

Greater Glasgow and Clyde NHS Board

Board Meeting

Tuesday 24 October 2006-10-17

Board Paper No.2006/56

Chief Operating Officer
Acute Services Division

GREATER GLASGOW LABORATORY MEDICINE MODERNISATION STRATEGY

Recommendation:

The Board is asked to consider the attached paper and to:

1. note the outcome of the detailed Partnership working into the future redesign of the laboratory medicine services within Greater Glasgow to meet the needs of the clinical services and their configuration as set out in the Board's approved Acute Services Strategy
2. note that detailed Outline Business Cases will now be prepared in respect of the proposed establishment of the two core laboratory medicine units at Glasgow Royal Infirmary and the new South Glasgow Hospital campus
3. note that work will continue with clinical and staff side partnership colleagues to firm up the detailed working practices and staffing requirements needed to deliver efficient high quality laboratory medicine services into the next decade.

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1. LABORATORY STRATEGY OBJECTIVES

The Glasgow wide Laboratory Services Strategic Review was established to advise on the optimum model for the provision of laboratory services, taking into account the clinical linkages between the laboratories, the main clinical specialties and the services which require to be provided to support the clinical services profile on each site.

The key objectives of the laboratory services review process were determined as follows:

- To define and develop an agreed configuration of provision of lab services across the city which reflects the ASR strategy – consolidating from six to two major emergency and in-patient acute sites at GRI and SGH, an elective inpatient site including the regional cancer centre at GGH, ACADs at Stobhill and the Victoria Infirmary, and the co-location of paediatric with obstetrics on an adult site.
- To modernise the provision of laboratory services.
- To create a network of laboratory services working Pan-Glasgow, operating within a single integrated management structure.

The working principles that underpin the Review have focussed on a whole systems approach to the modernisation and reconfiguration of lab services, with a decision-making process that reflects clinical consensus and strong partnership working

1.1 Scope of Review

The Strategy review encompassed the following Laboratory Disciplines:

Laboratory Disciplines included in Review
<ul style="list-style-type: none">• Microbiology• Pathology• Haematology• Blood Transfusion• Immunology <i>Regional Service</i>• Virology <i>Regional Service</i>• Mycology <i>Regional Service</i>• Tissue Typing• Mortuary

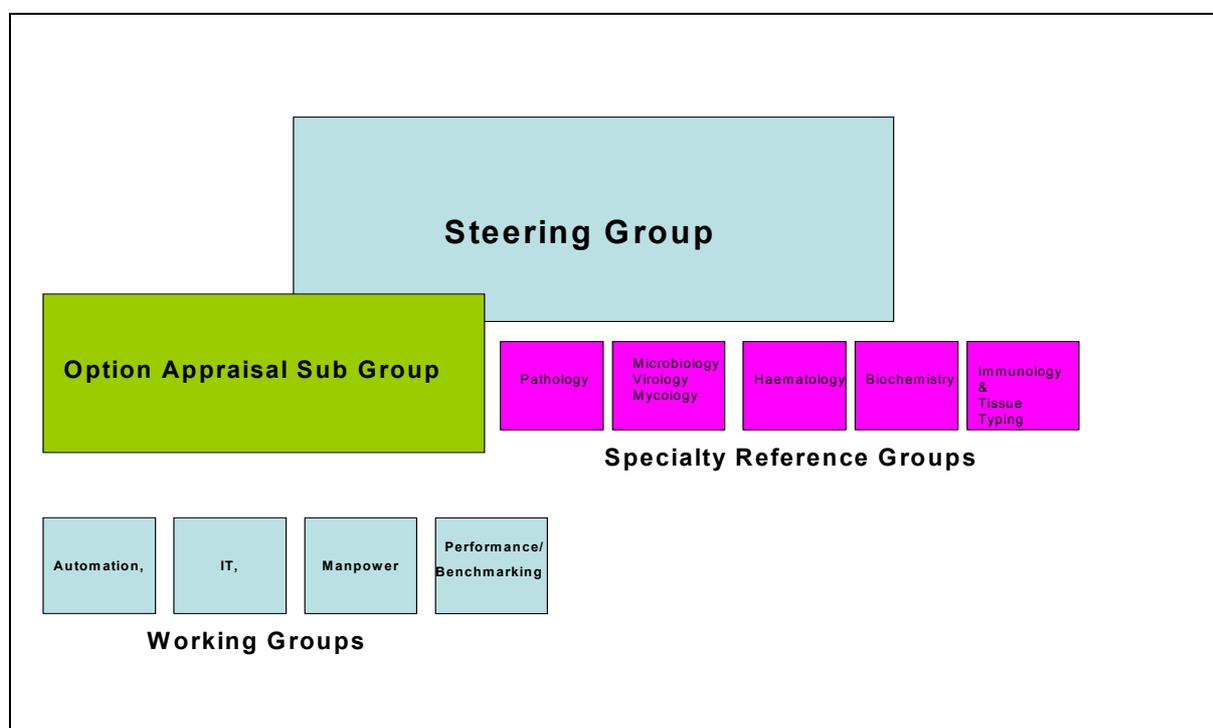
In addition to the laboratory specialties outlined above, there are a number of National Reference Laboratory Services which have been established within Glasgow and provide services commissioned and funded by the National Services Division of the Common Services Agency for the populations of Scotland. These are as follows.

- **Blood Borne Virus Testing** The service is located within the Virology Laboratory on the GGH site
- **National Parasitology Laboratory** The service is located within the Microbiology Laboratory on the Stobhill site
- **Scottish Meningococcus and Pneumococcus Reference Laboratory**
The service is located within the Microbiology Laboratory on the Stobhill site

- **Scottish Salmonella Reference Laboratory**
The service is located within the Microbiology Laboratory on the Stobhill site
- **Trace Elements & Micronutrients National Reference Laboratory**
The service is located within the Biochemistry Laboratory on the GRI site
- **MRSA National Reference Laboratory**
The service is located within the Microbiology Laboratory on the Stobhill site
- **Scottish Legionella National Reference Laboratory**
The service is located within the Microbiology Laboratory on the Stobhill site

2.0 STRUCTURE OF LABORATORY REVIEW

The Laboratory Review groups were structured in such a way as to invite maximum clinical specialty and partnership involvement. The project structure comprised the following key elements:



2.1 The Role of the Laboratory Services Review Steering Group

The role of the Steering Group was to establish a strategic plan for laboratory services which ensured that a number of key deliverables were met:

- A high quality effective service
- Service arrangements which support the re-alignment of clinical activity as the ASR is finalised and implemented
- A workforce plan which ensures that the appropriate staff are in place to deliver future models of service including out of hours provision
- To develop a current and future financial framework
- To coordinate the development and approval of all laboratory service capital plans
- To provide advice on laboratory services to other elements of ASR planning and implementation

- Develop the vision which would shape the delivery of laboratory services over the next decade and beyond

2.2 The Role of the Working Groups

The Working Groups were structured to be multi-specialty groups with a focus on developing specific key elements within the Laboratory Strategy. Each working group was encouraged to consider best practice models of working from other sites within the UK and abroad, to review the best practice literature including the recommendations of the Pathology Modernisation Board in England and other NHS and professional and clinical bodies in the field of laboratory medicine.

2.3 The Role of the Specialty Reference Groups

The roles of the Specialty Reference Groups were to review the various proposals and the outputs from the cross-specialty subject-specific working groups. The function of each group was to consider the implications of the proposals on reconfiguration from a specialty point of view and advise the Steering Group accordingly.

In relation to the option appraisal process the Specialty Groups had a key role to play specifically in providing input and advice to the Option Appraisal Sub Group on a range of issues. These include:

- The specialty tests which might be delivered through an ESL
- The network arrangements for each specialty
- The policy and approach of GGNHSB on Near Patient Testing
- The workforce profile for each specialty linking to the work and the outcomes of the Workforce Planning Group
- The implications for each Specialty of the automation proposals
- The implications for each specialty of the IT proposals
- Implementing within each specialty the recommendations which will emerge from the benchmarking and performance evaluation exercise – supported by the University of Keele
- Consideration of the capital and facility proposals which will emerge from the Review process

2.4 Partnership Working

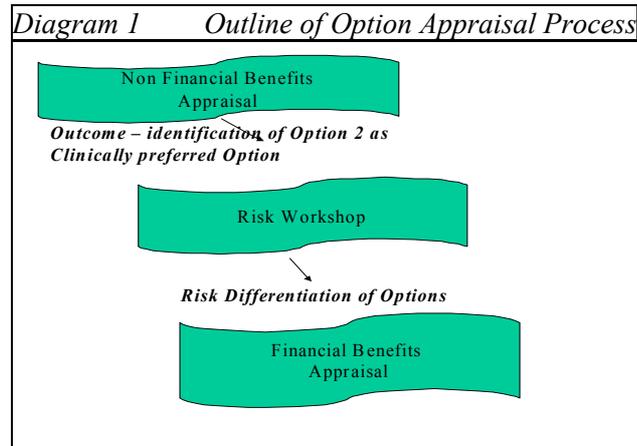
A key element in the development of the strategy for laboratory services has been involving laboratory staff in the decisions that affect them through partnership working.

The partnership involvement has included trade union/professional organisation representatives from all three divisions, working with management and clinical colleagues, on the Steering Group, the Working Groups, the Speciality Reference Groups and the Option Appraisal Sub Group. The commitment of the NHS Board to partnership working in the widest sense was reflected in the design of the review process, with a strong emphasis in involving staff in the development of the options, the determination of the evaluate criteria and the scoring options. The option appraisal process was structured to enable groups of staff in each specialty to take part in a scoring exercise, the outcomes of which were fed into the Option Appraisal Sub Group.

3.0 SUMMARY OF THE OPTION APPRAISAL PROCESS

The Option Appraisal was a fully inclusive process, led by the ASR Director and had a robust project structure which included the chairs of the Specialty Reference Groups and Working Groups supporting the review, along with representatives of the partnership forum and other key stakeholders.

The Option Appraisal process involved three main components, as illustrated in the diagram below.



The outcome of the non financial benefits process was the identification of ‘Option 2’ (outlined in 4.1 below) as the clinically preferred option. This decision was then ratified by the Risk and Financial Benefits appraisal work that followed, which confirmed ‘Option 2’ as being the most advantageous from a clinical and financial perspective.

4.0 FUTURE CONFIGURATION OF LABORATORY SERVICES IN GLASGOW

4.1 Description of ‘Option 2’ Configuration of Laboratory Services

Pathology - down from 4 sites to 1 – centralised at Southern General, Rapid Results Laboratories (RRL) at ACAD and Essential Services Laboratories (ESL) at GRI & GGH.

Biochemistry – down from 6 sites to 2 main labs at SGH, GRI, with an ESL at GGH (& RRL at ACAD)

Haematology – down from 6 sites to 2 main labs at SGH, GRI, with an ESL at GGH & RRL at ACAD.

Microbiology – down from 5 sites to 2 main labs at SGH and GRI.

In addition:

- Immunology, Tissue Typing, Stem Cell lab work and all other laboratory services related to leukaemia research and Haemato-Oncology will consolidate from the WIG and GRI to one single site in the new Leukaemia Research Lab at GGH. To provide a state of the art laboratory facility on the same site as the Regional Cancer Centre and SNBTS.
- Virology and Mycology will be located alongside Microbiology to create the basis for joint working and some elements of cross cover.
- The Paediatric labs at Yorkhill including Genetics will co-locate with adult lab services onto a major inpatient acute site, once a decision has been made on the site of the new children’s hospital.

Table 2 below describes the preferred configuration of laboratory services for Greater Glasgow under Option 2.

4.2 Table 2: Summary of future Configuration of Laboratory Services

	<i>GRI</i>	<i>STOB ACAD</i>	<i>GGH</i>	<i>Vic ACAD</i>	<i>SGH (incl integrated Paediatric Laboratory)</i>
Microbiology	✓				✓
Mycology (integrated with main Microbiology lab at either GRI or SGH)					
Biochemistry	✓	✓ RRL	✓ ESL	✓ RRL	✓
Haematology	✓	✓ RRL	✓ ESL	✓ RRL	✓
Immunology/Tissue Typing			✓		
Histopathology	✓ ESL	✓ RRL	✓ ESL	✓ RRL	✓
Virology(integrated with main Microbiology lab at either GRI or SGH)					
Medical Genetics					✓
Newborn Screening and Molecular Genetics					✓
Neonatal Screening					✓
Neuropathology					✓
Mortuary Services	✓ Body Store		✓ Body Store		✓ Main Mortuary Facilities

Current planning sites the Reference Laboratories with the main Microbiology laboratory at GRI to be located in the University Tower. However, it may be possible, depending on affordability to site these labs at the SGH campus. This piece of work has still to be scoped.

5.0 FUTURE MODEL OF CARE

The future model of care for laboratory services is encapsulated below together with associated benefits:

- A high volume central processing model supported by essential services and rapid results laboratories supporting the ACAD sites and Gartnavel, taking into account clinical adjacencies and alignment of clinical services
- Integrated laboratory service using a common Information Technology (IT) platform
- Facilitation of clinical sub-specialisation
- Introduction of multi-skilling and expanded opportunities for staff building on the synergies between the laboratory disciplines

- Increased opportunities to expand Research and Development (R&D)
- Extended day and 24/7 working to fit in with patient pathway requirements

5.1 Essential Services (ESL) and Rapid Results Laboratories (RRL)

The Laboratory Services Steering Group endorse the concept of an ESL as an appropriate staffed and resourced laboratory facility allowing the continued provision of those services identified as being critical to support the clinical activity on any given site i.e. which require a turnaround time of 30/45 minutes or less.

In Haematology and Biochemistry - an ESL will continue to be a significant and sizeable lab facility providing up to 60% of the tests and services provided by a main lab. This reflects the optimum clinical requirement, in terms of core chemistry and core Haematology, to support a major emergency or elective care site.

In Pathology, an ESL will be a small facility, which will provide frozen sections and fine needle aspirate services close to the surgical activity. This concept can apply to both hospital sites without main Pathology laboratory services, and to the ACAD environments in support of the day surgery and specific one-stop clinics.

In Microbiology, due to the nature of the laboratory work carried out within the specialty, there is no concept of an ESL

5.2 Activity and Volume

The laboratories within NHS Glasgow are one of the largest volume networks in the UK and the cost to the health economy is currently in excess of £60 million.

The proposed configuration of lab services under option 2 will create the largest NHS laboratory in the UK, with the two main laboratories processing at SGH and GRI 7 million and 6.5 million Biochemistry tests respectively, with 1 million tests being processed through the ESL at GGH.

The growth assumptions for Biochemistry indicate that by 2010 the Glasgow Biochemistry Network will be processing 19,537,000 million tests with 9/10 million tests on each of the two principal sites by 2010.

On acute sites with 132,000 and 121,000 A&E attendances at SGH and GRI respectively there will be a need to provide a 24/7 service on each site.

5.3 Leukaemia Research Fund Centre

In addition to the laboratory services outline above, the Gartnavel site will be home in 2007 to the new Leukaemia Research Fund Centre Laboratory. This new build facility sits alongside the redevelopment of the Beatson Institute site, complementing the services provided and bringing additional Haematological research expertise to the redeveloped site. It is anticipated that the creation of this new laboratory facility will establish a centre of excellence in the West of Scotland

The services that will be provided from the new laboratory include the following elements:

- Specialist Haematology,
- Blood Banking,
- Bone Marrow and Stem Cell processing
- Tissue Typing and Immunology services
- The National Unrelated Donor Transplant Programme (MUD).

The building is due for completion in 2007.

6.0 IMPACT ON STRATEGY OF ARGYLL & CLYDE AND THE GOLDEN JUBILEE HOSPITAL

6.1 Golden Jubilee

During the strategy review period, a number of strategic planning meetings were held with the Golden Jubilee Hospital at Clydebank in order to consider the benefits of the GJNH linking in with the Pan-Glasgow Laboratory Review. It was, however, then felt by the GJNH that the time was not right to pursue this option whilst they were in a period of transition relating specifically to the development of the West of Scotland cardiothoracic centre and they, therefore, made the strategic decision to remain independent. It was, however, agreed that when appropriate, further discussions should take place between Glasgow and GJNH about whether and how GJNH might play into and benefit from the Pan-Glasgow Laboratory Review, recognising that these discussions need to involve staff side and be done “in partnership”.

6.2 Argyll & Clyde

Meetings were also held with the Clinical Services Directorate of Argyll & Clyde to discuss and review possible synergistic opportunities of a combined approach to our respective laboratory reviews. In particular the possible financial benefits of Argyll & Clyde joining with Glasgow on the managed equipment services was considered. This was progressed as far as was possible at the time, as Argyll & Clyde were then at a reasonably advanced stage in their strategic review. It was agreed however that future opportunities would be explored by the respective clinical management teams in order to ensure a consistent and equitable service delivery and modernisation agenda of laboratory services provision is achieved.

7.0 KEY ISSUES/DRIVERS FOR REVIEW

7.1 Growth in Demand

Work through the Steering Group and the Clinical Specialty Groups highlighted a number of common key pressures and drivers for a review of laboratory medicine.

Service pressures, in particular year on year growth in demand, is a major factor driving the review, exacerbated by growth in demand arising out of the chronic disease management initiatives in primary care which form part of the new target driven GMS contract. In addition, patient expectation clearly is a factor which has an impact on the ongoing growth in range of tests requested, together with ever increasing pressure on turnaround times for rapid diagnosis and treatment for emergencies, cancer and other health related targets.

In addition, as clinical services are re-aligned and consolidated from 6 to 3 sites across the city, it is important to ensure that the laboratories are well placed to meet the clinical site demands of our specialty services. To that end, a key driver for the Laboratory Review has been to determine the optimum organization and configuration of laboratories, taking into account the major reconfiguration of specialties outlined in the acute services review.

7.2 Automation – Managed Service Contract (MSC)

On 30th August 2005, Laboratory Services GGHB signed a contract with Abbott Diagnostics to provide a new seven-year MSC to provide automated diagnostic services, which will save NHS Greater Glasgow approximately £9 million over the life of the contract.

The contract with Abbott Diagnostics and third party suppliers will provide laboratory diagnostic services for Biochemistry, Haematology, Virology and Immunology and is the largest contract for automated diagnostic services awarded in Europe and one of the top ten in the world.

The MSC will see the installation of leading edge diagnostic technology including a combined Chemistry and Immunoassay system in the Victoria Infirmary, Yorkhill, Stobhill and the Western Infirmary; and it incorporates major automated tracking solutions at the Southern General, Gartnavel General and Glasgow Royal Infirmary for both Biochemistry and Haematology.

A key part of this contract was the ability of the main contractor and third party suppliers to provide a wide selection of diagnostics services to best meet our adult and paediatric hospital testing needs

As a result of the installation of these new automated systems, a yield £1.2 million in revenue savings will be generated per annum through VAT reclamation and reduced unit costs.

7.3 Information Technology (IT)

Laboratory services are centred around the smooth and efficient exchange of information, and as a result there is a heavy reliance on IT. It is often quoted that c70% of all patient diagnosis and treatment is laboratory dependant. Having efficient IT systems in place therefore is absolutely fundamental to the Laboratory Strategy and has been quoted as a pre-requisite by all the clinical specialty groups.

A major review of laboratory services IT capabilities and requirements was conducted by the IT sub group of the Strategy Group. The majority of Glasgow services are on Telepath system – there is no alternative superior software provider currently in the market. Deficiencies in the current systems have been reviewed by the IT Group and a series of short, medium and longer term proposals have been made to address current shortcoming. The IT Group have made recommendations relating to the integration of existing database systems, and further work has been highlighted as being necessary on electronic reporting/requesting, including extending these system capabilities into Primary Care which currently operate a paper based system. The clinical benefits of an integrated Pathology system impacts significantly on turnaround time for reporting results and the timely availability of the complete patient record to both the primary and secondary care setting.

Robust IT systems will also have an impact on the avoidance of unnecessary duplication of tests, which currently can happen due to the lack of system integration.

The IT recommendations are partly tied into the development of ACADs. The final report will indicate the minimal future investment required to maintain systems. This needs to be taken forward by the Diagnostic Division interfacing with the Boards ITC strategy team

7.4 Staffing

The Manpower, Education and Training Group looked at new ways of working, skill mix, optimum staffing profiles, provision of out of hours, and manpower training and education. The Sub Group published a preliminary report, endorsed by the Steering Group.

To develop optimum staffing profiles for the reconfiguration outlined in each of the options – the specialty groups, with strong partnership involvement worked up proposals for options as part of the financial evaluation. This work was informed by benchmarking information which was commissioned through the University of Keele.

The second major factor impacting on staffing profiles is the reconfiguration and consolidation of services onto fewer sites - there is currently a need for senior and supervisory grades at each site - by consolidating services we can reduce staff in these grades.

Site configuration changes also drive a different pattern of out of hours provision and create the need to introduce an extended day service and 24/7 cover.

7.5 Capital and Estates

Major review of Capital and Estates focused on

- Condition surveys of existing Laboratory buildings
- Functional suitability of existing laboratory building
- Estate Costs

As part of the estates review, we have:

- Identified areas where facilities can be closed and consolidated onto fewer sites
- Worked up capital plans for refurbishment of major laboratory building to be retained by the strategy e.g. the Macewan building and the University Tower at GRI. The Reference Labs, currently at Stobhill can be moved into better accommodation and provided with the opportunity to be co-located with their main specialty base in purpose built facilities rather than their current peripheral and poor site facilities
- Worked up capital plans for major refurbishment of the University Tower

The Leukaemia Research Fund laboratory building at Gartnavel is the first plank in the laboratory estates's strategy, with the new build facility at SGH to follow.

The reconfiguration and consolidation of services has allowed a capital plan which is affordable from revenue savings achieved in modernization and reconfiguration of services.

Reconfiguration of services drives a different pattern of service provision. The current Stobhill and Victoria laboratories will close, and provision will be through the RRL on the ACAD sites.

7.6 Network Framework

Early on in the Laboratory Review it was recognized that there was a need to review and effect changes in the laboratory management structure in order to meet the Laboratory Strategy objectives. A seminar was held to discuss management/network arrangements with input from partnership. Agreement was reached on a draft management structure, subsequently endorsed by the wider review of management structures in Glasgow. This instituted a unified Laboratory Service for Glasgow, with one specialty lead for each service, leading to joined up and integrated services for Glasgow. Clinical specialty support will be provided on each site to co-ordinate activity thus allowing strategic focus and management of services

It was agreed by the group that the proposed new management structure would have a beneficial impact on the following laboratory management principles:

- Demonstration of clear lines of accountability
- Facilitation of Work across traditional boundaries
- Facilitation of Devolved decision-making as far as possible
- Effective co-ordination of cross-departmental issues
- Provision of manageable span of control
- Clinical governance, supervision and quality control
- Partnership working to develop & manage the service
- Effective staff governance
- Improved liaison with external service users

**Option 2 - Glasgow Laboratory Medicine Strategy
Spatial Requirements**

APPENDIX 1 (a)

Updated Costs @ October 2006

OPTION A	Spatial Requirements	Sqm	Costing / including Fees, VAT (£000's)	Cost per sqm (£)	Assumptions
GRI Refurbishment (University Tower)	Microbiology, Mycology & Dental, Virology Reference Laboratories	1,400 1,200 <u>1,500</u>			
		<u>4,100</u>	£5,589	908	Total Cost includes fees @ 15% & Vat @ 17.5% and equipment costs of 15%
GRI Refurbishment (Macewan Building) - Remedial Works external & internal to extend building life to 30 / 40 years	Biochemistry, Haematology		£2,300	-	includes fees, VAT & Equipment
GRI Body Store		294	£1,030	-	
GGH Middle floor - existing building			£800		Refurbish existing middle floor of building. Ground Floor in existing build already refurbished. Top floor being refurbished as part of current build programme.
SGH New Build (incorporates facility for new childrens' hospital previously not included)	City Wide Pathology Biochemistry Haematology Microbiology Genetics Mortuary including paediatrics & city mortuary Circulation & Reception Space	3,200 2,500 2,500 2,200 3,000 800 <u>800</u>			
		<u>15,000</u>	£45,753		Based on Doig & Smith sqm cost at Sept 2005 (£2208 per sqm plus fees at 15%, VAT @ 17.5% and Equipment of £1m)
TOTAL OPTION A			£55,472		

**Option 2 - Glasgow Laboratory Medicine Strategy
Spatial Requirements**

APPENDIX 1 (b)

Updated Costs @ October 2006

OPTION B	Spatial Requirements	Sqm	Costing / including Fees, VAT (£000's)	Cost per sqm (£)	Assumptions
GRI Refurbishment (University Tower)	Microbiology, Mycology & Dental	1,400	£1,718	908	includes fees @ 15% & Vat @ 17.5%
GRI Refurbishment (Macewan Building) · Remedial Works external & internal to extend building life to 30 / 40 years	Biochemistry, Haematology		£2,300	-	includes fees, VAT & Equipment
GRI Body Store		294	£1,030	-	
GGH Middle floor - existing building			£800		Refurbish existing middle floor of building. Ground Floor in existing build already refurbished. Top floor being refurbished as part of current build programme.
SGH New Build (incorporates facility for new childrens' hospital previously not included and provision for Virology & Reference Laboratories)	City Wide Pathology	3,200			
	Biochemistry	2,500			
	Haematology	2,500			
	Microbiology	2,200			
	Genetics	3,000			
	Virology	1,200			
	Reference Laboratories	1,500			
	Mortuary including paediatrics & city mortuary	800			
	Circulation & Reception Space	800			
		<u>17,700</u>	£53,809		Based on Doig & Smith sqm cost at Sept 2005 (£2208 per sqm plus fees at 15%, VAT @ 17.5% and Equipment of £1m)
TOTAL OPTION B			£59,657		

RECURRING REVENUE SAVINGS PER ANNUM

APPENDIX 2

Pay Costs (per annum) (uplifted for April interim payment)

	Current Cost	Future Costs (under staffing model for option 2)	Savings per annum
Haematology	£5,694,726	£4,520,232	-£1,174,494
Biochemistry	£6,770,524	£5,454,490	-£1,316,034
Microbiology	£4,221,915	£3,921,915	-£300,000
Pathology	£6,141,089	£5,795,988	-£345,101
TOTAL	£22,828,254	19,692,625	-£3,135,629
add 24/7 working premium			£237,000

Total Pay Savings **-£2,898,629**

Non Pay

Managed Service Contract			-£1,150,000
Histopathology / Microbiology			-£400,000

Total Non Pay **-£1,550,000**

Income Recovery from Fiscal & Strathclyde Police for City Mortuary provision			-£56,000
Build recovery costs only - running costs & staffing costs will be a funding transfer to NHS			

Total Revenue Savings **-£4,504,629**

Capital Charges

Current Capital Charges	£2,287,414
less: reduction from released estate	-£1,922,050
Additions from Reurbishment and New Build	£3,314,000

Forecast Capital Charges £3,679,364

Additional Capital Charges **£1,391,950**

Balance of Recurring Revenue Savings **-£3,112,679**