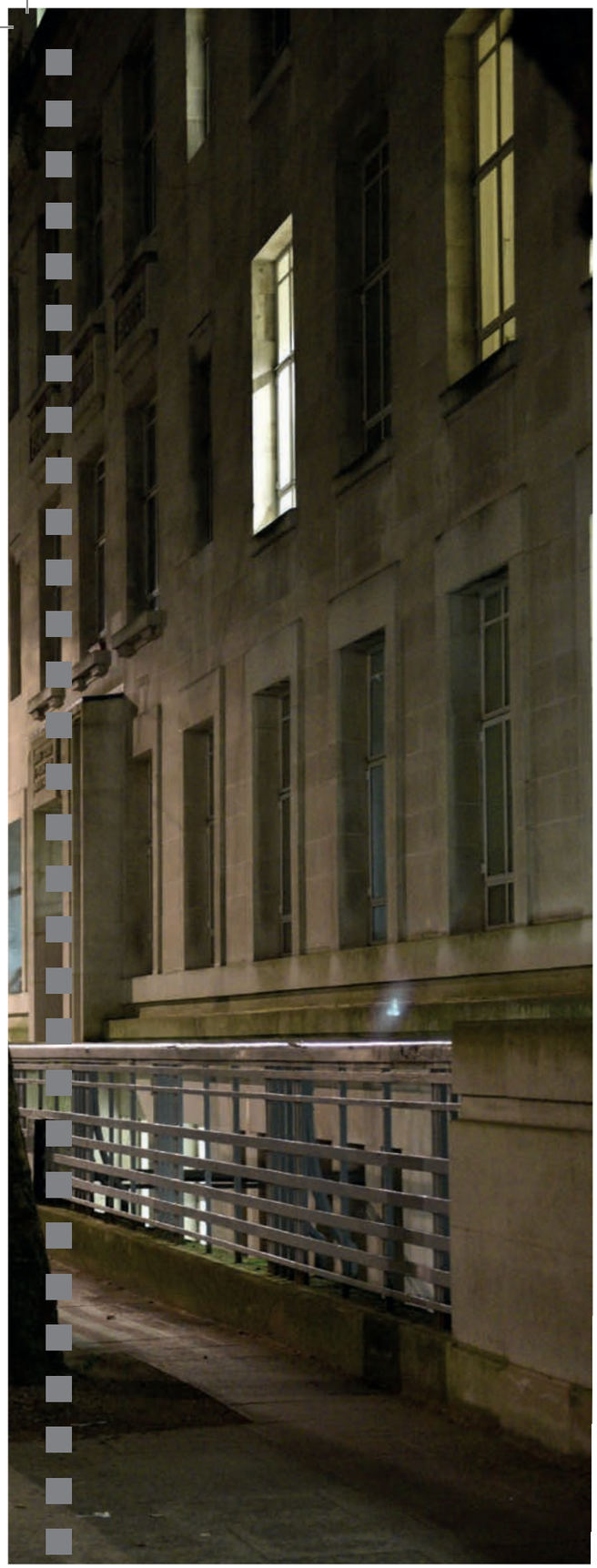
Founded in 1899, the School has expanded in recent years at its two main sites, Keppel Street and Tavistock Place. Our staff, students and alumni, work in more than 150 countries in government, academia, international agencies and health services.

The School has grown significantly over the past five years, with its annual income increasing from £100m in 2010/11 to £167m in 2015/16. Much of this growth has been driven by its success in attracting research funding, but the School's distance learning programmes have also been highly successful. The Welcome Trust, Gates Foundation and other philanthropic sources have also aided the Schools mission. The School's multidisciplinary expertise includes clinicians, epidemiologists, statisticians, social scientists, molecular biologists and immunologists, and we work with partners worldwide to support the development of teaching and research.

LSHTM is a unique institution, the estate is one of its most important assets and has a key role in supporting the excellence of its research teaching and other activities.The School has made significant investments in its estate to support this success, including the completion of the South Courtyard Development within the Keppel Street building, the purchase and complete refurbishment of Tavistock Place, and laboratory refurbishments. These projects have increased usable space and enhanced

Our Values:
The School seeks to foster and sustain a creative and supportive working environment based upon an ethos of respect and rigorous scientific enquiry. We embrace and value the diversity of our staff and student population and seek to promote equality as an essential element in the contribution to improving health worldwide.

Our Mission:
The School`s mission is to improve health and health equity in the UK and worldwide; working in partnership to achieve excellence in public and global health research, education and the translation of knowledge into policy and practice.



the quality of the working environment space for students and staff.

Our educational provision has expanded to more than 1,000 London-based Masters and Research students, 3,000 studying postgraduate courses by distance learning, and 1,000 each year on short courses and continuous professional development. Our free online courses are studied by more than 30,000 participants globally.

The School performs well in various global university league tables. In the US News Best Global Universities Ranking 2017, we are ranked sixth in the world (together with Oxford University) in the fields of social sciences and public health. In the 2016, CWTS Leiden Ranking, the School was ranked fifth in the world for research impact across all disciplines, based on the share of institutions' outputs within the top 1% of papers by citation, in all areas of science and independent of size of output. The School was named University of the Year 2016 by The Times Higher Education, in recognition of the Schools response to the Ebola epidemic.

The Estate Strategy covers the period 2017 to 2027 and is based upon the objectives set out in the School's Strategic Plan. The Strategy is designed to take a broad overview of the estate and ensure that the management and future development of the School's estate supports the long-term needs of the organisation. It sets out how the School will respond to evolving academic infrastructure and sustainability requirements, and provides a framework for the future development of more detailed feasibility studies and master plans.

The implementation of the Strategy will be overseen by the School's Estates Working Group to ensure the estate is fit for our research activities, and provides the excellent facilities that are essential to recruit, support and retain high quality students and staff.

London School of Hygiene and Tropical Medicine

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The Current Estate

The School occupies five buildings in the Bloomsbury area of Central London. Its largest building in Keppel Street was constructed in the 1920s and provides office, laboratory, library and teaching space. The building is Grade II listed. The School's other main building in Tavistock Place was built in 1910-1920, and was purchased in 2008. This building opened in 2010 following complete refurbishment, and provides office and teaching space.

In addition to its main buildings, the School owns long leases on three Georgian properties, all within half a mile of Keppel Street. No. 8 and 9 Bedford Square were acquired between 2002 and 2004, and provide office space; 36-38 Gordon Square were acquired in 2006, and house the London International Development Centre (LIDC). This is a joint initiative with the other Bloomsbury Colleges (Birkbeck, Institute of Education, Royal Veterinary College and SOAS).

The School's London property holdings are summarised below:

The School does not own any residential accommodation for students, and has access to limited student accommodation through the University of London.

As part of this strategy the Estates Directorate will be following common themes, the need for flexibility, the incorporation of e-learning, the need for strategic long-term planning and the need for efficient use of space.

The development of the estate plays a large part in encouraging pride in students, staff and the wider community. The quality of the environment can have a profound effect on the educational student experience. A central challenge to the School is to produce buildings and spaces that inspire users while working within tight budgets and timescales.

The Estate Strategy will identify the Schools options and priorities which will be in line with the Strategic Plan, included within this strategy the key considerations are: value for money-coupled to effectiveness and or efficiency, the reinforcement of the `brand image`, the creation of a statement building or iconic facilities, the creation of marketing advantage; sustainability; resilience of systems and facilities, safety, security and access.

Building	**NIA** Sqm	**GIA** Sqm
Keppel Street Freehold	13,819	20,602
15-17 Tavistock Place Freehold	2,549	3,975
8 Bedford Square Leasehold	373	523
9 Bedford Square Leasehold	358	551
36-38 Gordon Square Leasehold	897 (224 LSHTM)	1,209 (302 LSHTM)
Total	**17,996**	**26,860**

Location of the School's buildings are attached in appendix 1

Environment

To support the high calibre teaching and research that the School provides, this plan will provide the structure to implement well-managed and up to date buildings, infrastructure, equipment and communication networks. The School is continually working to improve the quality of life for staff and students and requires investment in new buildings and facilities.

2.0
Executive Summary

The Estate Strategy sets out a development framework for the estate covering a 10-year period to 2027, with the aim of providing the physical environment required for research and teaching in a changing educational and economic environment. The strategy must be flexible at its core to respond to external trends which may affect the School, such as the economic situation and Brexit, changes in learning, changes in research, changes to the way that we operate which must be in an environmentally sustainable way. Although the strategy is for a period of 10 years, it is possible to be more specific about the next 5 years.

The School has undertaken a review of the estate in its entirety and established benchmarked spatial and cost liabilities of the School's current estate for its current space requirements. The data collected included identification of space by faculties, analysis of space by function and adjacency and tested the spaces against benchmarked data for similar institutions.

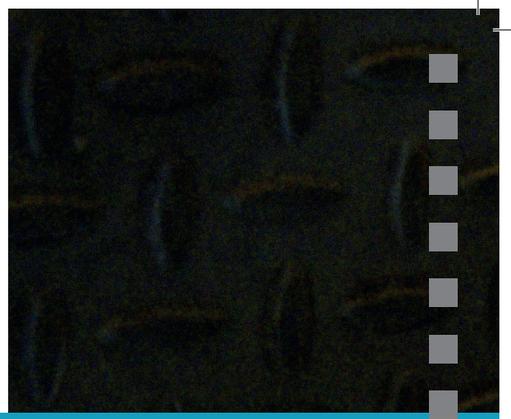
The study also quantified and benchmarked the Schools projected space requirements to accommodate 10 year growth plans and developed a high-level master plan. A preferred option was selected following the evaluation of other costed options proposals.

The estate of LSHTM is one of its most valuable assets, it creates the first impression of the organisation so is a key element in marketing the institution. The Estate Strategy has drawn its objectives from internal development plans, and the School Strategic and Financial Plan and aims to establish an estate to support those aims. It has considered the building facilities available and addressed potential shortfalls in space, surplus space, and unsuitable or inappropriate space. It has also considered opportunities for development, rationalisation or reconfiguration of the estate. Ideally the School would be based on one campus, located at Keppel Street, however, this is an ambitious goal and presents many risks and challenges.

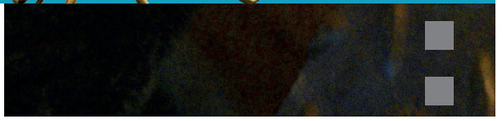
This Strategy lays out a number of options for development and improvement of the estate that addresses immediate and short-term needs, and proposes mid-term options that secures space and minimises the risks should the single campus ambition not be achieved. It also highlights an initial review of the costs and challenges of the one campus option, which would involve expanding into the adjacent building at Keppel Street.

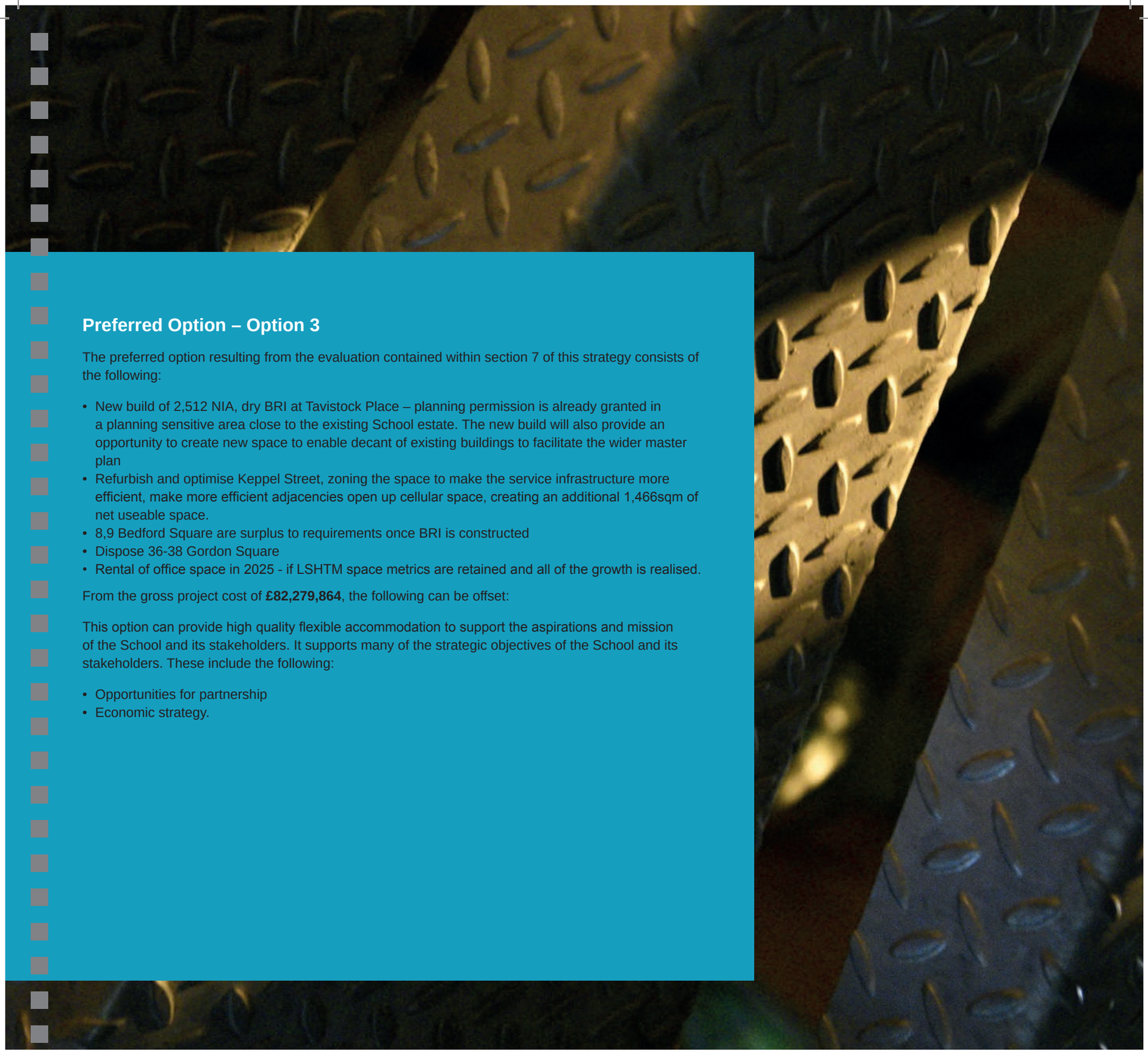
The assessment of the size of the estate through the data analysis undertaken has identified that the School currently occupies Net Internal Area (NIA) 17,996sqm of space, (NIA is space that is useable for teaching, staff space and circulation space) and requires 15,362sqm -16,931sqm for its current operations indicating that the School is operating reasonably efficiently but could be more effective in utilising its space, however there is little scope for any significant growth. If the School wants to support the new strategic direction the estate will be required to increase its useable accommodation to a range of **20,667**sqm **22,675**sqm by 2022/23; an increase in the estate of NIA 2,671sqm – 4,679sqm depending on which space metric calculation is used.

In conclusion after considering all of the base information and various options the prefered option is Option 3.



Development Plan 2017-2022
The Estate Strategy supports the School to be responsive to both funding changes and the needs of the global economy using education and research to support both economic prosperity and talking issues within public health. The School as part of the Estate Strategy investigated a number of options and from an evaluation of those options, a preferred option was selected.





Preferred Option – Option 3

The preferred option resulting from the evaluation contained within section 7 of this strategy consists of the following:

- New build of 2,512 NIA, dry BRI at Tavistock Place – planning permission is already granted in a planning sensitive area close to the existing School estate. The new build will also provide an opportunity to create new space to enable decant of existing buildings to facilitate the wider master plan
- Refurbish and optimise Keppel Street, zoning the space to make the service infrastructure more efficient, make more efficient adjacencies open up cellular space, creating an additional 1,466sqm of net useable space.
- 8,9 Bedford Square are surplus to requirements once BRI is constructed
- Dispose 36-38 Gordon Square
- Rental of office space in 2025 - if LSHTM space metrics are retained and all of the growth is realised.

From the gross project cost of **£82,279,864**, the following can be offset:

This option can provide high quality flexible accommodation to support the aspirations and mission of the School and its stakeholders. It supports many of the strategic objectives of the School and its stakeholders. These include the following:

- Opportunities for partnership
- Economic strategy.

Estate Management

The School`s estate is relatively small in comparison to other University sites and comprises of 5 sites, however the estate has a variety of building types and ages, including listed buildings. The Estates Department ensure that the facilities are available and fit for purpose all year round.

Space Management

Effective space management is essential to enable the School to operate smoothly, especially considering the organisations rapid growth over the previous 5 years. The Estates Department will continue to review and audit space and suggest opportunities for improved utilisation where possible, releasing space for further expansion without necessarily further new build. This will minimise running costs and new building development will only be created to meet expansion needs where no suitable alternative is available. Buildings which are not fit for purpose will be refurbished or disposed of.

School Buildings

For each building there will be an option appraisal developed and evaluated. The Estates Department will work within the scope of the master plan to ensure a cohesive and appropriate on-going approach to development and refurbishment to best meet the School's requirements.

Funding

There has been some improvement in the quality of the estate in recent years due in part to HEFCE grants. However, it is clear from applying HEFCE guidance on infrastructure requirements that unless there is continued capital support from them, or other streams of alternative funding, we will not be able to ensure the long-term sustainability of our current estate.

The Estate Strategy sets out estates requirements for the capital programme via a series of schedules that have been prioritised in the light of need. The School needs to ensure that it follows its plan and not chase funding, as the capital funding will follow as long as the plan is robust. At this stage no assumptions have been made about future public spending post 2022 and the capital programme focuses on any funding available before 2022 which may come via University capital reserves, loans, property sales and private funding initiatives. It is likely that some projects that are yet unfunded will require interim measures to be undertaken in order to support key objectives for faculties.

The School has secured capital funding of two grants totalling £21,500,000 of which £19,300,000 is remaining unspent. The grants are time dependant and must be expended within a set period.

3.0 Introduction

The Estate Strategic Plan

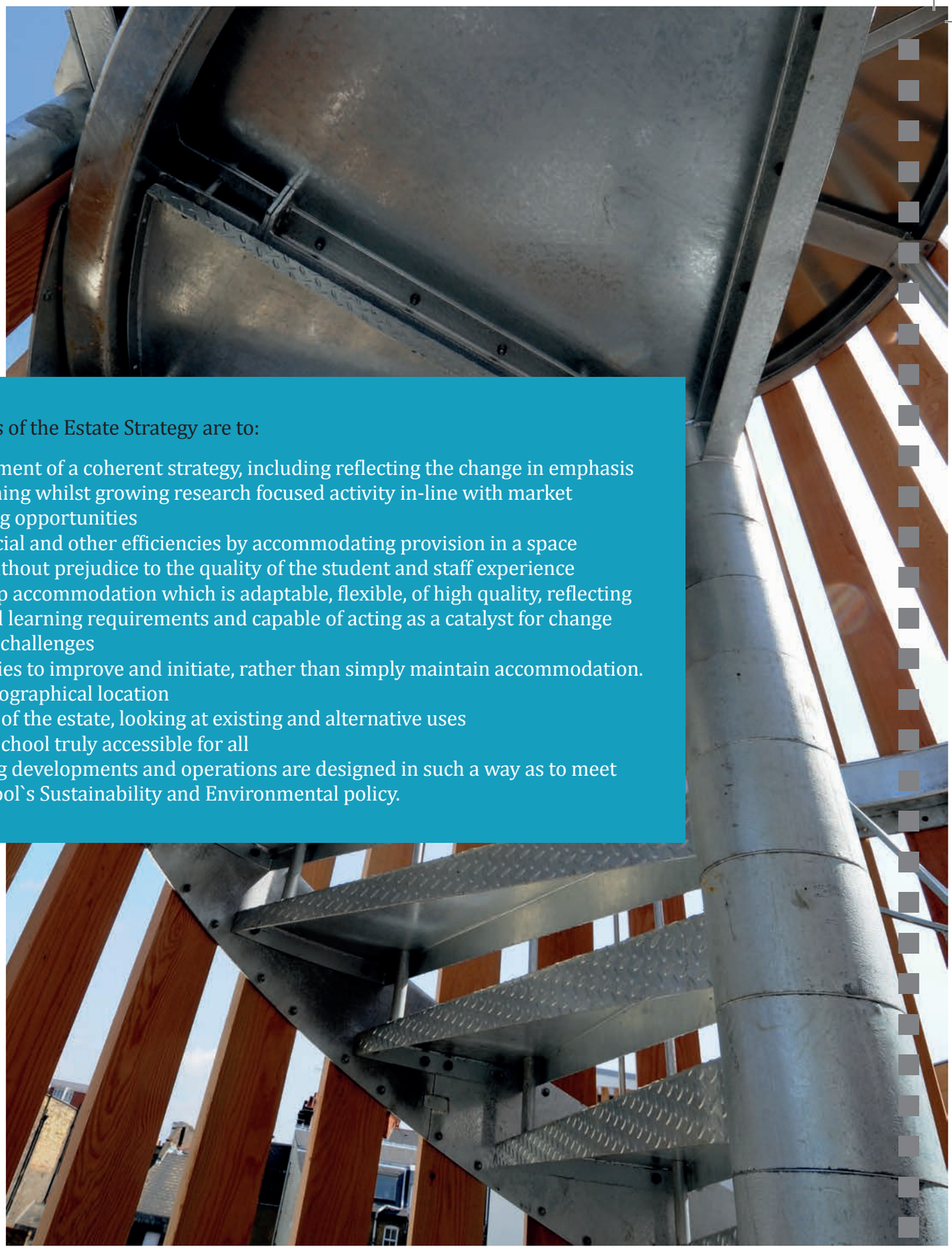
The strategic plans takes into account the environment, vehicular and pedestrian movement, transportation and servicing, the spaces between the buildings, site logistics, the priorities of the School branding and image. Educational buildings are no longer regarded as closed intuitions but are rightly seen as valued assets for all people. The quality of the environment is also widely considered to play a significant part in shaping the outlook and behaviour of the people who use it, the external spaces and their relationship with internal functions of the building make an important contribution in this respect. LHSTM needs the best buildings that combine internal and external space brought together as an integrated design solution.

The overall Estate Strategy 2012 relied on the Bloomsbury Research Institute (BRI) project being delivered, this could not be achieved as University College London (UCL) withdrew their support to construct the building jointly, however will still continue to collaborate closely with the School. Consequently the Estate Strategy needs to be re-visited in terms of a long-term plan. The Estate Strategy 2017-2027 will set out the Schools intentions to develop the estate in-line with future requirements. The School will place greater emphasis on refurbishing and remodelling existing buildings where this is possible. This methodology takes into account the latest position with regards to government funding and the likely impact of this financial constraint on the School receiving the sufficient funding from capital grants. The Estate Strategy will investigate the possibility of efficiency savings so as to “free up” revenue, which could potentially service a long-term loan, which may increase the opportunity for capital investment within the estate. This may include consolidation onto fewer sites and relinquishing leasehold premises.

The purpose of this document is to provide LSHTM with an Estate Strategy for managing and developing its estate over the period 2017-2027. The focus of the plan will be for the first five years of the ten-year period with an update planned in 2022.

The School will as a key driver to this Estate Strategy consider the following:

Priority 1	To maintain the estate to the highest possible standard
Priority 2	To use the space more effectively
Priority 3	To promote environmental sustainability
Priority 4	To provide the best value across all estates activities and contribute positively to the School’s financial sustainability
Priority 5	Efficient facilities management
Priority 6	To comply with statutory legislation
Priority 7	To preserve the attractiveness of the location
Priority 8	To promote the brand and the profile of the School
Priority 9	To provide a safe and secure environment
Priority 10	To raise the profile of the estate within the School’s agenda.



The overall objectives of the Estate Strategy are to:

- Enable the development of a coherent strategy, including reflecting the change in emphasis towards more teaching whilst growing research focused activity in-line with market demand and funding opportunities
- Contribute to financial and other efficiencies by accommodating provision in a space efficient manner, without prejudice to the quality of the student and staff experience
- Plan for and develop accommodation which is adaptable, flexible, of high quality, reflecting future technological learning requirements and capable of acting as a catalyst for change and meeting future challenges
- Identify opportunities to improve and initiate, rather than simply maintain accommodation.
- Capitalise on the geographical location
- Maximise the value of the estate, looking at existing and alternative uses
- Strive to make the School truly accessible for all
- Ensure that building developments and operations are designed in such a way as to meet the aims of the School`s Sustainability and Environmental policy.

4.0
Current Property Position

The 2017-2027 Strategy is based on the following:

- Following long periods of under-investment in the estate and huge growth over the last 5 years the School is experiencing issues around capacity and functionality of its accommodation, some areas of the School estate are in poor condition and will continue to deteriorate. Some progress has been made in some areas and issues have been addressed but it must be noted that the School still has to commit to significant investment particularly around the Keppel Street building to restore the estate to a sound condition, compliant with current legislation and to meet the aspiration and growth requirements of our staff and students.
- The School buildings will be the subject of a planned maintenance schedule and a whole-life maintenance and refurbishment schedule.
- Utilise key performance indicators to report to the School Management and Council on the performance of the School Estate.
- Performance of the School buildings will be a major focus over the next few years with a view to reducing overall the Schools carbon footprint. This will be achieved by making investments in the Schools buildings which will have the effect of reducing the energy usage of the buildings and the energy drawn from public supplies.
- The remit must be to increase research and teaching and consolidate the estate and make it more efficient.

4.1
Estates Priorities

The priorities related to the School Estate Strategy are derived from the School`s Strategic Plan and will be incorporated in future strategic plans where required. The targets to be taken forward are listed below:

- Refurbish and re-model the Keppel Street building
- Explore development opportunities around the Tavistock Place site
- Undertake options appraisals on all satellite sites
- Increase teaching spaces whilst growing research
- Development of laboratories
- Explore options around the current district heating scheme and other options open to the School
- Implement the retro fitting of renewable energy systems where possible when undertaking refurbishment projects
- Continue to develop the School's environmental systems with the aim of reducing the carbon footprint
- Consolidate the School estate, investigate the disposal of the satellite sites that are no longer cost efficient or fit for purpose
- Achieve an overall rate of recycling for all general waste and a continuous reduction in the total quantity of waste being sent to landfill
- Monitoring total property costs and benchmark against similar institutions.

The School will follow the advice of the Commission for Architecture and the Built Environment (CABE) that well-designed buildings are a significant factor in the recruitment of staff and students in education. It is equally convinced of the corollary: that poor quality buildings put a constraint on the Schools aspirations to develop its reputation as a worldwide renowned public health institution.

Development of Science Laboratories

In recent years, the School has made significant investments in its laboratory facilities, however further significant investment is required if the School is to retain and recruit the best staff. The costs of maintaining and developing laboratories in a Grade II listed building are high and equipment costs for innovative research continue to increase. Future development of the School's laboratories also need to support the objectives of the research strategy and the commitment in our vision to enhance knowledge translation.

In November 2011/12, the School launched the BRI in partnership with UCL. The plan was to bring together more than 70 principal investigators from the School and UCL's Division of Infection & Immunity, unfortunately UCL could not continue with the capital element of the project and the need for new direction is still required to create better laboratory space at Keppel Street. LSHTM is committed to providing the very best facilities to support the teaching and research at the School and this is reflected within this strategy.

4.2

Estate Running Costs

Running costs for individual buildings in the estate are collated and this feeds into our building matrix profile. The School spends approximately £8.6million per annum on total property operating costs, which represents approximately 5.9% of the Schools annual income (2014/2015).

4.3

Functionality and Suitability

Within the context of our overall aims, supporting goals and operational priorities, an assessment of all School buildings was undertaken against fitness-for purpose indicators as listed below (Each element below is weighted and scored and an overall grade produced)

- Legislative Compliance
- Energy performance
- Environment
- Layout/plan
- Flexibility
- Service requirements
- User perception
- General external environment.

4.4

Site Capacity/Town Planning

Keppel Street is where the majority of the Schools research and teaching takes place, the building is Grade II listed which may have an implication for future development proposals.

The Estates Directorate is actively engaged with the local planning departments to ensure that there is a mutual understanding of aims and objectives and development of the estate.

The site at Tavistock Place has planning permission granted in a planning sensitive area close to the existing School estate. The planning permission is for a building of 5 storeys and size of 5,475 GIA.

4.5

Estate and Building Information

The School has invested a significant resource in creating a core database of survey drawings and information. The School now has to build on the opportunities presented by new technologies to open up the data available for users across the School. For example, on-line maintenance and cleaning reporting has been adopted utilising a computer aided facilities management system (CAFM system).

4.6

Space Management and Utilisation

The School needs to consider the costs and flexible use of space, and the priority of improving utilisation needs to be integrated into the Schools corporate planning. In view of the opportunities afforded by refurbishment and new build development to improve space flexibility and utilisation, all major projects are subject to detailed scrutiny to ensure that space efficient solutions emerge and are subject to the agreed space metrics. This discipline is reinforced by a procedure that there will be no additional space allocated to faculties unless it is supported by a full business case justification and the relevant faculty can demonstrate income increases to compensate, including coverage of the full recurrent operating costs.

4.7

Environmental Policies

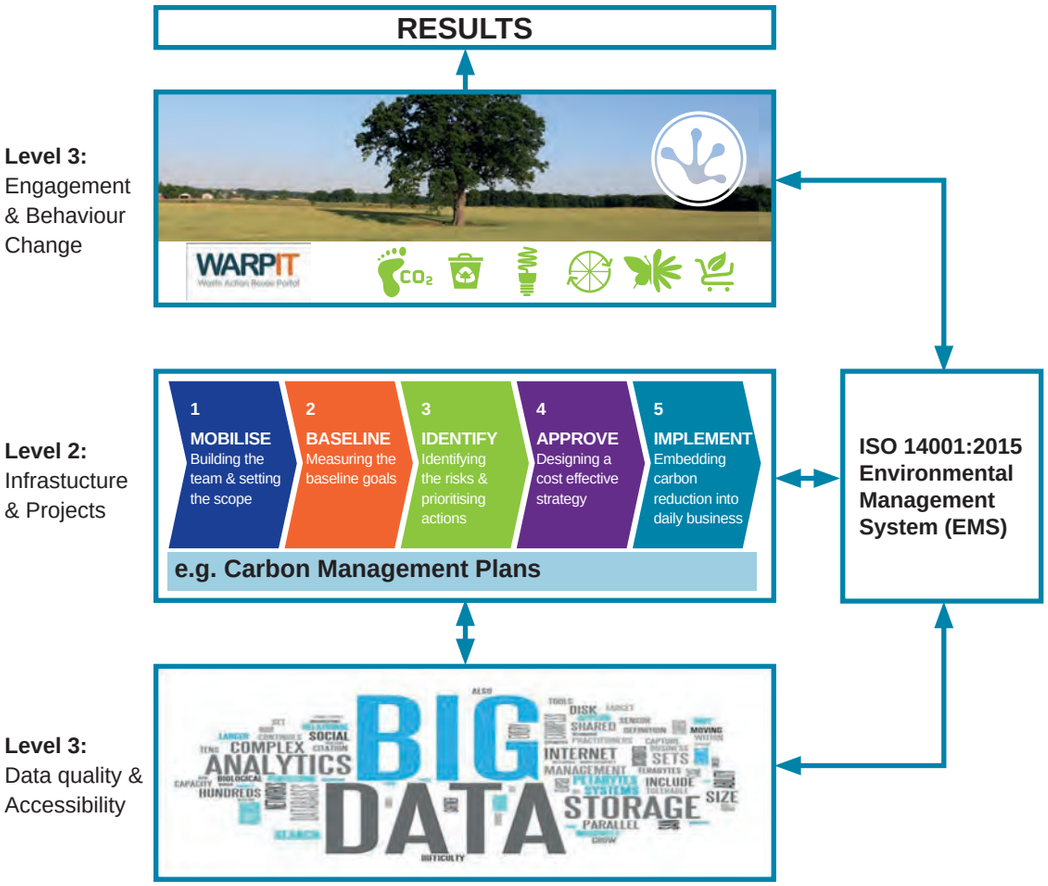
The School (and its Bloomsbury College partners) were keen to establish a recognised framework to embed continuous improvements in environmental sustainability at our institutions. The partnership decided to adopt EcoCampus Environmental Management System (EMS). The EcoCampus EMS is externally audited and underpins our Sustainability Strategy (see schematic below). Once in place the EMS requires institutions to improve on their environmentally impacting aspects in order

to remain certified. The environmental aspects identified as relevant to the School include; energy use, water use, waste production, purchasing, travel, refurbishment and construction. The Schools environmental data is shown in appendix 4.

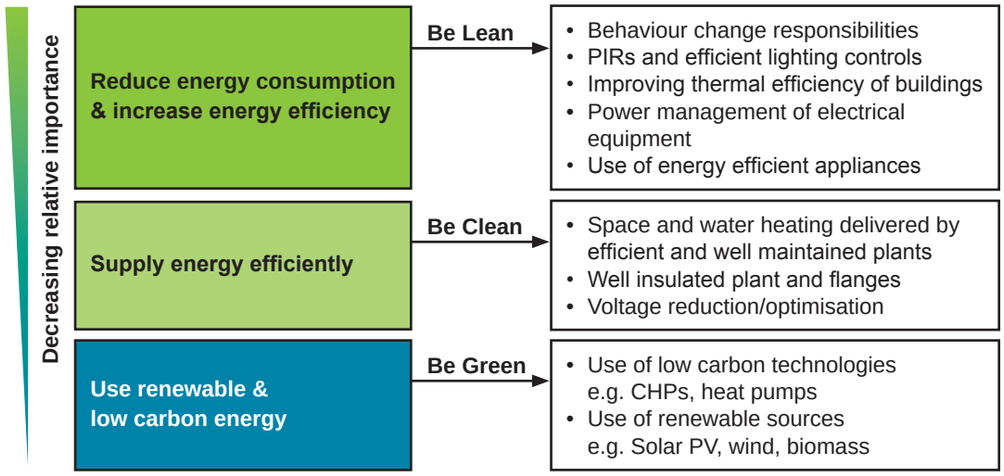
The EcoCampus Platinum award was achieved by LSHTM in 2016. The next round of audit in June 2017 will monitor and assess progress against targets and actions set (within the 'Environmental Planner') for some of our environmental aspects; purchasing – a sustainable purchasing guide is being launched, reducing and recycling waste – 80% recycling rate, construction & refurbishment– to aspire to BREEAM excellent and Energy & Carbon – reduce consumption by 25%y 2020.

LSHTM has opportunities for improvement in energy efficiency. The School's Strategy will focus mainly on the front-end consumption (as shown in the energy efficiency charts in appendix 4). Amongst the initiatives currently being progressed are; efficiency and controls of the comfort heating and cooling system, lighting efficiency and controls, sustainability and efficiency of laboratory operations and server room cooling efficiency. Although a 9% reduction in energy use was achieved between 2013/14 and 2014/15, mainly through small operational and behaviour changes, the aforementioned projects within the Estate Strategy will be key to help the School achieve at least 25% reduction by 2020. These and other projects are now being consolidated into a new energy and carbon management plan, which will include a rolling programme of implementation over the next two years.

Sustainability Strategy



Energy Efficiency Hierarchy



This has major implications:

- Design and construction, to optimise both recycled materials and energy efficiency;
- Location- to maximise accessibility by non-wasteful transport modes;
- Pattern of activities to optimise shared facilities and services and so make best use of the resources employed across organisations.

4.8 Teaching and Learning Spaces

General teaching spaces are limited and if the Schools strategic aim is to increase teaching without leasing additional external space the School will need to reflect this in the proposed development plans. Through its development plans the School will be required to develop classrooms where a single session of teaching takes place, into areas where many different sessions can occur in parallel. These spaces abandon the concept of rows of students by using flexible and adaptable interior layouts within technology rich environments, this is the challenge to the Estates Department to design and incorporate the new technologies, whilst remaining sensitive to traditional pedagogy.

4.9 Changes that Drive the Estate Strategy

At all stages, the School seeks to adopt an integrated approach to academic, estate and financial planning. To this end, a business case which includes the consideration of recurrent running costs is required for each proposed project. The School aims to use resources as efficiently and effectively as possible in order to provide and maintain a safe and high quality environment.

The objectives which have a direct bearing on influencing estate planning are summarised here:

- As discussed earlier in this report the 2012 Property Strategy was not adopted by the School, the BRI project was central to that Strategy and that is no longer available as an option, However, it must be recognised that following the reduction in the capital funding programme operated by the HEFCE, there will be a necessity to refurbish and re-model some of the existing building stock and identify some buildings for disposal
- Efficiencies are required in all areas; in addition, some satellite centre's are costly to operate for the numbers of staff and students based at them. Premises expenditure is the second largest area of expenditure after staff costs, therefore buildings that are more cost effective are a contributory factor to School efficiencies
- The increase in research and teaching capacity that is driven by the Strategic Plan will require the development or creation of additional space
- Changes in demand for staff space and the type of space
- Increased pressure to improve the School's revenue position by meeting income targets and increasing the surplus generated
- Revision of the Key Performance Indicators for space efficiency
- Providing buildings that staff/students want to attend
- Changes in funding arrangements
- Impact of Brexit on any existing or future funding streams.

5.0

Existing School Estate and Future Developments

The School owns or utilises 5 sites of different sizes and currently operates from all of those sites. GIA is circa **26,860sqm**. The NIA is **17,996sqm**.

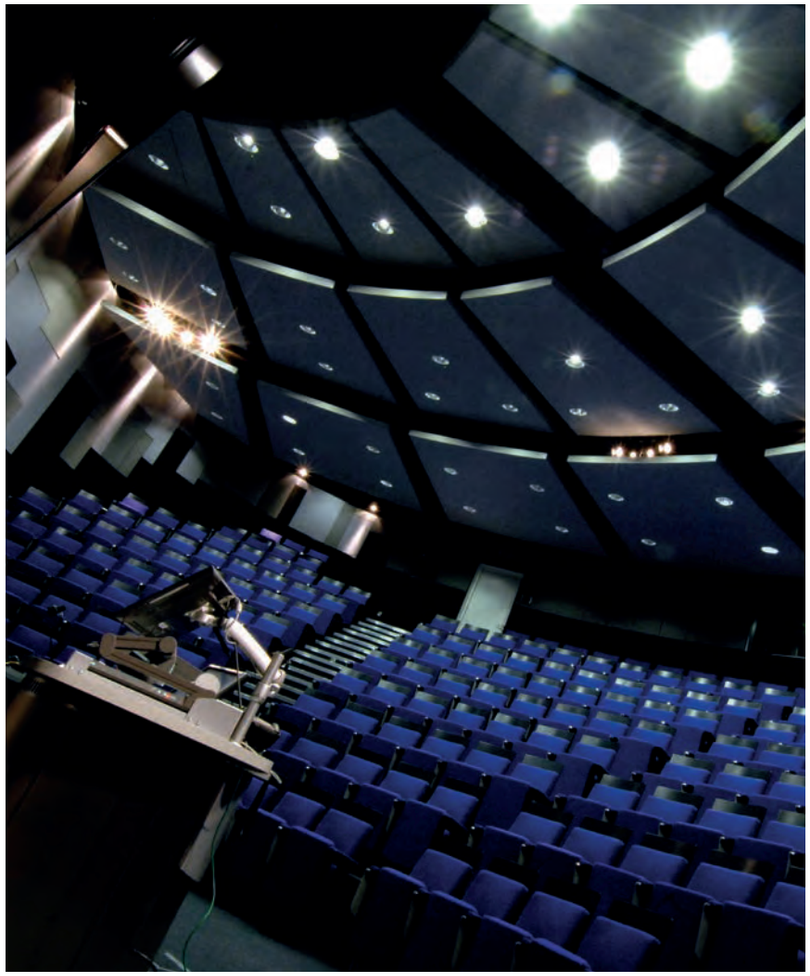
The ambition is to have an estate that underpins all of the excellent and diverse work of the School.

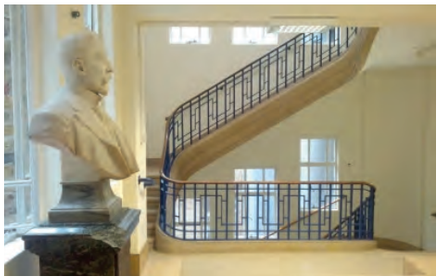
Existing Estate

Site	Tenure	GIA	NIA
Keppel Street	Freehold	20,602	13,819
15-17 Tavistock Place	Freehold	3,975	2,549
8 Bedford Square	Leasehold	523	373
9 Bedford Square	Leasehold	551	358
36-38 Gordon Square	Leasehold	1,209	897
Total	Leasehold	**26,860**	**17,996**

The options that will be tested in the Estate Strategy are detailed below:

- Retain and refurbish/remodel Keppel Street
- Explore different options for Tavistock Place
- Explore options around Bloomsbury
- New build outside of Bloomsbury and
- Undertake options appraisals for 8,9 Bedford Square
- Undertake options appraisals for 36-38 Gordon Square





5.1
Future use by Site

Teaching/Research Facilities

Some of the School buildings are currently not fit for purpose and require a significant amount of re-modelling and refurbishment to bring the functional and physical standard to “very good and good”. There are a number of key issues which will be discussed further including the following:

- The main buildings are valuable assets some of which have space constraints where faculties have expanded and the space is now not fit for purpose
- There is a need for more flexible individual learning space throughout all sites
- Some of the current buildings are no longer appropriate for current usage
- There appears to be a lack of teaching space and the School currently hires space from external providers at a cost of £300k however if the space was utilised more efficiently or accurately timetabled external hire may not be necessary
- Some of the academic offices are too large and inefficient
- Creating smart buildings linking Innovative IT practices
- External circulation and socials spaces linking to activities within the buildings
- Lack of large flexible spaces such as lecture type spaces which can cater for exams and seminars of 200- 300 spaces.

5.2
Constraints and Opportunities

The School through its Estate Strategy will consider the opportunities and the obstacles when considering options for the rationalisation of the Estate.

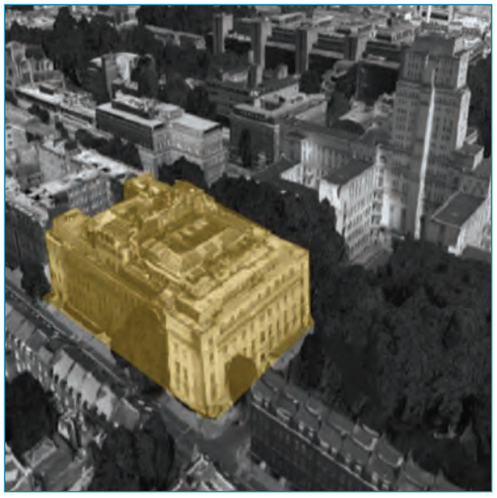
Constraints

- 8,9 Bedford Square and 36-38 Gordon Square House are listed buildings in a conservation area and are difficult to remodel
- Potential reduction of capital funding from HEFCE
- Further large developments at Keppel Street are unlikely as the site is land locked
- Developments at Tavistock Place need to be planned and phased carefully as the site has difficult access and Public Health and Policy (PHP) will continue to operate from the other building during construction of the BRI.
- Negotiate the release of space from faculties which may have excess space or space that is not functionally suitable
- Decant costs are very high in London and should be planned out as far as is possible when considering the options.

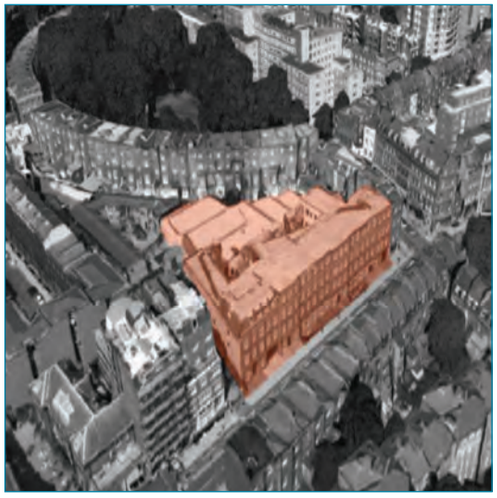
Opportunities

- Refurbishment and development of Keppel Street taking advantage of the location and importance of heritage
- Development of the Tavistock Place taking advantage of the planning permission on the site
- The building assets are high value
- The School has secured 2 grants for capital infrastructure from HEFCE which are available should the School pursue those developments within the funding timescales
- The School has relatively low borrowing liability and lending rates are currently low
- The School can adopt a development programme that incorporates the Schools environmental management systems.

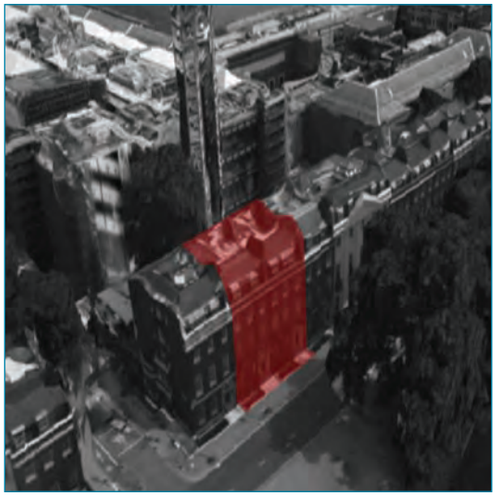
5.3
Site Locations



Keppel Street



15-17 Tavistock Place



8-9 Bedford Square

36-38 Gordon Square

5.4
Existing Estate

Keppel Street
Net Internal Area 13,819sqm

The Keppel Street building was constructed in the1920s, and provides a mix of office, laboratory and teaching space. The School faculties of Infectous Tropical Diseases (ITD) Epidemiology and Population Health (EPH) operate at Keppel Street.

The building is Grade II listed and in a conservation area.The building is bound between Gower Street and Malet Street with its main entrance on Keppel Street, it is six storey above ground development with lower ground floor and basement. Light wells provide daylight and ventilation to the perimeter spaces at lower ground floor on the Gower Street and Mallet Street elevations. Vaults are provided to the other side of the light wells beneath the footpath.

The original internal light wells have been in filled to provide additional accommodation in the North and South courtyards. This has provided some additional accommodation which was required but has also created a number of internal rooms within the Keppel Street building which have issues around natural daylight and ventilation.

Since 2004 the School has made investments in areas of the building (including the North and South Courtyards, and in laborotory refurbishments), but has under-invested in the

services infrastructure over a period of years. Over the past decade or so a number of major projects have been undertaken and these include:

- North Courtyard
- Containment Level 3-laboratory suite in the 4th floor Malet side
- South Courtyard
- 4th and 5th Floor Laboratories.

The age and condition of the infrastructure now present a number of issues, and over recent years these have been exacerbated by the growth of research and teaching which has placed increasing demands on services within the building.

Opportunities and Constraints

- Building is a landmark building in an enviable location
- Steel frame make the re-modelling possible
- Very little spare capacity for growth within the building
- Current infrastructure requires capital investment
- Insurance site valuation £105m.

Capital Investment Priorities

- Refurbish and re-model the building so that the condition is category A/B
- Maximise space utilisation
- Increase social spaces for staff and students
- Infrastructure works to be undertaken as part of the refurbishment works.

Tavistock Place
Net Internal Area 2,549sqm

Tavistock Place accommodates the School's Faculty of Public Health and Policy (PHP). The faculty office moved there from Keppel Street on 26th April 2010.

The building was the former Head Office of Express Dairies and then in 1981 it became the Headquarters of the British Transport Police.

The current design and layout of the building was undertaken in 2010 by the School and PHP have operated in the building since. Tavistock Place still has development opportunities to the rear of the site where the old dairy sheds are situated. The School has achieved planning permission for the BRI for the development and construction of a new building of 5,475sqm to include 2 basements and 3 above ground floors.

Opportunities and Constraints

- Good condition fit for purpose accommodation
- Largely staff room accommodation
- DDA accessible
- Very little spare capacity for growth within the existing building
- Insurance site valuation £35m.

Capital Investment Priorities

- The School has achieved planning permission to develop the back of the site with a 5 storey building
- The school is investigating other options on the site as part of this Estate Strategy
- Investigating commercial activities.

8 Bedford Square – Leasehold
Net Internal Area 373sqm

Bedford Square is the first real example of a uniform London Square. Built between 1775 and 1783 in the elegant Georgian style, It has four sides of Palace-fronted terraced houses, which form a perfect symmetrical square, surrounding a leafy garden.

Thomas Leverton the architect, lived in the Square and was responsible for producing some of the magnificent decorative ceilings. Joseph Bonomi worked as a drawing assistant in his office and is mentioned in Jane Austen's novel Sense and Sensibility.

The Schools buildings at No. 8 Bedford Square are located less than a five-minute walk from the main Keppel Street Building. The building is leased and has 87 years remaining.

Currently the building is occupied by a mixture of professional support services.

Opportunities and Constraints

- The building is Grade II listed
- Not DDA compliant and due to the listing there would be difficulty obtaining the permissions to rectify
- Location of the building is good in relation to the main sites
- Insurance site valuation £3.3m.

Capital Investment Priorities

- This strategy will recommend an option appraisal is undertaken for this site.

9 Bedford Square – Leasehold
Net Internal Area 373sqm

As No. 8 Bedford Square, No. 9 Bedford Square was acquired in 2004 and is leased and has 87 years remaining on the lease. The space is utilised by the professional services as office space.

Opportunities and Constraints

- The building is Grade II listed
- Not DDA compliant and due to the listing there would be difficulty obtaining the permissions to rectify
- Location of the building is good in relation to the main sites
- Insurance site valuation £3.3m.

Capital Investment Priorities

- This strategy will recommend an option appraisal is undertaken for this site.

Gordon Square
Net Internal Area 748sqm

36-37 Gordon Square was acquired from the University of London collaboratively with Birkbeck, IOE (IOE is now UCL), LSHTM, RVC, SOAS (the Colleges) and the School of Pharmacy in 2007. The part of the building corresponding to numbers 36-37 (68% of the total building) was purchased using £2.14m of capital funds from a HEFCE grant of £3.68m which also established the LIDC using £1.55m. Additionally, IOE, LSHTM and SOAS acquired the lease of number 38 Gordon Square with £823,500 of its own funds. The current valuation of 36,37 and 38 is £5.7m (open market valuation undertaken in 2016).

Under the original LIDC agreement any College wishing to withdraw from LIDC would be compensated for their share of the building by the remaining members. This agreement was replaced by the current agreement which separates out the Gordon Square building from the LIDC as an organisation. Under the terms of the new agreement, the Colleges pledge to ensure LIDC has sufficient space to operate its secretariat. The School has 89 years remaining on the lease.

Opportunities and Constraints

- The building is Grade II listed
- Not DDA compliant and due to the listing there would be difficulty obtaining the permissions to rectify
- Location of the building is good in relation to the main sites
- Open market site valuation £5.7m to be proportional split between the other Colleges.

Capital Investment Priorities

- The School recently commissioned a condition survey, and the cost maintenance liability over the next 10 years is £2.4m
- The above is the cost to maintain the building. The bigger issue is functionality and due to the buildings listing status any re-modelling will be difficult to achieve
- This strategy will recommend an option appraisal is undertaken for this site.

6.0
School Estate Data

The following terms are used frequently in this section:

HEI Higher Education Institution
FTE Full time equivalent , e.g. the total number of staff including part time staff expressed as a equivalent number of full time staff.
NIA Net Internal Area sometimes known as useable space which excludes circulation space such as corridors , or fundamental space such as plant rooms and toilets.
GIA Gross Internal Area , total internal space measured to the interior face of the perimeter walls i.e. the thickness of all internal walls is included.

LSHTM space metrics- The Space Policy was approved by SLT in 2008 and defines a framework by which space is allocated to enable the delivery of the master development plans together with the facilities and accommodation required to support the Schools mission. The space metrics were used when calculating the current accommodation occupied and the current accommodation that will be required including growth.

BRI space metrics – The BRI space metrics were developed when designing the BRI building at Tavistock Place and are a tighter space metric than LSHTM approved metric.

The aim of this section of the Estate Strategy is to give a comprehensive but simple view of the School Estate, its condition, its function and usage supporting information drawn from Higher Education Statistics Agency (HESSA) and estates services data base. The School in association with Boswell Mitchell Johnson (BMJ) architects has undertaken a review of all of the space that the school occupies and have calculated based on headcount what size the School should be against the actual size and usage. The survey highlighted the space by function, by faculty and the adjacencies of the space it also benchmarked the spaces against similar institutions. The data was collected utilising the space norms that were agreed by the School in 2008, a calculation was also undertaken on a tighter space metric which was utilised by the architect when designing the BRI.

The School currently operates from NIA 17,996sqm plus 400sqm of external space. The amount of space the School requires is determined by the headcount of students and staff that attend the School sites. The space metrics adapted to calculate the notional size of the estate were based on current usage as the base case, this calculation is based on two types of space metric one that was agreed in 2008 and the BRI space metrics (this was a tighter space metric).Based on the number of students and staff attending the sites the estate should be in the range of 15,362 - 16,391 NIA. Based on the school agreed space metrics.

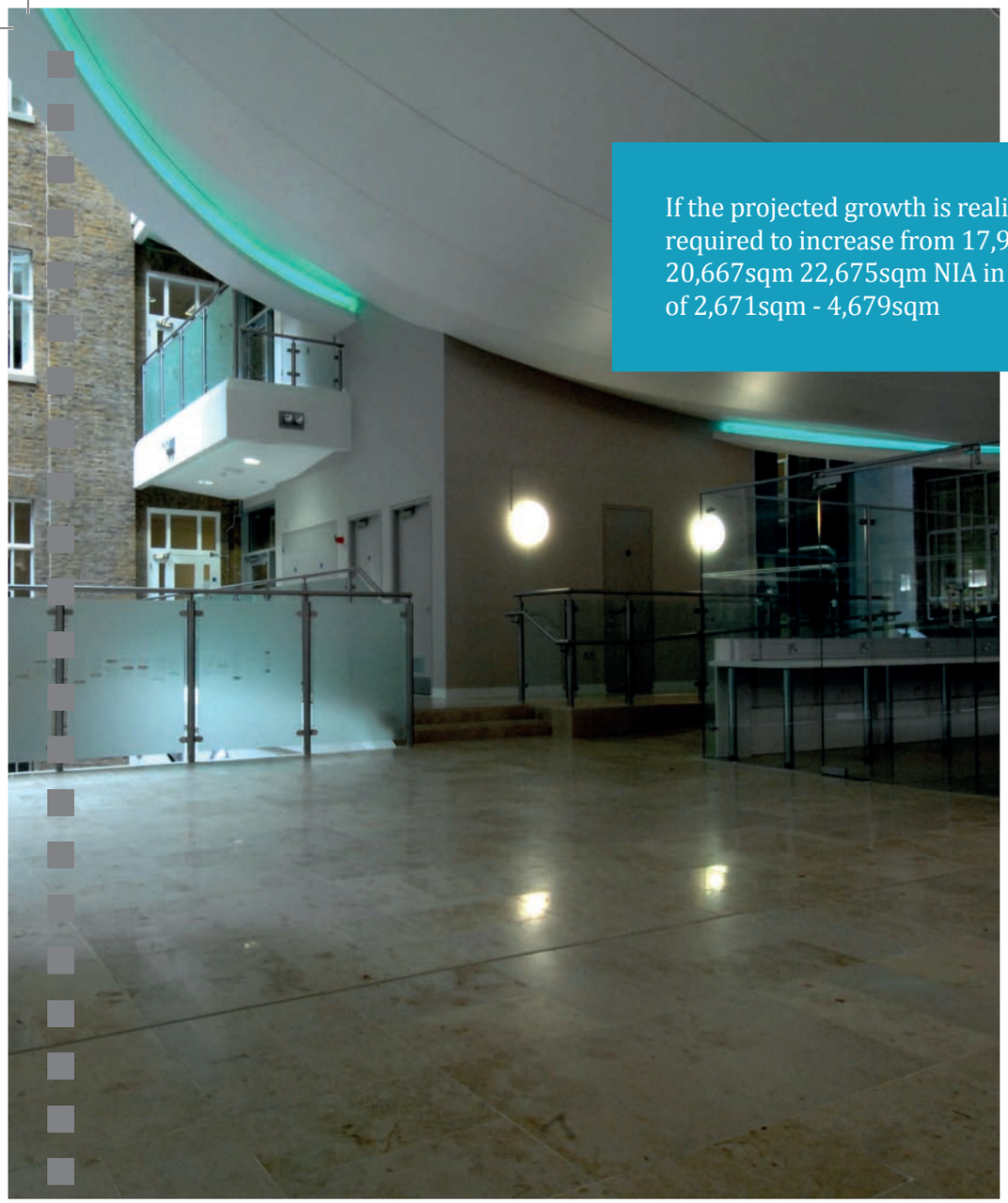
The School has slightly too much accommodation from the base case using both of the space metrics, however, to achieve the space required for the growth in numbers the School is planning, the school will need to construct new, rationalise and refurbish its current accommodation.

The headcount data indicates that the Schools current use of the space is within an acceptable tolerance, however it is also recognised that the re-appropriation and ownership of space may release some space back to Faculties to be utilised more efficiently, either through better layout or re-modelling of that space.

The NIA of excess space available according to the data collection is **2,634sqm** using the BRI metrics or a deficit of NIA space of **1,065sqm** using the LSHTM metrics. The School currently hires space from an external provider at the cost of £300,000 per annum for teaching spaces, which equates to circa 400sqm.

If the projected growth is realised the School estate will be required to increase from **17,996sqm** in 2016/17 NIA to **20,667sqm 22,675sqm** NIA in 2022/23; an increase in the estate of **2,671sqm - 4,679sqm.**

The increase in School space is dependent on which of the options are chosen and the rate of growth in research and on-site teaching. Through its Estate Strategy, the School is investigating a number of options to reduce its satellite centres where capital investment is required to bring the buildings to the standard required. The strategy will focus most of the teaching and research onto two main campuses where support services can also be accessed.



If the projected growth is realised the School estate will be required to increase from 17,996sqm in 2016/17 NIA to 20,667sqm 22,675sqm NIA in 2022/23; an increase in the estate of 2,671sqm - 4,679sqm

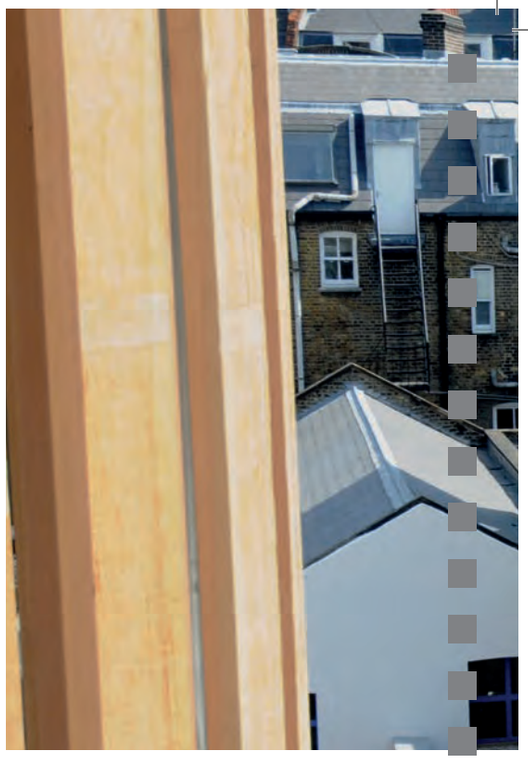
Flexibility in the Schools space provision will be essential to keep pace with an ever changing, dynamic, competitive Higher Education Environment and this will be required to be factored into any new development or refurbishment projects.

Research and Technical Space

The School has grown considerably over the past 5 years, income has increased, as have staff numbers. The estate has not grown in line with the increase and consequently the School estate at the two main sites Keppel Street and Tavistock Place is struggling for the right type of space that is fit for purpose. The building at Keppel Street is mainly cellular and does present some difficulties with working collaboratively between the different faculties.

The growth implications in provision are that:

1. The building has to be flexible to adapt for any funding changes from research income providers
2. If research grows, so will the need for additional teaching and professional support staff and ancillary space.



6.1
Research and Learner numbers

Whilst there are particular problems with predicting student numbers for a full 10-year period, the number of students applying for postgraduate courses is always oversubscribed. The School has the opportunity to increase its teaching provision whilst maintaining or growing research.

A number of student teaching activities take place off campus in hired accommodation (£300k pa).

The growth implications in provision for the above are that:

1. The school will be required to increase the size of its estate to ensure that teaching space is available on site.
2. Staffing space will also be required to increase to facilitate the increase in teaching staff and professional support staff.

6.2
Space Utilisation

The overall accommodation space utilisation at LSHTM is based on a figure of 27.5% utilisation, most universities are targeting 35%. LSHTM has some additional work to do with timetabling to increase efficiency of use within teaching rooms. The sector regards 35% as good.

6.3
Space Requirements

The assessment of the size of the estate through the data analysis undertaken has identified that the School currently occupies NIA 17,996 sqm of space and requires 15,362sqm - 16,931sqm for its current operations indicating that the School is operating reasonably efficiently but could be more effective utilising its space, however there is little scope for any significant growth. If the School wants to support the new strategic direction the estate will be required to increase its useable accommodation to a range of **20,667**sqm **22,675**sqm by 2022/23; an increase in the estate of NIA 2, 671sqm - 4,679sqm depending on which space metric calculation is used LSHTM or BRI.

6.4
Floor Space Metrics

As part of the data collection process the School calculated the required space based on head-count of staff and students using the following space metrics:

- LSHTM space metrics that were approved in 2008 for the Tavistock Place development
- The BRI space metrics, which were tighter than the School approved metrics.

6.5
The Schools Current Estate

The Schools current estate for 2016/2017 is listed below:

No	Building title	GIA (m2)	NIA (m2)	Tenure	Headcount	Proposed Long term expected position	Condition	Suitability
1	Keppel Street	20,602	13,819	Freehold	1158	Retain	B,C,D	1,2,3
2	Tavistock Place	3,975	2,549	Freehold	434	Retain	B	1,2
3	8 Bedford Square	523	373	Leasehold	45	Surplus in 2020	B,C	2,3
4	9 Bedford Square	551	358	Leasehold	40	Surplus in 2020	B,C	2,3
5	36-38 Gordon Square	1,209	897	Leasehold	25	Dispose	C,D	3
	Total	26,860	17,996		1,702			

Key: Taken from the criteria laid down AUDE.

6.6
Building Functional/ Suitability

HEFCE provides HEIs with four classifications of condition for guidance as follows

All buildings have been assessed in the table above and condition analysis undertaken using HEFCE Estates Management categories.

Building Condition

A As new condition.

Features one or more of the following: Typically built within the last 5 years, or may have undergone a major refurbishment within this period. Maintained / serviced to ensure fabric and building services replicate conditions at installation. No structural, building envelope, building services or statutory compliance issues apparent. No impacts upon operation of the building.

B - Sound, operationally safe and exhibiting only minor deterioration.

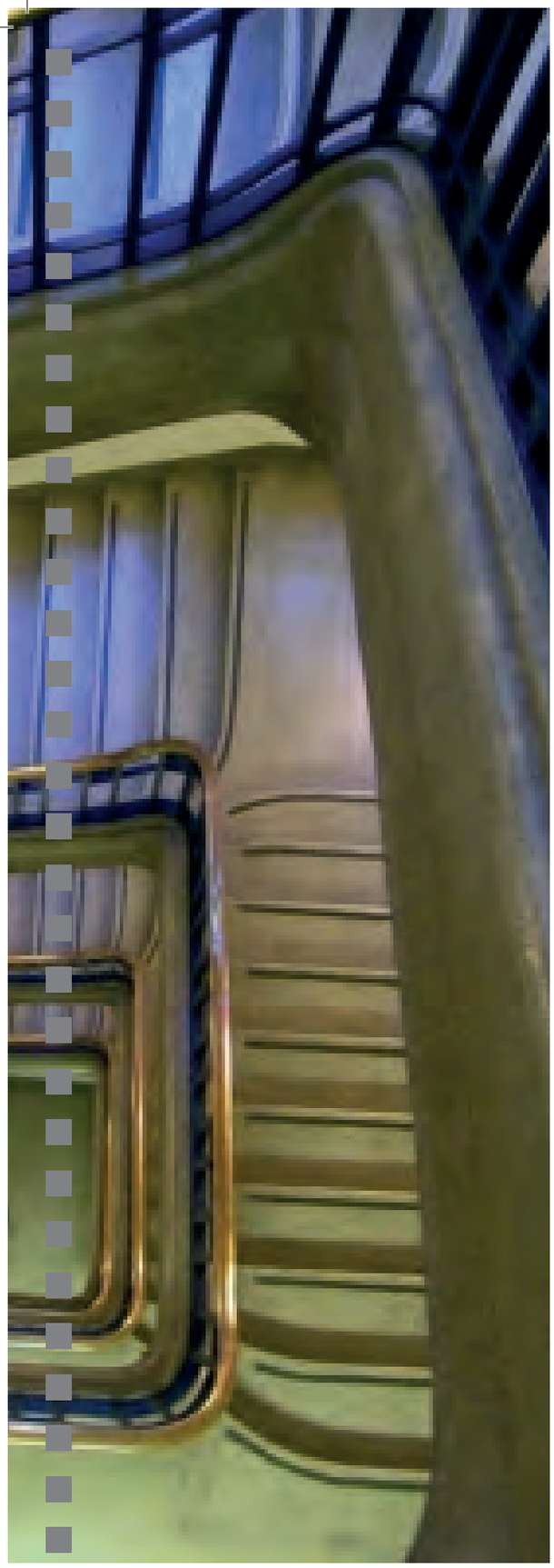
Typically features one or more of the following: maintenance will have been carried out. Minor deterioration to internal / external finishes. Few structural, building envelope, building services or statutory compliance issues apparent, likely to have minor impacts upon the operation of the building. Typically features one or more of the following: Maintenance will have been carried out. Minor deterioration to internal / external finishes. Few structural, building envelope, building services or statutory compliance issues apparent. Likely to have minor impacts upon the operation of the building.

C - Operational, but major repair or replacement needed in the short to medium term (generally 3 years).

Typically features one or more of the following: requiring replacement of building elements or services elements in the short to medium term. Several structural, building envelope, building services or statutory compliance issues apparent, or one particularly significant issue apparent. Often including identified problems with building envelope (windows / roof etc.), building services (boilers, chillers etc.). Likely to have major impacts upon the operation of the building, but still allow it to be operable.

D - Inoperable, or serious risk of major failure or breakdown.

Building is inoperable, or likely to become inoperable, due to statutory compliance issues or condition representing a health and safety risk or breach. May be structural, building envelope, or building services problems coupled with compliance issues. The conditions are expected to curtail operations within the building. Exclude very minor items, which can be rectified easily.



Functional Suitability

Functional suitability measures the capability of the space to support its existing function. If the space is vacant, the indicator will assume the last use of that space. If space is temporarily vacant (e.g. due to refurbishment), the same assumption applies.

Grade 1 Excellent -

the room(s) / building(s) fully support current functions. There are no negative impacts upon the functions taking place in the space. (The space is highly suitable for current functions).

Grade 2 Good -

the room(s) / building(s) provides a good environment for the current function in all or most respects. There may be shortfalls in certain areas, but these have only a minor effect upon current functions. (The space is suitable for current functions).

Grade 3 Fair -

the room(s) / building(s) provides a reasonable environment for current functions in many respects, but has a number of shortfalls. These shortfalls may be causing mismatches between space and function that is having a more significant effect upon current functions than Grade 2 rooms. (The space is generally unsuitable for current functions).

Grade 4 Poor -

the room(s) / building(s) fail to support current functions and/or are unsuitable for current use. The operational problems associated with such space are major, and are constraining current functions in the space. Space in this grade may require alternative solutions, rather than straightforward improvements in particular features of the space. (The space is very unsuitable for current function).

Estates Data

The progress which has been made against previous objectives is evidenced by data available from the Higher Education Statistic Agency (HESA) returns. Key data as relevant to the LSHTM estate has been extracted from the 2012/13 revision of Hesa. Tavistock Place is rated as A/B in terms of condition and functionality. Keppel Street although some areas are still functionally acceptable has a legacy of backlog maintenance. Addressing the infrastructure of the Keppel Street building was highlighted in previous condition reports carried out by WS Atkins in 2008 and Aecom in 2011. The condition of the infrastructure at Keppel Street is still poor and this:

- Exposes the School to greater risk of system failures
- Further limits the flexibility and adaptability of the building to meet changing needs
- Leads to increased maintenance costs
- Compromises the Schools ability to enhance environmental sustainability.

Tenure

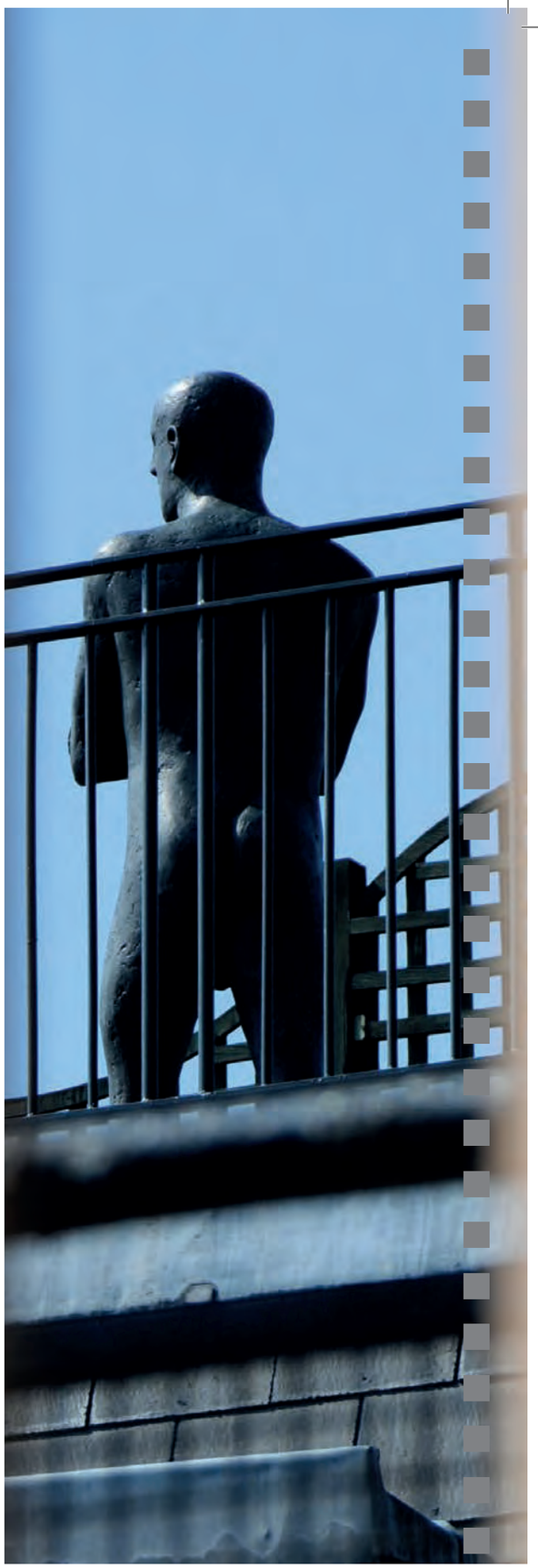
LSHTM maintains its objective of holding all properties on freehold and this strategy aims to consolidate onto freehold sites.

Building Condition

Buildings have been graded using HESA Estates Management Statistics categories A/D. The estate at LSHTM has 26% of buildings classified as category A/B compared to HEFCE recommendation that 80% of the estate should be in category A/B. Building condition is a key performance indicator for the School and the current condition, if allowed to continue, will not support the academic vision and aspirations of the School. The School is University of the Year 2016 and must create an estate to reflect the academic achievements of its staff and students. When undertaking any capital works the School will be considering improving utilisation to potentially release space for other uses. Through its capital programme the School must design flat flexible space that incorporates the capacity for change of use if the School requires different accommodation in the future. The benchmarking data is in appendix 2.

Functional Suitability

The functional suitability of buildings is graded from 1-4 with 1 being the highest grade. LSHTM Keppel Street building and the sites has areas of the estate in functional suitability 3 which if allowed to continue will affect staff and students. The functional suitability of space needs to be addressed through the capital programme as part of this process. Mortimer Isaacs Cost Consultants (MI) and BMJ architects have assessed the condition of the estate and have identified and suggested changes that are required to support the Schools academic developments.



6.7
Space Projection Plan 2017-2022

Current position

Site	Tenure	GIA	NIA
Keppel Street	FH	20,602	13,819
15-17 Tavistock Place	FH	3,975	2,549
8 Bedford Square	LH	523	373
9 Bedford Square	LH	551	358
36-38 Gordon Square	LH	1,209	897
Total		**26,860**	**17,996**

FH Freehold LH Leasehold

Proposed floor area by site NIA Base position

	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021
Keppel street	13,819	13,819	13,819	15,285	15,285
15-17 Tavistock Place	2,549	2,549	2,549	2,549	2,549
New BRI at Tavistock Place				2,512	2,512
8 Bedford Square	373	373	373		
9 Bedford Square	358	358	358		
36-38 Gordon Square	897	897			
Totals	17,996	17,996	17,099	20,346	20,346

The School space requirements based on the data collected from headcount are demonstrated in the table. The base case in 2017/18 shows that the School has slightly too much space for its use but the space is not functionally suitable for academics needs, nor will it provide for any future growth as predicted in the Strategic Plan. In this proposal the School will construct the BRI by 2019/20. 8 and 9 Bedford Square would then become surplus to the space requirement. 36 – 38 Gordon Square would be disposed. In years 2020-2022, the School would rationalise and refurbish Keppel Street and would consolidate onto 2 sites, Keppel Street and Tavistock Place.

Valuations

The Schools estate was valued in 2014 for insurance purposes by Gerald Eve. Some market valuations were undertaken for Tavistock Place (Gerald Eve) and Gordon Square (Stanley Hicks) as shown in in table.

Property	Insurance Market Value	Rebuild Cost £	Open Market Valuation
Keppel Street	105m	68.9m	TBC
Tavistock Place	35.2m	26.3m	TBC
8 Bedford Square	3.2m	1.27m	TBC
9 Bedford Square	3.2m	1.19m	TBC
36-38 Gordon Square*	4.4m	3.2m	5.7m
New Bri Building Tavistock Place			
Totals	£152.35	£100.86	

* Gordon Square value is only 24.4% of the value to LSHTM as it is part owned by other Bloomsbury Colleges.

Having reviewed the strategic, financial and physical context of the School business, the next stage is to generate and evaluate a range of options that are available to the School which would address the space issues if the projected growth is realised.

Each development option needs to:

- Be consistent with the Schools development plan and financial forecast
- Address the range of key issues identified in Section 6
- Be sufficiently inspirational to meet the global expectations of the School.

7.0

Options and Evaluations

Development Options

Investigated but not pursued within the mid - term strategy

Tavistock Place

Redevelop Tavistock Place and maximise footprint of the site -Total cost £60m

Demolish the current Tavistock Place building and build a new office block on the site to maximise footprint and space.

The main advantages of this option is that it is an opportunity to increase floor space on-site through net/gross efficiency. It is also likely to make the site more attractive to future potential buyers. However, initial reviews by the design team demonstrate that space gain is minimal due to tight planning restrictions.

It must be noted there are some significant planning risks in that the local Council have specifically identified these buildings as 'positive contributors' to the Bloomsbury Conservation Area. Their loss therefore will cause 'significant harm' and planning is justifiable only in the most exceptional circumstances.

Also that the prevailing height in the area and importance of avoiding encroachment into key local views/protecting residential amenity effectively prevents height above that of the existing buildings.

Therefore, the space gains over and above the proposed BRI building are only 162sqm with an increased costs of circa £28m and significant uncertainty as to if this would achieve planning permission.

Dispose of Tavistock Place and rent an alternative building

Tavistock Place houses staff in 2,549sqm NIA of office space. The estimated cost of renting equivalent space in Bloomsbury is circa £2m pa.This option would not provide for any expansion space or decant space.

If the School wished to lease space to house a decant from Keppel Street and Tavistock Place staff they would need circa 5,000sqm which would cost circa £4m pa.

Warwickshire House

The Keppel Street building is adjacent to Warwickshire House (15,369 GIA). This property is owned by University of London (UoL) and leased until September 2022 to University College London Hospital (UCLH). The property is used as student accommodation and provides revenue to UCLH. Notice has been served on UCLH by UoL.

Initial enquiries have highlighted that the building is part of the UoL strategy and business plan to increase student accommodation and generate income from the property.

If the School was able to purchase the site the building would need very extensive refurbishment and remodelling.

A valuation of a similar student accommodation property (Woburn Place) by the Student Accommodation, National Valuation & Advisory team at CBRE Ltd showed that a building with identical number of beds (350) was valued at £140m and had a yield of 4.5%

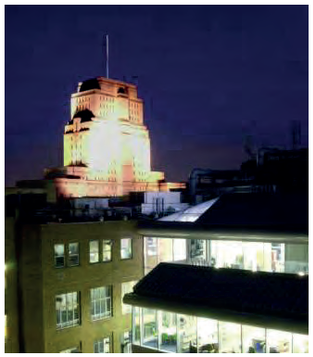
Option 1
Refurbishment
(15,369 GIA)

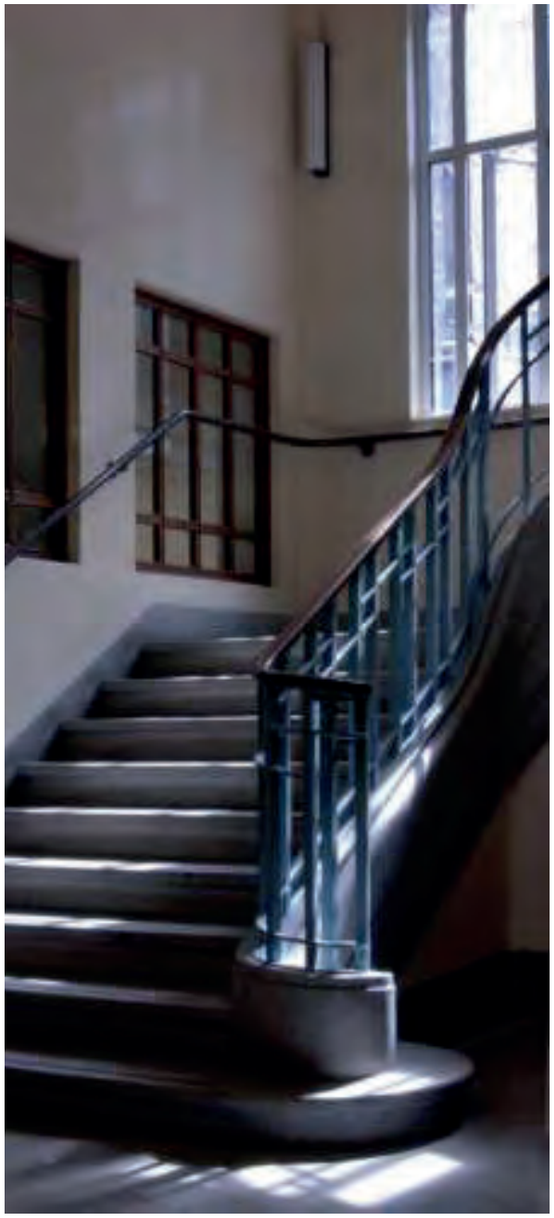
Cost to purchase £150m (tbc)
Refurb costs £86.5m
Total £236.5m
Timescales:-
Purchase 2023
Design and fit out 3/4years
Decant 2026/7

Option 2
Demolish and rebuild
(21,330 sqm GIA)

Potentially sell all of LSHTM buildings and relocate into a new build

Cost purchase £150m
New build cost £186.1m
Total £335m
Timescales:-
Purchase 2023, Design and build 5/6 years, Decant 2028/9





Option Generation

Option 1

The School evaluated the condition of its current estate and calculated a cost to bring the existing estate of the 5 current buildings up to a standard that was nearly new and functionally acceptable. The School continues to implement the planned maintenance programme and incurs premises running costs at an increasing level over the life of the strategy and beyond:

The School does not implement measures to improve space utilisation and therefore does not benefit from the subsequent efficiency gains in premises related costs and operational advantages.

- The School refurbishes all of the buildings to a good standard based on the costs assumptions undertaken by Mortimer Isaacs
- As part of this option the School retains its existing NIA at 17,996sqm
- The School remains short of functionally good space and will not have the capacity for any growth
- There is an assumption of very high decant costs within the cost analysis.

Option 2

Option 2 builds on the base case, but instead of a basic refurbishment of the existing estate of 5 buildings the option remodels and refurbishes Keppel Street increasing the net useable space. This option consolidates onto 2 sites Keppel Street and Tavistock Place. 8 and 9 Bedford Square, becomes surplus to requirements, 36-38 Gordon Square is disposed of.

- The School optimises the accommodation at Keppel Street and Tavistock Place
- Delivers all required office space for current numbers if BRI space metrics are used
- All growth anticipated in laboratories
- Increase in teaching space, but not all of the growth
- There is a shortfall in shared space
- Would require rental of external office space and teaching space to accommodate growth
- Consider disposal of 8 & 9 Bedford Square
- Dispose of 36- 38 Gordon Square.

Option 3

Option 3 builds on option 2 with both Keppel Street and Tavistock Place rationalised and refurbished with the addition of a new build Bloomsbury Research Institute (BRI) at Tavistock Place. This option consolidates onto 2 sites Keppel Street and Tavistock Place. 8 and 9 Bedford Square are surplus to requirements when BRI is constructed and Gordon Square is disposed of, refer to plans and in appendix 5.

- Keppel Street is retained optimised and refurbished
- Tavistock Place develop a new build as a dry laboratory (BRI)
- Tavistock Place space is optimised
- Delivers required growth for office space if we utilise the BRI space metrics
- Growth for teaching met
- Requires some rental of office space for growth in 2021 if LSHTM space metric is used
- Facilitates decant for works to rationalise Keppel Street without renting external space
- 8 and 9 Bedford Square are surplus to requirements.
- Dispose of 36-38 Gordon Square

New Build – Option 4

In order to accommodate the anticipated growth, the school may retain their existing estate, bringing it up to a A/B standard as identified in the BMJ condition survey and build a new building to meet the growth target. There would be no space utilisation improvement of the current estate and all growth would be provided in a new build.

It is unlikely that the building would be located in Bloomsbury, adjacent to the schools existing building (due to the physical constraints) but would be located on a site further from the centre of London.

- The School refurbishes space at all of its current buildings to A/B standard
- A new build is constructed outside of Bloomsbury
- Delivers growth for teaching and research.

Qualitative Evaluation of Options

The options generated assume the following is required:

- High level of research and teaching accommodation
- Improved profile of the School
- Maximise value of assets
- Reduction in running and maintenance costs
- More complete access and facilities for people with disabilities
- Space for growth and improved space utilisation
- Student and staff aspirations met
- Improved aesthetic appearance of the School internally and externally
- Compliance with the School space norms
- Securing of external funding for the investment in the estate

The advantages and disadvantages of each option are considered in more detail below:

Option 1

The School continues to implement the items included in planned maintenance programme and incur premises running costs at an increasing level over the life of the strategy and beyond. The School refurbishes all of its current buildings to condition A/B at a cost of **£39,512,366.**

The School continue with the infrastructure works that are planned at Keppel Street at a cost of £7.7m.

Advantages

- Financial commitment within existing affordability
- Minimal operational and financial risk.

Disadvantages

- Likely loss of student numbers
- Not be able to attract and retain the best staff
- Limited savings in running costs
- Large decant costs would need to be factored into the option
- Disruption to students and staff whilst refurbishment was taking place
- The School cannot grow its provision due to a shortfall in the accommodation
- Utilisation of space is not improved anywhere on the estate, the estate is still inflexible
- Opportunities for partnership and collaboration activities are reduced
- The School has limited flexible facilities to ensure and support future growth
- Opportunities are reduced for the introduction of any new work streams
- Liabilities associated with the physical condition of the existing building stock remain
- The life span of the capital is not enhanced.

Option 2

Keppel Street and Tavistock Place are optimised, re-modelled, and refurbished at a cost of **£51,339,537**. The difficulty refurbishing a building that is fully occupied meaning that a significant decant solution would need to be established.

8 & 9 Bedford Square and 36-38 Gordon Square would be disposed in this option and the estate consolidated onto 2 sites. Although the school would dispose of 8 & 9 Bedford Square and 36-38 Gordon Square at a NIA of 1,627sqm the optimisation and refurbishment of Keppel Street and Tavistock Place would provide 17,834sqm of NIA against the current estate of 17,996sqm NIA and the need of 16,931sqm NIA.

Advantages

- Keppel Street and Tavistock Place would be optimised and refurbished, building in flexibility for change in the future
- The Keppel Street buildings and Tavistock building would be condition A,B and would be functionally suitable for the Schools needs for the next 25 years
- The School would consolidate onto two sites from five potentially reducing ancillary costs and management time
- Utilisation would be improved.

Disadvantages

- The option does not provide all of the space that the School requires to implement its strategic drivers
- This option would also require significant decant costs to refurbish Keppel street.
- 8 & 9 Bedford Square and 36-38 Gordon Square would potentially have to be disposed to finance the option.

Option 3 – The Preferred Option

The BRI would be constructed as a dry laboratory building at Tavistock Place and a determined group of staff from Keppel Street relocated into the new building allowing space for refurbishment without incurring major costs of decant.

Keppel Street and Tavistock Place would then be optimised and refurbished in phases to allow the building to remain operational, this would also assist with the cash flow.The cost of the option is **£82,279,864**

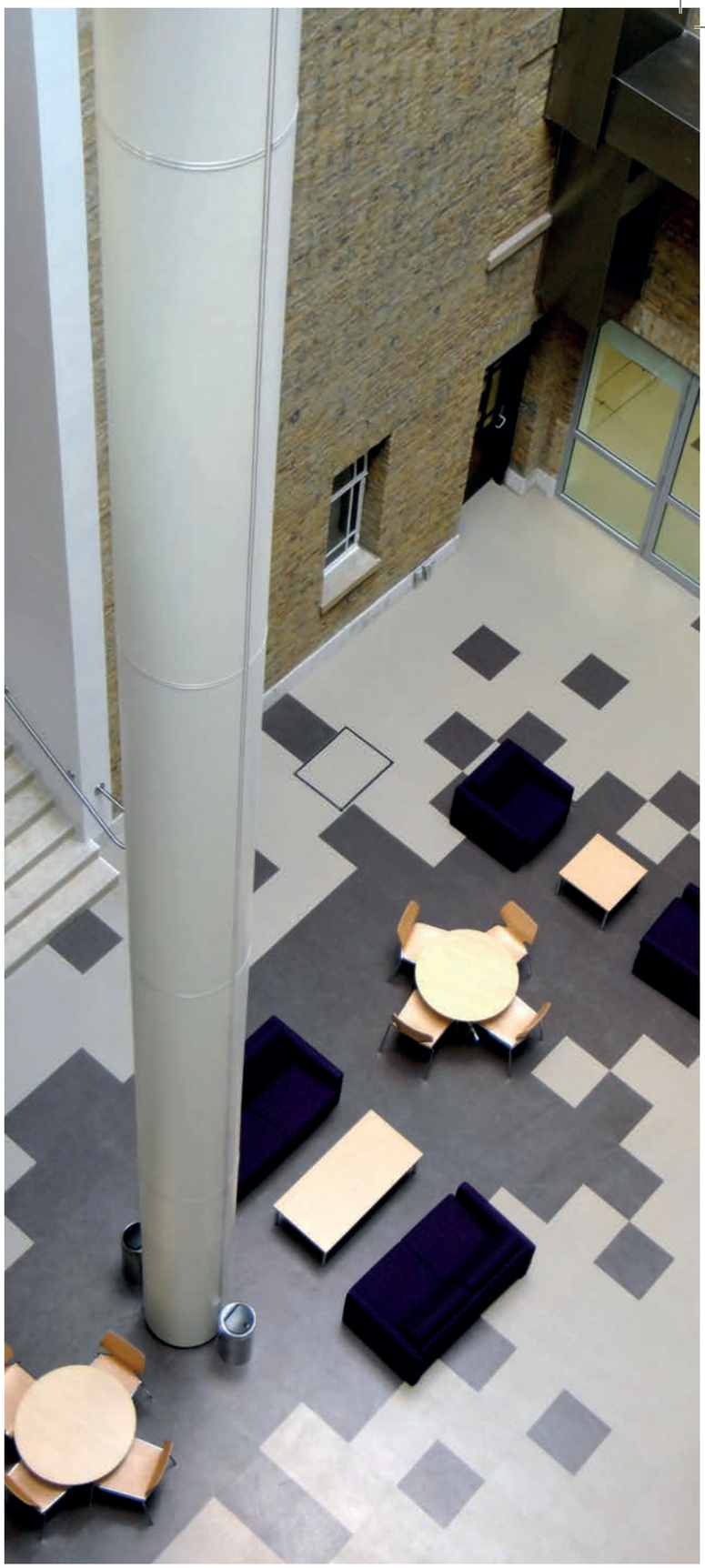
36-38 Gordon Square would be disposed of in this option. 8 & 9 Bedford Square would be surplus to requirements in 2020 and the estate would consolidate onto 2 sites. The NIA would increase 20,346sqm.

Advantages

- The School and its stakeholders benefit from investment in the estate and achieving “World Class Buildings”
- The estate is in condition A/B and is functionally fit for purpose
- The School can design flexibility into its accommodation for future change
- Saving in running costs generated by a more efficient estate
- Estate meets the agreed space metrics
- Utilisation of space is improved
- The Schools planned investment into its estate is better focused
- Opportunities for growth in both research and teaching support the Strategic Plan
- The School can design flexible spaces that could be altered in the future
- Liabilities associated with the physical condition of the existing building stock are eliminated
- The School will benefit from zero rated VAT for the new build.

Disadvantages

- Some operational risk when refurbishing Keppel Street and Tavistock Place will need to be managed carefully and phased to ensure that School operations can continue with minimum disruption during the refurbishment period
- Considerable financial commitment from the School relating to new loan finance and expenditure of reserves, which will need to be monitored robustly with finance.



New Build Option 4

LSHTM existing estates is refurbished to a A/B standard from C/D, in addition it is proposed that a new build is constructed. Due to the limited stock in Bloomsbury BMJ architects investigated the possibility of building outside of London in Stratford. The costs for this would be upgrade the existing estate to condition A/B **£39,512,166** and then construct a new build to facilitate growth 9,566 sqm at a cost of **£74.210,756**. The new build is larger than BRI because no improvement is being made to the existing estate to make it more efficiently used. So in order to meet the growth a far larger building is required as the School is not improving the utilisation of the space we currently have in order to meet some of that growth. The total cost of this option would be **£113,723,122**. In addition to the refurbishment and new build costs the land purchase costs would need to be added.

Advantages

- The School and its stakeholders benefit from investment in the estate and achieving “World Class Buildings”
- Estate meets the agreed space metrics
- Utilisation of space is improved
- The Schools planned investment into its estate is better focused
- Opportunities for growth in both research and teaching support the strategic plan
- The School can design flexible spaces that could be altered in the future
- Liabilities associated with the physical condition of the existing building stock are eliminated.

Disadvantages

- New build would be remote from the existing sites unless a suitable site could be secured in Bloomsbury
- The option is financially the most expensive at £113m and would require significant financial commitment from the School and there would be more risk
- The land costs are unknown and would be in addition to the capital costs
- The School may lose some of its identity relocating out of central London
- Ancillary costs would be higher if the building was remote.

Summary Evaluation of the Options

The Estate Strategy evaluated the options against both a qualitative and financial criteria. The results of the qualitative evaluation are contained in the table below:

Qualitative Evaluation

Criteria	Weighting	Base Case Option 1	Mid-Level Option 2	High Level Option 3 (preferred)	New Build Option 4
Enhanced School ethos	4	5	2	1	2
Enhanced School image	2	5	2	1	2
Improved in working conditions	4	5	3	1	1
Disruption – level of disruption each option	1	1	3	3	3
Ability to meet the Schools objectives	1	5	3	1	2
Enhanced learning opportunities	3	3	2	1	1
Improved space utilisation	3	5	1	1	2
Growth in research and teaching	1	5	3	1	1
Partnership opportunities	2	4	2	1	3
Improved disabled access to sites and buildings	3	5	1	1	1
Speed of implementation	2	1	2	1	3
Minimum risk of delivering the option	1	1	4	4	4
Affordability	2	1	3	3	5
Weighted Totals		**113**	**63**	**38**	**65**

Explanation grades 1- High Positive impact 5- No positive impact

The front-running option based on the qualitative evaluation is Option 3. The implementation of this option would fulfil the Schools and its stakeholder's strategic objectives and enhance the physical resources and research and learning experience for staff and students.

Based on the quantitative analysis and the qualitative analysis the preferred option is option 3. This option is clearly preferential both in terms of the student and staff experience and in terms of outlay, with a combination of new build and refurbishment.

Quantitative Evaluation

The investment appraisals for the preferred option for the development of the Schools estate has been completed and can be found in appendix 6. The summary of the appraisals is in the table below

	High Level Option 3 £000s
Total net project cost (£000)	(54,713)
Investments and cash reserves	35,000
Level of new borrowing (£000)	0
Net present value (NPV) (£000) Capital Expenditure	(48,062)
Net Present Value Operations	49,085
£NPV Total	1,022
Amount of new build NIA (sqm)	2,512
Amount of refurbishment NIA (sqm)	17,996

The assumptions used for the purpose of undertaking the investment appraisals are as follows:

- Net Project Costs comprise project costs less grants and property disposal
- Reserves comprise £30m cash and £5m investments
- Disposal proceeds from 36- 38 Gordon Square
- Level of borrowing is nil. Existing reserves together with projected surpluses should be sufficient.

Risk Assessment

The risk assessment is based on a list of potential risks with options ranked in terms of the combination of the likelihood and severity of each risk.

Risk Appraisal		**Option 1: Base case**		**Option 2:**		**Option 3: Preferred Option**		**Option 4: New Build**	
Severity (1-5) Likelihood (1-5)	Severity	Likelihood	Score	Likelihood	Score	Likelihood	Score	Likelihood	Score
Risk									
Risk to business continuity if external teaching venues are no longer available	5	4	20	4	20	1	5	1	5
Risk of non-compliance with regulatory requirements in external teaching venues	3	4	12	4	12	1	3	1	3
Risk to student recruitment and retention from dispersed teaching accommodation	3	4	12	4	12	1	3	4	12
Risk to student recruitment and retention from lack of improvement to range and quality of support facilities	3	4	12	4	12	1	3	4	12
Risk to continues viability of research because of lack of fit for purpose facilities	5	5	25	4	20	1	5	1	5
Lack of investment in long-term maintenance and upgrading building condition leading to progressive deteriorating and risk of failure affecting the Schools operations.	4	4	16	2	8	1	4	1	4

8.0
Finance

The Schools financial position is presently robust and stems from strong financial performance over recent years. From this sound basis, a dynamitic, flexible and sustainable Estate Strategy aimed at supporting academic and strategic priorities is a realistic proposition over the next few years.

The Estate Strategy has being considered in the context of the Schools Financial Strategy in that we have sought to refine and extend the Schools long term financial planning, such that rigorous modelling of alternative scenarios can be effected and assessed. This modelling permits an integrated review of the impact on each of the balance sheet (including working capital), income and expenditure, and cash flow, affording the opportunity to manage the interrelationship of these, and thus manage the risk associated with alternative approaches.

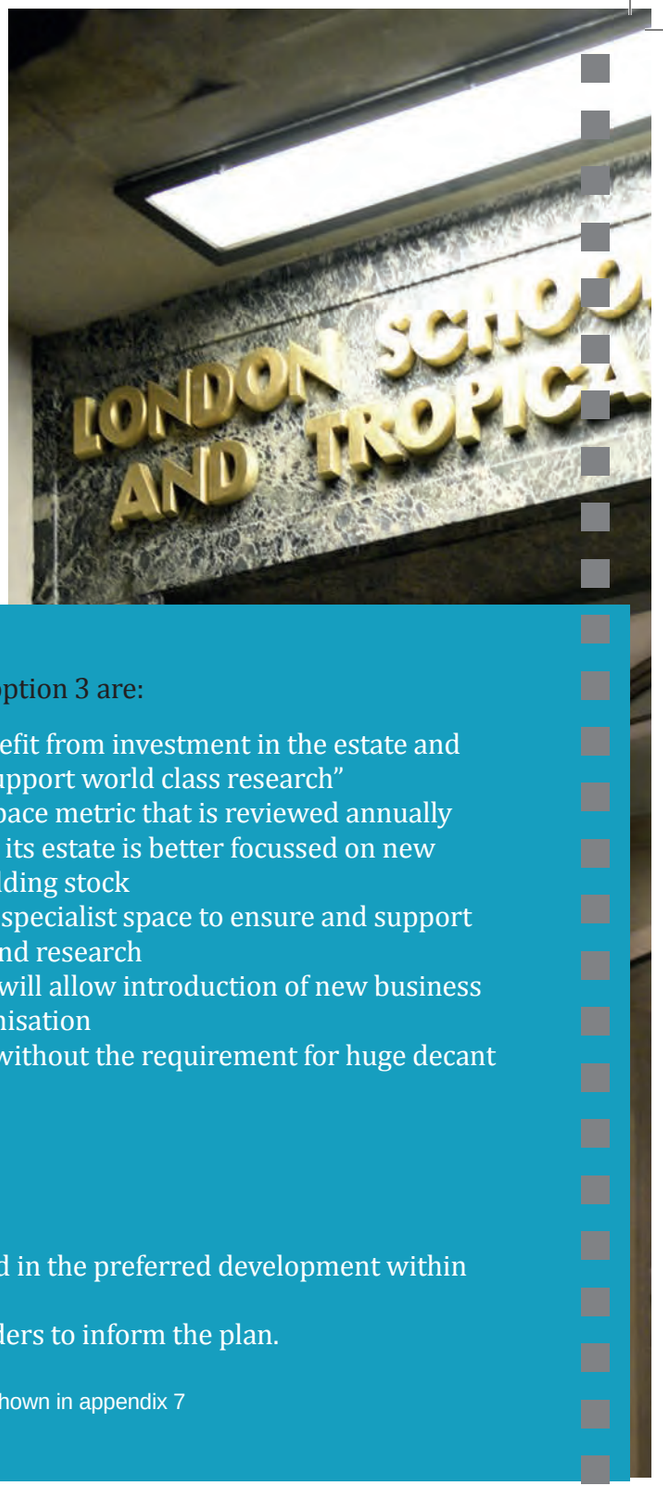
Although the funding environment remains uncertain, the School must face the financial challenges head on, it is vital that the School increases its investment levels to ensure buildings and equipment remain fit-for-purpose and continue to meet the needs of students and staff. Estates can then secure investment in both infrastructure and backlog maintenance, to maintain high standards of quality and secure students numbers and attract the best staff. The cost plans and financial investment plans for all options are in appendix 6.

The Capital expenditure programme will be supported by a mix of:

- Capital grants from HEFCE
- Disposal of property and land receipts
- Philanthropic funding opportunities
- Borrowing
- Internal cash generation.

9.0

Implementation and Programme
Estate Strategy Implementation



The Estate Strategy is a high level analysis of the current LSHTM estate and provides a framework for more detailed work on the preferred option for the School:

- New build of a dry Bloomsbury Research Institute (BRI) at Tavistock Place
- Keppel Street is retained optimised and refurbished
- Tavistock Place optimised and refurbished in phases
- Disposal of 36-38 Gordon Square
- Option Appraisal of 8 and 9 Bedford Square in 2020.

The main highlights of the preferred option 3 are:

- The School and its stakeholders benefit from investment in the estate and achieving “world class facilities to support world class research”
- The School implements an agreed space metric that is reviewed annually
- The School planned investment into its estate is better focussed on new build rather that in listed leased building stock
- The School will provide flexible and specialist space to ensure and support future growth in student numbers and research
- New purpose built accommodation will allow introduction of new business and increased research for the organisation
- The preferred option is deliverable without the requirement for huge decant costs.

Next Steps

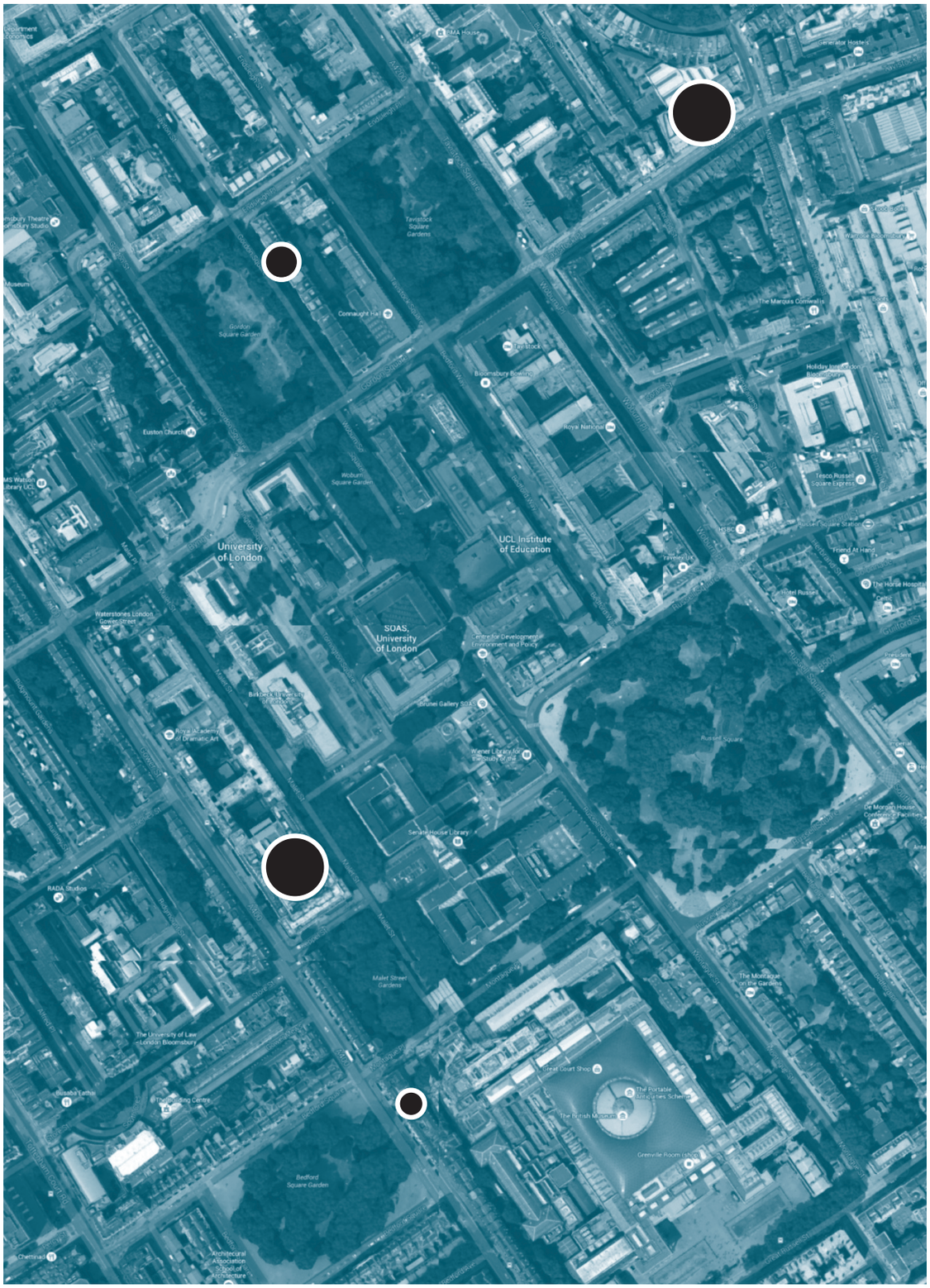
- Approval of the Estate Strategy
- Further develop the options outlined in the preferred development within the Estate Strategy
- Continue to work with the stakeholders to inform the plan.

The high level programme and phasing plan is shown in appendix 7

10.0
Appendices

Appendix 1

Campus Locations



Appendix 2

Estate Management Statistics 2013/14

		Median	Lower Quartile	Upper Quartile
Income	£5,535	£1,280	£1,079	£1,596.50
HEI income per m^2. This ratio shows the average income received per m2 of net internal area across the entire estate.				
Space Usage	13.9%	49.25%	32.1%	57.18%
Teaching NIA as % of total NIA. This measure represents the proportion of net non-residential space that is allocated to teaching				
Space Usage	55.2%	5.9%	2.13%	23.73%
Research NIA as % of total NIA. This measure represents the proportion of net non-residential space that is allocated to research				
Space Usage	14.7%	29.2%	34.55%	22.4%
Support NIA as % of total NIA. This measure represents the proportion of net non-residential space that is allocated to support functions				
Space Usage	10m^2	13.8m^2	10.38m^2	17.3m^2
Academic office NIA per full time equivalent members of academic staff. This measure divides the net non-residential space allocated as academic offices by the number of full-time equivalent members of academic staff. It is one measure of intensity of use.				
Space Usage	11.2m^2	12.7m^2	9.5m^2	17.3m^2
Support office NIA per full time equivalent members of support staff. This measure divides the net space allocated as support offices by the number of full-time equivalent members of support office staff. It is one measure of intensity of use.				

HEFCE provides higher education institutions with four classifications of building condition, as follows:

A	As new
B	Sound, operationally safe, with only minor defects
C	Operational and safe, but major repair or replacement needed in short to medium term (typically within three years)
D	Inoperable or serious risk of major failure or breakdown.

	LSHTM	UK Higher Education Institutions (HEIs)		
		Median	Lower Quartile	Upper Quartile
Building Condition and Suitability	26%	79%	66%	90%
Building condition % GIA Condition A and B. This measure represents the proportion of gross non-residential space classed as either "New condition" or "Sound, operationally safe and exhibiting only minor deterioration".				
Building Condition and Suitability	70%	84%	76%	92%
Suitability % GIA rated 1 or 2. This measure represents the proportion of gross non-residential space rated as either fully supporting its current function or providing "a good environment for the current function in all or most respects".				

	LSHTM	UK Higher Education Institutions (HEIs)		
		Median	Lower Quartile	Upper Quartile
Property Costs	£346.06	133.16	£115.7	£155.21
Property costs per m^2. This measure illustrates the average total property cost required to provide & support each m^2 of net internal area for non-residential buildings.				
Maintenance Costs	£58.48	£24.47	£17.95	£37.23
Maintenance costs per m^2. This indicator expresses the total accrued costs of all maintenance work per m^2 of gross internal area across the estate.				
Energy Costs	£35.18	£15.13	£12.67	£17.56
Energy costs per m^2. This measure represents the average expenditure on energy provision (all fuels) per m^2 of gross internal area across the estate.				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Appendix 3

Space Data

Comparison of Net Usable Areas

Space Type	Current Estate	Calculated Space Metric (LSHTM)	Calculated Space Metric (BRI)	Projected Space Metric (LSHTM)	Projected Space Metric (BRI)
Dry Lab, Office/ Write up space Support Services (HR, finance, estates etc.)	8086	8750	7006	11200	8968
	2300	980	1155	1255	1479
Sub Total	9025	9730	8162	12455	10447
Primary Wet Lab Specialist Lab (ecl, BSU)	1477	780	780	998	998
	1214	945	945	1209	1209
Sub Total	2692	1724	1724	2207	2207
Teaching	1765	1605	1605	3210	3210
Sub Total	1765	1605	1605	3210	3210
BSF	544	544	544	544	544
Sub Total	544	544	544	544	544
Shared Spaces	2609	3327	3327	4259	4259
Sub Total	2609	3327	3327	4259	4259
Total	**17996**	**16931**	**15392**	**20675**	**20667**

LSHTM Areas School Metrics

Function	No of people equivalents	Office/ Write-up Space per person m²/person	Total Office/ Write-up space m²	Primary Lab Space per person m²/person	Total Primary Lab space m²	Secondary Lab Space per person m2/person (excl BRU)	Primary Floor Area m²	Secondary Floor Area m²	Tertiary Floor Area m²
RESEARCH & TECHNICAL SPACE									
Permanent staff (Wet lab)									
Professors (clinical and non clinical)	20	10.00	200.00	4.43	88.60	6.47	289	129.4	
Associate Professors (formerly SL)	12	7.00	84.00	4.43	53.16	6.47	137	77.64	
Assistant Professors (formerly L)	15	7.00	105.00	4.43	66.45	6.47	171	97.05	
Research Fellows	58	5.00	290.00	4.43	256.94	6.47	547	375.26	
Research Assistants	8	5.00	40.00	4.43	35.44	0.00			75
Professional support staff (PSP) Wet Lab	0	4.00	0.00	4.43	0.00	0.00			0
Research Degree (PhD) Students	41	4.00	164.00	4.43	181.63	6.47	346	265.27	
Visitors(requiring Lab)	22	3.60	79.20	4.43	97.46	0.00	177		
Quiet room / local breakout space	176	0.25	44.00				44		0
Permanent staff (Dry lab only)									
Professors (clinical and non clinical)	105	10.00	1050.00				1050		
Associate Professors (formerly SL)	92	7.00	644.00				644		
Assistant Professors (formerly L)	166	7.00	1162.00				1162		
Research Fellows	206	7.00	1442.00				1442		
Research Assistants	69	5.00	345.00						345
Research Degree (PhD) Students	299	4.00	1196.00				1196		
Quiet room / local breakout space	937	0.25	234.25				217		17
Visitors									
Visitors	62	3.60	223.20				223		
Visiting honorary staff	35	3.60	126.00				126		
Overseas Staff	13	3.60	46.80				47		
Other Students									
Masters students	761	0.37	281.57				282		
Fume cupboard allocation	0	0.00		11.00			0		
BSF								398	
SHARED SUPPORT FACILIITES									
Admin space									
Dean of Faculty	3	15.00	45.00				45		
Heads of Department	11	10.00	110.00				110		
Faculty Operating Officer	3	7.00	21.00						21
Department Operating Officers	11	7.00	77.00						77

Tertiary Floor Area excluded from Wellcome Trust guidelines m²	Total Floor Area for existing functions m²	Percentage Growth (%) over 5 years	Total area required including growth m²	
	418.00	28	535	Office as per LSHTM Space Policy guidelines. Lab space as BRI
	214.80	28	275	
	268.50	28	344	
	922.20	28	1180	
	75.44	28	97	Office as per LSHTM Space Policy guidelines. Lab space as BRI. Assume no secondary lab space req'd
	0.00	28	0	Office as per LSHTM Space Policy guidelines. Lab space as BRI. Assume no secondary lab space req'd
	610.90	28	782	Open plan hot desk provision as per LSHTM Space Policy. Diversity assumed to be 68% to meet minimum HSE standards
	176.66	28	226	Both Visitors and honorary staff
	44.00	28	56	Assumed allowance: Equivalent to two quiet rooms + 1no 4 person meeting spaces per 24 people
	1050.00	28	1344	As per LSHTM Space Policy guidelines.
	644.00	28	824	As per LSHTM Space Policy guidelines.
	1162.00	28	1487	As per LSHTM Space Policy guidelines.
	1442.00	28	1846	As per LSHTM Space Policy guidelines.
	345.00	28	442	As per LSHTM Space Policy guidelines.
	1196.00	28	1531	As per LSHTM Space Policy guidelines.
	234.25	28	300	Assumed allowance: Equivalent to two quiet rooms + 1no 4 person meeting spaces per 24 people
	223.20	28	286	Assume headcount = total headcount on estate at any one time. Office only as per LSHTM Space Policy guidelines.
	126.00	28	161	Assume headcount = total headcount on estate at any one time. Office only as per LSHTM Space Policy guidelines.
	46.80	28	60	Assumed 10% of Overseas staff total located in London at any one time
	281.57	100	563	Open plan hot desk provision. Diversity assumed to be 10% to meet minimum HSE standards
	0.00			Allowed for in secondary lab space metrics
	398.00	0	398	Existing space facility allowed for on the assumption that it meeds current & future needs
	45.00	0	45	As per LSHTM Space Policy guidelines. Can be configured as open plan plus adjacent meeting room (bookable)
	110.00	0	110	As per LSHTM Space Policy guidelines. Can be configured as open plan plus adjacent meeting room (bookable)
	21.00	0	21	As per LSHTM Space Policy guidelines open plan
	77.00	0	77	As per LSHTM Space Policy guidelines open plan

LSHTM Areas School Metrics continued

Function	No of people equivalents	Office/ Write-up Space per person m²/person	Total Office/ Write-up space m²	Primary Lab Space per person m²/person	Total Primary Lab space m²	Secondary Lab Space per person m2/person (excl BRU)	Primary Floor Area m²	Secondary Floor Area m²	Tertiary Floor Area m²
Faculty Administrators	8	7.00	56.00						56
Department Admin Assistants	5	7.00	35.00						35
Research Degrees Manager	4	7.00	28.00						28
Research Degrees Administrator	3	7.00	21.00						21
Professional support staff (PSP)	150	4.00	600.00						600
Support Services (HR, finance, estates etc.)	219	4.00	876.00						876
Quiet room / local breakout space	417	0.25	104.25						104
COMMON SPACES									
Logistical support spaces / stores etc									742.00
Meeting									0
Library									
Catering/social spaces									
Reception & waiting									0
TEACHING/CONFERENCE/SOCIAL SPACE									
Teaching/seminar/computer rooms	613	1.78							
Teaching labs	69			7.50					
TOTAL NET SPACE			**9730.27**		**779.68**		**8254**	**1343**	**2998**
TOTAL PRIMARY AND SECONDARY SPACE								**9597**	
PRIMARY/SECONDARY SPACE (EXCL BRU) PER RESEARCHER (SQM/PERSON)							**10.71**	**1.23**	
PRIMARY AND SECONDARY SPACE PER RESEARCHER (SQM/PERSON) (EXCL BRI)	771							**11.93**	
WELLCOME TRUST BENCHMARK (M2/P)							**10-16**	**5-9**	
								15-25	
Balance & Plant(allow 59.4% of total net)									
TOTAL GROSS SPACE							**8254.01**	**1342.62**	**2255.94**

Balance & Plant(allow 54% of total net)									
TOTAL GROSS SPACE									

Tertiary Floor Area excluded from Wellcome Trust guidelines m²	Total Floor Area for existing functions m²	Percentage Growth (%) over 5 years	Total area required including growth m²	
	56.00	28	72	As per LSHTM Space Policy guidelines open plan
	35.00	28	45	As per LSHTM Space Policy guidelines open plan
	28.00	28	36	As per LSHTM Space Policy guidelines open plan
	21.00	28	27	As per LSHTM Space Policy guidelines open plan
	600.00	28	768	As per LSHTM Space Policy guidelines open plan
	876.00	28	1121	As per LSHTM Space Policy guidelines open plan
	104.25	28	133	Assumed allowance: Equivalent to two quiet rooms + 1no 4 person meeting spaces per 24 people
	742.00	28	950	as existing
2585.00	2585.00	28	3309	as existing
				as existing
				as existing
				as existing
1087.9	1087.92	100	2176	Assume 20% of peak requirements in lecture theatres, 20% in seminar rooms, 20% in classrooms, 20% in computing with LSHTM Estates target occupancy rate of 53% - based on an average 10 hour contact time per week per FT student and 5hrs per PT student
517.1	517.14	100	1034	Assume 20% of peak requirements in teaching labs with LSHTM Estate target occupancy rate of 60% - based on an average 10 hour contact time per week per FT student and 5hrs per PT student
4190	**16784.63**		**22660**	
				“Predominance of dry lab users over wet lab users generates a considerably lower “”space per scientist”” metric. Space per scientist (excl BSU) for wet lab users only = 15.58ssq/person “
	9970.07		13460.29	
	26754.70		**36120.70**	

9063.70	
25848.33	**25848.33**

LSHTM Areas BRI Metrics

Function	No of people equivalents	Office/ Write-up Space per person m²/person	Total Office/ Write-up space m²	Primary Lab Space per person m²/person	Total Primary Lab space m²	Secondary Lab Space per person m2/person (excl BRU)	Primary Floor Area m²	Secondary Floor Area m²	Tertiary Floor Area m²
RESEARCH & TECHNICAL SPACE									
Permanent staff (Wet lab)									
Professors (clinical and non clinical)	20	5.00	100.00	4.43	88.60	6.47	189	129.4	
Associate Professors (formerly SL)	12	4.80	57.60	4.43	53.16	6.47	111	77.64	
Assistant Professors (formerly L)	15	4.80	72.00	4.43	66.45	6.47	138	97.05	
Research Fellows	58	4.80	278.40	4.43	256.94	6.47	535	375.26	
Research Assistants	8	4.80	38.40	4.43	35.44	0.00			74
Professional support staff (PSP) Wet Lab	0	4.80	0.00	4.43	0.00	0.00			0
Research Degree (PhD) Students	41	4.80	196.80	4.43	181.63	6.47	378	265.27	
Visitors(requiring Lab)	22	3.67	80.74	4.43	97.46	0.00	178		
Quiet room / local breakout space	176	0.25	44.00				44		0
Permanent staff (Dry lab only)									
Professors (clinical and non clinical)	105	5.00	525.00				525		
Associate Professors (formerly SL)	92	4.80	441.60				442		
Assistant Professors (formerly L)	166	4.80	796.80				797		
Research Fellows	206	4.80	988.80				989		
Research Assistants	69	4.80	331.20						331
Research Degree (PhD) Students	299	3.67	1097.33				1097		
Quiet room / local breakout space	937	0.25	234.25				217		17
Visitors									
Visitors	62	3.67	227.54				228		
Visiting honorary staff	35	3.67	128.45				128		
Overseas Staff	13	3.67	47.71				48		
Other Students									
Masters students	761	0.37	281.57				282		
Fume cupboard allocation	0	0.00		11.00			0		
BSF								398	
SHARED SUPPORT FACILIITES									
Admin space									
Dean of Faculty	3	15.00	45.00				45		
Heads of Department	11	10.00	110.00				110		
Faculty Operating Officer	3	4.80	14.40						14.4
Department Operating Officers	11	4.80	52.80						52.8

Tertiary Floor Area excluded from Wellcome Trust guidelines m²	Total Floor Area for existing functions m²	Percentage Growth (%) over 5 years	Total area required including growth m²	
	318.00	28	407	As per BRI Space Policy guidelines.
	188.40	28	241	As per BRI Space Policy guidelines.
	235.50	28	301	As per BRI Space Policy guidelines.
	910.60	28	1166	As per BRI Space Policy guidelines.
	73.84	28	95	As per BRI Space Policy guidelines. Assume no secondary lab space req'd
	0.00	28	0	As per BRI Space Policy guidelines. Assume no secondary lab space req'd
	643.70	28	824	Open plan hot desk provision as per LSHTM Space Policy. Diversity assumed to be 68% to meet minimum HSE standards
	178.20	28	228	Both Visitors and honorary staff
	44.00	28	56	Assumed allowance: Equivalent to two quiet rooms + 1no 4 person meeting spaces per 24 people
	525.00	28	672	As per BRI Space Policy guidelines.
	441.60	28	565	As per BRI Space Policy guidelines.
	796.80	28	1020	As per BRI Space Policy guidelines.
	988.80	28	1266	As per BRI Space Policy guidelines.
	331.20	28	424	As per BRI Space Policy guidelines.
	1097.33	28	1405	As per BRI Space Policy guidelines.
	234.25	28	300	Assumed allowance: Equivalent to two quiet rooms + 1no 4 person meeting spaces per 24 people
	227.54	28	291	Assume headcount = total headcount on estate at any one time. Office only as per LSHTM Space Policy guidelines.
	128.45	28	164	Assume headcount = total headcount on estate at any one time. Office only as per LSHTM Space Policy guidelines.
	47.71	28	61	Assumed 10% of Overseas staff total located in London at any one time
	281.57	100	563	Open plan hot desk provision. Diversity assumed to be 10% to meet minimum HSE standards
	0.00			Allowed for in secondary lab space metrics
	398.00	0	398	Existing space facility allowed for on the assumption that it meeds current & future needs
	45.00	0	45	As per BRI Space Policy guidelines. Can be configured as open plan plus adjacent meeting room (bookable)
	110.00	0	110	As per BRI Space Policy guidelines. Can be configured as open plan plus adjacent meeting room (bookable)
	14.40	0	14	As per BRI Space Policy guidelines.
	52.80	0	53	As per BRI Space Policy guidelines.

LSHTM Areas BRI Metrics continued

Function	No of people equivalents	Office/ Write-up Space per person m²/person	Total Office/ Write-up space m²	Primary Lab Space per person m²/person	Total Primary Lab space m²	Secondary Lab Space per person m2/person (excl BRU)	Primary Floor Area m²	Secondary Floor Area m²	Tertiary Floor Area m²
Faculty Administrators	8	4.80	38.40						38.4
Department Admin Assistants	5	4.80	24.00						24
Research Degrees Manager	4	4.80	19.20						19.2
Research Degrees Administrator	3	4.80	14.40						14.4
Professional support staff (PSP)	150	4.80	720.00						720
Support Services (HR, finance, estates etc.)	219	4.80	1051.20						1051
Quiet room / local breakout space	417	0.25	104.25						104
COMMON SPACES									
Logistical support spaces / stores etc									742.00
Meeting									0
Library									
Catering/social spaces									
Reception & waiting									0
TEACHING/CONFERENCE/SOCIAL SPACE									
Teaching/seminar/computer rooms	613	1.78							
Teaching labs	69			7.50					
TOTAL NET SPACE			**8161.84**		**779.68**		**6481**	**1343**	**3203**
TOTAL PRIMARY AND SECONDARY SPACE								**7823**	
PRIMARY/SECONDARY SPACE (EXCL BRU) PER RESEARCHER (SQM/PERSON)							**8.41**	**1.23**	
PRIMARY AND SECONDARY SPACE PER RESEARCHER (SQM/PERSON) (EXCL BRU)	**771**							**9.63**	
WELLCOME TRUST BENCHMARK (M2/P)							**10-16**	**5-9**	
								15-25	
Balance & Plant(allow 59.4% of total net)									
TOTAL GROSS SPACE							**6480.58**	**1342.62**	**2460.94**

Balance & Plant(allow 54% of total net)									
TOTAL GROSS SPACE									

Tertiary Floor Area excluded from Wellcome Trust guidelines m²	Total Floor Area for existing functions m²	Percentage Growth (%) over 5 years	Total area required including growth m²	
	38.40	28	49	As per BRI Space Policy guidelines.
	24.00	28	31	As per BRI Space Policy guidelines.
	19.20	28	25	As per BRI Space Policy guidelines.
	14.40	28	18	As per BRI Space Policy guidelines.
	720.00	28	922	As per BRI Space Policy guidelines.
	1051.20	28	1346	As per BRI Space Policy guidelines.
	104.25	28	133	Assumed allowance: Equivalent to two quiet rooms + 1no 4 person meeting spaces per 24 people
	742.00	28	950	As existing
2585.00	2585.00	28	3309	As existing
				As existing
				As existing
				As existing
1087.9	1087.92	100	2176	Assume 20% of peak requirements in lecture theatres, 20% in seminar rooms, 20% in classrooms, 20% in computing with LSHTM Estates target occupancy rate of 53% - based on an average 10 hour contact time per week per FT student and 5hrs per PT student
517.1	517.14	100	1034	Assume 20% of peak requirements in teaching labs with LSHTM Estate target occupancy rate of 60% -- based on an average 10 hour contact time per week per FT student and 5hrs per PT student
4190	**15216.20**		**20661**	
	9038.42		12272.90	
	24254.62		**32934.35**	

	8216.75
	23432.95

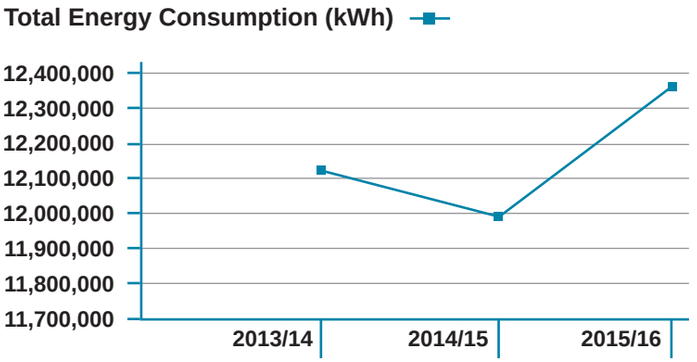
Appendix 4

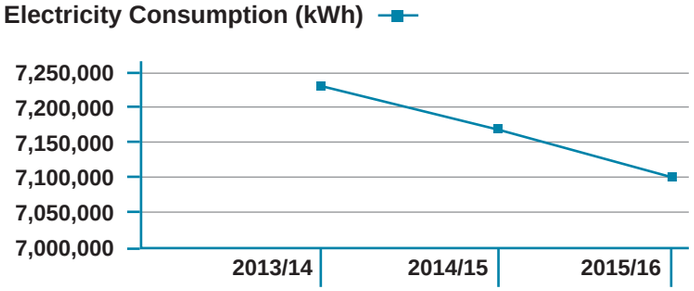
Environmental Data

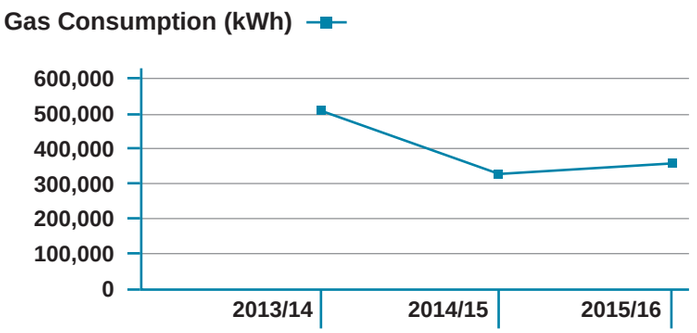
Energy Consumption Overview

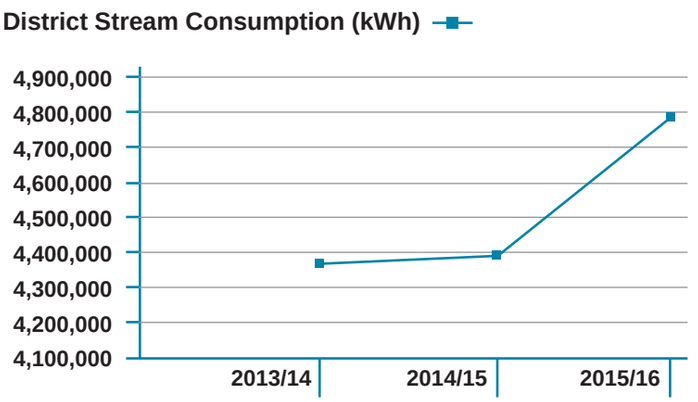
The following series of graphs shows the School's energy consumption for electricity, gas, district steam and heat. There was a general downward trend in consumption for most of the energy sources between 2013/14 & 2014/15, with the notable exception of district heat and steam. Moreover, a spike in district heat and steam consumption resulted in increased overall energy consumption in 2015/16. Hence, further work is required in understanding how efficient the heating system is and how it is utilised throughout the year.

Total Consumption









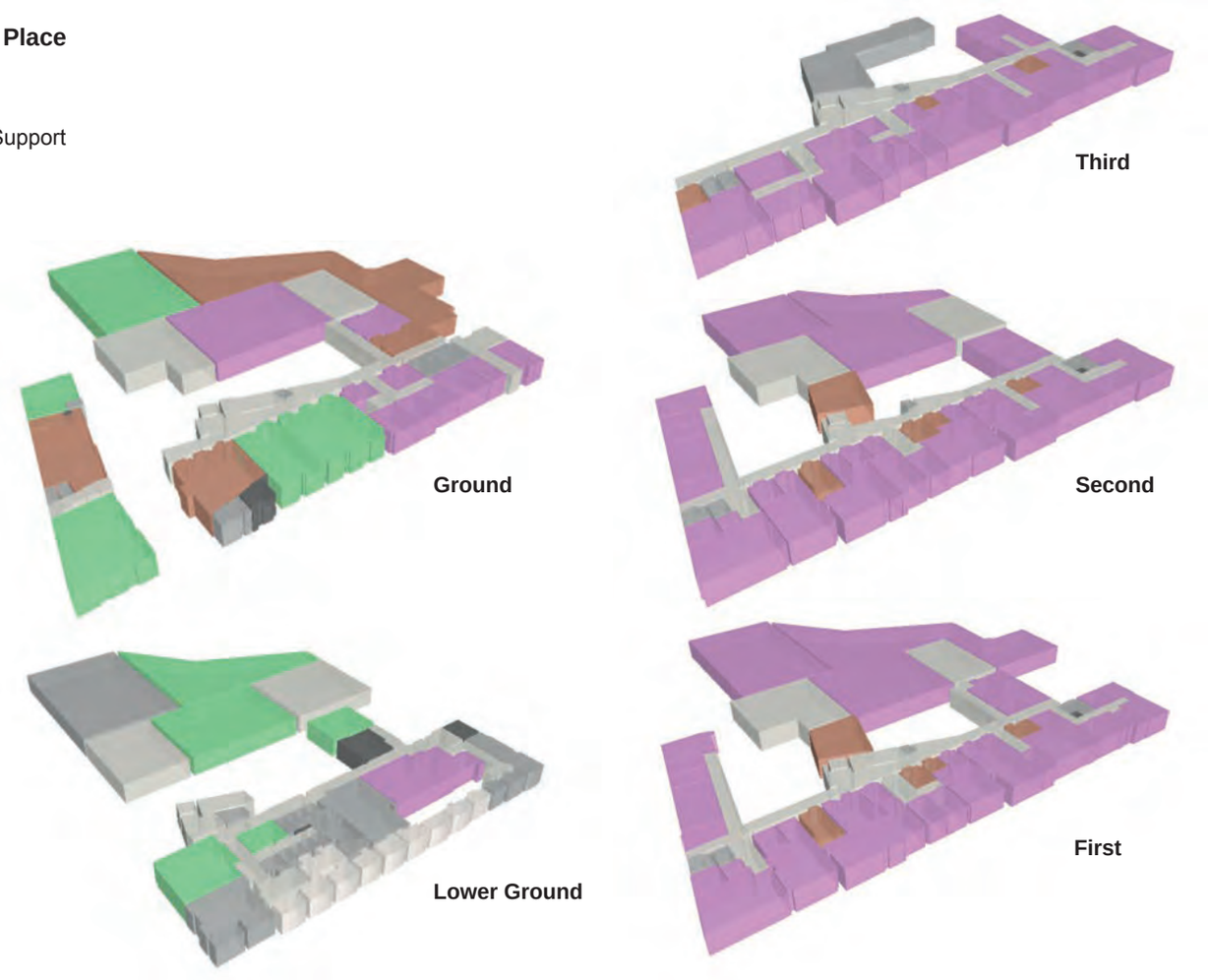
Appendix 5

Development Options

Option 3 Preferred Option

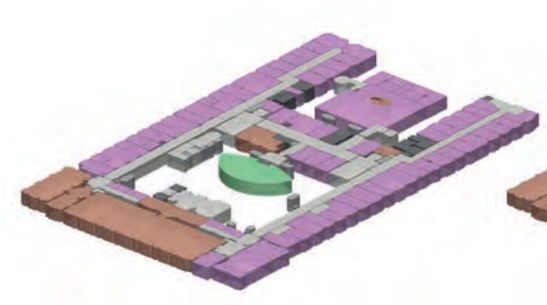
New BRI at Tavistock Place and rationalised plans for Tavistock Place

- Office - All Faculties / Write-Up / Support
- Teaching
- Labs
- Shared Space
- BSF
- Balance & Plant

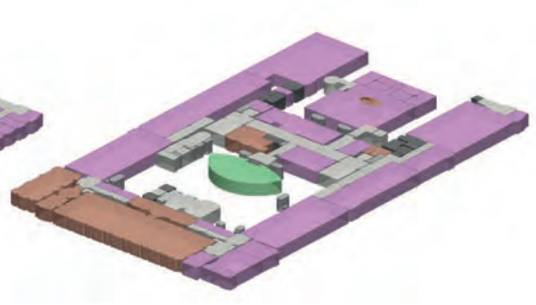


Rationalised Plans at Keppel Street

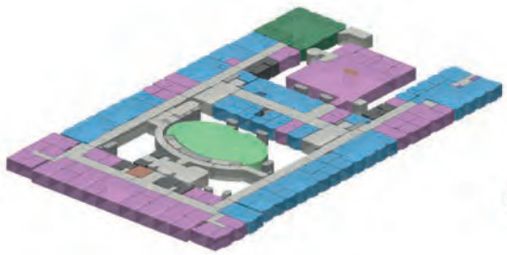
- Office - All Faculties / Write-Up / Support
- Teaching
- Labs
- Shared Space
- BSF
- Balance & Plant



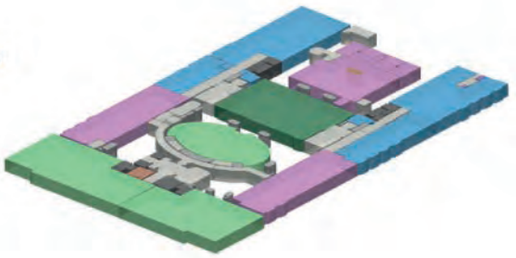
Existing Keppel Street First Floor



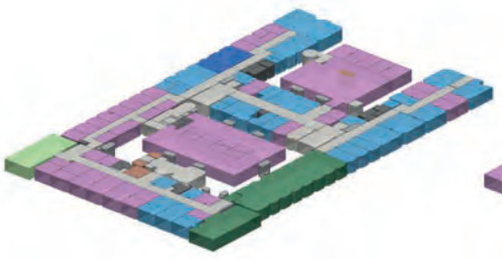
Rationalised Keppel Street First Floor



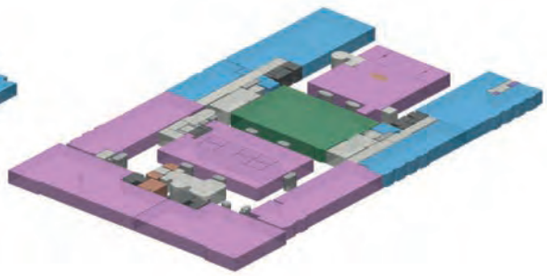
Existing Keppel Street Second Floor



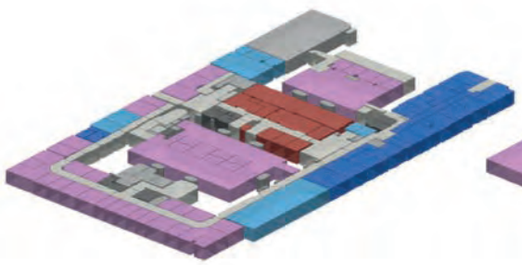
Rationalised Keppel Street Second Floor



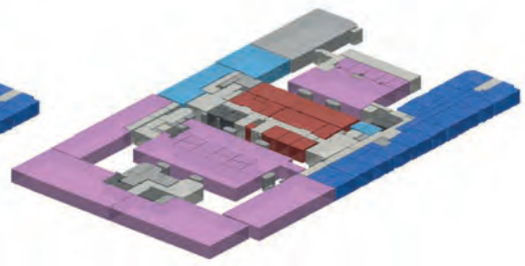
Existing Keppel Street Third Floor



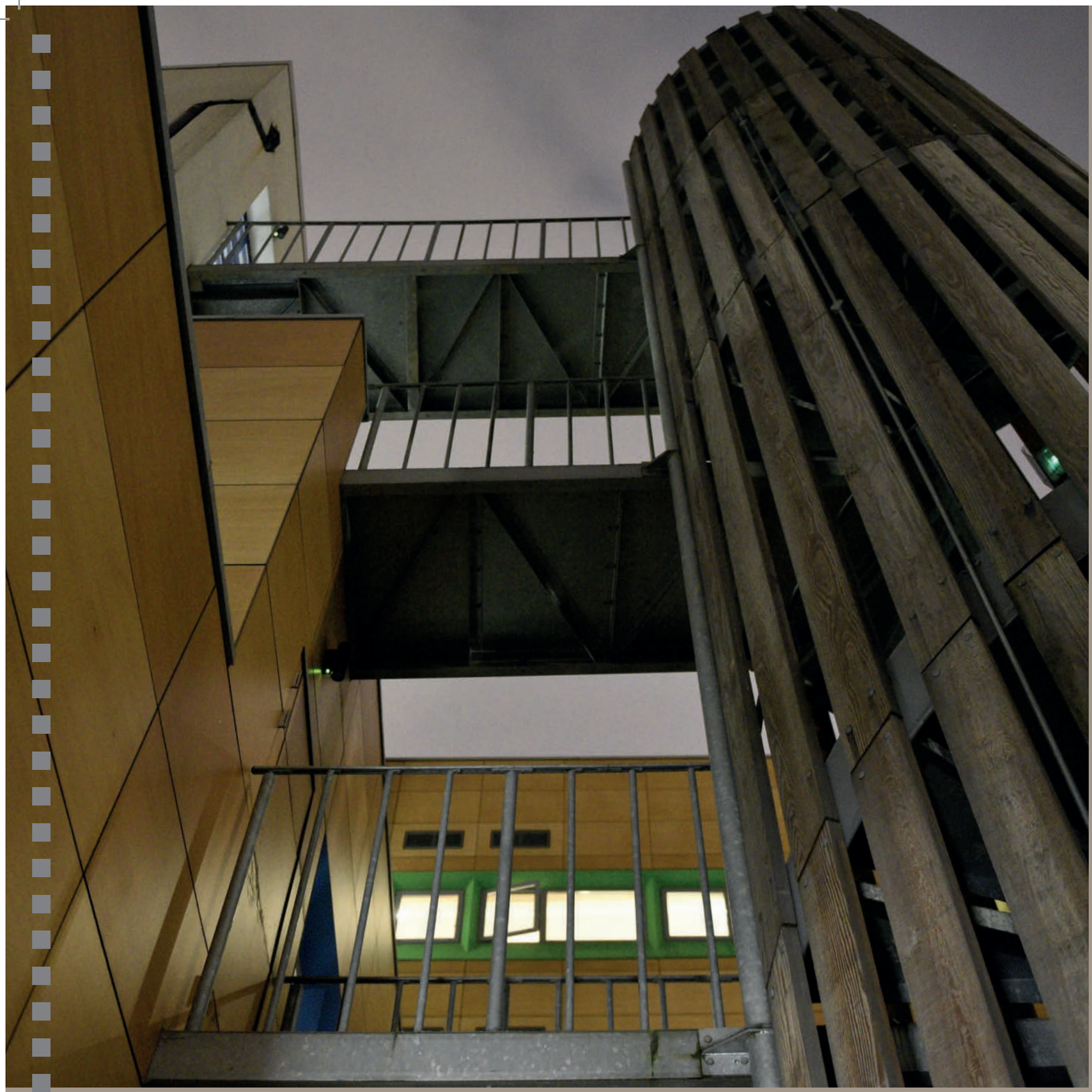
Rationalised Keppel Street Third Floor



Existing Keppel Street Fourth Floor



Rationalised Keppel Street Fourth Floor



Appendix 6

Financial Costs

Option 3 I&E Cash Flow

		0 2016/ 2017	1 2017/ 2018	2 2018/ 2019	3 2019/ 2020	4 2020/ 2021	5 2021/ 2022	6 2022/ 2023	7 2023/ 2024	8 2024/ 2025	9 2025/ 2026
Income											
Teaching Fee Income ADDITIONAL	10% per annum from base 2019-20	0	0	0	0	1,079	2,275	3,617	5,163	6,767	6,767
HEFCE Teaching Grant ADDITIONAL	£9.75K per FTE	0	0	0	0	374	789	1,255	1,791	2,348	2,348
Research Grant Income ADDITIONAL	5% pa for 5 years	0	0	0	0	4,898	9,796	14,694	19,592	24,490	24,490
HEFCE Recurrent Res Grant ADDITIONAL	19%	0	0	0	0	0	0	931	1,861	2,792	3,723
Total Income		**0**	**0**	**0**	**0**	**6,352**	**12,861**	**20,496**	**28,407**	**36,397**	**37,328**
Annual Maintenance Saving 17834m2	£47/m2	0	0	0	0	(838)	(838)	(838)	(838)	(838)	(838)
BRI Project Manager	£60K basic p a	0	79	79	79	79	79	0	0	0	0
Lifecycle costs New Build Tavistock							100	100	100	100	500
Res Grant Expenditure ADDITIONAL	89% RG Inc	0	0	0	0	4,359	8,719	13,078	17,437	21,796	21,796
Programme/Exam Board Management Costs		0	0	0	0	458	916	1,375	1,375	1,375	1,375
Direct Course Non-Staff Costs	2.5% Teaching Income	0	0	0	0	36	77	122	174	228	228
Research Grant Related Overhead	21.7% of income	0	0	0	0	1,062	2,124	3,387	4,651	5,915	6,116
F2F Teaching Overhead	82.4% of income	0	0	0	0	1,114	2,348	3,733	5,329	6,985	6,985
Teaching Efficiency & Economic Scale Savings	40% of cost					(446)	(939)	(1,493)	(2,132)	(2,794	(2,794)
Total Expenditure		**0**	**79**	**79**	**79**	**5,825**	**12,585**	**19,463**	**26,096**	**32,766**	**33,368**
Net contribution to central costs		0	(79)	(79)	(79)	527	275	1,033	2,312	3,631	3,960
Discount Factor	4.00%	1.0000	0.9615	0.9246	0.8890	0.8548	0.8219	0.7903	0.7599	0.7307	0.7026
Present value of cash flows											
Project NPV	**49,085**	**0**	**(76)**	**(73)**	**(70)**	**450**	**226**	**816**	**1,757**	**2,653**	**2,782**

10 2026/ 2027	11 2027/ 2028	12 2028/ 2029	13 2029/ 2030	14 2030/ 2031	15 2031/ 2032	16 2032/ 2033	17 2033/ 2034	18 2034/ 2035	19 2035/ 2036	20 2036/ 2037	21 2037/ 2038	22 2038/ 2039	23 2039/ 2040	24 2040/ 2041	25 2041/ 2042	27 Yr Total
6,767	6,767	6,767	6,767	6,767	6,767	6,767	6,767	6,767	6,767	6,767	6,767	6,767	6,767	6,767	6,767	133,939
2,348	2,348	2,348	2,348	2,348	2,348	2,348	2,348	2,348	2,348	2,348	2,348	2,348	2,348	2,348	2,348	46,471
24,490	24,490	24,490	24,490	24,490	24,490	24,490	24,490	24,490	24,490	24,490	24,490	24,490	24,490	24,490	24,490	489,805
4,653	4,653	4,653	4,653	4,653	4,653	4,653	4,653	4,653	4,653	4,653	4,653	4,653	4,653	4,653	4,653	83,757
38,258	**38,258**	**38,258**	**38,258**	**38,258**	**38,258**	**38,258**	**38,258**	**38,258**	**38,258**	**38,258**	**38,258**	**38,258**	**38,258**	**38,258**	**38,258**	**753,972**
(838)	(838)	(838)	(838)	(838)	(838)	(838)	(838)	(838)	(838)	(838)	(838)	(838)	(838)	(838)	(838)	(18,440)
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	396
150	150	150	150	500	150	150	150	150	500	200	200	200	200	500	250	4,650
21,796	21,796	21,796	21,796	21,796	21,796	21,796	21,796	21,796	21,796	21,796	21,796	21,796	21,796	21,796	21,796	435,926
1,375	1,375	1,375	1,375	1,375	1,375	1,375	1,375	1,375	1,375	1,375	1,375	1,375	1,375	1,375	1,375	28,866
228	228	228	228	228	228	228	228	228	228	228	228	228	228	228	228	4,510
6,318	6,318	6,318	6,318	6,318	6,318	6,318	6,318	6,318	6,318	6,318	6,318	6,318	6,318	6,318	6,318	124,348
6,985	6,985	6,985	6,985	6,985	6,985	6,985	6,985	6,985	6,985	6,985	6,985	6,985	6,985	6,985	6,985	138,252
(2,794)	(2,794)	(2,794)	(2,794)	(2,794)	(2,794)	(2,794)	(2,794)	(2,794)	(2,794)	(2,794)	(2,794)	(2,794)	(2,794)	(2,794)	(2,794)	(55,301)
33,220	**33,220**	**33,220**	**33,220**	**33,570**	**33,220**	**33,220**	**33,220**	**33,220**	**33,570**	**33,270**	**33,270**	**33,270**	**33,270**	**33,570**	**33,320**	**663,207**
5,038	5,038	5,038	5,038	4,688	5,038	5,038	5,038	5,038	4,688	4,988	4,988	4,988	4,988	4,688	4,938	90,765
0.6756	0.6496	0.6246	0.6006	0.5775	0.5553	0.5339	0.5134	0.4936	0.4746	0.4564	0.4388	0.4220	0.4057	0.3901	0.3751	
3,404	**3,273**	**3,147**	**3,026**	**2,707**	**2,798**	**2,690**	**2,587**	**2,487**	**2,225**	**2,277**	**2,189**	**2,105**	**2,024**	**1,829**	**1,852**	

Option 1

OVERALL SUMMARY - RAG Cost Report Nr 1			'Amber' Refurbishment			'Red' Refurbishment			Total Refurbishment		
			Area	£	£/m2	Area	£	£/m2	Area	£	£/m2
A	8 Bedford Square		70	46,177	663.75	- 0	- 0	-	**70**	46,177	*663.75*
B	9 Bedford Square		103	67,441	653.37	9	34,131	3,792.33	**112**	101,572	*905.11*
C	36-38 Gordon Square		835	547,289	655.44	9	14,426	1,602.89	**844**	561,715	*665.54*
D	Keppel Street		5,374	5,862,675	1,090.93	680	1,688,194	2,482.64	**6,054**	7,550,869	*1,247.25*
E	Tavistock Place		- 0	- 0	-	- 0	- 0		**-0**	-0	-
	TOTAL		**6,382**			**698**			**7,080**		
F	MEP Infrastructure Upgrade Allowance									12,309,900	*925.00*
G	Contingency allowance	10.0%		652,358	102.22		173,675	248.82		2,057,023	*290.55*
	Total Construction Costs	**£**		**7,175,940**			**1,910,426**			**22,627,256**	*3,196.03*
H	**Fees**										
	1) Design Team	15.0%								3,394,088	*479.41*
I	**Direct Contracts**										
	1) Asbestos survey									10,000	*1.41*
	2) Asbestos removal									50,000	*7.06*
	3) Asbestos management									15,000	*2.12*
	4) Validation & survey allowance									25,000	*3.53*
	5) Furniture allowance									150,000	*21.19*
	6) Allowance for wayfinder signage									10,000	*1.41*
	7) Decant									3,000,000	*423.74*
	8) Recant									3,000,000	*423.74*
	Sub total	**£**								**32,281,345**	***4,559.65***
J	**Value Added Tax**	**@ 20.00%**								6,456,269	*911.93*
	TOTAL (Current Estimate 1Q17)									**38,737,614**	***5,471.58***
K	**Inflation forecast to 1Q18**	**@ 2.00%**								774,752	*109.43*
										39,512,366	***5,581.01***

Mortimer Isaacs 30.01.17

Option 2

SPACE PLANNING OVERALL SUMMARY - RATIONALISATION Cost Report Nr 1			'Amber' Refurbishment			'Red' Refurbishment			Total Refurbishment		
			Area	£	£/m2	Area	£	£/m2	Area	£	£/m2
A	Keppel Street		12,617	11,825,132	937.24	691	1,614,747	2,336.83	**13,308**	13,439,879	*1,009.91*
B	Tavistock Place		2,416	1,492,310	617.68	4	4,285	1,071.25	**2,420**	1,497,217	*618.68*
	TOTAL		**15,033**			**695**			**15,728**		
C	MEP Infrastructure Upgrade Allowance									12,309,900	*925.00*
D	Contingency allowance	10.0%		1,331,744	88.59		161,903	232.95		2,724,700	*173.24*
	Total construction costs			**14,649,186**	**974.47**		**1,780,935**	**2,562.50**		**29,971,695**	**1,905.63**
E	**Fees**										
	1) Design Team	15.00%								4,495,754	*285.84*
F	**Direct Contracts**										
	1) Asbestos survey									10,000	*0.64*
	2) Asbestos removal									100,000	*6.36*
	3) Asbestos management									15,000	*0.95*
	4) Validation & Survey allowance									50,000	*3.18*
	5) Furniture allowance									150,000	*9.54*
	6) Allowance for isolations									35,000	*2.23*
	7) Allowance for service diversions									50,000	*3.18*
	8) AV allowance									250,000	*15.90*
	9) Allowance for wayfinder signage									10,000	*0.64*
	10) Decant									3,000,000	*190.74*
	11) Recant									3,000,000	*190.74*
	Sub total	**£**								**41,137,450**	***2,615.56***
G	**Value Added Tax**	**@ 20.00%**								8,227,490	*523.11*
	TOTAL (Current Estimate 1Q17)									**49,364,939**	***3,138.67***
H	**Inflation forecast to 1Q19**	**@ 4.00%**								1,974,598	*125.55*
										£51,339,537	***3,264.21***

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Option 3 Preferred Option

OVERALL SUMMARY - EXPANSION Cost Report Nr 1			'Amber' Refurbishment			'Red' Refurbishment			Total Refurbishment/construction		
			Area	£	£/m2	Area	£	£/m2	Area	£	£/m2
A	Keppel Street		12,617	11,825,132	937.24	691	1,614,747	2,336.83	**13,308**	13,439,879	*1,009.91*
B	Tavistock Place		2,416	1,492,310	617.68	4	4,285	1,071.25	**2,420**	1,497,217	*618.68*
C	Expansion								**4,049**	20,732,750	*5,120.46*
	TOTAL		**15,033**			**695**			**19,777**		
D	MEP Infrastructure Upgrade Allowance									12,309,900	*925.00*
E	Contingency allowance	10.0%		1,331,744	88.59		161,903	232.95		4,797,975	*242.60*
	Total construction costs	**£**		**14,649,186**	**974.47**		**1,780,935**	**2,562.50**		**52,777,720**	***2,668.64***
F	**Fees**										
	1) Design Team	15.0%								7,916,658	*400.30*
	2) Planning/Building Control									15,000	*0.76*
	Planning Consultants fees									50,000	*2.53*
G	**Direct Contracts**										
	1) Asbestos survey									10,000	*0.51*
	2) Asbestos removal									100,000	*5.06*
	3) Asbestos management									15,000	*0.76*
	4) Allowance for Section 106 costs									250,000	*12.64*
	5) Validation & Survey allowance									125,000	*6.32*
	6) Allowance for isolations									35,000	*1.77*
	7) Allowance for services diversions									125,000	*6.32*
	8) Allowance for new incoming services									250,000	*12.64*
	9) Furniture allowance									750,000	*37.92*
	10) AV allowance									500,000	*25.28*
	11) Allowance for wayfinder signage									10,000	*0.51*
	12) Decant									1,500,000	*75.85*
	13) Recant									1,500,000	*75.85*
	Sub total	**£**								**65,929,378**	***3,333.64***
I	**Value Added Tax**	**@ 20.00%**								13,185,876	*666.73*
	TOTAL (Current Estimate 1Q17)									**£79,115,254**	***4,000.37***
J	**Inflation forecast to 1Q18**	**@ 2.00%**								£3,164,610	*160.01*
										£82,279,864	***4,160.38***

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Option 4 New Build

OVERALL SUMMARY - RAG PLUS NEW BUILD Cost Report Nr 1			'Amber' Refurbishment			'Red' Refurbishment			Total Refurbishment		
			Area	£	£/m2	Area	£	£/m2	Area	£	£/m2
A	8 Bedford Square		70	46,177	663.75	0	0	-	**70**	46,177	*663.75*
B	9 Bedford Square		103	67,441	653.37	9	34,131	3,792.33	**112**	101,572	*905.11*
C	36-38 Gordon Square		835	547,289	655.44	9	14,426	1,602.89	**844**	561,715	*665.54*
D	Keppel Street		5,374	5,862,675	1,090.93	680	1,688,194	2,482.64	**6,054**	7,550,869	*1,247.25*
E	Tavistock Place		0	0	-	0	0		**0**	0	*0*
F	Expansion								**9,566**	45,438,500	*4,750.00*
	TOTAL		**6,382**			**698**			**16,646**		
F	MEP Infrastructure Upgrade Allowance									12,309,900	*925.00*
F	Contingency allowance	10.0%		652,358	102.22		173,675	248.82		6,600,873	*396.55*
	Total construction costs	**£**		**7,175,940**			**1,910,426**			**72,609,606**	***4,362.04***
G	**Fees**										
	1) Design Team	15.0%								10,891,441	654.31
	2) Planning/Building Control									15,000	0.90
	Planning Consultants fees									50,000	3.00
H	**Direct Contracts**										
	1) Asbestos survey									10,000	*0.60*
	2) Asbestos removal									50,000	*3.00*
	3) Asbestos management									15,000	*0.90*
	4) Allowance for Section 106 costs									250,000	*15.02*
	5) Validation & Survey allowance									100,000	*6.01*
	6) Allowance for isolations									35,000	*2.10*
	7) Allowance for services diversions									125,000	*7.51*
	8) Allowance for new incoming services									250,000	*15.02*
	9) Furniture allowance									1,800,000	*108.14*
	10) AV allowance									600,000	*36.05*
	11) Allowance for wayfinder signage									10,000	*0.60*
	12) Decant									3,050,000	*183.23*
	13) Recant									3,050,000	*183.23*
	Sub total	**£**								**92,911,047**	***5,581.65***
I	**Value Added Tax**	**@ 20.00%**								18,582,209	*1,116.33*
	TOTAL (Current Estimate 1Q17)									**111,493,257**	***6,697.99***
J	**Inflation forecast to 1Q18**	**@ 2.00%**								2,229,865	*133.96*
										113,723,122	***6,831.95***

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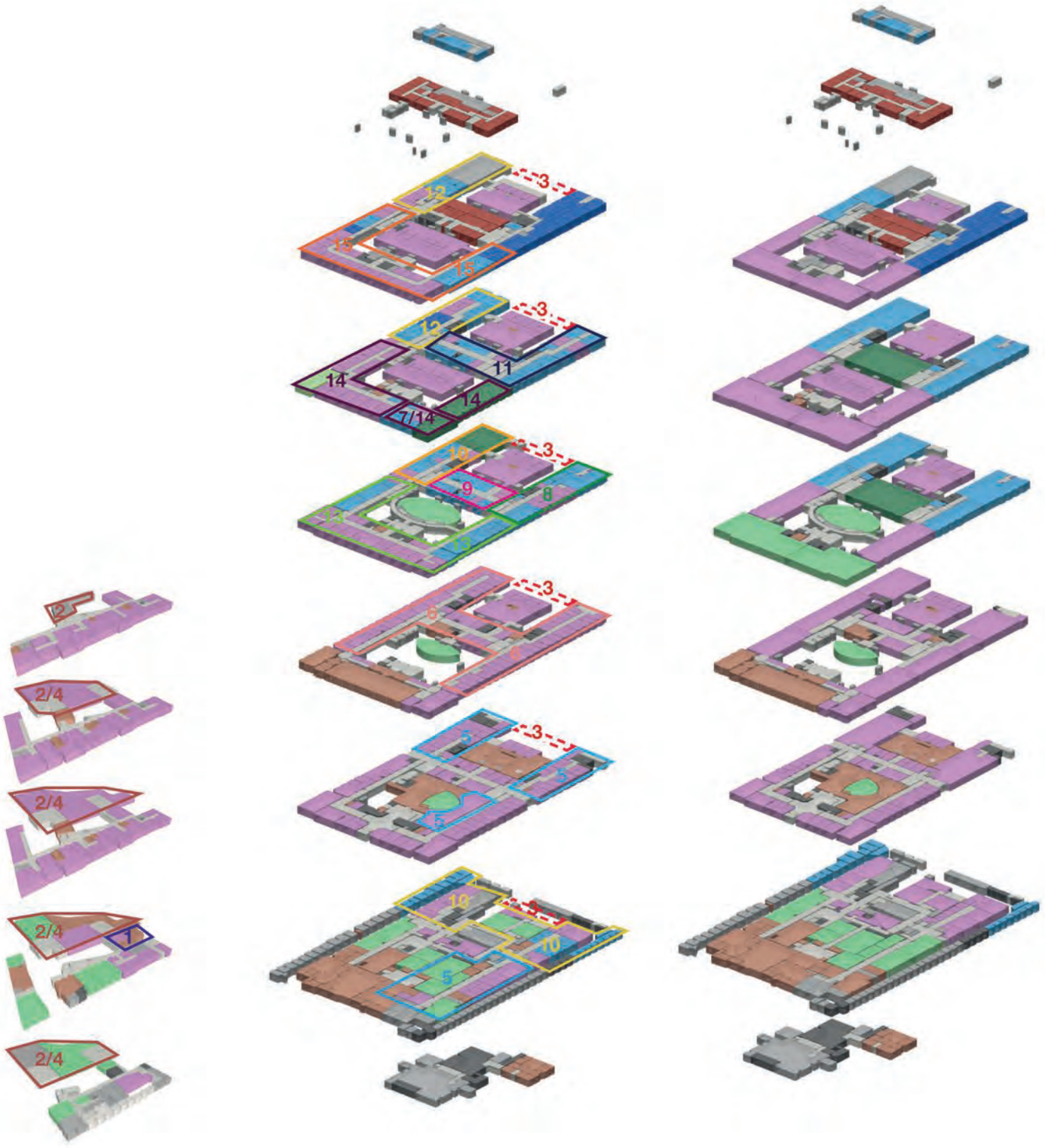
Appendix 7

High Level Implementation Programme

1. Temporary decant from Tavistock Ground Floor
2. New Build BRI
3. Keppel Street Infrastucture Upgrade to the rear of Keppel Street
4. Decant from Keppel Street into BRI - Programme Only
5. Ground Floor Rear Wing Offices and Central Shared Space
   Lower Ground Teaching, Office and Shared Space
6. First Floor Offices
7. Lab to kick off Lab Decant Phasing
8. Second Floor Rear East Labs
9. Second Floor Teaching Labs
10. Second Floor Rear West Wing Labs
    Third Floor Rear East Wing Labs
11. Third Floor Labs
    Third Floor Teaching Labs
12. Third Floor Rear West Wing Labs
    Fourth Floor Rear West Wing Labs
    Lower Ground Rear Labs and Vaults
13. Second Floor Front Offices
14. Third Floor Front Offices
15. Fourth Floor Front Offices

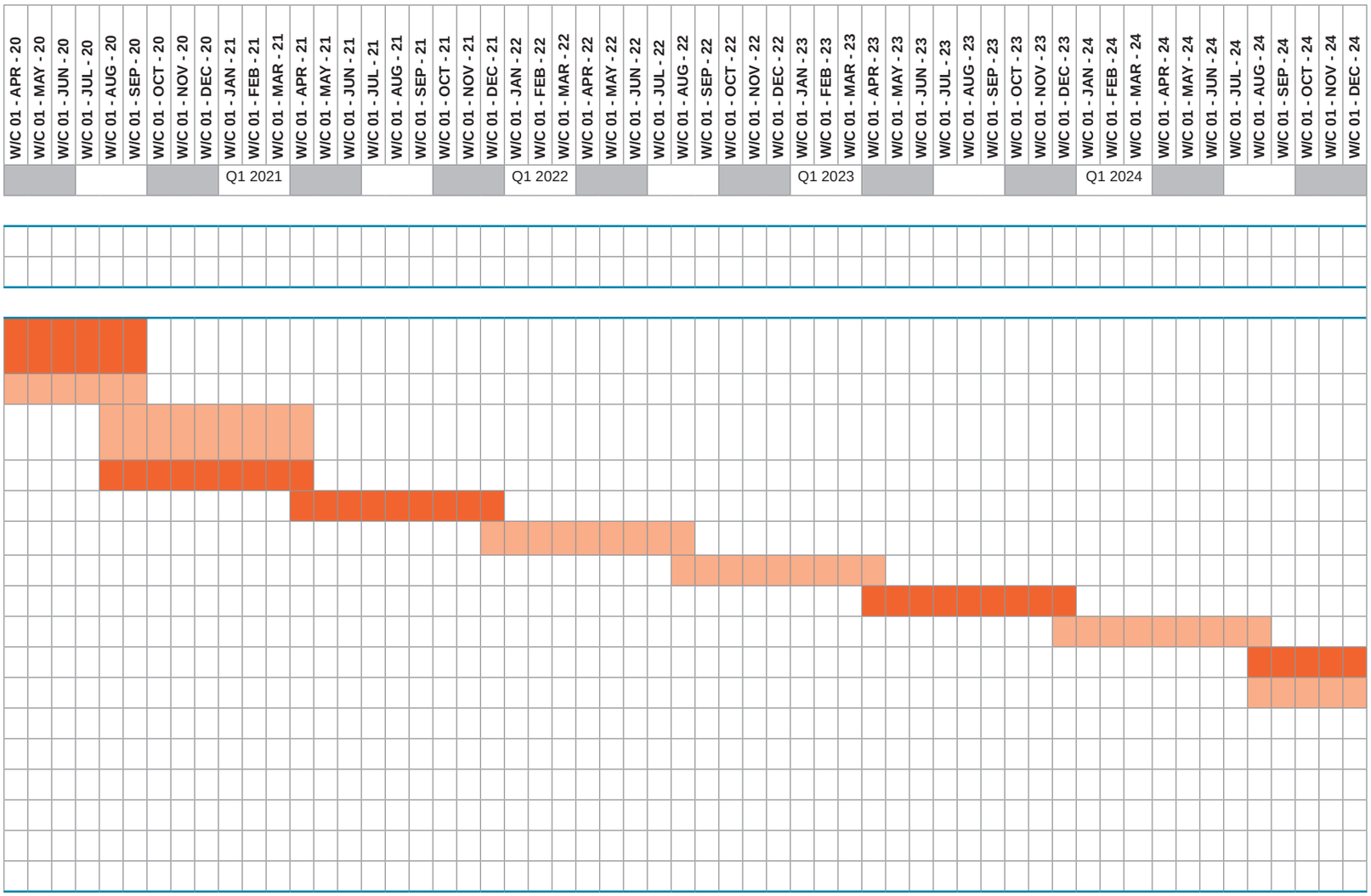
- Office - All Faculties / Write-Up / Support
- Teaching
- Labs
- Shared Space
- BSF
- Balance & Plant



Tavistock with BRI Existing Keppel Street Rationalised Keppel Street

High Level Implementation Strategy

	Month	W/C 01 - APR - 17	W/C 01 - MAY - 17	W/C 01 - JUN - 17	W/C 01 - JUL - 17	W/C 01 - AUG - 17	W/C 01 - SEP - 17	W/C 01 - OCT - 17	W/C 01 - NOV - 17	W/C 01 - DEC - 17	W/C 01 - JAN - 18	W/C 01 - FEB - 18	W/C 01 - MAR - 18	W/C 01 - APR - 18	W/C 01 - MAY - 18	W/C 01 - JUN - 18	W/C 01 - JUL - 18	W/C 01 - AUG - 18	W/C 01 - SEP - 18	W/C 01 - OCT - 18	W/C 01 - NOV - 18	W/C 01 - DEC - 18	W/C 01 - JAN - 19	W/C 01 - FEB - 19	W/C 01 - MAR - 19	W/C 01 - APR - 19	W/C 01 - MAY - 19	W/C 01 - JUN - 19	W/C 01 - JUL - 19	W/C 01 - AUG - 19	W/C 01 - SEP - 19	W/C 01 - OCT - 19	W/C 01 - NOV - 19	W/C 01 - DEC - 19	W/C 01 - JAN - 20	W/C 01 - FEB - 20	W/C 01 - MAR - 20
	Quarter	Q2 2017									Q1 2018												Q1 2019												Q1 2020		
	Tavistiock and New Build BRI																																			
1	Temporary Decant From Tavistock Ground Floor																																			
2	New Build BRI																																			
	Keppel Street Optimization																																			
3	Keppel Street Infrastructure Upgrade to rear of Keppel Street																																			
4	Decant from Keppel Street into BRI																																			
5	Ground Floor Rear Wing Offices and Central Shared Space																																			
	Lower Ground Teaching, office and Shared Space																																			
6	First Floor Offices																																			
7	Second Floor Lab for to allow Decant of Labs																																			
8	Second Floor Rear East Wing Labs																																			
9	Second Floor Teaching Labs																																			
10	Second Floor Rear West Wing Labs																																			
11	Third Floor Rear East Wing Labs																																			
	Third Floor Teaching Labs																																			
12	Third Floor Rear West Wing Labs																																			
	Fourth Floor Rear West Wing Labs																																			
	Lower Ground Rear Labs and Vaults																																			
13	Second Floor Front Offices																																			
14	14 Third Floor Front Offices																																			
15	15 Fourth Floor Front Offices																																			


W/C 01 - APR - 20
W/C 01 - MAY - 20
W/C 01 - JUN - 20
W/C 01 - JUL - 20
W/C 01 - AUG - 20
W/C 01 - SEP - 20
W/C 01 - OCT - 20
W/C 01 - NOV - 20
W/C 01 - DEC - 20
W/C 01 - JAN - 21
W/C 01 - FEB - 21
W/C 01 - MAR - 21
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W/C 01 - JUL - 24
W/C 01 - AUG - 24
W/C 01 - SEP - 24
W/C 01 - OCT - 24
W/C 01 - NOV - 24
W/C 01 - DEC - 24
Q1 2021
Q1 2022
Q1 2023
Q1 2024

	LSHTM Phased Estates Strategy Programme Month	W/C 01 - JAN - 25	W/C 01 - FEB - 25	W/C 01 - MAR - 25	W/C 01 - APR - 25	W/C 01 - MAY - 25	W/C 01 - JUN - 25	W/C 01 - JUL - 25	W/C 01 - AUG - 25	W/C 01 - SEP - 25	W/C 01 - OCT - 25	W/C 01 - NOV - 25	W/C 01 - DEC - 25	W/C 01 - JAN - 26	W/C 01 - FEB - 26	W/C 01 - MAR - 26	W/C 01 - APR - 26	W/C 01 - MAY - 26	W/C 01 - JUN - 26	W/C 01 - JUL - 26	W/C 01 - AUG - 26	W/C 01 - SEP - 26	W/C 01 - OCT - 26	W/C 01 - NOV - 26	W/C 01 - DEC - 26	W/C 01 - JAN - 27	W/C 01 - FEB - 27	W/C 01 - MAR - 27	W/C 01 - APR - 27	W/C 01 - MAY - 27	W/C 01 - JUN - 27	W/C 01 - JUL - 27	W/C 01 - AUG - 27	W/C 01 - SEP - 27	W/C 01 - OCT - 27	W/C 01 - NOV - 27	W/C 01 - DEC - 27
	Quarter	Q1 2025												Q1 2026												Q1 2027											
	Tavistiock and New Build BRI																																				
1	Temporary Decant From Tavistock Ground Floor																																				
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14	14 Third Floor Front Offices																																				
15	15 Fourth Floor Front Offices																																				

February 2017