# UCL (University College London) LIBRARIES MASTERPLAN

Masterplanning Report

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### 1 Executive Summary

BDP were appointed to undertake a Masterplan for the UCL Main Library and the UCL Science Library and to identify how these buildings could be re-ordered to significantly improve the quality of the library environment and to facilitate the delivery of library services.

An initial brief was agreed with UCL's Estates Management Committee and a Masterplan Steering Group established including academic representatives, library staff and design consultants. To inform the development of this brief, UCL Library Services undertook a number of consultation exercises with users of the Library; students, academic staff and external users, together with Library staff. A number of visits to exemplar library buildings in the UK and continental Europe were also undertaken to inform the development of options for the buildings.

Following the development and review of initial options for both the Main Library and Science Library, it was agreed a further, hypothetical New Build Central Library Option should be reviewed, to accommodate a relocated and consolidated library service encompassing 7 of the 16 existing libraries currently distributed across the UCL Estate.

The implications of the proposed public realm enhancements to Malet Place were also considered and generic proposals were developed for a library deliveries and holding area, to be implemented should this activity need to be relocated out of the UCL Science Library following completion of the public realm works.



#### **Initial Options**

Three options for the UCL Main Library, encompassing an incremental level of refurbishment and intervention, together with three options for the UCL Science Library, encompassing options for refurbishment through to redevelopment, were developed and these are summarised in the following Introduction and within Sections 4 and 5 of this report.

Architectural and engineering proposals, including sustainability measures, were developed for each option, initial construction and overall project costs estimated, and the impact of the options on maintaining continuity in library provision and the level of disruption to the Campus and community were assessed.

In addition a further "do nothing" option was reviewed for the UCL Main Library and UCL Science Library. However, this could not be considered as a viable option as it does not meet any of the brief objectives.

Indicative proposals for the New Building Central Library Option, identifying the overall space needs and general requirements of this proposed new facility, were also developed and are defined in Section 6.

Options 2 and 3 for the UCL Science Library which envisaged a high level of intervention and redevelopment were discounted prior to the final options appraisal as both these options would require the complete decant of the building. UCL confirmed that this level of decant space is not available on the campus or within the immediate vicinity.

#### **Option Appraisals**

Three options for the UCL Main Library, illustrating an incremental level of intervention, a single option for the UCL Science Library and the New Build Central Library Option, were reviewed during an appraisal workshop. During the workshop the three options for the UCL Main Library were reduced to Option 1. Options 2 and 3 which involved a greater level of physical intervention into the historic building were considered to be too disruptive to the operation of UCL, detrimental to the image of UCL and provided limited cost/benefit. The results of this appraisal workshop are illustrated in the table below and in further detail in Appendix D.

The appraisal matrix below identifies the significant benefits of the New Build Central Library Option, with this option meeting all requirements of the brief. However, the New Build Central Library Option will require a lengthy period to plan, fundraise and implement and therefore should this option be pursued, attention should be given to ensuring that the quality of the existing accommodation within the UCL Main Library and UCL Science Library does not deteriorate further. To provide an increased quality of library accommodation and ensure the existing facilities are able to respond to and deliver a modern library service, It is therefore recommended that a level of refurbishment of these existing facilities is undertaken. Where refurbishment projects resulting in more significant change are considered, e.g. the Donaldson Reading Room, the brief for these projects should be developed in response to both the need to accommodate library activities and, for longer term use, alternative functions.

Criteria	Fit to Business Objectives (Response to Brief)	Ease of Decant (Availability of decanting space)	Brand/ Image/ Wow factor / Legacy	Value For Money/Cost efficiency	ldentity / Orientation & Circulation	Quality / Variety of spaces / Flexibility	Environmental quality / sustainability/ energy use	Disruption to UCL core activities	Planning risk / Timescale / Phasing / Interim benefits	Attractiveness to major funders	Change teaching & learning experience?
Do Nothing Option								N/A	N/A		
UCL Main Library											
Option 1										excludes Donaldson	
Option 2: Not pursued as disruptive to	current operation	s, detrimental im	pact on image	and limited co	ost/benefits					includes Donaldson	
Option 3: Not pursued as disruptive to	current operation	is, detrimental imp	pact on image	and limited co	ost/benefits					includes Donaldson	
UCL Science Library											
Option 1											
Option 2: Not pursued as required deca	ant space unavaila	able									
Option 3: Not pursued as required deca	ant space unavaila	able									
Newbuild								site dependent			

#### Options Appraisal for Masterplanning activity



#### Final Options

The final options arising from the appraisal workshop include:

UCL Main Library Option 1 plus part Option 2



Option 1 includes general refurbishment of the existing accommodation with minor structural alterations to improve legibility and connectivity and incorporating the French Corridor into the Library. Limited elements of Option 2 are also incorporated, e.g. new galleries within the Donaldson Reading Room and reallocation of the Dutch Reading Room as ancillary space to the Gustave Tuck Lecture Theatre. The benefits of this option include:

- Improved access, orientation and circulation
- Increased floor area, to meet current needs, flexibility and efficiency
- Improved quality of space and internal environment
- Achieved with an acceptable level of decant, disruption and cost

It is, however, recognised that for the Library to release the area currently occupied by the Dutch Reading Room, both the French Corridor and additional floor space, i.e. new galleries within the Donaldson Reading Room will need to be provided for Library use.

A summary of the proposed space and initial project costs include:

Overall gross internal floor area	4220 m <sup>2</sup>
% increase in gross internal floor area	6.2 %
Average cost per m <sup>2</sup>	£4500/m <sup>2</sup>
(costs per m <sup>2</sup> vary between the Octagon at £2170/m <sup>2</sup>	
And the Donaldson Reading Room at £5560/m <sup>2</sup> )	
Total Project Cost	£17.2m

(the overall gross internal floor area includes the recently refurbished South Junction, but this area is excluded from the total project cost)

It should be noted that this option allows for a phased implementation, permitting a progressive increase in both the quality and area of accommodation provided. It is anticipated that the first phase would encompass the Donaldson Reading Room and the Octagon. To maximise the opportunity for fundraising, it would therefore be beneficial to defer any proposals to modify either the Octagon or the Donaldson Reading Room until a fully developed project can be implemented



New Build Central Library Option

Option 1 includes the comprehensive refurbishment of the existing accommodation but excludes any new roof level accommodation as the construction of this new accommodation was identified as unacceptable in terms of disruption. The benefits of this option include:

- Improved ground floor access and facilities
- Increased flexibility and efficiency

UCL Science Library Modified Option 1

- Improved quality of space and internal environment
- Achieved with an acceptable level of decant and disruption, and cost. •

A summary of the proposed space and initial project costs include:	
Overall internal gross floor area	5307 m <sup>2</sup>
(including a basement area of 1050 m <sup>2</sup> )	
% increase in internal gross floor area	0 %
Cost per m <sup>2</sup>	£4720/m <sup>2</sup>
Total Project Cost	£25m

This option could also include expansion into the space currently occupied by the Petrie Museum, following its relocation. However the additional gross internal floor area of 540 m<sup>2</sup> is currently excluded from the above summary together with any associated costs.

This option provides an opportunity to relocate the majority of the library services with no intermediate decanting into a new building. This new building will benefit from an environment designed specifically for delivering current and future library services together with the operational efficiencies that will arise from a centralised library service. Whilst no specific site has been identified for this option, an illustration of the scale of this new building on a number of sites within the UCL campus is provided in Section 6 of this report.

Overall internal gross floor area Proposed % decrease from existin Cost per m<sup>2</sup> **Total Project Cost** (assuming an on campus site re purchase costs)

It is anticipated that the proposed floor area for the New Build Central Library Option will be less than the combined floor areas of the existing site libraries to be relocated into the new building. Increased efficiencies and principal benefits include:

- with the existing buildings
- plates
- •
- . provide new and developing library services
- reduced maintenance and running costs •
- seven existing library sites available for reallocation .

The basis for the calculation of the above % decrease in existing internal gross floor area is identified in Section 6. However, should this option be adopted by UCL, further analysis of the efficiency of existing buildings and the development of a brief for the new building will be necessary prior to confirming space requirements.



A summary of the proposed space and initial project costs include:

	12300 m <sup>2</sup>
ng internal gross floor area	5%
	£5244/m <sup>2</sup>
	£64.5m
equiring a level of site clearance	and with no

• an improved net to gross floor area ratio for a new building in comparison

greater level of flexibility and efficiency of new, purpose designed floor

reduction in space needs through combining operational activities, e.g. a single reception and issue desk in lieu of the existing seven separate facilities increased operational efficiencies, permitting resources to be reallocated to

## 2 Introduction

The Masterplan commissioned by UCL provides a significant opportunity to review the potential of the two principal libraries at UCL, the Main Library and the Science Library. The study defines how these buildings can be re-ordered to substantially improve the quality the library environment and to facilitate the delivery of library services, for the benefit of the UCL community and to promote the international standing of the University.

UCL Library Services prepared an initial brief for the Masterplan commission for the Main Library, within the Grade I listed Wilkins Building and the Science Library, within the 1930's DMS Watson Building. The initial brief was agreed with UCL's Estates Management Committee and is included in Appendix A. Primary elements of this brief which have informed the development of options for both the Main Library and the Science Library, include:

- improve spatial organisation and circulation
- improve orientation, legibility and connectivity within the library spaces
- increase library floor space, through sensitive refurbishment
- create flexible, adaptable and fully accessible spaces, to accommodate future change
- create a variety of study spaces
- integrate sustainable, energy efficient and readily maintainable building services
- consider phasing and implementation

A Masterplan Steering Group including academic representatives, library staff and design team members was established and included:

- Prof. Michael Worton Vice-Provost (Academic and International)
- Prof. Peter Mobbs Dean of the Faculty of Life Sciences
- Dr. Paul Ayris Director of Library Services
- Ms. Elizabeth Chapman Deputy Director of Library Services
- Mrs. Janet Percival Senior Sub-Librarian
- Mr. Benjamin Meunier, Assistant Librarian
- David Bannister Head of Design Services, UCL Estates & Facilities Division

Architects BDP were commissioned in the Spring of 2007 to undertake the study and were supported during the development of the Masterplan with further design disciplines including Environmental Engineering (BDP), Structural Engineering (Martin Stockley Associates) and Cost Consultancy (Gardiner and Theobald). To inform the development of the Masterplan brief, UCL Library Services undertook a number of consultation exercises with users of the libraries; students, academic staff and external users, together with library staff. This consultation included a review of current facilities together with a survey to identify opportunities for improving the quality of the buildings and the service provided.

The results of the students' survey are included in Appendix B.

As part of the review process of the brief and to inform the development of options for the two libraries, a number of exemplar library buildings in Copenhagen, Malmö, the Saltire Centre in Glasgow and several libraries in Cambridge were visited by members of the Masterplan Steering Group. These visits identified a number of key issues including the importance of:

- identity and image
- clarity to the organisation
- a variety of study spaces
- ease of access between reference material and study space
- quality of natural and artificial lighting
- quality of acoustics, internal comfort and environment

Following an initial review of options for both the Main and Science Libraries, an interim Masterplan Report was issued to the UCL Estates Management Committee recommending that the scope of the masterplanning exercise be expanded to consider a further, hypothetical New Build Central Library Option to accommodate a relocated and consolidated library service, encompassing 7 of the 16 existing libraries currently distributed across the UCL Estate and including:

- 1. UCL Main Library
- 2. UCL Science Library
- 3. UCL Eastman Dental Institute Library
- 4. UCL Institute of Archaeology Library
- 5. UCL Environmental Studies Library
- 6. UCL Cruciform Library
- 7. UCL Human Communications Science Library

The implications of the proposed public realm enhancements to Malet Place were also considered and generic proposals for a library delivery and handling area, currently accommodated in the Science Library and requiring regular vehicle deliveries, have been reviewed and are included in this report. This revised brief was agreed by UCL's Estates Management Committee and the Interim Report is included in Appendix C. Initial options for refurbishment and transformation of the libraries have been considered, together with a further option to redevelop the site of the Science Library. Three preferred options for each building, demonstrating an incremental level of intervention and modification were subject to further design development and these options, together with the new building, New Build Central Library Option, are included within this report and summarised in the following section.

In addition to the above options a "Base Option" for both the Main Library and the Science Library, representing a basic level of refurbishment of existing facilities has been included in the Cost Report for cost comparison purposes, together with generic proposals for a library materials handling area.

#### UCL Main Library 2.1

Located within the first and second floors of the Grade I listed Wilkins Building, the Main Library houses materials in the Arts, Humanities and some Social Sciences.

Whilst a project to enhance the presence of the Library at ground floor level and to provide improved stair and lift access between the ground, first and second floors has recently been undertaken, there remains a number of significant shortcomings with the current organisation and guality of the library environment including:

- poor access, orientation and circulation
- limited flexibility and efficiency of library floors .
- limited variety of study space and lack of group study spaces
- poor quality of internal comfort and environment

To address the project brief and the shortcomings of the building a number of options, with incremental levels of intervention, have been developed which include:

Option 1:

General refurbishment and including the removal of internal walls and the provision of openings within the second floor, to the North and South Wings. This option also incorporates and refurbishes the French Corridor, at second floor level within the North Wing. % increase in gross floor area 5.5%

#### Option 2:

As Option 1 and including the insertion of new galleries within the Donaldson Reading Room and the part removal and insertion of new mezzanine floors within the North and South Wings. This option also includes the re-allocation of space within the Dutch Reading Room, at first floor level within the South Junction for alternative uses associated with the Gustave Tuck Lecture Theatre (subject of a separate feasibility study by BDP).

13.8%

% increase in gross floor area

#### • Option 3:

As Option 2 and including an alternative arrangement for the proposed galleries within the Donaldson Reading Room, the removal of a significant portion of the existing second floor and the insertion of new larger mezzanine floors within the North and South Wings, and the provision of a new, simplified roof over the North and South Wings % increase in gross floor area 19%

Whilst the above three options encompass the whole of the library, as the building can be separated into six parts, the options provide a "shopping list" and it is generally possible to choose an option for one part of the building e.g. within Option 3 and accommodate this scope of work within Option 1 or 2. Typical examples include:

- Re-allocating the use of the Dutch Reading Room can be either omitted or included within Options 1, 2 & 3.
- The proposed galleries within the Donaldson Reading Room can be accommodated within Options 1, 2 and 3.
- The proposed new roof over the North and South Wings can be accommodated within Options 1, 2 and 3.

An initial review of the structural implications and possible sequencing of the works, together with initial structural engineering proposals for these options is included in a separate structural engineering report.

Initial environmental engineering proposals for these options are included in a separate Environmental Engineering Report. However, these proposals generally encompass:

- A mixed mode ventilation strategy, utilising natural ventilation where possible to limit use of energy, whilst also providing a mechanical ventilation and cooling infrastructure within the building to accommodate varied use and climatic conditions.
- New mechanical ventilation and cooling will be utilised to accommodate high . levels of occupancy and associated levels of IT use, during periods of high external air temperatures and where external pollution, e.g. dust, results in a detrimental impact on library material and facilities.
- Use of night-time cooling associated with the benefits of the thermal mass of the building and heat recovery from mechanical ventilation.
- Internal/external solar shading to reduce solar gain and glare.
- New heating, cooling, power and IT infrastructure.

As the primary generation of heating and cooling is provided by centralised plant, this aspect of the building services is outside the scope of this study. However, a number of options to reduce carbon emissions related to primary generation are included within the building services report. Whilst these measures would assist in reducing the carbon emissions from both the Main and Science Libraries these proposals should be considered in conjunction with the overall Estate Strategy.

The extent of decanting and disruption related to each option is summarised below in the report. However, this generally entails the decanting of library space at both levels within the area of the Wilkins Building being refurbished together with non-library space immediately below this area. With high levels of intervention, e.g. Options 2 and 3 for the North and South Wings, a greater level of decanting including the ground floor in adjacent areas would also be required.

again identified in the report.

An initial review of the range of construction and overall project costs for the options are included in a separate cost report and are summarised below:

Main Library Option 1 **Total Project Cost** 

Main Library Option 2 **Total Project Cost** 

Main Library Option 3 **Total Project Cost** 

inflation

Initial proposals for undertaking the phased implementation of the refurbishment of the Main Library have been reviewed and proposals for establishing a construction site area and contractor's compound, e.g. in the Physics Yard, are

> £4000/m<sup>2</sup> to £4600/m<sup>2</sup> £16.9m to £19.4m

> £4600/m<sup>2</sup> to £5200/m<sup>2</sup> £21.6m to £24.4m

> $\pm 5800/m^2$  to  $\pm 6200/m^2$ £28.1m to £30.0m

These costs include construction, decanting, fees, expenses and VAT but exclude

#### 2.2 UCL Science Library

Located within the 1930s DMS Watson Building, the estate is a former warehouse and accommodates a variety of collections ranging from physics, mathematics, management, engineering and medical sciences, to chemistry, anthropology, astronomy, geology, geography, biology, zoology, botany and psychology.

Whilst the building is a robust structure with library facilities provided over 5 floors and one basement level, there are a number of significant shortcomings with the current organisation and quality of the library facilities including:

- split floor levels with poor horizontal and vertical access, orientation and circulation
- limited flexibility and efficiency of library floors
- limited variety of study space, including group study
- poor quality of internal comfort and environment
- basement unfit for book storage, study spaces or staff facilities

To address the project brief and the shortcomings of the building a number of options, with incremental levels of intervention, have been developed which include:

#### Option 1:

General refurbishment and including the removal of internal walls, the opening up of light wells to provide internal atria, new rooftop accommodation and the provision of a new vertical access and building services infrastructure

% increase in gross floor area 13%

Option 2:

As Option 1 but including a significant level of structural intervention to create a single, larger atrium and spacious entrance volume, together with three additional floors added at roof level and the redevelopment of the Petrie Museum with a new building over the ground floor energy centre to the equivalent height of the enlarged Science Building 138%

% increase in gross floor area

#### Option 3:

The demolition of the existing building and the construction of a new library over 9 floors and one basement level together with the redevelopment of the Petrie Museum with a new building over the ground floor energy centre to the same height as Option 2.

159% % increase in gross floor area

An initial review of the structural implications, together with initial structural engineering proposals for these options is included in a separate structural engineering report. The level of structural intervention in Option 2 and the redevelopment of the Petrie Museum with a new building over the ground floor energy centre represent significant engineering challenges.

Initial environmental engineering proposals for these options are included in a separate Environmental Engineering Report. However, these proposals generally encompass:

- A mixed mode ventilation strategy, utilising natural ventilation where possible to limit use of energy, whilst also providing a mechanical ventilation and cooling infrastructure within the building to accommodate varied use and climatic conditions.
- New mechanical ventilation and cooling will be utilised to accommodate high levels of occupancy and associated levels of IT use, during periods of high external air temperatures and where external pollution, eg dust, results in a detrimental impact on library material and facilities
- Use of night-time cooling and the thermal mass of the building and heat recovery from mechanical ventilation.
- Internal/external solar shading to reduce solar gain and glare.
- New heating, cooling, power and IT infrastructure.

The extent of decanting and disruption relative to each of the above options is summarised below in the report. However, with the exception of Option 1, this generally entails the decanting of all library activities at all levels within the DMS Watson Building. Options will also impact on the current activities within and access to the Petrie Museum. UCL advises that alternative accommodation for material storage, display and study space for the whole Science Library is not available within reasonable travelling distance.

Initial proposals for undertaking the phased implementation of refurbishment of the Science Library have been reviewed and initial proposals for establishing a construction site area and contractor's compound are again identified in the report. All Options will require a level of maintained access for contractor's deliveries along Malet Place and will result in a level of disturbance and disruption to adjacent buildings. Options 2 and 3, involving demolition activities and a significant element of new construction, will result in an increased requirement for access and a corresponding increased level of disruption and disturbance.

An initial review of the range of construction and overall project costs for the options are included in a separate cost report and are summarised below.

Science Library Option 1 **Total Project Cost** 

Science Library Option 2 **Total Project Cost** 

Science Library Option 3 **Total Project Cost** 

inflation

£4750/m<sup>2</sup> £25.4m £5320/m<sup>2</sup> £62.2m £5920/m<sup>2</sup> £72.8m

These costs include construction, decanting, fees, expenses and VAT but exclude

### 2.3 New Build Central Library Option

Following the review of the options for the Main Library and, more particularly, the Science Library which identified high levels of decanting and disturbance, an alternative New Build Central Library Option was also considered.

Whilst no specific site was identified, the advantages of relocating the majority of UCL Library Services within one building were recognised.

A New Build Central Library option would have the following attributes:

- purpose built facility to accommodate the majority of Library Services.
- a site and building with an identity and image appropriate to the Library of a major international university.
- significant benefits in the provision of library services and operational efficiencies arising with co-location.
- significant benefits in the increased operational efficiencies obtained with co-location of these libraries.
- a floor area equivalent to 95% of the existing libraries to be relocated and reflecting the increased efficiency that would be achieved with a new building when compared with existing buildings.
- a building specifically designed to deliver a modern library service and with flexibility to accommodate future change.
- reduced level of decanting, with Libraries remaining in their current location and moved into a completed, new building resulting in minimal disruption and disturbance to Library Services.

The operational advantages and increases in operational efficiencies are identified separately in the Library Report, issued separately by UCL Library Services.

It is recognised that a centralised library would need to be located within close proximity to the main campus and, whilst no specific site has been identified, examples of the scale of this new building on sites currently owned by the University are provided for illustrative purposes only.

For the purpose of developing a costed New Build Central Library Option, the general scale and organisation of Option 3 for the Science Building has been used. Similarly, the structural and environmental engineering proposals for this option have also been utilised.

An initial review of the range of construction and overall project costs for this option is included in a separate cost report is summarised below:

New Build New Build Central Library Option Total Project Cost £5200 to £10200/ m<sup>2</sup> £64.5m to 125.4m

These costs include construction, fees, expenses, demolition and site clearance, decanting and VAT but exclude inflation.

#### 2.4 **Option Appraisals**

Options 2 and 3 for the Science Library, which included a high level of intervention and the redevelopment of the Science Library site were discounted prior to the final options appraisal as both these options required the complete relocation of the Library for the duration of the building works. It was confirmed by the University that this level of decant space, for both shelving and study, is not available within the campus or commercially available within a reasonable walking distance of the campus.

Three options for the Main Library, illustrating an incremental level of intervention, a single option for the Science Library and the New Build Central Library Option, were therefore reviewed during an appraisal workshop held by the Masterplan Steering Group. Each option was measured against a number of predetermined criteria to evaluate the relative merits of each option. The results of this workshop, the criteria used in the evaluation process and the scoring matrixes are included in Appendix D.

During the appraisal workshop the three options for the Main Library were reduced to a single option as Options 2 and 3 were considered to be too disruptive to the operation of UCL, detrimental to the image of UCL and provided limited cost/benefits.

A number of modifications were also considered for Option 1 for the Science Library including the addition of 1, 2 and 3 floors of new rooftop accommodation. However to provide sufficient new space to accommodate a part consolidated library service, eg. including 5 site libraries, excluding the Main Library would require the maximum three additional floors that can be accommodated above the existing structure. This level of new construction over an occupied building was considered too disruptive to the ongoing operation of the Library and its ability to provide an appropriate Library environment for reference and study. A further summary of the level of consolidated library that can be achieved with the addition of 1, 2 and 3 floors is provided in the section detailing the Science Library options.

The final options reviewed during the appraisal workshop for the Main Library and Science Library, together with the New Build Central Library Option therefore included:

#### Main Library Option 1 plus part Option 2

Option 1 but including limited elements of Option 2 i.e. new galleries within the Donaldson Reading Room and re-allocation of the Dutch Reading Room as ancillary space to the Gustave Tuck Lecture Theatre. The benefits of this option include:

- Improved orientation
- Increased floor area, flexibility and efficiency
- Improved guality of space and internal environment
- Achieved with an acceptable level of decant, disruption and cost

It is, however, recognised that for the Library to release the area currently occupied by the Dutch Reading Room, both the French Corridor and additional floor space, i.e. new galleries within the Donaldson Reading Room will need to be provided for Library use.

A summary of the proposed space and initial project costs include:

Overall gross internal floor area	4220 m <sup>2</sup>
% increase in gross internal floor area	6.2 %
Cost per m <sup>2</sup>	£4500/m <sup>2</sup>
Total Project Cost	£17.2m
(the event) mean internal floor area includes the recently refurb	alabad Coutb

(the overall gross internal floor area includes the recently refurbished South Junction, but this area is excluded from the total project cost)

#### Science Library Modified Option 1

Option 1 with the omission of new roof level accommodation, where the construction of this new accommodation is identified as unacceptable in terms of disruption, combined with expansion into the space currently occupied by the Petrie Museum following its relocation. The benefits of this option include:

- Improved ground floor access and facilities
- Increased flexibility and efficiency
- Improved quality of space and internal environment
- Achieved with an acceptable level of decant and disruption, and cost.

A summary of the proposed space and initial project costs include:

Overall internal gross floor area	5307 m <sup>2</sup>
(including a basement area of 1050 m <sup>2</sup> )	
% increase in internal gross floor area	0 %
Cost per m <sup>2</sup>	£4720/m <sup>2</sup>
Total Project Cost	£25m

New Build Central Library Option This option provides an opportunity to relocate the majority of UCL Library Services with no intermediate decanting into a new building. This new building will benefit from an environment designed specifically for delivering current and future Library Services together with the operational efficiencies that will arise from a centralised library service.

A summary of the proposed space and initial project costs include:

Overall internal gross floor area % decrease from existing interna Cost per m<sup>2</sup>

Total Project Cost (on-campus sit

on the basis of the following:

- library: 9186 m<sup>2</sup>
- 30 % gross to net floor area utilisation for existing library buildings (based on gross to net calculations for the Main Library)
- 25 % gross to net floor area utilisation for a typical new library building
- new buildings: 850 m<sup>2</sup>

separate Cost Report.

	12300 m <sup>2</sup>
l gross floor area	5%
	£5244/m <sup>2</sup>
te)	£64.5m

An initial assessment of the % decrease in existing floor area has been calculated

current net usable floor area of the libraries to be relocated into a central

Corresponding reduction in gross internal floor area between existing and

The above costs include construction, decanting, fees and expenses but exclude inflation and VAT. A complete list of assumptions and exclusions are provided in a

## 3 Brief

#### 3.1 Introduction

BDP Architects were commissioned in spring 2007 to develop the Masterplan study for the Main Library, housed within the Grade I listed Wilkins Building and the Science Library, located in the 1930's DMS Watson Building. The following design disciplines were later commissioned to assist in the review and development of the design proposals:

BDP

- Environmental Engineering
- Structural Engineering Martin Stockley Associates
  - Cost Consultancy Gardiner & Theobald

UCL Library Services prepared an initial brief for the Masterplan commission for the UCL Main Library, within the Grade I listed Wilkins Building and the UCL Science Library, within the 1930's DMS Watson Building. The initial brief was agreed with UCL's Estates Management Committee and is included in Appendix A. This document has informed the development of the initial options for both the Main Library and the Science Library; key objectives of this brief included:

- The refurbishment of UCL Main Library and the Science Library.
- The requirement for high quality, contemporary design.
- The provision of a suitable level of accommodation for the paper collections and a satisfactory environment for readers and staff.
- The provision of high levels of IT infrastructure, particularly in the UCL Main Library.
- Efficient design solutions in terms of space efficiency and sensitivity to the historic character of the Wilkins Building.

A discussion of Library Business Objectives was also included, which set out the underlying difference in service provision between the two libraries:

- The Main Library is dedicated to a predominantly paper-based delivery of its services and this is expected to remain unchanged in the foreseeable future
- In the Science Library, electronic delivery has a much greater potential for transforming the way curriculum and research are supported.

These business objectives are summarised as follows:

- A better balance in the provision of
  - o public reader study spaces
  - o open access to paper collections
  - o IT provision
- The provision of adequate environmental conditions and a sustainable services infrastructure, including power, data, mechanical ventilation, heating/cooling and lighting
- The provision of spaces and infrastructure that are flexible enough to accept future change
- A discussion on how technology can impact on the service provision by the Library
- A consideration of what new services can be offered to users and staff
- The necessity of maintaining continuity of service provision during any transformation of the Libraries
- A requirement to achieve high approval ratings with the users as well as with international benchmarks

A Masterplan Steering Group including academic representatives, library staff and design team members was formed and held fortnightly meetings throughout the second half of 2007, aimed at reviewing the brief, refining the Library's requirements and developing a strategy for phasing and implementation of the projects. The Steering Group included the following members:

- Prof. Michael Worton Vice-Provost (Academic and International)
- Prof. Peter Mobbs Dean of the Faculty of Life Sciences
- Dr. Paul Ayris Director of Library Services
- Ms. Elizabeth Chapman Deputy Director of Library Services
- Mrs. Janet Percival Senior Sub-Librarian
- Mr. Benjamin Meunier, Assistant Librarian
- David Bannister Head of Design Services, UCL Estates & Facilities Division



Aerial view of UCL Campus from south-east

### 3.2 Review of the Brief

As part of the review process of the brief and to inform the development of options for the two Libraries, a number of exemplar library buildings were visited by members of the Masterplan Steering Group. These buildings included:

Glasgow (UK):	Saltire Centre by BDP		
Cambridge (UK):	Squire Law Library by Sir Norman Foster		
	Seeley History Library by Sir James Stirling		
	Gonville and Caius College Library, refurbished in 1996		
	Library of the Faculty of Education by BDP		
Copenhagen (Denmark):	University Library South by Dissing + Weitling a/s		
	(Faculty Library for the Humanities)		
	University Library City (Faculty Library for Social		
	Sciences)		
	The "Black Diamond" Royal Library by Schmidt,		
	Hammer & Lassen (Denmark's National Library and		
	reading rooms/special collections of the University		
	Library)		
Malmö (Sweden):	City Library by Henning Larsen		

These visits proved very valuable in the identification of key qualitative and organisational issues including:

- identity and image, generated by the quality of the building •
- clarity to the organisation, orientation and circulation in the library interiors
- a variety of study spaces, for both individuals and for group study
- ease of access between reference material and study space
- quality of natural and artificial lighting .
- quality of acoustics, internal comfort and environment
- books management and automatisation of lending, return and reshelving processes

To inform the development of the Masterplan brief, UCL Library Services undertook a number of consultation exercises with users of the library service, students, academic staff and external users, together with library staff. This consultation included a review of current facilities together with a consultation in early 2007 among library staff and users of the library, students, academic staff and external users, to ascertain their perception of the current facilities and to identify opportunities for improving the quality of the buildings and the service provided. The results of this survey are available on UCL's website at the link http://www.ucl.ac.uk/library/buildsurvey2007.shtml and are included in Appendix B of this Report.

The survey was completed by 2940 people, mostly users of the Main Library and Science Library buildings. A number of key items were identified in terms of satisfaction or dissatisfaction with the current facilities and services including:

- Provision of space for bookshelves, accessing them and reader areas rated relatively highly
- Provision of space for computers and groupwork rooms rated at the bottom of the scale
- Provision of computers and facilities to plug in laptops rated relatively low •
- The quality of the Libraries' environment was generally rated highly, particularly in terms of safety and lighting. Ventilation was however rated at the bottom of this group
- Furnishings were rated generally highly, with a notable dip in the satisfaction for the availability of informal seating

Four priorities were identified as arising from this consultation:

- Provision of quiet areas for silent work 0
- Provision of small, intimate reading rooms 0
- 0 Provision of additional space for readers seating
- Requirement to organise the collections more logically 0



Saltire Centre Library by BDP, Glasgow. Space and Technology: variety of informal areas in the library's main space





Seeley History Library by Sir James Stirling, Cambridge. Spatial Clarity: relationship between open shelf collections and reader areas Squire Law Library by Sir Norman Foster, Cambridge. Natural Illumination: open plan reader areas within atrium space







Gonville and Caius College Library, Cambridge. Classical Organisation: main "nave" space with readers' area in the middle and book collections under the galleries along the aisles

Gonville and Caius College Library, Cambridge. Perception of Territory: quiet readers' spaces under the galleries

Library of the Faculty of Education, Cambridge. Sense of Space: mezzanine floors with private study spaces





The Royal Library, Copenhagen (Denmark). Wow Factor: main atrium space connecting all levels and overlooking the city's canals

University Library City, Copenhagen (Denmark).

Clarity of Circulation and Distribution: main "nave" space with readers' area in the middle and book collections under and on the galleries along the aisles



The Royal Library, Copenhagen (Denmark). Sense of Orientation: open plan study spaces are turned towards the central atrium









The City Library, Malmö (Denmark). Civic Identity: the exterior of the extension and its sense of transparency/openness

The City Library, Malmö (Denmark). Openness and Sense of Choice: the variety of seating options within the open plan main space

The City Library, Malmö (Denmark). Spatial Quality and Natural Illumination: the main atrium space makes full use of its glazed walls overlooking the city park

#### 3.3 Development of the Brief

The initial design proposals addressed UCL's requirements through the analysis of the existing buildings and the identification of their shortcomings. In response to the brief, key elements were identified which informed the development of the design options including:

- improved spatial organisation and circulation
- improved orientation, legibility and connectivity within the library spaces
- increased library floor space, through sensitive refurbishment
- creation of flexible, adaptable and fully accessible spaces, to accommodate future change
- creation of a variety of study spaces
- integration of sustainable, energy efficient and readily maintainable building services
- consideration of phasing and implementation

Following an initial review of options for both the Main and Science Libraries, an Interim Masterplan Report was prepared by the Design Team in conjunction with UCL Library Services and issued to the UCL Estates Management Committee in october 2007. The Report recommended that the scope of the masterplanning exercise be expanded to consider a further, hypothetical Central Site Option to accommodate a relocated and consolidated library service, encompassing 7 of the 16 existing libraries currently distributed across the UCL campus and including, in order of priority:

	Libraries	Net usable floor area (sqm)	Shelving linear meterage	Number of seats	Number of computers
1.	Main Library	2790	9802	457	28
2.	Science Library	3531	7255	608	182
3.	Eastman Dental Institute Library	363	266	25	33
4.	Institute of Archaeology Library	369	1409	54	3
5.	Environmental Studies Library	306	945	59	7
6.	Cruciform Library	930	1631	237	20
7.	Human Communications Science Library	181		32	5
TOTAL		9186		1472	278

Visits were organised to the site libraries identified in the list above in order to assist in the identification of the benefits arising from a potential consolidation of UCL Library services, and a review of the findings is included in this report.

A second additional business objective was identified in the creation of a "onestop shop" in response to the experience of the Information Point already introduced on the Ground Floor of the UCL Main Library. This would assist UCL in offering a consolidated enquiry service for library and information provision, as well as offering help and referrals for other UCL services including fee payments, Union membership, Student welfare and Careers service.

This revised brief was agreed by UCL's Estates Management Committee, and the Interim Report is included in Appendix C.

In addition, extended opening hours for Library Services are being discussed within UCL. Should this solution be implemented within the timeframe of the future development of any of the design options, additional requirements may need to be considered including:

- Additional staffing
- Security requirements
- Revised provision of toilet and breakout spaces
- Additional provision of bar/café areas

The Bloomsbury Masterplan by Terry Farrells introduces public realm enhancements to Malet Place, which constitutes the busiest entryway into the campus from the south. In particular, the pedestrianisation proposals would have an impact on how the Science Library is accessed and serviced. The current UCL Libraries' materials handling area is staffed by a total of around 27 people and includes activities ranging from cataloguing/acquisitions to periodicals, TLSS (Teaching & Learning Support Service), processing and bookbinding. This is accommodated in the DMS Watson Building, and regular vehicle access is required by lorries and vans for deliveries.

An alternative location for this handling area was reviewed and initially identified in the lower ground floor of the Wilkins Building's North Wing, adjacent to the Physics yard. Generic studies of the space requirements, delivery/movement of goods to and from the handling areas, and horizontal/vertical connections within the Wilkins Building were reviewed and are included in this report.

The options for refurbishment and transformation of the libraries have been reviewed and tested against the briefing requirements, together with a further option to redevelop the site of the Science Library. Three preferred options for each building, demonstrating an incremental level of intervention and modification were subject to further design development and a full discussion of these options, together with the arising new building, Central Site Option are included within this Report in the following sections. A number of overarching concepts have been identified, arising from the brief, and are integrated in these proposals including:

- Improved orientation, legibility and connectivity within the library spaces, • making better use of the existing buildings' structure and fabric
- Improved spatial organisation and circulation to assist the Library in • enhancing the quality of services
- efficiency and flexibility
- provision of a variety of study spaces and accommodation of library facilities give UCL maximum flexibility both in response to the current Masterplanning
- Creation of fully accessible, flexible spaces for access to reference material, • Adaptability of the new spaces for a variety of uses and layouts, in order to objectives and for future changes
- Sensitive integration of services within the existing fabric, with energy • efficient solutions and natural ventilation wherever feasible
- Phased implementation strategies
- Integration of open plan staff spaces wherever possible to assist in increased • communication and teamwork

each option against key briefing issues, including:

- Decanting requirements for part or all of each Library's collections
- Phased implementation of the works and continuity of UCL's core business activities during redevelopment
- adjacencies
- Site logistics

This is summarised below in the sections dedicated to each of the design options.

In addition to the design options indicated above a "Base Option" for both the Main Library and the Science Library, representing a basic level of refurbishment of existing facilities, has been included for cost comparison purposes.

Sensitive refurbishment with increased library floorspace to maximise

- A further level of review was undertaken in order to assess the deliverability of
  - Levels of disruption to UCL activities both within the Libraries and in their

#### 3.4 Previous documentation

In addition to the documentation provided by UCL Library Services and related directly to the library activities in UCL, the following documents have been taken into consideration in developing the brief and refining the design proposals:

- UCL Wilkins Building Conservation Report by Alan Baxter Associates, May 2004
- UCL Gazetteer by Alan Baxter Associates, December 2003
- UCL Outline Management Guidelines by Alan Baxter Associates, December 2003
- Bloomsbury A Strategic Vision by Terry Farrell and Partners
- Strategic Views in Westminster Guidance on the protection and enhancement of the strategic views of the Palace of Westminster and St. Paul's Cathedral by the Development Planning Services of the City of Westminster 1994

#### 3.5 Statutory Consultations

A meeting was organised on 08.11.07 to discuss the design options for the Main Library with Victoria Fowlis, Conservation and Urban Design Officer at London Borough of Camden and Richard Parish, Historic Buildings and Areas Advisor for English Heritage.

The current Masterplanning exercise was put in the context of the overarching Bloomsbury Campus Masterplan by Terry Farrell and Partners and the ongoing Estates initiatives to improve the building stock of UCL. The three emerging options for the refurbishment and remodelling of the Wilkins Building were reviewed with particular regard to a number of design solutions including:

- proposals for re-servicing the building in a more sympathetic and unintrusive way, with provision of secondary glazing throughout
- proposals for the remodelling of the interior spaces of the North and South Wings
- proposals to remove the existing, post-war roof and insert a new roof, more sympathetic and energy efficient
- proposals to insert new galleries in the Donaldson Reading Room's aisles
- proposals to remodel the Octagon's glazed openings and improve visual connections through the Portico doorway

A covering letter was subsequently issued to the attendees including visualisations and requesting comments once they had the opportunity to review the design proposals within their team. No feedback has been received as yet; however as the proposals will be developed over the next design stages, further meetings will be required to review these more in detail.

# 4 UCL Main Library: Wilkins Building

#### Introduction

Located within the first and second floors of the Grade I listed Wilkins Building, the Main Library houses materials in the Arts, Humanities and some Social Sciences.

Designed by William Wilkins in the Greek Revival Style and built in 1827-29, the building suffered some design alterations due to lack of funds. However UCL decided that the architectural statement made by Wilkins' original design should not be compromised (at least externally) by further modification: "a great design suited to the wants, the wealth and the magnitude of the population for whom the institution is intended" was deemed to be more important "than one commensurate with our present means". The North and South Wings were notably built as double height library spaces with side galleries on two levels.

Over the years the building was modified internally to suit the activities housed in its spaces. The principal architect connected to these changes was Thomas Donaldson, who remodelled the spaces in and around the Octagon by creating a visual link between the ground and the first floor through a glazed oculus and providing a new stair from the ground floor. More importantly, he extended the Library on the site of the, by then burnt out, Great Hall by creating the current Donaldson Reading Room.



Interior view of the North Wing of the Wilkins Building, housing the Science Library before the 1940 bombings



Early engraving of the Wilkins Building as it actually appeared at the time of its opening in 1828



Early 20<sup>th</sup> Century view of the Flaxman Gallery with the oculus linking visually the ground floor with the Library's principal levels



Early 20<sup>th</sup> Century view of the Donaldson Reading Room

By 1914, record plans show the extent to which Wilkins' concept of open spaces on the principal floors had been lost. In September 1940 and April 1941 UCL was seriously damaged by German bombing. Damage was most severe in the main block, the then called Donaldson library (now Donaldson Reading Room) and the area to the rear. The dome and the roof of the main block were burned off and the interior almost totally destroyed.

Albert Richardson was tasked with the reconstruction works from 1945. His scheme combined restoration of the Donaldson Reading Room with reconstruction of the interior of the gutted Wilkins Building, where the bombing damage was too extensive to restore. All the floors were rebuilt in concrete; columns in the south cloister, which were now redundant, were removed. Those in the upper floors were also removed and replaced by walls which formed the first and second floor central corridors, as well as taking the weight of the entirely rebuilt roof. The original, open-space scheme by Wilkins was completely modified with a cellular subdivision of the floors, more suitable to the way library services were delivered at the time and to the new services distribution.



External view of the extent of damage caused by the 1940 bombings, from the South Junction





Process of change in the North and South Wings The open space concept by William Wilkins

Process of change in the North and South Wings: The cellular spatial configuration subsequent to the postwar reconstruction

#### Significance

William Wilkins' building is listed at Grade I, putting it in the top 2.5% of architecturally and historically significant buildings in England. As Planning Policy Guidance 15 states in para 3.6, "These buildings (Grade I and II\*) are of particularly great importance to the nation's built heritage: their significance will generally be beyond dispute".

We refer to the Conservation Report by Alan Baxter Associates for a discussion on the assessment of the significance of different areas of the Wilkins Building, and we report here the conclusions. Three levels of significance have been identified:

- Highly significant areas
- Significant areas
- Less significant areas

These are shown in the coloured plan drawing reproduced below. Notably, the upper levels of the North and South Wings are classified at the lowest level of significance, due to their inconsistency with the original construction and spatial concept by Wilkins.



Basement

Ground Floor









### The existing Library

For ease of reference and in order to assist UCL in the options appraisal and costing as well as the decanting strategies, the Wilkins Building has been subdivided into six areas. These are:

- North Junction
- North Wing
- Octagon
- Donaldson Reading Room
- South Wing
- South Junction

The UCL Main Library currently occupies the first and second floors of the Wilkins Building including the Donaldson Reading Room, but excluding part of the second and third floor level at the South Junction (the Gustave Tuck Lecture Theatre) and part of the second floor of the North Wing (the French Corridor).

A recent project has been implemented addressing the requirement to enhance the visibility of the Library at ground floor level and improve the level of connectivity between the ground, first and second floors; however whilst the entrance sequence and accessibility have been improved with a new staircase and lift, there remains a number of significant shortcomings with the current organisation and quality of the library environment including:

- poor access from the Quad and orientation from the cloisters
- poor orientation and circulation within the Library due to the rigid layout introduced by Richardson after the war
- limited flexibility of library floors, with cellular areas offering poor efficiency in the use of space
- limited variety of study space due to the repetition of a single layout over both floors
- no provision for group study
- poor quality of internal comfort and environment due to an inefficient servicing strategy

Whilst Richardson introduced some measures to integrate building services within the fabric of the building, the current strategy reflects the incremental, ad-hoc nature of their implementation, with plant located at basement level as well as on the roof to service different areas of the building, and a distribution strategy which is inefficient and disruptive to the building's fabric. A detailed review of the existing services is included in a separate Environmental Engineering report.

#### Key existing parameters

Existing gross int	3974 m <sup>2</sup>					
Existing net usable area (provided by Library Services)						
Comprising:	Comprising: Staff areas					
	Student areas	2480m <sup>2</sup>				
Number of stude	457					
Number of computers						
Existing linear meterage of shelving						
Existing linear meterage of collection						
Required increase in shelving and gross floor area						

Initial studies to calculate existing space factors have been undertaken and are shown below:

•	Existing student areas	2480 m <sup>2</sup>
•	Existing occupancy (seats + computers)	485 people
•	Floor space factor	5.11 m <sup>2</sup> /person

Detailed space layouts for the Library are outside the scope of this study. However recommended space factors for libraries range from 2.3 to 4 m<sup>2</sup>/person, indicating that increased efficiencies in the space planning, assisted by the introduction of more flexible open plan areas, may help increase the total occupancy in the North and South Wings.



Proposed Areas subdivision of the Wilkins Building

#### Elemental approach

To address the project brief and the shortcomings of the building three options, with incremental levels of intervention, have been developed by the Design Team. Each option encompasses the whole of the Library. However the proposed subdivision of the building allows the flexibility to treat each option as a "shopping list" of interventions. This means generally that it would be possible to pick one option for one area of the building, say within option 3, and accommodate this scope of work within any one of the other options. Possible example are:

- the proposed galleries within the Donaldson Reading Room (shown in options 2 & 3) could be accommodated within Option 1
- the proposed new roof over the North and South Wings (shown in option 3) can be accommodated within Options 1 and 2
- the re-allocation of the Dutch Reading Room in the South Junction (shown in options 2 & 3) can be either omitted or included in any option

A separate cost plan has been prepared to assist in this elemental approach.

#### **Cost Appraisal**

An initial review of the range of construction and overall project costs for the options are included in a separate Cost Report and are summarised below:

Main Library Option 1	£4000/m <sup>2</sup> to £4600/m <sup>2</sup>
Total Project Cost	£16.9m to £19.4m
Main Library Option 2	£4600/m <sup>2</sup> to £5200/m <sup>2</sup>
Total Project Cost	£21.6m to £24.4m
Main Library Option 3	£5800/m <sup>2</sup> to £6200/m <sup>2</sup>
Total Project Cost	£28.1m to £30.0m

These costs include construction, decanting, fees, expenses and VAT but exclude inflation.

#### Option 1 4.1

General refurbishment of the existing accommodation incorporating the French Corridor, with minor structural alterations to improve legibility and connectivity.

This option represents a minor level of change and includes:

- General refurbishment of the existing first and second floor accommodation ٠
- General refurbishment of the existing roof to improve environmental • conditions and comply with Statutory requirements
- Inclusion of the second floor of the North Wing (French Corridor) within the ٠ Library to increase floor space (321 m<sup>2</sup> gross internal area)
- Stripping out of internal walls within the North and South Wings to create ٠ flexible, open floor space for access to reference material, provision of a variety of study spaces and to accommodate library facilities
- Creation of openings in the second floor within the North and South Wings to improve orientation, legibility and connectivity

The re-instatement of the circular opening within the Octagon with associated relocation of St Michael to improve orientation, legibility and connectivity was initially included in this Masterplanning study and it appears in the proposals. However as we were advised this is now being progressed separately by UCL, this scope of works has been omitted from the cost plan.

Additional proposals to improve the library environment and the services offered include:

- Introduction of enhanced power and IT infrastructure including workplaces along the new openings' balustrades to enhance the sense of space and the visual connectivity
- Introduction of secure glazed doors to the Octagon opening into the portico, ٠ to increase visibility and orientation within the building
- Modifications to the Octagon drum's glazing to introduce consistency in the ٠ finishes and conceal plant behind
- Introduction of internal/external solar shading to minimise heat gain and ٠ glare, and to assist the building services strategy





#### **Key Parameters**

This option would achieve UCL's objectives in terms of space growth requirements for the Main Library only if the French Corridor (321 m<sup>2</sup>) is included in the total gross internal proposed floor area:

Proposed internal gross area including French Corridor 4192 m<sup>2</sup> % increase in shelving and gross floor area +5.5 %

NOTE: Should the French Corridor space not become available to the Library for expansion within the scope of the present Masterplan, the North Wing would be generally refurbished and the total gross internal proposed floor area would be as follows:

•	Proposed internal gross area excluding French Corridor	
	& retaining part of 2 <sup>nd</sup> floor North Wing	3922 m <sup>2</sup>
	% increase in shelving and gross floor area	-1.3 %

In this option the Dutch Reading Room, located in the South Junction at second floor level, is retained as library space.

Initial studies to calculate existing space factors have been undertaken and are shown below:

•	Existing student areas (provided by UCL Libraries)	2480 m <sup>2</sup>
•	Existing occupancy (seats + computers)	485 people
•	Floor space factor	5.1 m <sup>2</sup> /p.

Detailed space layouts for the Library are outside the scope of this study. However recommended space factors for libraries range from 2.3 to 4 m<sup>2</sup>/person, indicating that increased efficiencies in the space planning, assisted by the introduction of open plan areas, may help increase the total occupancy in the North and South Wings.

For design purposes the occupancy levels in this option have been assumed to remain unchanged. However an initial review of the existing means of escape, eg. door widths, indicates that there is spare capacity in the existing compartments. The access strategy as well as the emergency egress strategy would remain unchanged, with the benefit of introducing open spaces which are more easily intelligible to users. The existing compartmentation would be retained which roughly corresponds to the proposed areas subdivision. Subject to further discussion at a later stage of the design development, a phased emergency egress strategy may be implemented to suit the new floors configuration and the revised occupancy levels.

#### Cost Appraisal

An initial review of the range of construction and overall project costs for this option is included in a separate Cost Report and is summarised below:

- Main Library Option 1
- Total Project Cost

£4000/m<sup>2</sup> to £4600/m<sup>2</sup>

£16.9m to £19.4m

Therange of costs indicated above includes as a minimum no works to the roof and as a maximum the full replacement of the roof finishes, new decking and insulation of the existing rooves. This reflects a level of surveys and investigations that is appropriate to this Masterplanning exercise and is discussed in the Cost Report.

#### **Building services**

Initial proposals for the environmental engineering strategy have been identified and are discussed in detail in a separate Environmental Engineering Report. The key elements of the strategy are summarised as follows.

A mixed mode ventilation system is proposed, combining natural ventilation with mechanical ventilation and cooling. Natural ventilation can be utilised for most of the year and would be integrated with mechanical ventilation and high level cooling infrastructure during the hottest summer months. This system has the following benefits:

- It offers the flexibility to accommodate different user environments and increased levels of occupancy
- The mechanical infrastructure can be computer controlled to minimise tampering and access/maintenance requirements
- It accommodates enhanced levels of power/IT use as required by the brief ٠
- to the library environment, eg. excessive noise or dust
- ventilation
- opening hours.

- It allows for "sealing" the building where external conditions are detrimental
- It offers the opportunity to introduce heat recovery from mechanical

• It meets UCL Estates' requirements for energy efficiency and sustainability As the existing building's thermal mass would be used for night time cooling to assist in the energy efficiency, this strategy will require further refinement in the next design stage to take into account the Library's intention to introduce longer



REORGANISATION OF CIRCULATION PATTERNS TO IMPROVE SPACE LAYOUT

PROVISION OF FLEXIBLE, OPEN PLAN SPACE FOR ACCESS TO REFERENCE MATERIAL

INTEGRATION OF SERVICES WITHIN BUILDINGS FABRIC

NEW OPENINGS IN FLOOR TO IMPROVE CONNECTIVITY AND ORIENTATION

PROVISION OF A VARIETY OF I.T. ENABLED STUDY SPACES

EXISTING ROOF UPGRADED AND REFURBISHED WITH NEW COPPER CLADDING

PLANT ROOM LOCATED AT ROOF LEVEL WITH NEW COPPER CANOPY





Internal views of space planning proposals for enhancing the visual connections between floors and improving the quality of the learning environment





Decorative scheme for the Octagon, from UCL Special Collections

#### Option 2 4.2

Comprehensive re-ordering of the North and South Wings with insertion of new galleries within the Donaldson Reading Room and with general refurbishment of the remaining accommodation.

This option represents an intermediate level of change for the Wilkins Building. It comprises option 1 as described above and includes the following:

- Part removal of the second floor within the North and South Wings and insertion of two new mezzanine floor levels to improve orientation, connectivity and the quality/variety of study spaces
- ٠ Insertion of new lifts and platform lifts to provide full accessibility to all library spaces and assist in the emergency egress strategy
- Insertion of new galleries within the aisles of the Donaldson Reading Room to ٠ increase reader spaces
- Release of the second floor south wing (Dutch Reading Room), subject to equivalent extra space being made available elsewhere in the Wilkins footprint

Detailed layouts for the library floorspaces are outside the scope of this study. However for the purpose of confirming the allowances in collections/study areas some broad assumptions have been made, including the following relative to the North and South Wings:

- the retained floors on both floors will generally be occupied by the ٠ collections, in a denser layout to maximise floor efficiency
- the proposed mezzanine floors will be available for student areas only at a • max loading of 2.5kN/m<sup>2</sup>, providing a high level of flexibility and space planning options. This use is consistent with their lightweight structure and the floor loadings that have been allowed for



Isometric layering

#### **Key Parameters**

This option would provide additional floor space in excess of UCL requirements in terms of additional space for collections and student areas:

- Proposed including French Corridor (excluding Dutch Reading Room, 136 m<sup>2</sup>) 4056 m<sup>2</sup>
- including Donaldson Reading Room additions (164 m<sup>2</sup>) 4220 m<sup>2</sup>
- 4523 m<sup>2</sup> including North & South Wings additions
  - +13.8 % % increase in gross floor area

NOTE: Should the French Corridor space not become available to the Library for expansion within the scope of the present Masterplan, the North Wing would be generally refurbished as discussed in option 1 and the total gross internal proposed floor area would be 4313 m<sup>2</sup>, with an associated increase in shelving and gross floor area of 8.5 %.

A detailed study of the occupancy levels that could be achieved in this option has not been undertaken. However for the purpose of confirming emergency egress and building services requirements, an increase of 15% in the total number of students has been allowed for. The introduction of new open space mezzanines in the North and South Wings as well as new vertical access will need to be reviewed at the next stage of design development, as the emergency egress strategy will require the consideration of a number of issues including:

- the proposed compartmentation of the building
- any requirement for emergency lifts with associated infrastructure eg. standby generators
- any requirements for phased evacuation strategy/early warning emergency system

As new openings are required to connect the new mezzanine levels to adjacent accommodation, as well as inserting new lifts and ramps, a detailed measured survey will be required at the next design stage in order to review the available headroom heights and confirm any requirements for modifications to the ceiling and roof levels. An allowance has been made in the cost plan, appropriate for this level of design development, for general modifications and new openings to the existing building fabric.

#### Cost Appraisal

An initial review of the range of construction and overall project costs for this options is included in a separate Cost Report and is summarised below:

- Main Library Option 2
- Total Project Cost

£4600/m<sup>2</sup> to £5200/m<sup>2</sup>

£21.6m to £24.4m

### **Building services**

Initial proposals for the environmental engineering strategy have been identified and are discussed in detail in a separate Environmental Engineering Report. The key elements of the strategy are summarised as follows.

A mixed mode ventilation system is proposed, combining natural ventilation with mechanical ventilation and cooling. Natural ventilation can be utilised for most of the year and would be integrated with mechanical ventilation and high level cooling infrastructure during the hottest summer months. This system has the following benefits:

- It offers the flexibility to accommodate different user environments and increased levels of occupancy
- The mechanical infrastructure can be computer controlled to minimise tampering and access/maintenance requirements
- It accommodates enhanced levels of power/IT use as required by the brief •
- to the library environment, eg. excessive noise or dust
- ventilation

The new mezzanines structure is composed of lightweight, castellated steel beams and allows for full flexibility in power and IT infrastructure as well as carrying environmental services. The demolition of part of the North and South Wings' second floors will mean an associated reduction in the available thermal mass. This may have an impact on the environmental services strategy which will require further refinement in the next design stage.

- It allows for "sealing" the building where external conditions are detrimental
- It offers the opportunity to introduce heat recovery from mechanical

• It meets UCL Estates' requirements for energy efficiency and sustainability

**Design Proposals** 



Masterplanning Report

2300 APPROX

20

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2300

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C

OPEN PLAN STAFF AREAS ADJACENT TO COLLECTIONS

MECHANICAL AND ELECTRICAL SERVICES INTEGRATED IN MEZZANINE STRUCTURE

NEW MEZZANINE FLOORS TO INCREASE LIBRARY SPACE FOR COLLECTIONS AND READER AREAS

PROVISION OF A VARIETY OF I.T. ENABLED STUDY SPACES

EXISTING ROOF UPGRADED AND REFURBISHED WITH NEW COPPER CLADDING

PLANT ROOM LOCATED AT ROOF LEVEL WITH NEW COPPER CANOPY



MODIFICATION OF EXISTING BOOKCASES AND CREATION OF QUIET STUDY SPACES WITHIN THE AISLES

INSERTION OF LIGHTWEIGHT GALLERIES WITHIN AISLES PROVIDING ADDITIONAL READER SPACES

GENERAL REFURBISHMENT OF THE READING SPACE WITH INSERTION OF SECONDARY GLAZING TO WINDOWS

RE-USE EXISTING ROOF VOID FOR SERVICES - TBC FOLLOWING INTRUSIVE INVESTIGATIONS

EXISTING ROOF REFURBISHED - OPTION TO FIT PHOTOVOLTAIC PANELS TO SOUTH FACING SIDE



### 4.3 Option 3

Substantial re-ordering of the North and South Wings, significantly increasing the floor area with insertion of new galleries within the Donaldson Reading Room and with general refurbishment of the remaining accommodation This option represents the most radical level of change for the Wilkins Building and it would provide additional floor space in excess of UCL requirements in terms of additional space for collections and student areas. It comprises option 2 and includes the following:

- Substantial removal of the second floor within the North and South Wings and insertion of two new mezzanine floor levels to improve orientation, connectivity and the quality/variety of study spaces
- Insertion of new galleries within the aisles of the Donaldson Reading Room
- Removal and replacement of existing roof with new roof to North and South
  Wings

Detailed layouts for the library floorspaces are outside the scope of this study. However for the purpose of confirming the allowances in collections/study areas some broad assumptions have been made, including the following relative to the North and South Wings:

- the retained floors on both floors will generally be occupied by the collections, in a denser layout to maximise floor efficiency
- the proposed mezzanine floors loadings will be able to accommodate both student areas and a reduced level of collections storage than the current layout, providing a high level of flexibility and space planning options. The max loading allowed for is 4.0 kN/m<sup>2</sup>.



Isometric layering

#### **Key Parameters**

This option would provide additional floor space in excess of UCL requirements in terms of required growth in the collection space:

- Proposed including French Corridor (excluding Dutch Reading Room) 4056 m<sup>2</sup>
- including Donaldson Reading Room additions (152 m<sup>2</sup>) 4208 m<sup>2</sup>
- 4727m<sup>2</sup> including North/South Ranges additions
  - +19 % % increase in gross floor area

A detailed study of the occupancy levels that could be achieved in this option has not been undertaken. However for the purpose of confirming emergency egress and building services requirements, an increase of 20% in the total number of students has been allowed for. The introduction of new open space mezzanines in the North and South Wings as well as new vertical access will need to be reviewed at the next stage of design development, as the emergency egress strategy will require consideration of a number of issues including:

- the proposed compartmentation of the building •
- any requirement for emergency lifts with associated infrastructure eg. ٠ standby generators
- any requirements for phased evacuation strategy/early warning emergency system

As new openings are required to connect the new mezzanine levels to adjacent accommodation, as well as inserting new lifts and ramps, a detailed measured survey will be required at the next design stage in order to review the available headroom heights and confirm any requirements for modifications to the ceiling and roof levels. An allowance has been made in the cost plan, appropriate for this level of design development, for general modifications and new openings to the existing building fabric.

#### Cost Appraisal

An initial review of the range of construction and overall project costs for this option is included in a separate Cost Report and is summarised below:

- Main Library Option 2
- Total Project Cost

£5800/m<sup>2</sup> to £6200/m<sup>2</sup>

£28.1m to £30.0m

#### **Building services**

Initial proposals for the environmental engineering strategy have been identified and are discussed in detail in a separate Environmental Engineering Report. The key elements of the strategy are summarised as follows.

Whilst the environmental strategy discussed in Options 1 and 2 applies generally for this option, due to the loss of thermal mass subsequent to the demolition of the majority of the second floor in the North and South Wings and the associated full replacement of the roof, a natural ventilation strategy may not offer an optimal environmental engineering solution. Two indicative solutions are illustrated below with different benefits and implications:

#### Sealed system

- Full mechanical ventilation with opening windows for local comfort but with no naturally ventilated spaces
- environments and increased levels of occupancy
- to control heat gain and solar glare
- Heat recovery during winter time ٠
- Sustainable means of energy generations may be introduced and integrated ٠ to the new roof, eg. photovoltaic panels

#### Mixed mode system

٠

- energy efficiency or internal environment control
- ٠
- ٠

- Maximum flexibility in environmental control to accommodate different user
- Internal/external solar shading to windows and to glazed portions of the roof

• As option 2 discussed above, providing flexibility to opt between maximising

It meets UCL Estates' requirements for energy efficiency and sustainability Loss of thermal mass will have an impact on the environmental strategy for night time cooling, which will need to be reviewed at the next design stage



NEW ROOF STRUCTURE PARTLY GLAZED AND PARTLY CLAD IN COPPER

PLANT ROOM LOCATED AT ROOF LEVEL TO MAXIMISE POTENTIAL FOR NATURAL VENTILATION AND ENERGY RECOVERY

PROVISION OF A VARIETY OF I.T. ENABLED STUDY SPACES

NEW MEZZANINE FLOORS TO SUBSTANTIALLY INCREASE LIBRARY SPACE FOR READERS AND COLLECTIONS

MECHANICAL AND ELECTRICAL

SERVICES INTEGRATED IN

MEZZANINES STRUCTURE

ON OPEN PLAN AREAS


NEW ROOF STRUCTURE PARTLY GLAZED AND PARTLY CLAD IN COPPER

PROVISION OF A VARIETY OF I.T. ENABLED STUDY SPACES ON OPEN PLAN AREAS

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MECHANICAL AND ELECTRICAL SERVICES INTEGRATED IN MEZZANINES STRUCTURE

PLANT ROOM LOCATED ON FLOOR SPACE AND FULLY ISOLATED FROM

LIBRARY ACTIVITIES

MECHANICAL AND ELECTRICAL

January 2008

#### 4.4 Decanting and Implementation

#### Phasing and Decanting

Due to the lack of suitable space for decanting within the UCL Campus, any option for the refurbishment of the Wilkins Building will necessitate a phased approach. This will minimise the number of readers and amount of collections space requiring decanting at any one time and is discussed in detail in the following sections.

The following tables have been developed to assist UCL in identifying the requirements associated with the phasing of the works in the Main Library and the decanting of the various areas in the building. It assumes the following as summarised in the sections above:

- "Base" Option for refurbishment and 3no. options with incremental levels of intervention
- 6 areas within each option, permitting phased implementation
- "Shopping List" of options for each area

It is recognised that due to the incremental nature of the works between the different design options outlined above, the amount of decanting required for Options 2 and 3 is greater than Option 1. This is reflected in the following tables which offer a "worst case scenario".

Subject to further design refinement and a review of the available structural solutions for the proposed demolitions, the cutting of the North and South Wings' floors proposed in Option 1 may be achieved without the need to decant the corresponding ground floor accommodation. Indeed, review of the temporary works required and careful sequencing of the most disruptive operations may allow for retaining part or the whole of the collections on the first floor for browsing, thus limiting the decanting to the student areas only.

Areas	Proposed Phasing	Associated General Decanting
1.Donaldson Reading Room	.Generating increased reader space	.Donaldson Reading Room and part JBR
2.North Wing	.Benefiting from "unoccupied" French Corridor .Generating increased flexibility, efficiency of floor areas (and reader/book space)	.North Wing 1st and 2nd floors .North Junction reader spaces (books to remain within space) .Cloisters and office space directly below North Wing .Senior Common Room?
3.South Wing	.Generating increased flexibility, efficiency of floor areas (and reader/book space)	.South Wing 1st and 2nd floors .South Junction reader spaces (books to remain within space) .Limited use of Gustave Tuck Lecture Theatre .Cloisters and office space directly below South Wing .Provost's Office
4.North Junction		.Senior Common Room?
5.Octagon		.No defined decanting
6.South Junction	.Current phase 1B	.Current phase 1B

Decanting requirements breakdown by area - approx gross internal areas

AREA	AMOUNT OF DECANTING
DONALDSON READING ROOM	
Books and reference materials space	185 m <sup>2</sup>
Reader spaces	185 m <sup>2</sup>
Adjacent activities at ground floor (Terrace Restaurant, Whistler Room, Provost's Dining Room; assumed)	120 m <sup>2</sup>
NORTH WING (including 320 m <sup>2</sup> French Corridor)	
Books and reference materials space	435 m <sup>2</sup>
Reader spaces	330 m <sup>2</sup>
Adjacent activities at ground floor (assumed)	
<ul> <li>Office and common room accommodation</li> </ul>	240 m <sup>2</sup>
<ul> <li>Cloisters space (options 2&amp; 3 only)</li> </ul>	300 m <sup>2</sup>
SOUTH WING	
Books and reference materials space	650 m <sup>2</sup>
Readers and staff space	435 m <sup>2</sup>
Adjacent activities at ground floor (assumed)	
o Office accommodation	240 m <sup>2</sup>
<ul> <li>Cloisters space (options 2&amp; 3 only)</li> </ul>	420 m <sup>2</sup>
<ul> <li>Office accommodation – Provost's suite</li> </ul>	180 m <sup>2</sup>
Adjacent activities at second floor (assumed)	
<ul> <li>Gustave Tuck Lecture Theatre (options 2&amp; 3 only)</li> </ul>	210 m <sup>2</sup>
NORTH JUNCTION	
Books and reference materials space	460 m <sup>2</sup>
Reader spaces	304 m <sup>2</sup>
Adjacent activities at ground floor (Housman Room; assumed)	300 m <sup>2</sup>
OCTAGON	
No decanting (noise restrictions to working hours may be required)	

SOUTH JUNCTION (including 136 m <sup>2</sup> Dutch Reading Room)	
Books and reference materials space	360 m <sup>2</sup>
Reader spaces	180 m <sup>2</sup>
Adjacent activities at ground floor (assumed)	
<ul> <li>Office accommodation - Provost's suite</li> </ul>	180 m <sup>2</sup>
o Cloisters space	120 m <sup>2</sup>
Adjacent activities at second floor (assumed)	
o Gustave Tuck Lecture Theatre	210 m <sup>2</sup>
	L

Book space and reader spaces have been identified separately to reflect the possibility of decanting the collections and their users into separate accommodation, therefore maximising the flexibility and possible use of UCL capacity. For instance, the North Junction may be used for access to books only during works to North Wing. In this configuration, only 67 reader spaces would need to be relocated. Similarly, the South Junction may be used for access to books only during works to South Wing; in this case, 64 reader spaces would require relocation.

#### Notes

- Cost plan includes the option of procuring alternative non-UCL decant space at commercial rates.
- With completion of each phase and generation of additional space, actual requirements for providing decant space outside the Library reduces.
- Should difficulties be experienced in identifying alternative non-UCL decant space for book storage, opportunities for concentrating book storage space within other areas of the Library and moving reader spaces into alternative non-UCL space could be investigated.

# Site Logistics and Implementation

options.

A possible site compound location for works to the North Junction, North Wing, Octagon and Donaldson Reading Room has been identified in the Physics Yard, with access and deliveries from Gower Place. Should a tower crane be required, an assessment would be recommended of services/underground conditions and loading restrictions to this area. Due to the campus layout and the conditions at the back of the Wilkins Building, works to the South Wing and South Junction may require a different logistics strategy, depending on the level of redevelopment undertaken. Three options have been identified and are summarised below.

Having recognised the "landlocked" nature of the Wilkins Building and the inherent difficulties facing any implementation strategy for its redevelopment, initial studies were undertaken to review possible implementation strategies, with a view to assess in generic terms the deliverability of the various design

#### Option A

Site compound and tower crane (if required) located in Physics yard. Key issues:

- Large size of the tower crane required, with arm length in the region of 80m swinging over the central dome of the Wilkins Building
- Loading restrictions to Physics Yard to be reviewed

#### Option B

Site compound located in the rear courtyard adjacent to the South Wing, with access and deliveries from Gordon Square via the existing corridor between the electrical switchroom and the Bernard Katz Building.

- Key issues:
  - Delivery of large/heavy building components, which would be via mobile cranes located when required in the main quad (however this may be programmed as weekend works and monitored to minimise disruption)
  - Disruption to UCL's use of the rear courtyard

Note: this option may be feasible in the works to the Octagon and the Donaldson Reading Room, with a modified compound footprint and associated increased disruption to the courtyard.

#### Option C

Site compound located in the Main Quad with access and deliveries directly from Gower Street. If required, a tower crane could be located within the boundaries of the compound. Key issues:

- buildings
- through the main entrance and into the quad
- Loading restrictions to quad to be reviewed •



# OPTION A

5

E

5

S  $\sim$  m

, SITE COMPOMID in PLYSICS YARD





• Visual intrusion within the main quad and to the surrounding listed

• Potential disruption to the circulation of students, staff and visitors



#### Conclusions

Option C is the most intrusive both from a visual and an operational point of view, with the added issues related to the continued disruption to the general circulation of students and visitors through one of the principal gateways into the campus and the potential associated safety issues. For these reasons it is probably the least desirable for implementation, although the final programming of the works may dictate otherwise.

Option A may involve, depending on the design option selected for the redevelopment of the Main Library, very large infrastructure operating in close proximity to one of the main, iconic features of the listed building and we understand this may represent an excessive element of risk. However locating the tower crane in the Physics yard could have the benefit of assisting in a sequenced implementation of the works by offering a single location for this infrastructure throughout the redevelopment of the various areas, with associated savings in cost and programming.

For similar reasons Option B may well assist in providing an access strategy and a site compound location which can remain in place throughout consecutive phases of implementation, depending on the sequencing of the works. This again could have benefits in the long term against costs and programme.

Any recommended option arising from the Masterplanning study will need to be reviewed at later design stages by the design team in order to identify the best possible way to deliver the design proposals that will be selected. This will need to consider in detail any specific construction requirements, including

- existing underground conditions and loading restrictions
- goods access (with consideration to the size of building components and of lorries/trucks)
- programming and sequencing of the construction works
- potential for prefabrication and off-site assembly
- out-of-hours deliveries and temporary road closures
- disturbance to existing fabric
- disruption to UCL's core business activities
- noise and vibration reduction

# 5 UCL Science Library: DMS Watson Building

#### Introduction

The Science Library is located within the DMS Watson Building, a former warehouse built in the 1930s. It accommodates several collections ranging from physics, mathematics, management, engineering and medical sciences, to chemistry, anthropology, astronomy, geology, geography, biology, zoology, botany and psychology.

As advised by the Structural Engineering Consultant, the existing structure is of a fairly robust nature, due to the original use of the building which allowed for imposed loadings of  $6kN/m^2$ . This makes it a good building for library collections as it provides flexibility of use; however a number of significant shortcomings have been identified with the current organisation and quality of the library facilities, which impact heavily on the quality of the services provided.

#### Significance

As highlighted in the UCL Gazetteer, the DMS Watson Building has little historic significance and makes "No positive contribution to the Bloomsbury Conservation Area".

#### The existing Library

The Library occupies the entire building, with the basement dedicated to storage/book stock and the remaining floors to collections and study spaces. The current UCL Libraries materials handling area is accommodated in the DMS Watson Building and includes activities ranging from cataloguing/acquisitions to periodicals, TLSS, processing and bookbinding. Regular vehicle access is required by lorries and vans for deliveries.

The building suffers from a lack of identity in the way it presents itself along Malet Place, due both to the the narrow width of the street and the bland features of the façade/massing. Access and orientation difficulties at ground floor level also perpetuate the issue of poor image.

Internally, one of the principal problems as mentioned above is a level change in the floors from first upwards, probably due to the fact that the building itself is the result of the joining of two separate buildings at some point in the past. This restricts the flexibility in the floor use, introduces issues related to access/egress and is detrimental to the circulation. The access both horizontally and vertically is lacking clarity and this impacts on the level of orientation and the circulation patterns; the two existing lightwells act as sources of natural light only and do not assist in the orientation or in enhancing the quality of the internal spaces. The quality of the internal environment is poor, due to a series of factors:

- lack of efficient strategy in the servicing infrastructure, which is nearing the end of its useful life;
- conditions of the existing fabric, eg windows and roof, which are needing repair and/or replacement.

The floors are internally subdivided in a rigid, inflexible way and there is limited efficiency in their use. This is reflected in the lack of variety of study areas, with group study in particular having very little dedicated space, and of poor quality. The requirement for a larger provision of group study areas, more suitable to the way the curriculum is currently delivered, has been highlighted by the Strategic Brief (see Appendix A).

The basement is currently in poor conditions due to occasional flooding, general dampness and lack of ventilation/humidity control. As a consequence this area is not suitable for book storage, study space or staff accommodation.



View of the DMS Watson Building from Malet Place

## Key existing parameters

Existing gross internal floor area		5307 m <sup>2</sup>
Existing gross internal floor area excluding basement (1037 m <sup>2</sup> )		4257 m <sup>2</sup>
Existing net usable area (provided by Library Services)		3531 m <sup>2</sup>
Comprising:	Staff areas	528 m <sup>2</sup>
	Student areas	3003 m <sup>2</sup>
Number of students seats		608
Number of computers		182
Existing linear meterage of shelving		
Existing linear meterage of collection		10920 m
Required increase in shelving and gross floor area		





Internal views of the ground floor of the DMS Watson Building

#### **Options development**

To address the project brief and the shortcomings of the building three options, with incremental levels of intervention, have been developed by the Design Team.

Given the structural characteristics of the building, it became apparent at an early stage that a number of extra floors could be constructed above the existing accommodation, providing extra floorspace in excess of the Library's growth requirements and beyond the requirements of the brief. The discussions on the possible use of this extra space, as well as on the more radical option to demolish the entire building in order to redevelop the site, led to the Interim Masterplan Report attached in Appendix C. This document recommended the expansion of the Masterplanning brief to consider options to accommodate a relocated and consolidated Library Service, encompassing a number of existing libraries currently distributed across the UCL Bloomsbury campus.

UCL Library Services subsequently issued a supporting document containing a prioritised list identifying 7 of the 16 existing libraries selected for a possible relocation. A summarised version is included below:

Library	Net Usable Floor Area	Shelving Linear Metreage	Number of seats	Number of computers
1.UCL Main Library	2790 m <sup>2</sup>	9802	457	28
2.UCL Science Library	3531 m <sup>2</sup>	7255	608	182
2.UCL Science Library basement	717 m <sup>2</sup>	3665	0	0
SUBTOTAL	7038 m <sup>2</sup>	20722	1065	210
3.UCL Eastman Dental Institute Library	363 m <sup>2</sup>	266	25	33
SUBTOTAL FOR 1-3	7401 m <sup>2</sup>	20988	1090	243
4.UCL Institute of Archaeology Library	369 m <sup>2</sup>	1409	54	3
SUBTOTAL FOR 1-4	7770 m <sup>2</sup>	22397	1144	246
5.UCL Environmental Studies Library	306 m <sup>2</sup>	945	59	7
SUBTOTAL FOR 1-5	8075 m <sup>2</sup>	23342	1203	253
6.UCL Cruciform Library	930 m <sup>2</sup>	1631	237	20
SUBTOTAL FOR 1-6	9005 m <sup>2</sup>	24973	1440	273
7.UCL Human Communications Science Library	181 m <sup>2</sup>		32	5
SUBTOTAL FOR 1-7	9186 m <sup>2</sup>		1472	278

As indicated in the Executive Summary above, Options 2 and 3, requiring full decanting of the Science Library in order to be implemented, were disregarded on the basis that under the current (and foreseeable) market conditions, the amount of space required to house the whole of the collections would not be available within an acceptable distance from the UCL campus. These more radical design options were initiated following the review of the brief and the recommendation to consider an hypothetical option to consolidate UCL Library Services onto a Central site. They are shown here for completeness and to demonstrate the process undertaken by the design team to achieve the brief requirements. In addition a "Base Option", representing a basic level of refurbishment of existing facilities has been included for cost comparison purposes.

#### **Cost Appraisal**

An initial review of the range of construction and overall project costs for the options are included in a separate Cost Report and are summarised below:

Science Library Option 1 Total Project Cost

Science Library Option 2 Total Project Cost

Science Library Option 3 Total Project Cost

These costs include construction inflation.

£4750/m<sup>2</sup> £25.4m £5320/m<sup>2</sup>

£62.2m

£5920/m<sup>2</sup> £72.8m

These costs include construction, decanting, fees, expenses and VAT but exclude

#### 5.1 Option 1

#### Comprehensive refurbishment of the existing accommodation

This option represents a general level of refurbishment which is achievable in a phased implementation and includes:

- Re-use of the existing structure, external fabric and internal lightwells
- General refurbishment of existing accommodation, including stripping out the internal fabric and finishes and provision of new servicing infrastructure (including lifts) to create flexible, open floor space for access to reference material, provision of study space and to accommodate library facilities
- Removing physical barriers and improving the legibility and connectivity of the building with Malet Place and the proposals to improve the public realm
- Provision of new street level glazed façade and new screen to Malet Place elevation to enhance the visual identity and presence of the Library
- Utilisation of the ground floor to accommodate communal facilities serving the campus and the library including café space, informal seating areas, meeting space, communal study areas and "quick" reference material
- Provision of flexible, IT enabled space for both private and group study to the upper levels

The existing level change within some floors of the building would be retained and the new lift infrastructure designed to increase the level of accessibility between different parts of the floorplates. However it should be noted that the inefficiencies caused by this change in levels will remain.

An important step to increase the visibility of the Library and its interconnectivity with Malet Place will be opening up part of the ground floor elevation and inserting a glazed façade. This will enhance the visual identity of the building along the street and a variety of activities is proposed at ground floor level to assist in inviting users inside including café, lounge facilities and informal seating, meeting areas and newspapers/magazine reference material. These are intended to provide:

- Communal facilities serving both the Library and the campus
- A functional and acoustic buffer between the busy pedestrian street and the more intimate Library activities

As indicated in chapter 3 above, it is recognised that in the Science Library electronic delivery has significant potential for transforming the way the curriculum is delivered and research is supported. It is expected that over the next few years the amount of paper collections in this Library will be significantly reduced, and that the associated requirement for power and IT infrastructure will increase. The design proposal is intended to assist this shift by providing the necessary flexibility both in floor plan and in building services.

The existing partitions would be stripped out and removed to create open plan spaces, to increase flexibility and floor efficiency and assist in the provision of open access to reference materials and study spaces. A detailed space planning of these options has not been undertaken. However the resulting open space will offer the required flexibility to accommodate a variety of configurations including:

- Private study areas for quiet activities, possibly located at the boundaries of the building with the benefit of natural illumination and views out
- Group study areas with an increased level of acoustic control
- Computer clusters with high requirements for power/IT provision and enironmental control
- Staff areas in close visual connection with the collections and the study spaces

Initial design proposals include the insertion of "pods" in the multiple height spaces created within the larger lightwell and this is illustrated in the sections below; however this option will need to be reviewed against the preferred phasing strategy for implementation. A discussion of the possible phasing for this option is included below.



#### **Design Review**

Following a design review aimed at verifying the deliverability of this option for the Science Library within the phasing requirements, the design team was required to identify a number of sub-options, which were compared with the requirements:

Scope variation	Gross area increase	Net usable area increase (assume -25%)	UCL Libraries accommodated (see below)
Existing refurbished with no new rooftop additions	0	0	2 only
+ Petrie Museum footprint (540m <sup>2</sup> )	540m <sup>2</sup>	400 m <sup>2</sup>	2+ 3 or 2+4 or 2+5 or 2+6
+ Extension @ fourth floor (200 m <sup>2</sup> )	740m <sup>2</sup>	550 m <sup>2</sup>	2+3+7 or 2+4+7 or 2+5+7
+ 1 extra floor (860 m <sup>2</sup> )	1600m <sup>2</sup>	1190 m <sup>2</sup>	2+3+4+5 or 2+6+7
+ 2 extra floors (860 m <sup>2</sup> )	2460m <sup>2</sup>	1830 m <sup>2</sup>	2+3+4+6+7
+ 3 extra floors (860 m <sup>2</sup> )	3320m <sup>2</sup>	2470 m <sup>2</sup>	2+3+4+5+6+7

The last column identifies the collections that could be accommodated, based on the information provided by UCL Library Services, in order of priority:

UCL Libraries	Net usable floor area
1. Main Library	2790 m <sup>2</sup>
2. Science Library	3531 m <sup>2</sup>
3. Eastman Dental Institute Library	363 m <sup>2</sup>
4. Archaeology Library	369 m <sup>2</sup>
5. Environmental Studies Library	306 m <sup>2</sup>
6. Cruciform Library	930 m <sup>2</sup>
7. Human Communications Library	181 m <sup>2</sup>

A further review undertaken to verify the deliverability of each sub-option in a phased approach identified significant disruption to the Library activities on all options requiring the construction of extra accommodation above the existing DMS Watson Building. It was therefore decided to consider only the basic refurbishment option as deliverable, with a possible integration of the Petrie Museum footprint subject to further review at the next design stage of implementation strategies including:

- decanting requirements for this part of the building
- disruption to surrounding activities •
- phasing and sequencing. ٠

#### **Key Parameters**

The refurbishment of the DMS Watson Building would retain the existing floor areas with no increase in space. The proposed internal gross area would remain as indicated above:

- Proposed gross internal floor area

efficiency of the floor spaces and the flexibility in their use. shown below:

- Existing student areas
- Existing maximum occupancy
- Floor space factor

Detailed space layouts for the library are outside the scope of this study. However recommended space factors for libraries range from 2.3 to 4 m<sup>2</sup>/person, indicating that increased efficiencies in the space planning, assisted by the introduction of more flexible open plan areas, may help increase the total maximum occupancy levels.

Subject to a more detailed review of the phasing and decanting strategy for implementing this option, the current Petrie Museum may become available for refurbishment and extension of the library spaces. This would add 540m<sup>2</sup> of gross internal floor area, equivalent to

 Proposed gross internal floor Including the Petrie Museum % increase in collections and

In this configuration, as shown in the table above, the additional space would be sufficient to accommodate one of the following: either the Eastman Dental Institute Library, or the Archaeology Library, or the Environmental Studies Library, or the Human Communications Sciences Library.

5307 m<sup>2</sup> • Proposed gross internal floor area excluding basement (1050 m<sup>2</sup>) 4257 m<sup>2</sup>

However subsequent to the proposed stripping out of internal partitions and removal of physical barriers, the introduction of open plan areas will increase the

Initial studies to calculate existing space factors have been undertaken and are

	3003 m <sup>2</sup>
y (seats + computers)	802 people
	3.8 m²/p.

area excluding basement and	4797 m <sup>2</sup>
footprint	
gross floor area	+12.5 %

#### Cost Appraisal

An initial review of the range of construction and overall project costs for this option is included in a separate Cost Report and is summarised below:

Science Library Option 1	£4750/m <sup>2</sup>
Total Project Cost	£25.4m

These costs include construction, decanting, fees, expenses and VAT but exclude inflation.

#### **Building Services**

Initial proposals for the environmental engineering strategy have been identified and are discussed in detail in a separate Environmental Engineering Report. The key elements of the strategy are summarised as follows.

A mixed mode ventilation system is proposed, utilising the thermal mass of the existing building in connection with the existing lightwells which would act as atria and assist in the natural ventilation of the building. This would be combined with mechanical ventilation and cooling. Natural ventilation can be utilised for most of the year and would be integrated with mechanical ventilation and high level cooling infrastructure during the hottest summer months. This system has the following benefits:

- It offers the flexibility to accommodate different user environments and increased levels of occupancy
- The mechanical infrastructure can be computer controlled to minimise • tampering and access/maintenance requirements
- It accommodates enhanced levels of power/IT use as required by the brief
- It allows for "sealing" the building where external conditions are detrimental to the library environment, eq. excessive noise or dust
- It offers the opportunity to introduce heat recovery from mechanical ventilation

• It meets UCL Estates' requirements for energy efficiency and sustainability Due to the fact that the spaces located between the two existing lightwells would be effectively "landlocked", these will require mechanical ventilation with cooling for the majority of the year.

The remodelling of the façade, with introduction of a screen, will assist in the external solar shading to minimise heat gain and solar glare into the study spaces. As the existing building's thermal mass would be used for night time cooling to assist in energy efficiency, this strategy will require further refinement in the next design stage to take into account the Library's intention to introduce longer opening hours.

#### Fire Strategy Considerations

A full assessment of the Fire Strategy requirements for this design option is outside the scope of this study. However an initial appraisal has been undertaken in order to identify any major implications which could impact on the proposal.

We are advised that, even though with the introduction of natural ventilation the larger lightwell would effectively become an atrium, in the case of refurbishment the restrictions indicated in BS5588 part 7 (Code of Practice for the incorporation of atria in buildings) and Section 20 of the London Building Acts would not apply as the atrium would be less than 30m in height. As the atrium would still be beyond 18m in height, a fire engineered solution to the emergency strategy would be required; this would need to take into consideration a number of issues including:

- Fire loading at the bottom level (ground floor)
- Smoke extraction requirements at roof level •
- Introduction of sprinklers at each floor ٠
- Introduction of L2 alarm system to the whole building ٠

In case of emergency, it is recommended that the space immediately adjacent to the atrium, and for a depth of 4.5m, is not used for escape purposes. A more detailed analysis would be required at the next design stage to mitigate this requirement against the characteristics of the existing building and the location of the stair cores. Discussions would also be recommended to reach an agreement in principle with the Building Control Officer on the most suitable fire engineered strategy.

**Design Proposals** 





#### 5.2 Option 2

Part demolition and substantial refurbishment of the existing accommodation together with rooftop accommodation and extension above the adjacent Energy Centre to the same height

This option represents a more radical level of intervention on the existing building and integrates an extension over the existing Energy Centre to maximise the use of floorspace within the area.

It comprises option 1 and includes the following:

- Part re-use and part demolition and redevelopment of the existing structure, to significantly improve the spatial organisation of the existing building
- New mezzanine floors, accommodation pods and new roof level additions to significantly increase the area of the existing building
- New accommodation pod at high level across Malet Place to increase visibility/identity
- Part opening of ground floor slab to improve visual connections and re-use parts of the basement level for library activities
- Provision of new part glazed and part solid façade to Malet Place elevation

The existing level change within some floors of the building would be retained and the new lift infrastructure designed to increase the level of accessibility between different parts of the floorplates. However it should be noted that the inefficiencies caused by the change in levels will remain.

By removing part of the building fabric at the lower levels, a new atrium is provided connected to the joined existing lightwells and unifying the space by introducing an enhanced visual interconnectivity within the Library. Associated with this, loading capacity is released from the main structure allowing for the construction of three additional floors above which could accommodate open plan work areas and a limited number of collections. This is defined by a limit in floor loading of  $4kN/m^2$  as advised by the Structural Engineering consultant.

The extension above the Energy Centre presents structural challenges as the new building will have to be connected to the existing frame of the DMS Watson building while providing new foundations adjacent to the north wall, into the Anatomy Yard. The amount of services exiting the Energy Centre at basement level is substantial and any option for new strip foundations or piling would need to be reviewed following a detailed survey. The Structural Engineering Report, issued separately, identifies a range of structural options that have been identified, which are appropriate to this level of design.

This extension would also integrate a central atrium to enhance the visual connectivity between floors and assist in the natural ventilation strategy and to achieve the required energy efficiency criteria.







SEVENTH FLOOR PLAN GROSS INTERNAL AREA: 1370 sqm

SIXTH FLOOR PLAN GROSS INTERNAL AREA: 1370 sqm

FIFTH FLOOR PLAN GROSS INTERNAL AREA: 1370 sqm

FOURTH FLOOR PLAN GROSS INTERNAL AREA: 1370 sqm

THIRD FLOOR PLAN GROSS AREA: 1300 sqm

SECOND FLOOR PLAN GROSS INTERNAL AREA: 1300 sqm

FIRST FLOOR PLAN GROSS INTERNAL AREA: 1380 sqm

GROSS INTERNAL AREA: 1050 sqm

GROUND FLOOR PLAN

#### **Key Parameters**

Proposed gross internal floor area	11700 m <sup>2</sup>
Proposed net internal floor area (allow -25%)	8800 m <sup>2</sup>

This level of intervention would provide enough new floorspace to accommodate five of the seven UCL Libraries previously identified as candidates for consolidated services:

- 1. UCL Main Library
- 2. UCL Science Library (including basement)
- 3. UCL Eastman Dental Institute Library
- 4. UCL Institute of Archaeology Library
- 5. UCL Environmental Studies Library

#### Cost Appraisal

An initial review of the range of construction and overall project costs for this option is included in a separate Cost Report and is summarised below:

Science Library Option 2	£5320/m <sup>2</sup>
Total Project Cost	£62.2m

These costs include construction, decanting, fees, expenses and VAT but exclude inflation.

#### **Building Services**

Initial proposals for the environmental engineering strategy have been identified and are discussed in detail in a separate Environmental Engineering Report. The key elements of the strategy are summarised as follows.

A mixed mode ventilation system is proposed, utilising the thermal mass of the existing building in connection with the existing lightwells which would act as atria and assist in the natural ventilation of the building. This would be combined with mechanical ventilation and cooling. Natural ventilation can be utilised for most of the year and would be integrated with mechanical ventilation and high level cooling infrastructure during the hottest summer months. This system has the following benefits:

- It offers the flexibility to accommodate different user environments and increased levels of occupancy
- The mechanical infrastructure can be computer controlled to minimise • tampering and access/maintenance requirements
- It accommodates enhanced levels of power/IT use as required by the brief
- It allows for "sealing" the building where external conditions are detrimental to the library environment, eg. excessive noise or dust
- It offers the opportunity to introduce heat recovery from mechanical ventilation
- It meets UCL Estates' requirements for energy efficiency and sustainability

The extension above the Energy Centre would also integrate a central atrium to assist in the natural ventilation strategy and to achieve the required energy efficiency criteria.

#### Fire Strategy Considerations

A full assessment of the Fire Strategy requirements for this design option is outside the scope of this study. However an initial appraisal has been undertaken in order to identify any major implications which could impact on the proposal.

We are advised that, even though with the introduction of natural ventilation the larger lightwell would effectively become an atrium, in the case of refurbishment the restrictions indicated in BS5588 part 7 (Code of Practice for the incorporation of atria in buildings) and Section 20 of the London Building Acts would not apply as the atrium would be less than 30m in height. As the atrium would still be beyond 18m in height, a fire engineered solution to the emergency strategy would be required; this would need to take into consideration a number of issues including:

- Fire loading at the bottom level (ground floor)
- Smoke extraction requirements at roof level •
- Introduction of sprinklers at each floor ٠
- •

- Introduction of L2 alarm system to the whole building.

**Design Proposals** 



Proposed cross section showing relationship with Malet Place



Example of integration of atrium space within a building with pods for learning activities adjacent to the main circulation space: Southbank University, London by BDP



#### 5.3 Option 3

Complete demolition of existing library building and redevelopment of the building footprint with extension above the retained Energy Centre

This option maximises the potential of the site footprint including the adjacent Energy Centre and proposes a brand new building 9 storeys high to accommodate the seven libraries identified by UCL Library Services. It comprises the following:

- Demolition of existing library building and redevelopment of the existing footprint with a new purpose designed building 9 storeys high to maximise the potential of the site
- Development of the ground floor to accommodate communal facilities serving the campus and the library including café space, informal seating areas, meeting space, communal study areas (including lecture facilities) and "quick" reference material
- Provision of flexible, IT enabled space for both private and group study to the upper levels
- Extension of new Library above existing Energy Centre from first floor (current Petrie Museum) up to the 7<sup>th</sup> floor level.

The brand new purpose designed building would provide the best opportunity to accommodate a consolidated library service, as it would offer full design flexibility and floor efficiency. The new structure would resolve the existing issues related to changes in levels, incongruous location of lift cores and inadequate servicing. The structural challenges related to the design of a new structure above the existing Energy Centre may be minimised by avoiding new foundations adjacent to the north wall, into the Anatomy Yard and providing a suitable cantilevering system totally disconnected from the retained structures. The Structural Engineering Report, issued separately, identifies a range of structural options that have been identified, which are appropriate to this level of design.

The extension above the Energy Centre offers opportunities to strengthen the visual links across the campus and in particular would allow views over into the main quad in front of the Wilkins Building.

The new building has not been designed at this stage of design appraisal. An atrium building is envisaged, to provide a strong visual identity, to enhance the spatial connectivity between floors and to assist in the natural ventilation strategy to achieve the required energy efficiency criteria.

#### **Key Parameters**

Proposed gross internal floor area	12300 m <sup>2</sup>
Proposed net internal floor area (allow -25%)	9200 m <sup>2</sup>

This level of intervention would provide enough new floorspace to accommodate all of the seven UCL Libraries previously identified as candidates for consolidated services:

- 1. UCL Main Library
- 2. UCL Science Library (including basement)
- 3. UCL Eastman Dental Institute Library
- 4. UCL Institute of Archaeology Library
- 5. UCL Environmental Studies Library
- 6. UCL Cruciform Library
- 7. UCL Human Communications Sciences Library

#### Cost Appraisal

An initial review of the range of construction and overall project costs for this option is included in a separate Cost Report and is summarised below:

Science Library Option 3 Total Project Cost

These costs include construction inflation.

£5920/m<sup>2</sup> £72.8m

These costs include construction, decanting, fees, expenses and VAT but exclude

#### **Building Services**

Initial proposals for the environmental engineering strategy have been identified and are discussed in detail in a separate Environmental Engineering Report. The key elements of the strategy are summarised as follows.

As this option proposes a brand new building with purpose designed building services, the level of flexibility and efficiency in the environmental conditions and control is very high. For the purpose of comparison, the servicing strategy would still make use of the atrium to assist the natural ventilation of the majority of the spaces with mechanical ventilation and cooling infrastructure introduced where required. The nature of the building would also lend itself to the introduction of a variety of energy efficient, sustainable measures for producing power and these are also discussed in the Environmental Engineering Report.

#### Fire Strategy Considerations

A full assessment of the Fire Strategy requirements for this design option is outside the scope of this study. However an initial appraisal has been undertaken in order to identify any major implications which could impact on the proposal.

The proposed new build would be considered as an atrium building with an atrium in excess of 30m in height, therefore BS5588 part 7 (Code of Practice for the incorporation of atria in buildings) and Section 20 of the London Building Acts are applicable. The statutory requirements for safety, emergency egress and fire alarms are onerous and include:

- Simultaneous evacuation strategy of the building, with appropriate sizing of the egress routes, eg. stairs
- Smoke exhaust ventilation system provided from each storey
- Introduction of L2 alarm system to the whole building •
- No combustible content within the atrium base
- Provision of sprinkler system in all associated floor areas (i.e. the areas opening into the atrium)

A fire engineered solution to the building's Fire Strategy would be required; which is outside the scope of this study and should be undertaken at the next design stage. This may mitigate some of the requirements above and would require agreement in principle with the Building Control Officer.

#### Planning Considerations

The total number of floors in the new building would be less than the adjacent new Engineering Building along Malet Place (10 floors plus plant enclosure at roof level). However an initial appraisal of planning restrictions applicable to a new building in the location of the current DMS Watson building has been undertaken.

The main issues that have been identified at this stage are:

- Christ the King on Byng Place
- identified by the City of Westminster.

#### 1.

The new, larger Engineering Building is sited directly facing the west window of the University Church of Christ the King. However we understand that agreement on the proposals by the Planning Authority was obtained by arguing that the view lines and enjoyment of natural light were not detrimentally impacted by the massing of the 11-storeys high new building. It is therefore considered that a lower building, located well away from direct sight lines from the same direction, would present a low level of planning risk. 2.

The proposed building would be located well within the UCL campus, which lies in the Bloomsbury Conservation area. Initial diagramatic sections were drawn to demonstrate the visual impact this would have from a number of significant directions, including from the Main quad facing the Wilkins Building, and Gordon Square. These are reproduced below and demonstrate a minor level of visual intrusion which would require a review with the Camden Council Planners at the next design stage. 3.

The initial review indicates that the proposed building would fall between the viewing corridors originating from Primrose Hill towards St. Paul's Cathedral and from Parliament Hill towards the Houses of Parliament. As the new Library would be lower in height than the adjacent new Engineering Building and its roof level would be consistent with the surrounding historic buildings facing Gower Street, it was deemed that the planning risk associated with it would be low.

Any option for redevelopment of the DMS Watson building site would require further review with Camden Planning Authority at the next design stage.

1. Visual impact of the new building when viewed from the University Church of

2. Visual impact of the new building within the Bloomsbury Conservation Area 3. Visual impact of the new building on the Strategic Viewing Corridors



# TORRINGTON PLACE

Sections across the UCL campus showing the visual impact of a new build proposal



Proposed section east-west



Diagram section north-south showing an option to integrate views over towards the main quad

#### 5.4 Decanting and Implementation

#### Phasing and Decanting

The following table has been developed to assist UCL in identifying the requirements associated with the phasing of the works in the Science Library and the decanting of the various areas in the building. It assumes the following as summarised in the sections above:

- Option 1 options for phased implementation on a floor by floor basis or vertical sections of the building
- Options 2 & 3 require full decanting

#### Option 1

Implementation	Proposed phasing	Associated general decanting
.Floor by floor basis (disruption associated with re-engineering vertical circulation and service cores)	.relating to 7 No subject/library sites	.relocate individual subject/library collections .relocate basement book storage to Wickford Store
.Vertical sections of the building	.requiring re- organisation of library collections	.re-organise/relocate individual subject/Library collections .relocate basement book storage to the Wickford Store

#### Options 2 & 3 - Associated general decanting:

.Requires full decant	.review opportunities for relocation of individual		
	subject/library collections to a number of UCL/		
	non-UCL locations (Library Services currently		
	investigating)		
	.relocate basement book storage to the Wickford		
	Store		
	.relocate part of the accessible book collection to		
	Wickford Store and provide a 24 hour turn around		
	for requests of material		

#### Notes

- Cost plan to be based on procuring alternative non-UCL decant space at commercial rates
- Should difficulties be experienced in identifying alternative non-UCL decant space for book storage, opportunities for concentrating book storage space within other areas of the Library and moving reader spaces into alternative non-UCL space could be investigated

#### Site Logistics and Implementation

Having recognised the "landlocked" nature of the DMS Watson Building and the inherent difficulties facing any implementation strategy for its redevelopment, initial studies were undertaken to review possible implementation strategies, with a view to assess in generic terms the deliverability of the various design options. A meeting with the Site Manager of Osborne, currently erecting the second phase of the Engineering Building on Malet Place, was organised in November 2007 to discuss the logistics of a building site along Malet Place.

The meeting highlighted the feasibility of all options. However, it raised a number of issues including:

- Vehicular access to Science Library from Torrington Place and associated traffic management
- Reversing points for trucks along Malet Place
- Hoarding design and recommended methods of acoustic buffering
- Gantry and hoist arrangement to minimise impact on pedestrian traffic along Malet Place
- Consideration to be given to secondary glazing of Foster Court west elevation.

Refer to the illustration aside for a possible location of the site compound and gantry, with indicative access points to adjacent UCL activities along Malet Place.



#### **Phasing Strategies**

As options 2 and 3 were disregarded due to decanting implications, only Option 1 was reviewed in terms of possible phasing and deliverability.

A phased approach would only be feasible if the amount of accommodation to be decanted phase by phase does not exceed a maximum of 1000 to 2000  $m^2$ .

This can be achievable in one of two options: by phasing the works horizontally (roughly floor by floor) or vertically (in slices). These have been initially reviewed and are included below.

#### Option A - Vertical phasing

This option would be preferable from a servicing point of view, as it would provide vertical continuity phase by phase and may be more cost efficient. A possible sequencing would be as follows (see illustrations below): Option B - Horizontal phasing This option would assist Library Services in decanting collections that are currently adjacent and subdivided by floors. A possible sequencing would be as follows (see illustrations below):

Sequenced phasing	Amount of decanting required	Sequenced p	
	(indicative internal gross floor area)		
1. Rear block (with new services/lift core?)	1200 m <sup>2</sup>	1. Fourth flo	
2. South block	900 m <sup>2</sup>	and stair cor	
3. Central block (with new stairs/lift core?)	950 m <sup>2</sup>	emergency e	
4. Front block (with new façade?)	1250 m <sup>2</sup>	2. Third floo	



Sequenced phasing	Amount of decanting required
	(internal gross floor area)
1. Fourth floor accommodation and south lift and stair core, with erection of an emergency stair along the south elevation to assist the emergency egress from all floors	710 m <sup>2</sup>
2. Third floor accommodation	830 m <sup>2</sup>
3. Second floor accommodation	830 m <sup>2</sup>
4. First floor accommodation	900 m <sup>2</sup>
(This could include the space currently occupied by the Petrie Museum)	(1440 m²)
5. Ground floor accommodation limited to the rear half	680 m <sup>2</sup>
6. Basement and ground floor accommodation limited to the front half, including the north lift and stair core with provision of an alternative emergency escape from all floors above and temporarily moving the main entrance near the new lift/services core.	1540 m²
The most preferable and cost efficient solut	ion, with consideration to the

The most preferable and cost efficient solution, with consideration to the disruption caused to the library services and the surrounding activities, would need to take into consideration the availability of decanting space as well as other factors like the possibility of separating reader spaces from the collections, which in the Science Library may be more feasible than in the Main Library.

# PHASE 1







#### PHASE 2



#### PHASE 3

Proposed horizontal phasing

	_				_	1000	Building Design Partnership	UCL LIBRA	RY SERVICES I	ASTERPLAN
_		-				RDb	Arkitelle, Designers and Engineers 16 Directosas flort, Cartesmell Landon, ECTV 4LJ 16 Hall (CCD 1912 B000) 7 an 144 (CCD 1912 B000)	DMS WATSO FIRST FLOO AS EXISTIN	N BUILDING R PLAN 3	1:100
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PHASE 4



PHASE 5

Proposed horizontal phasing

EPURBISH MENT			
TERMAN			
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the second se	Building Design Partnership	Soc Conner Senvicea M	INVIENTIN
	Architects, Contervent and Explorers Hillinetrouses Tard, Contervent Landon, ECOV 45.0 Sec 444 (5)20 7513 8000 Fair 444 (5)20 7513 8000	BASEMENT PLAN AS EXISTING	1:100

PHASE 4

#### New Build Central Library Option 6

Following the review of the options for the Main Library and, more particularly, the Science Library which identified high levels of decanting and disturbance, an alternative New Build Central Library Option was also considered.

Whilst no specific site was identified the advantages of relocating the majority of Library Services within one building was recognised.

A New Build Central Library option would have the following attributes:

- purpose built facility to accommodate the majority of Library Services.
- a site and building with an identity and image appropriate to the Library of a • major international university.
- significant benefits in the provision of library services and operational efficiencies arising with co-location.
- significant benefits in the increased operational efficiencies obtained with • co-location of these libraries.
- a floor area equivalent to 95% of the existing libraries to be relocated and reflecting the increased efficiency that would be achieved with a new building when compared with existing buildings.
- a building specifically designed to deliver a modern library service and with . flexibility to accommodate future change.
- reduced level of decanting, with Libraries remaining in their current location and moved into a completed, new building resulting in minimal disruption and disturbance to Library Services.

An initial assessment of the % decrease in existing floor area has been calculated on the basis of the following:

- current net usable floor area of the libraries to be relocated into a central library: 9186 m<sup>2</sup>
- 30 % gross to net floor area utilisation for existing library buildings (based on gross to net calculations for the UCL Main Library)
- 25 % gross to net floor area utilisation for a typical new library building
- . Corresponding reduction in gross internal floor area between existing and new buildings: 850 m<sup>2</sup>

The operational advantages and increases in operational efficiencies are identified separately in a Library Report for a New Build Central Library Option issued by UCL Library Services and are summarised below.

It is recognised that a centralised library would need to be located within close proximity to the main campus and, whilst no specific site has been identified, examples of the scale of this new building on sites currently owned by the University are provided for illustrative purposes only.

For the purpose of developing a costed New Build Central Library Option, the general scale and organisation of Option 3 for the Science Building has been used. Similarly, the structural and environmental engineering proposals for this option have also been utilised.

An initial review of the range of construction and overall project costs for this option is included in a separate Cost Report and is summarised below. The lower cost corresponds to an on-campus new building and the higher cost corresponds to an off-campus building, therefore includes the associated estimated costs for acquiring a suitable site for redevelopment.

ON	CAMPUS BUILDING	Qua
1	It is assumed that no clear site exists without demolition and existing building is empty	
	(decanting of occupiers is assumed covered under a separate budget / scheme)	
2	Demolish existing UCL building (say 10000m <sup>2</sup> )	10
3	New build Library building Based on benchmarked costs	12
4	Decant existing Libraries into new building	10
5	Sundries	
	Equates to a cost of $f_{5,244}$ m <sup>2</sup> of new building gross internal floor area	
OF	F CAMPUS BUILDING	Qua
1	It is assumed that no clear site exists without demolition or decanting existing space.	
2	Site purchase suitable site say based on residential sales values at say £4800/ m <sup>2</sup> would equate to £59m	
3	Demolish existing building	10
4	New build Library building Based on benchmarked costs	12
5	Decant existing libraries into new building	10
6	Professional fees on site find / purchase fees / legal fees on site value (item 2)	
7	Sundries	
	Equates to a cost of <u>f10.195</u> m <sup>2</sup> of new building gross internal floor area	

the Cost Report.

uantity	Unit	Rate	Total £
-	-	-	
10,000	m²	200	2,000,000
12,300	m²	5000	61,500,000
10,000	m²	64	640,000
1	item	360000	360,000
			£ 64,500,000
uantity	Unit	Rate	Total £
1	item	say	60,000,000
10,000	m²	200	2,000,000
12,300	m²	5000	61,500,000
10,000	m²	64	640,000
2%	say	60,000,000	1,200,000
1	item	60,000	60,000
			£ 125,400,000

The above costs include construction, decanting, fees, expenses and VAT but exclude inflation. A complete list of assumptions and exclusions are provided in

#### Benefits of consolidation 6.1

The Libraries identified by UCL Library Services were visited by members of the Masterplan Steering Group in order to review their shortcomings and recognize what benefits may be gained by their consolidation. These were classified in two categories, Spatial and Operational benefits, and are described below:

#### SPATIAL BENEFITS

- Increased identity and accessibility ٠
- Equality of environment
- Space planning efficiencies (ie: Cruciform Building)
- Open plan v cellular space
- o Circulation space
- Layout & shelving strategies 0
- o Flexibility in accommodating increases/decreases in paper collections

#### **OPERATIONAL BENEFITS**

- A consolidated Library can provide advantages in the provision and management of services and in space efficiency, including the provision of further services:
  - o 24h opening
  - o Refreshment/breakout areas (eg: café)
- Combined Issue & Inquiries desk for all consolidated Libraries
- Combined Return desk
- Combined Stock Management: •
  - o Receiving
  - Cataloguing 0
  - 0 Tagging
  - Shelving 0
  - Reshelving 0
  - Combined Security:
  - Visual control
  - o CCTV management
  - Entrance/exit management 0
- Combined facilities for:
  - o Copying
  - o Printing
  - Scanning
  - DVD and Video viewing 0
- Combined control of Restricted access material:
- Core texts 0
- Teaching material 0
- Dissertations 0
- Sensitive material 0

- Combined Toilet facilities
- Combined IT provision, eg: Clusters •
- Combined facilities for Group study/Teaching
- Combined Staff facilities:
  - Common room 0
  - Kitchen 0
  - Dedicated toilets 0
  - 0 Locker rooms
  - Shower facilities 0
- Combined Servicing strategy:
- Plant room area 0
- IT infrastructure 0
- Maintenance & servicing 0

catchment area for the site. This is illustrated in the city plan below.



- •

The hypothetical new build Central Library would have to be located within maximum of 10 minutes walk distance from the core of the Bloomsbury campus, and a review of possible sites was undertaken with consideration of their distance from the Main Quad facing the Wilkins Building. An off-campus site was ruled out both with consideration to the associated costs for acquiring the site and with consideration to the travelling distance. This allowed the Design team to identify a maximum radius of 560m, or 7 minutes walk in a straight line, as a suitable

An initial proposal to utilise space presently occupied by the building housing UCL Special Collections on Hampstead Road was disregarded as it does not fall within the catchment area and its pedestrian connections with the UCL campus have to cross Euston Road. As described above, an off-Campus site was disregarded because of excessive distance from the core of the Bloomsbury Campus and cost efficiency. However two possible sites belonging to UCL Estates were hypothetically identified for development of a new building which would fall within the catchment area (see illustration aside):

- 1-19 Torrington Place
- Wates House (Bartlett School of Architecture)



#### Masterplanning Report

For the purpose of illustrating on either site the possible massing of a building suitable for accommodating a Central Library fulfilling the requirements of UCL, two sketches are reproduced below. These are based on an initial review of the two sites and are intended as indicative diagrams only.





## 7 Deliveries / Holding Area

The Bloomsbury Masterplan by Terry Farrells introduces public realm enhancements to Malet Place, which constitutes the busiest entrance into the campus from the south. In particular, the pedestrianisation proposals would have an impact on how the Science Library is accessed and serviced.

The current UCL Libraries' materials handling area is staffed by a total of around 27 people and includes activities ranging from cataloguing/acquisitions to periodicals, TLSS (Teaching and Learning Support Section), processing and bookbinding. This is accommodated in the DMS Watson Building, and regular vehicle access is required by lorries and vans for deliveries.

An alternative location for this delivery, holding and handling area was reviewed and initially identified in the lower ground floor of the Wilkins Building's North Wing, adjacent to the Physics yard. This location would offer a number of benefits including:

- It is adjacent to a vehicular access to a secondary street (Gower Place along the north edge of the Kathleen Lonsdale Building)
- It is facing the "back-of-house" of the Wilkins Building and It has level access to the majority of the campus areas via the corridor beneath the Bloomsbury Theatre through to the Gordon Square entrance and from there to Malet Place
- It is located in the same building as the Main Library

The area identified would cover from 228 to 484  $m^2$  at the lower ground floor level and would provide adequate space for offices and storage, assuming a standard office ratio of 10  $m^2$ /person and subject to confirmation of the range of activities to be accommodated.

Movement of books and materials for UCL Library Services may be organised with the aid of a golf cart type of electrical transport, as there is level connection to most of the UCL campus including Gower Place, the Gordon Square entrance, Malet Place, Foster Court and Torrington Place.

Movement of books and library material within the Wilkins Building and to the Main Library was reviewed and an initial solution was identified utilizing the existing central corridor at lower ground floor level as a link to the current stair adjacent to the Octagon. This is connecting the lower ground to the ground floor level of the Wilkins Building. The stair enclosure would need to be redesigned to retain its use as emergency escape to the rear quad and to insert a central lift used by Library staff only and dedicated to the movement of books.



Plan drawing illustrating the lo

Plan drawing illustrating the location for the new holding area initially reviewed, the floor space available and the proposed solution for linking this to the Main Library

66

#### Qualitative issues 8

8.1 Identity and Presence



Identity and civic preminence: Wilkins Building's Portico viewed from the main entrance to the Quad suggests a "Ceremonial Route" along its main axis.



Lack of Identity: the DMS Watson Building as approached from Torrington Place. The façade of the former warehouse has a bland presence onto Malet Place and lacks a strong image.





Delft University Library (Netherlands)

Identity and image: an example of effective civic presence both inside and out.

# 8.2 Organisation and Navigation





Organisation and distribution (Wilkins Building) : the post-war reconstruction delivered a rigid spatial layout which does not assist UCL in delivering their services efficiently.



Spatial organisation (DMS Watson Building): poor orientation is detrimental to the understanding of the spaces and of available resources/services.

# Organisation and Navigation



Orientation and clarity: examples of clear separation between collection space and communal study space, assisting in the orientation and navigation within the building.



Simplicity and clarity: examples of how organisation and orientation can be assisted by double height spaces and visual connections. Uned Library, Madrid (Spain)



Simplicity and clarity: Law Library, Zurich (Switzerland)

# 8.3 Study Spaces: Communal Study



Examples of communal study spaces designed to maximise the clarity of the distribution and the use of natural illumination: National and University Library, Göttingen (Germany)



Examples of study spaces designed to increase identity in a historic setting: University Library City, Copenhagen (Denmark)



Examples of spaces designed to increase visual connectivity and orientation through spatial awareness: The Royal Library, Copenhagen (Denmark)

# 8.4 Study Spaces: Group Study





Examples of group study spaces designed to increase the "sense of territory" while maintaining visual connections with the main space: Marlowe Academy, Ramsgate

Acoustic quality: buffering of areas designated for group study. Study pods at the Saltire Centre, Glasgow...



... which can double up as acoustically isolated "bubbles" for more private study.
## 8.5 Study Spaces: Private Study



Examples of use of scale and lighting to create a sense of intimacy: Library of the Faculty of Education, University of Cambridge.



Examples of use of scale and lighting to create a sense of intimacy: Library of the Faculty of Education, University of Cambridge



Examples of use of scale and natural University.



Examples of use of scale and natural illumination: Catherine Cookson Library, Sunderland

## 8.6 Activities



Multiple activities along a street: coffee shop and library. Vancouver Central Public Library, Canada

The Saltire Centre, Glasgow Caledonian University.



Mix of activities: lounge space, informal seating, quiet reading areas.

## 8.7 Environments: illumination



Natural and artificial lighting: University Library, Barcelona (Spain)



Illumination of spaces and illumination of activities: Library of Catalunya, Barcelona (Spain)



ork surface, the user can see into the light well and up into the atrium. Each workstation has its own individually adjustable



Lighting and space: Law Library, Zurich (Switzerland)

#### Environments: acoustics 8.8



Intimate spaces and designed solutions for acoustic buffering: University Library, Barcelona (Spain)



Open and enclosed spaces: example of a solution for creating a functional and acoustic "territory" within a larger environment. Linköping Library (Sweden).



The Saltire Centre, Glasgow Caledonian University.

Acoustic "bubbles" within busy spaces allo for a variety of activities to co-exist:

## Appendix A:

UCL Strategic Briefing Document - May 2007

#### BACKGROUND 1.0

UCL Library Services offers support for learning, teaching and research for all UCL's staff and students - some 5,000 academic staff and just under 20,000 students. This is done through paper copies of books and periodicals and electronic delivery via databases, e-books and e-journals. The Library has around 2,000,000 items in its paper collections and over 12,000 periodicals in paper and e-format.

Neither the UCL Main nor UCL Sciences Libraries are purpose-built as libraries. The UCL Main Library is overcrowded, needs re-wiring for power, data, lighting, heating and ventilation and lacks an adequate provision of IT infrastructure. The UCL Science Library needs substantial refurbishment and coherent planning for the layout and use of space. New facilities, such as group study areas, and greater IT provision need to be made. UCL's first Library was opened in the Wilkins Building in 1829. During the second world war, the UCL Main Library was badly damaged by fire bombs in 1940 and 1941. After the War, the building was restored (in a very inflexible way) by A. E. Richardson. The infrastructure has received no major attention since the early 1950s.

The UCL Science Library is housed in the DMS Watson Building, which is really two buildings, with differing floor levels. Some moderate refurbishment has been undertaken in the past.

- OBJECTIVES 2.0
- 2.1 Summary of Main Objectives
  - UCL is seeking to refurbish its Main Library located in the Wilkins Building and also the Science Library located in the DMS Watson Buildina.
  - In pursuing the refurbishment of the space UCL seeks high quality design which reflects and enhances UCL's standing and the image which it is seeking to convey - high quality, contemporary and sensitive - both in local terms and to global environment issues.
  - The provision of accommodation which is suitable for housing UCL's important paper collections and provides a satisfactory environment for readers and staff.
  - The provision of high levels of public IT facilities, particularly in the UCL Main Library which is seriously under-provided in this area.
  - Provides refurbished space which accords with current trends and good practice in library design and is cutting-edge.
  - A design which provides for the efficient use of space and respects the historic character of the Wilkins Building
  - To be delivered within a project budget approved by UCL's Estates Management Committee.
- Library Business Objectives 2.2

The UCL Main Library houses materials in the Arts, Humanities and some Social Sciences. The delivery of library services in the main building is expected to remain predominantly paper-based for the foreseeable future, although with an increasingly important digital component. In the UCL Science Library, electronic delivery has greater potential to transform the way the curriculum and research are supported.

The business objectives for the refurbishment of the Libraries are:

- 1. To achieve a better balance between the provision of
  - *public reader study places*
  - open-access storage for paper materials
  - IT provision
- 2. To provide suitable environmental conditions and a sustainable infrastructure for power, IT, mechanical ventilation, heating and lighting.
- 3. To provide flexible spaces and hardware which can change as technology and methods of learning and research support change.
- 4. To identify how new technology can transform service provision.
- 5. To consider what new services can be offered to the users of the Libraries.
- 6. During any refurbishment, UCL Library Services must continue to offer services to staff and students.
- 7. To achieve high approval ratings from Library users and continue to achieve excellent results benchmarking services against SCONUL and international statistics.
- 2.3 Environmental Performance

There are a number of parameters UCL seek from their newly refurbished buildings in terms

of environmental performance:

- $CO^2$  emissions to be below 60kg  $CO^2/m^2$  per annum.
- The energy target shall be 10% better than Part L of the current Building Regulations.
- The environmental impact is to be evaluated against the BREEAM standard and the minimum shall be of 'very good' but seeking to achieve the highest score within that range.
- The spaces created shall be fully sub-metered and connected to a BMS system for central monitoring.
- The environmental conditions shall be suitable for the paper collections.

#### 2.4 Security

- The space shall be to 'Secure by Design' standards.
- Entrances, all reading rooms and open access shelves are to be monitored by CCTV
- The Library access shall have turnstiles to accommodate user numbers and a Cardax system for out of hours operation.
- Fire exits are to be alarmed.

- perimeter of the Library areas.
- 2.5 Buildability and Durability
  - process.
- 2.6 Cost in use
  - Life cycle costings are required.
- 2.7 Accessibility
- externally.
- maximising efficiency.
- Pedestrian routes to follow desire lines.

### 2.8 Waste Management/Reduction

- stage of design development.
- 2.9 Flexibility and Adaptability
  - efficiency.
  - issue standard specifications.
- 2.10 Space Standards (offices)

Wherever possible the following space standards will apply: 11m2 for single occupancy rooms. 8m2 for open plan workstations. 3.0 LIBRARY SERVICES - BUSINESS FUNCTIONS AND OPPORTUNITIES FOR CHANGE

**Business Functions** 3.1 UCL Library Services employs up to 250 staff on all the library sites that make up the UCL family of libraries. The two largest sites are the UCL Main and UCL Science Libraries. UCL Library Services is a provider of services to UCL staff and students. In term, 1,500+ people a day can visit the UCL Main Library and 4,000 the UCL Science Library. The main services are:

- Book lending services
- Enquiry services •

The security of the paper collections will be considered at the

• Ease of construction and future maintenance should be reviewed at each stage of the design development and be part of the 'sign off'

Construction methods should seek to minimise disruption to neighbours.

Facilities Managers (hard and soft FM) are to be consulted at key stages of the design process and be part of the 'sign off' process.

• DDA compliance for students, staff and visitors internally and

Careful design of circulation routes to mitigate bottlenecks whilst

Waste management strategy to be prepared and reviewed at each key

Contractor selection to include waste reduction strategy as criteria.

Engineering systems and plant selection should be based on the need for future flexibility and adaptability without loss to current energy

Architectural, Engineering services and lift designs to be reviewed by UCL at each key stage of the design process and to follow UCL current

• The refurbishment shall be of 'loose fit' design.

Open access collections stored in both libraries

- Photocopying services
- AV services for viewing video and DVD
- Public cluster machines for accessing the UCL Managed Service
- Wireless networks are being installed in both buildings

#### 3.2 Function Relationships

The UCL Main Library houses substantial collections of open access books and journals on just under 11,000 linear metres of shelving. There are 480 reader seats. The Science Library contains 11,456 metres of shelving (7,781 linear metres of open-access shelving and 3,675 metres of closed access shelving in the basement). There are 1,114 square metres of reading room space and approximately 620 square metres of staff office space not counting the issue desk and the space occupied by other service points. There are 504 seats in reading rooms, 22 seats at OPAC machines and 157 seats at computers (in the ground floor and mezzanine clusters).

In terms of library staff, both libraries contain staff offices. Subject Librarians, in particular, have to be sited next to the collections they curate and to the users. Reader Services staff need to be close to the public service points they staff. The acquisition and cataloguing of paper and e-materials is undertaken in the UCL Science Library on the 4th Floor, although some processing of Main Library materials is undertaken in the Wilkins Building.

UCL Library Services is divided into Teams. For the UCL Main and Science Libraries, these comprise:

- UCL Senior Management Team
- Bibliographic Services
- IT Services
- Planning & Resources
- Reader Services
- Subject and Site Librarians

The success of the Team structure is dependent on two factors:

- Members of library staff working together
- Members of library staff being as close to users as possible
- 3.3 Business Change and Growth

Past and future growth statistics, both internally and against the market's competition:

Annual Library budget as % of total institutional annual budget: 4% Collection Size:

Catalogued Books: 1, 902 514

Meters of archives and manuscripts: 2, 535

Periodicals (Current subscriptions): 12, 365

- Ratio of spend on library staff to all other library expenditure: 1 : 1.11
- Ratio of spend on library staff to all other library collections: 1 : 0.92
- Library spend per FTE student: £581
- Library spend per user: £322
- Ratio of internal to external registered library users: 71:29 (2004-05)

Total Staff Expenditure: £4 ,834 875 Total Other Expenditure: £5, 378 564 Total Library Collection: 4, 465 325 Total Student FTE: 17, 583 Registered External Users: 14, 096

In terms of annual growth, the following areas should be noted:

- Paper stock added to the collections. UCL Library Services currently adds 1500 linear metres of stock every year, although older stock of an equivalent linear meterage is weeded to offsite store every year
- UCL is predicting no overall growth in student numbers in the next 5 years
- Numbers of external registered users are likely to increase, as UCL Library Services is a major provider and is funded by HEFCE for this service
- Levels of photocopying activity seem likely to stay steady at current levels over the next few years
- Levels of IT use continue to increase for delivery of materials for learning, teaching and research in Science, Technology and Medicine. There is no equivalent shift which can yet be perceived for the Arts, Humanities and some Social Sciences
- There is a need for UCL Library Services to invest more in AV and off-air recording, in new facilities, to support academic departments' use of film and new media
- UCL Library Services needs to develop more flexible learning spaces in both libraries to accommodate group and project work amongst the students
- It is likely that the Library's digitization activities will be accommodated in the new UCL Institute for Cultural Heritage. If they are not, then consideration will need to be made for their inclusion in the UCL Main or Science Libraries
- At busy times near exams, both libraries are close to capacity in terms of providing reader seats; further provision is necessary
- It is likely that UCL Library Services will continue to extend its Opening Hours in both libraries to encompass 24-hour opening in at least second and third terms
- UCL Library Services is considering the installation of RFID (Radio Frequency ID) tags, and so to introduce self-service issue and return facilities for book borrowing.

## **Appendix B**:

#### UCL Library Buildings Survey 2007

The College has undertaken a survey among its student population in order to identify levels of use of and satisfaction with the Libraries. The results have been published in UCL's website and are reproduced below. These have helped the design team in developing the Masterplanning framework and will become increasingly relevant as the options develop further into the next stages of design.

#### Summary of main findings

### Demographic data

The survey covered the eleven libraries used by UCL students and staff. The majority of respondents used either the Science Library (44%) or the Main Library (27%). Half (50%) were undergraduates, 32% postgraduates (18% taught, 14% research) and the remainder (18%) were staff. Most (93%) were full time.

#### Library usage

A quarter (24%) of respondents used the library daily and half (49%) weekly. The most common activity was borrowing and returning books (83%) followed by study (56%).

Overall, 70% said they found the library easy to use.

### Satisfaction with buildings

Respondents were asked to rate their satisfaction with the space available:

- Space for bookshelves (66%)
- Space to access bookshelves (63%)
- Space for reader seats (63%)
- Spaces for quiet study (52%)
- Distribution of the collections over several libraries (44%) ٠
- Number, of large open reading areas (44%) •
- Space for computers (43%)
- Number of small intimate reading rooms (24%) .
- Number of areas for groupwork (19%)

Users of the Cruciform Library were generally more satisfied than average on most items.

#### Satisfaction with provision of computers:

- Catalogue only terminals (54%) •
- Computers available for use (40%) ٠
- Facilities to plug in laptops (29%) •

#### Satisfaction with the library environment:

- Feeling safe in the library (87%)
- Temperature in the library (62%) •
- Lighting in the library (62%) ٠
- Signage in the library (58%) ٠
- Ventilation in the library (57%) .

#### Satisfaction with library furnishings:

- Seating at tables (70%) •
- Seating at private study spaces (60%)
- Informal seating (45%) ٠

### Priorities for the future

The top priority, significantly higher than any other, was quiet zones for silent work. This was followed by three further priorities:

- Small, intimate reading rooms
- More space for reader seats •
- Space to organise collections more logically •

#### Finally, there were two lesser priorities:

- Larger, more flexible reading rooms
- Extension of facilities to plug in laptops



## **Appendix C:**

UCL (University College London): Libraries Master Plan Report to Estates Management Committee October 2007

#### EXECUTIVE SUMMARY

This Statement is an interim report on progress with Master Planning activities to appraise the future use and development of estate in UCL Library Services. Three options are identified for the UCL Main and Science Libraries. An emerging single-site option is also considered. Further work will be undertaken on each of these options. All work also needs to address the needs of the Library for longterm offsite storage.

In terms of UCL's Business Objectives for library services, and for academic requirements to support teaching, learning and research, the Steering Group is working to identify and prioritise these. Further work will be undertaken in these areas in the next two months. This work will inform the prioritisation of the architectural options and a recommended way forward for UCL will be identified.

UCL Library Services is seeking a blueprint for the re-development of space in the light of its strategic and business objectives.

#### Purpose

UCL Library Services is undertaking an appraisal of its use of estate to deliver content and services to UCL staff and students and to its external visitors. Authorised by the UCL Estates Management Committee (EMC), in paper on 1 May 2007 [document Appendix 6/42 (06-07), the output of this work will provide a blue print for future library accommodation in UCL to support the institution's teaching, learning and research.

#### Membership of the UCL Library Services Master Planning Team

The compilation of this Statement to UCL's Estates Management Committee has been undertaken by the UCL members of the UCL Library Services Master Planning Team, comprising: Dr Paul Ayris (Chair), Elizabeth Chapman, Janet Percival, Benjamin Meunier, David Bannister, Professor Michael Worton, Professor Peter Mobbs. Technical advice has been provided by Tim Leach and II'ic Testoni (Building Design Partnership), and Julian Broster (Martin Stockley Associates). Quantity Surveyors and Building Services Engineers will contribute to the options appraisal.

#### Response to EMC's Strategic Briefing document

As directed by the UCL Estates Management Committee, UCL Library Services has invited two senior academic members of UCL staff (Professor Michael Worton, Vice-Provost) and Professor Peter Mobbs (Dean of Life Sciences) to join the Master Planning Steering Group which is chaired by the Director of UCL Library Services.

The initial Brief from Estates Management Committee asked for a thorough Options appraisal for the UCL Main and Science Libraries. In the course of consultation with the UCL community, the expressed wishes of staff and students introduced the possibility of considering the future space requirements of the whole of UCL Library Services.

The Business Objectives, and academic contributions to the discussions, identify needs for major work in both the UCL Main and Science Libraries and these are informing the architectural options given in the second half of this Statement. The Steering Group has analysed the Business Objectives in detail in the Table below; an overview of the findings to date is given here.

Staff and students find it difficult to navigate their way around both the UCL Main and Science Libraries. This has led to proposals which increase the visibility and legibility of library spaces by, for example, providing openings in floors and removing some internal walls.

The impact of digital delivery is explicitly addressed in the Business Objectives, and this will also inform the need for a radical overhaul of current infrastructure for power and data. The move to 24-hr library services will impact on the way libraries operate as new spaces and social areas will need to be created to cater for students in the Library after midnight (when all other UCL services are closed).

New modes of delivering the curriculum will impact significantly on the way the Library operates. In Science, Technology and Medicine, taught-course students are increasingly undertaking joint projects and are expected to work in teams. There is insufficient space in academic departments for students to work like this, and so students use the Library. Traditional library spaces, based on the concept of storing collections, are inappropriate for this new type of activity, and so library spaces need to become Learning spaces, not simply collection spaces. The move to make library space Learning space is one of the major recommendations of this Statement.

Libraries will continue to house paper-based collections, particularly in the Arts, Humanities and Social Sciences. In this respect, this Statement highlights that the UCL Main Library is already working beyond its capacity to store paper monographs, textbooks and journals. Materials are double-stacked in places. This is bad for the materials (as it causes physical damage) and bad for users, who cannot find materials they need. In addition, library committees in UCL request each year that the Library buys more multiple copies of text books. Currently, this is impossible because both libraries are full and there is no space to store them. Extra space is required to enable the Library successfully to deliver its mission.

As libraries change, so they begin to deliver new services and facilities. Development paths for the Library are identified in the Table below, particularly in the creation of an Institute for Humanities Computing and an in-house digitisation team to undertake the management of major digitisation activity on the Library's collections.

In the course of analysing UCL's Business Objectives for library services, the possibility of savings (financial, space, staff) through the collocation of library provision in one site has been considered. Initial work in this area, supported by some of the more radical architectural options described below, would provide for considerable gain for UCL if the Library, for example, were able to move its Arts and Humanities collections out of the Wilkins Building into a new one-site library. The library spaces in the Wilkins would thus be released for general UCL use and income generation. As the work of mapping UCL's Business objectives and academic requirements continues, the Team will consider the impact of a 'do-nothing' option, to enable them to present a full Options Appraisal in their final Report.

Consultations and benchmarking

(Sweden)

The UCL community has been consulted in a web-based survey, and members of the Master Planning team have visited exemplar projects in Cambridge (England), the Saltire Centre (Scotland), Copenhagen (Denmark), and Malmö UCL's Business Objectives for library services and the Steering Group's response

JCL'S BUSINESS OBJECTIVES FO	R STEERING GROUP RESPONSE
.IBRARY SERVICES	
1 The provision of accommodation	In its 175 year history LICL has never
which is suitable for housing UCL's	nossessed a nurnose-huilt library 'The
important book collections and	history of the library is the history of the
provides a satisfactory opvironment	college in miniature. It was planned upon
for readers and staff	a noble coole, it subsisted for many years
	a noble scale; it subsisted for many years
	In penury'. H.H. Bellot, University
	College London 1826-1926 (London,
	1929), p. 417
	• Arts and Humanities collections in the
	Wilkins building do not have adequate
	storage space. Some books are double-
	stacked. This causes damage to the books
	and inconvenience for users as materials
	cannot be located. The Steering Group
	proposes increasing the amount of space
	available for storage of collections
	through, for example, the insertion of
	mezzanine floors in the Main Library
	Academic departments complain that
	there is not adequate seating space for
	the numbers of students wishing to study.
	The Steering Group proposes that
	additional space can be provided by the
	addition of mezzanines in the Main
	Library: and in adding extra floors and
	volume to the Science Library on top of
	the existing library building and on top
	of the existing Petrie Museum (once it
	has moved to the UCL Institute for
	(ultural Haritage)
	Adequate study space in the Library is
	vital because, unless students live in halls
	of residence nearby, Library is only place
	available for study in central London
	• New modes of learning: group and
	project study. Only 1 area - in the
	Science Library - can provide this, and
	this area also acts as a public corridor.

• Libraries have changed from collection spaces to open learning spaces. A variety of different types of space is required from complete quiet to large, noisy public areas • Spaces need to offer different acoustic environments, providing range of study environments • Basement of Science Library floods. Special Collections still stored here (not destined for the UCL Institute for Cultural Heritage, due to lack of space there). Professional conservator advice is that the Basement of the Science Library is unsuitable for storing ANY library materials. This space needs to be made good to the Library by the provision of extra, new space elsewhere • Staff accommodation. Offices in the Main and Science Libraries are unsuitable for effective communication and teamwork • Difficulty in identifying library buildings a core student service within the campus. • Poor image presented by external appearance of the Science building. • Access and orientation difficulties also perpetuate issue of poor image provision of high levels of • Both UCL Main and Science Libraries IT and audiovisual facilities, now provide radio-networking via larly in the UCL Main Library RoamNet is seriously under-provided in • Power not available to the individual desktop to power IT connectivity • No teaching/seminar spaces ITenabled available in the two current sites for formal library-based teaching/seminars • UCL Main Library provides only 10 cluster machines for public use - grossly

inadequate for a Library which can have 2,000 visits a day in term. RoamNet may

3. Provides refurbished space what accords with current trends good practice in library design, the support of teaching learning, and which is cutting each as far as the constraints of buildings permit.

not be seen as providing a sustainable

	alternative to hardwired cluster
	machines
	• Cluster machines are essential if
	academic departments set work which is
	to be assessed as part of taught-course
	assessment. This is not easily replicated
	on individual machines which students
	use via RoamNet because of a lack of
	ability to manage the desktop centrally
	• There is a need for centrally-streamed
	video (whole films, video clips
	incorporated into teaching packages).
	Academic departments increasingly use
	video and radio/TV to support academic
	courses. UCL SSEES provides, through its
	library, a model for how the Library as a
	whole can help support departments in
	this area
	• Library provides access to thousands
	of electronic journals and electronic
	books and, certainly for scientific and
	medical journals, these are replacing
	paper provision. Connectivity through
	power and data points and cluster
	machines needs to be increased in library
	spaces to support this transformation
hich	Current trends
and	• Lack of group study areas in both
for	buildings is a major impediment to
and	supporting the way the curriculum is
dge,	increasingly being delivered by academic
the	departments
	• Extensions to opening hours in library
	sites is inevitable and libraries need to be
	configured to deal with this type of use -
	further provision of toilets is required
	and cafeteria spaces are essential to
	support any all-day, all-night provision
	• Wayfinding/signage in each building is
	extremely difficult. Small rooms and
	connecting corridors/passage ways make
	the buildings and services extremely

	difficult to use and navigate		• A full conservation study of the	public reader study place
	• Opening up the floors, and removal of		Wilkins Building has been prepared by	• open-access storage
	some internal partitions, would provide		Alan Baxter & Associates to guide	paper materials
	greater visibility and legibility for library		decision making in all work undertaken in	IT provision
	space and enable the collections to be		the Wilkins	
	better stored by grouping cognate		Efficiency	
	subjects in a more logical way		• Extra floors on top of the Science	
	• More coherent and flexible		Library/existing Petrie Museum space	
	arrangements for the storage and display		(once the Museum has moved into the	
	of collections would allow for greater		UCL Institute for Cultural Heritage)	
	inter-disciplinary use of the materials		would provide for efficiency gains by	
	(and so UCL's investment in the Library)		providing the best use of space according	
	than is currently possible		to modern designs for such spaces	
	• UCL committees regularly request		• In the current UCL Main and Science	
	that the Library buy more multiple copies		Libraries, there is poor efficiency of in	
	of core textbooks. New space is needed		use of existing floor areas, arising from	
	to store any increase in paper provision		cellular subdivision and general plan	
	as both libraries are currently full		configuration	
	• Poor efficiency of existing floor areas,		• Time is currently lost by readers	
	arising from cellular subdivision and		moving between buildings to find the	7. To provide suite
	general plan configuration		books they need/free cluster machines	environmental conditions and
	Sustainability		• Time is lost by the Library shipping	sustainable infrastructure
	• Poor conservation of energy e.g.		things around between buildings. All	power, IT, mechanical ventila
	thermal performance of existing building		deliveries for the Bloomsbury campus, for	and heating.
	fabric, roofs, walls, windows, etc.		example, are delivered to the Science	
	• Poor performance (energy) of old		Library and then need to be re-delivered	
	services infrastructure. Poor level of		to the various library sites in the	
	control of old services infrastructure		Bloomsbury area	
	• Poor levels of passive energy		• Material delivery, processing and	
	conservation, e.g. solar shading to reduce		circulation requires review following	
	requirements for mechanical cooling		proposals to pedestrianisation Malet	
	• Limited, sustainable, generation of		Place	
	energy, e.g. solar or wind power		• Financial figures can be allotted to	
	• No conservation of natural resources.		these efficiency gains which will be	
	e.g. rainwater harvesting		presented in the final Report, underlining	
			a new capacity in UCL for income	
4. A design which provides for the	Wilkins Building		generation	
efficient use of space and respects	Work on the new stair to the IICL Main			
the historic character of the Wilkins	Library shows that it is possible to make	5. To be delivered within a proiect	• Outline costinas includina temporary	
Building.	interventions into a nineteenth-century	budget approved by UCL's Estates	space and decanting costs will be	
	arade 1 listed fabric, whilst respecting	Management Committee.	provided in the final Report.	
	the history of the building and providing		,	
	important new, and architecturally-	6. To achieve a better balance	• The way students learn the way the	
	exciting, facilities	between the provision of	- The way students rearrily the way the	
	electing, raomtros			

places	curriculum is delivered in innovative							
ge for	ways, and the move to supporting							
	research in Science, Technology and							
	Medicine digitally means that the nature							
	of the Library as place needs to change							
	• Libraries are learning and social							
	spaces, as well as collections spaces. This							
	change of emphasis needs to be reflected							
	in the way space is allocated to the three							
	functions (and new functions) in the re							
	designed space							
	• Spaces need to be designed flexibly							
	allow for changes in their use over time							
	as different patterns of use in the Library							
	emerge							
	• Visits to exemplar libraries in the UK							
	and on the continent confirm this change							
	in the way libraries are being configured							
suitable	• The technical infrastructure in the							
and a	UCL Main Library is inadequate							
e for	• Ventilation systems in the UCL Main							
ntilation	Library require complete renewal							
	• The Library has had to instate a two-							
	year cleaning programme for every book							
	in the UCL Main and Science Libraries to							
	manage dust problems							
	• UCL Main Library is hot in the summer							
	as there is no air conditioning/comfort							
	cooling. This is bad for materials and bad							
	for people							
	• UCL Science Library heating system is							
	defective							
	• There is an inadequate supply of							
	power points in both buildings to support							
	use of laptops							
	• The Basement of the Science Library							
	regularly floods and materials stored							
	there become dirty due to poor							
	maintenance and ventilation							
	• For the gains which the Steering							
	Group proposes, see the answer to							
	paragraph 3 above under Sustainability							

P				
			both UCL Main and Science Libraries to	
8. To provide flexible spaces and	• The Steering Group is in discussion		support innovative new ways of providing	
hardware which can change as	with the technical consultants on the		signage and 'Stop Press' information to	
technology and methods of learning	issue of flexibility		users of the library services. This links	
and research support change.	• Libraries are changing, but the pace		with UCL's Public Realm strategy	
	of change is different in each academic		• The Library is planning that, for long-	
	subject area which the Library supports		term archiving of journal literature to	
	• For Science, Technology and Medicine		support research in Science, Technology	
	digital delivery is the norm to support		and Medicine, preservation will be in	
	research. Storage of large runs of paper		digital not physical paper formats. The	
	journals on open shelves is no longer		Library will manage digital preservation	
	appropriate in many subject areas. In		through new in-house digital preservation	
	terms of teaching and learning, much		services and through commercial	
	teaching is done via textbooks and these		contracts. The model for in-house digital	
	will still remain in paper format for the		preservation services will be that of	
	foreseeable future		Cambridge University Library	
	• For Arts, Humanities and (some) Social		Long-term preservation of	
	Sciences, provision to support both		monographs/textbooks will be paper-	
	research and teaching/learning will		based, not digital, for at least the next	
	predominantly remain paper-based for		<i>10-15 years</i>	
	the next 10 years. The pace of change in		• The impact of new trends in delivery	
	these areas is much slower,		and storage on the role of the Library's	
	• The space for library staff needs to be		remote Store at Wickford will also be	
	much more flexible, to allow for changes		assessed in the final Report	
	in staff function over time			
	• There is poor efficiency in the use of	10. To consider what new services	• The Library has already established a	
	existing floor areas, arising from cellular	can be offered to the users of the	ground-breaking E-Prints repository to	
	subdivision and general plan	Libraries.	make more visible the outputs of	
	configuration and low levels of flexibility		academic departments in terms of	
			published journal articles, working	
9. To identify how new technology	REID (Radio Frequency Identity		papers and UCL Ph.D. theses. These are	
can transform service provision.	tagging) of the complete bookstock in		available, where permissions allow, in	
·····	UCL's Science Library will be undertaken		Open Access and so freely available to	
	in Summer 2008. In future, students will		anyone with an Internet connection	
	be able to use self-service for the vast		anywhere in the world	
	majority of issues and returns via this		• The Library wishes to expand its new	11. During any refurbishment, U
	new technology		digital curation service to support	Library Services must continue
	• The UCL Main Library will be the next		academic departments by digitally	offer services to staff and students
	library to have RFID tagging to support		curating on their materials which are	
	the introduction of self-service issues and		produced in UCL in teaching, learning and	
	returns for library materials. It is		research - e.g. e-prints in the UCL e-	
	inevitable that RFID technoloav will be		prints repository, digital Ph.D. theses,	
	introduced into ALL UCL's library sites		image collections. This will require	
	• LCD panels should be installed across		additional space	
	- Leb parters should be instance across			

• Using the ground-breaking work in its LIFE project with the British Library, the Library will be in a position to determine

	the most cost-effective modes for long-
	term preservation - analogue or digital
	• The Library is keen to work with
	academic departments to establish a
	library-based Institute for Humanities
	Computing. Staff will be project-funded.
	The facility would act as the base for the
	production of e-editions and e-texts from
	the Library's Special Collections in the
	UCL Institute for Cultural Heritage. The
	new Humanities Computing Institute will
	require space for its facilities and
	services. The new facility will link to
	cognate work in the new UCL Institute for
	Cultural Heritage and be modelled on
	facilities in King's College London
	• The Library needs to establish an in-
	house digitisation team in order to
	undertake discrete digitisation projects
	from materials in its collections to open
	up access to them and for the purposes of
	preservation. (Larger-scale digitisation
	activity will be outsourced). The in-house
	unit will require space for its operations
	• The digital core readings service,
	which provides electronic readings to
	support taught courses in UCL, needs
	greater space and staffing capacity in
	order to properly manage the move for
	paper-based readings to digital readings
	for all UCL academic departments
ICL	• The Steering Group recognises this as
to	a priority
<i>s.</i>	• In term, the UCL Main Library can
	have 2,000 visitors a day; the UCL Science
	Library can have as many as 4,000 a day.
	• Libraries are one of the busiest
	service points in UCL and the student
	experience must be maintained during
	any developments in the Library's estate

	• Temporary and decant costs will be		• Space would be released in the
	included in project cost estimates		Wilkins and in site libraries based in
	, , ,		academic departments which can be
12. To achieve high approval ratings	Benchmarking data has recently been		re-purposed by UCL
from Library users and continue to	submitted to the University of		• Greater legibility and visibility
achieve excellent results	Manchester as a member of its		for the library and its collections
henchmarking services against	international library bonchmarking club		would be possible in a purpose-built
SCONUL and international statistics	Results are expected early in 2008		building
	- UCL monitors its performance		$\circ$ Vehicle access for deliveries to
	• UCL moments its performance		libraries remains problematic on the
	allocated by SCONUL on bobalf of the UK		Science Library site in Malet Place
			and this is the principal delivery area
			for a considerable delivery traffic to
	UCL Library Services is introducing a		IICI Library Services There is
	set of Key Performance Indicators in		insufficient space particularly in the
	2007-08 session to monitor its		Science Library to receive deliveries
	performance		or to make materials round the
	• National Student Survey Data point to		building without disturbing readers
	UCL under performing in the area of		Material delivery processing and
	Learning Resources. The 2005 survey		Material derivery, processing and
	placed UCL below 32 <sup>nd</sup> place in the Table		
	for Learning Resources		proposals to pedestrianisation malet
	• UCL Library Services has reviewed its		
	use of library surveys. It currently		• There is scope with one new
	surveys internal UCL users every year. In		building to reduce duplication of
	future it will also survey the large		holdings in existing sites
	population of external researchers and		• There are efficiencies in terms of
	users who make use of UCL Library		readers not having to move between
	Services, as this is likely to become a		buildings to locate stock/find free
	condition of grant for significant levels of		cluster machines
	external funding to the Library to		o There are similar efficiencies in
	support these users		the Library not having to move
	• UCL will also benchmark its provision		materials between buildings because
	for support of learning and research		of split sites
	against the I-Graduate Student		<ul> <li>Logistically, it is easier to build a</li> </ul>
	Barometer		new-build and to move existing
			libraries and their services to that
ADDITIONAL BUSINESS OBJECTIVES	STEERING GROUP RESPONSE		site than to maintain existing sites
1. Collocation of site libraries	One new building for the UCL Main		and to refurbish/add extensions while
	and Science libraries, and selected site		the libraries are also being used to
	library collections, would provide		store stock and offer services
	efficiency gains -		
	o Multiplicity of staffed service	2. Creation of one-stop shop for	Steering Group has visited Saltire
	points (e.g. Entrance/Issue Desks) is	student use of UCL	Centre in Glasgow, where this facility
	not needed		has been introduced

• 'One-stop shop' will build on the Information Point already introduced on the Ground Floor of the UCL Main Library

• Library henceforth would not simply offer enquiry services for library and information provision, but would offer help and referrals to a whole range of UCL services - e.g. fee payments, UCL Union, Student welfare, Careers Service

• 'One-stop shop' system would work by Library answering those queries which it could, and then referring student to relevant service and its help desk, with information about its location and opening hours

#### Suggested architectural options

UCL Main Library - Wilkins Building

#### **Option 1 - minimum level of intervention**

- General refurbishment of the existing first and second floor accommodation
- General refurbishment of the existing roof
- Inclusion of the second floor of the north range (French corridor) within • the Library
- Relocation of St Michael statue and reinstatement of the circular opening within the Octagon to improve orientation, legibility and connectivity
- Strip out of internal walls within the north and south ranges to create flexible, open floor space for access to reference material, provision of study space and to accommodate library facilities
- Create openings in the second floor within the north and south ranges to improve orientation, legibility and connectivity

#### Option 2 - medium level of intervention

As option 1 and including the following

- Part removal of the second floor within the north and south ranges and insertion of two new mezzanine floor levels to improve orientation, connectivity and the quality of study spaces
- Insertion of new mezzanine floors within the aisles of the Donaldson Reading Room
- Removal and replacement of existing roof with new roof
- Release of the first floor south wing (Dutch Reading Room), subject to equivalent extra space being made available elsewhere in the Wilkins building footprint
- Consideration of development of spaces on the lower ground floor north range of the building facing the Physics Yard - for relocation of the book delivery/holding areas and book handling facilities

#### **Option 3 - maximum level of intervention**

As option 2 and including the following

• Substantial removal of the second floor within the north and south ranges and insertion of two new mezzanine floor levels to improve orientation, connectivity and the quality of study spaces

#### UCL Science Library

**Option 1 - medium level of intervention** 

- Reuse of the existing structure, external fabric and internal lightwells, together with limited new roof level additions to increase the area of the existing building
- General refurbishment of existing accommodation, including strip out of internal structure, fabric and finishes and provision of new servicing infrastructure to create flexible, open floor space for access to reference material, provision of study space and to accommodate library facilities
- Removing physical barriers and improving the legibility and connectivity of the building with Malet Place and the proposals to improve the public realm
- Utilisation of the ground floor to accommodate communal facilities serving the campus and the library including café space, informal seating areas, meeting space, communal study areas and "quick" reference material
- Provision of flexible, IT enabled space for both private and communal study to the upper levels

*Option 2 - significant level of intervention and extension* As option 1 and including the following

- Part reuse and part demolition and redevelopment of the existing structure, to significantly improve the spatial organisation of the existing building
- New mezzanine floors, accommodation pods and new roof level additions to significantly increase the area of the existing building

Option 3 - demolition and re-development including the Petrie Museum (following construction of the UCL Institute for Cultural Heritage and consequent relocation of the Petrie Museum)

- Demolition of the existing library building and Petrie Museum, and redevelopment of the existing foot print with a new purpose designed building to maximise the potential of the site
- Retention of the plant area at ground and basement level, servicing the majority of the campus and below the current Petrie Museum
- Development of the ground floor to accommodate communal facilities serving the campus and the library including café space, informal seating areas, meeting space, communal study areas (including lecture facilities) and "quick" reference material
- Provision of flexible, IT enabled space for both private and communal study to the upper levels

Option 3 for the Science Library will provide accommodation in excess of the existing floor area and will facilitate a potential reorganisation of library services across UCL. The extent of new accommodation and therefore the potential for relocating and consolidating library services will be determined during the option appraisals. Vehicle access remains problematic in the UCL Science Library site.

A reorganised and consolidated library service could potentially provide increased efficiency and reduced operating costs which may offset increased development costs for the demolition and redevelopment of the Science Library.

#### Single-site options

One further option, which will be explored for the Library, is the re-organisation and consolidation of library services from existing library sites, where practical, onto a single site. The scale of a new building required to accommodate a consolidated service, the nature and use of the space, and outline construction costs will be reviewed. The amount of present library space, which would be vacated in this scenario, will be identified. A new site for a consolidated UCL Library Services would heighten the visibility of the Library to its users and enable the Library more fully to deliver its services to staff, students and external users.

#### Long-term storage of paper materials

The Library has a remote Store at Belnor House, Wickford, for the retention of lesser-used materials. There is a van courier service which offers a 24-hr delivery service to sites in central London. Around 200 items a day are requested in termtime. Long-term, trustworthy digital preservation is not yet readily available as a service, although this is likely to change in the coming years. UCL is also likely to begin the systematic purchase of digital journal backfiles from publishers. In addition, the creation of a distributed UK Research Reserve, with electronic document delivery, will impact on the need for UCL to retain large back-runs of paper journals. The Report will analyse current technological developments, the creation of new national services, and identify UCL's future needs for long-term storage for paper materials.

#### Process and output

Each of the options will be developed and an initial review of construction costs undertaken in mid September. A final review and documentation for the Master Plan will be concluded in mid December. For the final Master Plan report all the options listed above will be assessed relative to the following criteria:

#### *Reorganisation and consolidation of UCL Library Services*

1. Academic priorities for teaching, learning and research in UCL 2. Clear definition of the UCL's Business Objectives for library services

- 3. The context of other academic library refurbishment, re-development projects in the UK/Europe
- 4. Gross floor area (including percentage increase over and above the existing)
- 5. Quality and organisation of the space
- 6. Linear meterage of available shelving (including percentage increase over existing [a] linear meterage of shelving and [b] collection size
- 7. Number and quality of reader spaces, all IT-enabled (including % increase over existing provision)
- 8. List of new services which the Library can offer
- 9. Visibility of the Library in the campus
- 10. Access to the Library from the campus
- 11. Orientation for users within the Library
- 12. Library operations/services (e.g. deliveries, processing, cataloguing, loans/reference use, enquiries)
- 13. Projections for the use of the Library's remote Store at Belnor House, Wickford
- 14. Building services and structural strategies
- 15. Outline construction costs
- 16. Phasing of the work to fit library operational and fundraising requirements
- 17. Significant risks, e.g. disruption, planning approvals and funding

### Phasing

An important part of the Master Planning exercise is to identify how any future work can be phased. Despite the disruption which any estates development will cause, UCL Library Services must continue to offer a viable service to staff, students and users of the Library. UCL recognises that the quality of the student and staff experience of library services is a very important issue. Equally, it is likely that fundraising for new library developments, as part of UCL's Capital Campaign, will be delivered over a period of time. In its options appraisal, the Master Plan will identify how phasing in building works can be accomplished.

#### Next steps

The Steering Group will continue to meet every two weeks until Christmas. Further work will be undertaken on refining UCL's Business Objectives and academic requirements for library services. These will be mapped against the architectural options listed above, including a do-nothing scenario, and a recommended and costed way forward identified. The Steering Group would then have completed its allotted task.

The next step, if UCL is minded to proceed, would then be to prepare a detailed case and business plan according to EMC's published guidelines [Appendix 8/62 (06-07)].

## Appendix D:

## Cambridge Away Day (13 December 2007)

Options 2 and 3 for the Science Library, which included a high level of intervention and the redevelopment of the Science Library site were discounted prior to the final options appraisal as both these options required the complete relocation of the Library for the duration of the building works. It was confirmed by the University that this level of decant space, for both shelving and study, is not available within the campus or commercially available within a reasonable walking distance of the campus.

Three options for the Main Library, illustrating an incremental level of intervention, a single option for the Science Library and the New Build Central Library Option, were therefore reviewed during an appraisal workshop held by the Masterplan Steering Group. Each option was measured against a number of predetermined criteria to evaluate the relative merits of each option. The results of this workshop, the criteria used in the evaluation process and the scoring matrixes are included in Appendix D.

During the appraisal workshop the three options for the Main Library were reduced to a single option as Options 2 and 3 were considered to be too disruptive to the operation of UCL, detrimental to the image of UCL and provided limited cost/benefits.

A number of modifications were also considered for Option 1 for the Science Library including the addition of 1, 2 and 3 floors of new rooftop accommodation. However to provide sufficient new space to accommodate a part consolidated Library Service eg. the 5 site libraries, excluding the Main Library would require the maximum three additional floors that can be accommodated above the existing structure. This level of new construction over an occupied building was considered too disruptive to the ongoing operation of the Library and its ability to provide an appropriate Library environment for reference and study. A further summary of the level of consolidated Library that can be achieved with the addition of 1, 2 and 3 floors is provided in the section detailing the Science Library options.

The final options reviewed during the appraisal workshop for the Main Library and Science Library, together with the New Build Central Library Option therefore included:

#### Main Library Option 1 plus part Option 2

Option 1 but including limited elements of Option 2 i.e. new galleries within the Donaldson Reading Room and reallocation of the Dutch Reading Room as ancillary space to the Gustave Tuck Lecture Theatre. The benefits of this option include:

- Improved orientation
- Increased floor area, flexibility and efficiency •
- Improved quality of space and internal environment
- Achieved with an acceptable level of decant, disruption and cost

It is, however, recognised that for the Library to release the area currently occupied by the Dutch Reading Room, both the French Corridor and additional floor space, i.e. new galleries within the Donaldson Reading Room will need to be provided for Library use.

A summary of the proposed space and initial project costs include:

4220 m <sup>2</sup>
6.2 %
£4500/m <sup>2</sup>
£17.2m

(the overall gross internal floor area includes the recently refurbished South Junction, but this area is excluded from the total project cost)

#### Science Library Modified Option 1

Option 1 with the omission of new roof level accommodation, where the construction of this new accommodation is identified as unacceptable in terms of disruption, combined with expansion into the space currently occupied by the Petrie Museum following its relocation. The benefits of this option include:

- Improved ground floor access and facilities
- Increased flexibility and efficiency
- Improved quality of space and internal environment
- Achieved with an acceptable level of decant and disruption, and cost.

A summary of the proposed space and initial project costs include:

Overall internal gross floor area	5307 m <sup>2</sup>
% increase in internal gross floor area	0 %
Cost per m <sup>2</sup>	£4720/m <sup>2</sup>
Total Project Cost	£25m

#### New Build Central Library Option

This option provides an opportunity to relocate the majority of the library services with no intermediate decanting into a new building. This new building will benefit from an environment designed specifically for delivering current and future library services together with the operational efficiencies that will arise from a centralised library service.

A summary of the proposed space and initial project costs include:

Overall internal gross floor area % decrease from existing interna Cost per m<sup>2</sup> **Total Project Cost** 

on the basis of the following:

- library: 9186 m<sup>2</sup>
- gross to net calculations for the Main Library)
- 25 % gross to net floor area utilisation for a typical new library building
- new buildings: 850 m<sup>2</sup>

The above costs include construction, decanting, fees and expenses but exclude inflation and VAT. A complete list of assumptions and exclusions are provided in the cost report.

	12300 m <sup>2</sup>
l gross floor area	5%
	£5240/m <sup>2</sup>
	£64.5m

An initial assessment of the % decrease in existing floor area has been calculated

current net usable floor area of the libraries to be relocated into a central

- 30 % gross to net floor area utilisation for existing library buildings (based on
- Corresponding reduction in gross internal floor area between existing and

The appraisal of the three options during the workshop was in the form of a matrix. This included a number of criteria determined by the Masterplan Steering Group to be judged against a "traffic light" coloured system identifying how each option was judged to be satisfactory. The resulting table is illustrated below.

The appraisal matrix below identifies the significant benefits of the New Build Central Library Option, with this option meeting all requirements of the brief. However, the New Build Central Library Option will require a lengthy period to plan, fundraise and implement and therefore should this option be pursued, attention should be given to ensuring that the quality of the existing accommodation within the UCL Main Library and UCL Science Library does not deteriorate further. To provide an increased quality of library accommodation and ensure the existing facilities are able to respond to and deliver a modern library service, It is therefore recommended that a level of refurbishment of these existing facilities is undertaken. Where refurbishment projects resulting in more significant change are considered, e.g. the Donaldson Reading Room, the brief for these projects should be developed in response to both the need to accommodate library activities and, for longer term use, alternative functions.

# Options Appraisal for Masterplanning activity

Criteria	Fit to Business Objectives (Response to Brief)	Ease of Decant (Availability of decanting space)	Brand/ Image/ Wow factor / Legacy	Value For Money/Cost efficiency	ldentity / Orientation & Circulation	Quality / Variety of spaces / Flexibility	Environmental quality / sustainability/ energy use	Disruption to UCL core activities	Planning risk / Timescale / Phasing / Interim benefits	Attractiveness to major funders	Change teaching & learning experience?
Do Nothing Option								N/A	N/A		
								N/A	N/A		
UCL Main Library											
Option 1										excludes Donaldson	
Option 2: Not pursued as disruptive to	current operation	is, detrimental imp	pact on image	and limited co	ost/benefits					includes Donaldson	
Option 3: Not pursued as disruptive to	current operation	is, detrimental imp	pact on image	and limited co	ost/benefits					includes Donaldson	
UCL Science Library											
Option 1											
Option 2: Not pursued as required decant space unavailable											
Option 3: Not pursued as required decant space unavailable		able									
Newbuild								site dependent			

Key:

Substantially meets the requirements

Partially meets the requirements



Significant requirements not satisfied

