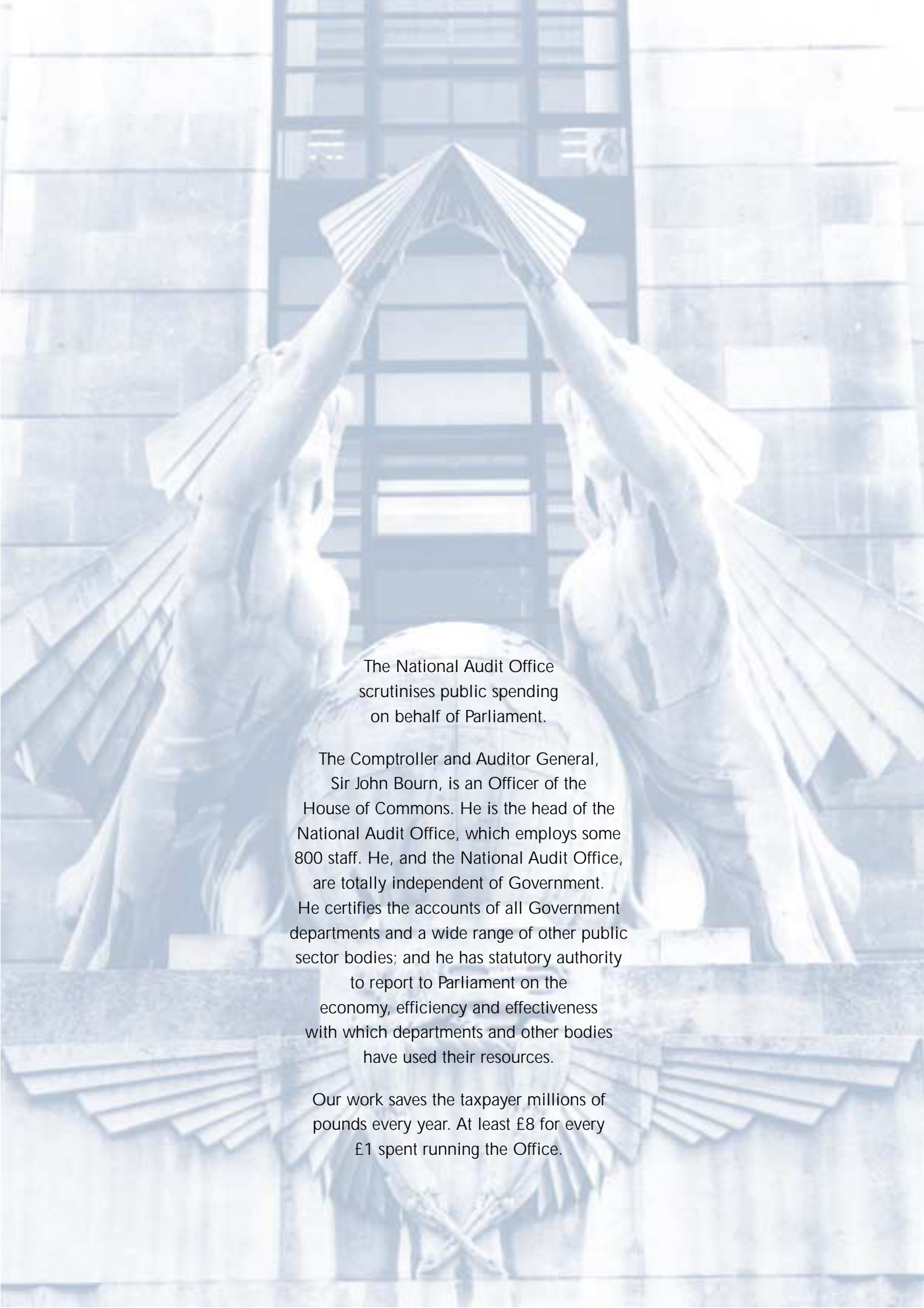


Government Communications Headquarters (GCHQ): New Accommodation Programme

REPORT BY THE COMPTROLLER AND AUDITOR GENERAL
HC 955 Session 2002-2003: 16 July 2003





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Government Communications Headquarters (GCHQ): New Accommodation Programme



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This report has been prepared under Section 6 of the National Audit Act 1983 for presentation to the House of Commons in accordance with Section 9 of the Act.

John Bourn National Audit Office
Comptroller and Auditor General 10 July 2003

The National Audit Office study team consisted of:

Ray Kirk, Kevin Browne, Bob Burwood under the direction of Jeremy Colman.

This report can be found on the National Audit Office web site at www.nao.gov.uk

For further information about the National Audit Office please contact:

National Audit Office
Press Office
157-197 Buckingham Palace Road
Victoria
London
SW1W 9SP

Tel: 020 7798 7400

Email: enquiries@nao.gsi.gov.uk

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executive summary

- 1 GCHQ provides intelligence services as directed by the Government. Since 1952 GCHQ has occupied - and developed piecemeal - two sites on opposite sides of Cheltenham.
- 2 In 1997 GCHQ decided on an updated strategy to redevelop its Cheltenham accommodation and, in June 2000, signed a contract under the Private Finance Initiative with IAS Limited, a newly formed company set up for the purpose by a consortium of construction and specialist firms. The contract was a deal for the provision of serviced accommodation in a new building for a period of some 30 years.
- 3 The net present cost of the contract over thirty years is estimated at £489 million, based on payment of £46 million annually, to start when the new building is ready for occupation. Eventually GCHQ expects to be able to vacate both its existing sites, which would then be sold, and locate its entire Cheltenham operation, some 4000 staff, in the new building.
- 4 GCHQ's operations are highly dependent on very large and complex computer systems. These will need to be moved to the new building in a process known as technical transition. Technical transition is not part of the PFI deal; GCHQ is managing it, not IAS. But it will need to be carefully co-ordinated with the move into the new building that IAS is providing. The combined project, comprising the PFI deal, technical transition and other changes, is now known as the New Accommodation Programme.



- 5 GCHQ's original estimate for technical transition was £40 million. However, during work to ensure millennium compliance of its computer systems, it found that technical transition would be a much more complex and expensive undertaking and revised its estimate to £450 million. To render technical transition affordable, GCHQ is now planning to phase the process, but it will nevertheless cost over £300 million. The estimated combined cost of the PFI deal and technical transition is £783 million (Net Present Value) over thirty years. This total excludes GCHQ's own manpower and associated running costs that are provided from its existing budgets.

- 6 We examined the effectiveness of GCHQ's conduct of the PFI procurement and whether GCHQ's New Accommodation Programme is likely to deliver value for money. We concluded:
- a GCHQ pursued a PFI deal covering the whole of its Cheltenham operations as a consequence of the then government policy to test all capital expenditure for suitability as PFI projects. Piecemeal redevelopment of the Cheltenham sites would not have been feasible through a PFI approach (Part 1);
 - b GCHQ set about what was then seen as a PFI building project in a sensible manner, leading to the selection of IAS as preferred bidder (Part 2);
 - c Subsequent negotiation with IAS to resolve non-compliances in its bid and changes in scope led to increased costs. Despite the necessarily non-competitive nature of some of these negotiations, GCHQ was able to satisfy itself that the cost increases were reasonable (Part 3);
 - d GCHQ's original options appraisal had been made with little knowledge of the real costs of technical transition. Its recognition that the costs of technical transition would be far higher than expected prompted a review of the way the PFI project for a new building was being managed. Technical transition and the new building are now seen as components of the whole New Accommodation Programme (Part 4);
 - e The New Accommodation Programme, as now conceived, is on track to deliver, to time and to budget, both the new building and the first stages of technical transition. GCHQ is, moreover, working to ensure that the planned business benefits are realised, and the potential disbenefits are minimised. In addition to these specific benefits and disbenefits, the PFI deal brings the generic benefits and disbenefits associated with such deals for headquarters buildings. When Ministers agreed to the final PFI deal at a price largely determined by competition, they had full knowledge of the cost of technical transition. GCHQ also considered that the New Accommodation Programme would cost less than its best conventionally financed alternative and would deliver greater benefits. It is only possible to speculate whether Ministers would have approved the wholesale redevelopment of the Cheltenham sites had they known the full cost of technical transition when they considered GCHQ's original option appraisal. In GCHQ's view, even with the benefit of hindsight, the option selected, and now being implemented, was the one offering the greatest overall value for money (Part 5).



Recommendations

- a When a Government department is considering major investment in new accommodation and services it is essential that the full scope of the requirement is properly defined from the outset. In this case GCHQ failed to consider all the implications of the fact that it was relocating its entire business capability to new accommodation and that technical transition was a major factor. As a result, at the time Ministers and the Treasury were asked to approve the PFI strategy they could not have known about the high costs of technical transition.
- b It is essential that departmental Management Boards are given full and properly estimated information on costs when considering investment proposals. The Burton report on transition costs and management of the New Accommodation Programme found high level planning and management weaknesses at GCHQ. The failure to identify the high technical transition costs earlier was a manifestation of these weaknesses.
- c The negotiating period between selection of the PFI preferred bidder and signing of deals should be kept to a minimum. Too many unresolved issues can lead to the cost of the deal being significantly understated when selection is made and can threaten value for money. In this case, therefore, although GCHQ prolonged competitive tension by adding an additional procurement stage, there was a gap of 21 months before the deal was signed, partly caused by the consortium's problems. During this time the non-competitive increase in the net present value of the contract was nine per cent; however, GCHQ's advisors analysed this increase and concluded that it was acceptable.
- d In any PFI deal careful consideration needs to be given to the effectiveness of benchmarking value for money against an assumed conventionally financed alternative procurement arrangement. In many cases a realistic alternative is not obvious and may not be capable of offering a useful measure. In this instance GCHQ and the Treasury carefully considered the form of the alternative and it went through a number of changes before manifesting itself as a recall of the original two site Cheltenham Building Programme. The comparison, while a useful benchmark, needs also to be put into the context of the potential long term benefits of a PFI deal such as specific corporate benefits and a real transfer of risks to those incentivised and better experienced to manage them both in respect of design and construction of a new building and the provision of services.
- e Other Government Departments might learn lessons from the way that GCHQ developed its programme management arrangements for this major hybrid change programme. While standard programme management frameworks formed a base for managing GCHQ's New Accommodation Programme, they overlapped imperfectly and there was little guidance available on the management of benefits delivery. Departments should follow best practice - developing additional tools as necessary - and should especially focus on introducing programme management procedures to identify, plan and then deliver all the benefits attainable from their PFI programmes.



Part 1

Why GCHQ pursued a PFI deal

This part of the Report examines why GCHQ decided to move from its two existing sites in Cheltenham to new accommodation on a single site. GCHQ had found that many of its existing older buildings were difficult to maintain and were not flexible enough to cater for the rapid changes in technology that needed to be introduced to continue to meet its customers' requirements. Funding constraints in the mid 1990s frustrated plans for incremental development of the existing buildings and sites. The advent of private sector participation in public procurement projects led to the decision in 1997 to relocate the whole of the Cheltenham operation under a Private Finance Initiative (PFI) deal.

GCHQ had a rolling programme of building replacement

- 1.1 The Government Communications Headquarters (GCHQ) provides intelligence and information assurance services for the Government under the terms of the Intelligence Services Act 1994. This defines its main role as obtaining and providing information, and providing advice and assistance about languages, cryptography and other matters relating to the protection of information and other material. This was to be done in the interests of national security, of economic well being or in support of serious crime prevention. Ministerial responsibility for GCHQ rests with the Secretary of State for Foreign and Commonwealth Affairs.
- 1.2 GCHQ employs some 4,500 people at two large sites in Cheltenham - Oakley and Benhall. The organisation's main customers are UK Government Departments including the Ministry of Defence, the Foreign and Commonwealth Office and the Security and Intelligence Agencies.
- 1.3 The Oakley and Benhall sites had been in use by other Government departments since the late 1940s but were first occupied by GCHQ in 1952. At that time they comprised a number of low-level, single storey, brick-built blocks which have a central spine and spurs to accommodate office and technical areas. Since the 1950s larger blocks of three to six storeys have been built to accommodate advances in technology and the expansion of the business.
- 1.4 Throughout the 1960s and 1970s, GCHQ had to address the problems of maintaining ageing buildings and meeting the demands of rapid changes in technology in the collection of signals intelligence. By the late 1980s, GCHQ considered moving operations into a single building, but the large size of the organisation and staff numbers meant that this would have been difficult. Following the end of the Cold War GCHQ reduced its staff numbers.

- 1.5 GCHQ found that its existing buildings were inflexible and ageing. It accordingly developed plans known as the Cheltenham Building Programme. This was to provide good quality accommodation for staff with an increasing requirement for desk-top equipment, and for the increasingly complex Information Technology systems used by them.
- 1.6 The Cheltenham Building Programme involved a rolling plan of accommodation improvements at both Cheltenham sites, covering the 20 years from 1990 to 2010. The first stage of the Programme involved building a new office block at the Oakley site, and a major new building to house the computer centre and provide modern office accommodation for the Information Technology staff. GCHQ also considered constructing a new building on the Benhall site to relocate the Communications Electronic Security Group (CESG)¹, part of its business.

Treasury told GCHQ to consider a PFI approach to the rolling programme

- 1.7 By March 1996, GCHQ had realised that funding constraints would mean that the Cheltenham Building Programme would take much longer to implement than planned. At that time it was Government policy to test all capital expenditure for suitability as PFI projects. GCHQ therefore decided to progress its most pressing accommodation need - a proposed £40 million computer block at Oakley - whilst investigating whether a PFI solution for accommodation at Benhall was feasible.
- 1.8 In May 1996 a GCHQ project team was created to investigate the feasibility of a PFI solution at Benhall. The review considered an accommodation strategy for Benhall and an outline business case, with value for money as the overriding consideration. The scope of the study then widened to include relocation and the provision of other services on one site, such as estate management and training.

¹ Communications-Electronics Security Group (CESG) is the Information Assurance arm of GCHQ. It is the UK government's national technical authority for information assurance issues, and helps formulate information assurance policy and provides guidance for official use, for example by Government departments.

- 1.9 In June 1996, however, the Treasury advised GCHQ that it would not consider approving proposals for the computer block until a PFI solution for all of GCHQ's accommodation needs had been investigated.
- 1.10 In July 1996 the Benhall accommodation study team concluded that a PFI approach was likely to offer the best value for money for new build accommodation. Its draft business case considered three options. Two of these included the transfer of some of the Oakley operations to Benhall and the third was for a new building for all of GCHQ's Cheltenham operations on the Benhall site.

The Project expanded to encompass all Cheltenham accommodation

- 1.11 In the light of the Treasury guidance the team proposed expanding the scope of its study to encompass all of GCHQ's accommodation needs. In July 1996, GCHQ's Director therefore suspended the Cheltenham Building Programme and the proposals for the new computer block. The GCHQ Management Board then instigated the New Accommodation Project study to consider the "Feasibility and Value for Money of a Private Finance Initiative approach to both the Oakley and Benhall accommodation".
- 1.12 In September 1996, the GCHQ Board approved a Business Case for the Accommodation Development Project, based on the options identified for the Benhall site, and agreed that the principles governing the inclusion of Information Technology services should be agreed with GCHQ's external stakeholders. GCHQ estimated that it would take between five and seven years to provide the new accommodation.
- 1.13 In November 1996, GCHQ's Accommodation Development and PFI Study Project Board met for the first time and approved the overall project purpose and scope. In December 1996 the Board approved a communications strategy and, with Cabinet Office agreement, GCHQ proposed to the Treasury a policy on the application of PFI to its Information Technology services. The key principles included the unacceptability of making GCHQ's intelligence services to Government vulnerable to commercial pressures as a result of placing responsibility for their delivery into the private sector. In March 1997 the Treasury accepted this policy.
- 1.14 In April 1997 the main GCHQ Board approved a PFI solution to the Business Case for the future delivery of the New Accommodation Project and related services over a 30-year period. In line with the Treasury's acceptance of its Information Technology policy, the business case recommended that the movement of its Information Technology intelligence services equipment into the new accommodation, known as technical transition, should be excluded from the scope of the PFI project and be undertaken in-house. This was mainly for the security reasons previously stated, but also because GCHQ believed that, given the unique nature of its business, the private sector would not accept technical transition risks.
- 1.15 In May 1997 the then Secretary of State approved the Strategy and PFI approach for GCHQ's new accommodation. As a result, the Accommodation Study Board recommended proceeding with a PFI Project to relocate and develop the whole of Cheltenham accommodation. GCHQ then commenced the PFI procurement process.



Part 2

How GCHQ set about the PFI process

This part of the Report examines how GCHQ selected its preferred PFI bidder, IAS. It shows that there was wide market interest in the proposal and that GCHQ engaged experienced private sector advisors to help its team specify the output requirements and assess the bids. It describes how there was an additional stage in the competition when four bidders were reduced to a short-list of two before IAS was selected in September 1998.

GCHQ's option appraisal indicated a single site solution

2.1 The scope of the business case was based on existing needs but emphasised strongly the need for future flexibility to meet GCHQ's requirements over the contract period. It summarised the condition of the existing buildings on GCHQ's Cheltenham estate and looked at a range of 12 accommodation options in detail (Appendix 1). GCHQ required that the options provided a safe and secure operating environment, which was continuously available to support its operations.

The 12 options were analysed under various criteria. These included the impact on capital investment, the disruption to the business, the needs of customers and the impact on staff, many of whom had very specialised skills and lived in the Cheltenham area. GCHQ eliminated seven of the 12 options as being impractical or unlikely to meet its business needs. It considered five options in more detail, of which four involved major development.

2.2 The five options were:

- do minimum maintenance and refurbishment, known as the Service Cost Benchmark;
- develop both existing sites, continuing the Cheltenham Building Programme;
- consolidate at Benhall, using PFI and benefit from the disposal of the Oakley site to meet future accommodation needs;
- consolidate at Oakley, using PFI and benefit from the disposal of the Benhall site to meet future accommodation needs; and
- relocate to a local green field site, using PFI. This would require the purchase of a new site, the costs of which would be offset by proceeds from the disposal of both the Oakley and Benhall sites.

2.3 GCHQ estimated the construction and operating costs of the five options using a discounted cash flow analysis over a 30 year period. Three main types of benefit were identified - productivity gains, improved working environment and ease of implementation - and these were assessed using specific criteria and a weighting system. GCHQ also assessed the risks and uncertainties of each option.

2.4 GCHQ's assessment indicated that a single site option would yield financial and operational benefits, so the other options were not pursued further. The cost estimates were very close for the three single site options (**Figure 1**), as were the benefit scores for the Benhall and green field site options. The April 1997 Business Case therefore recommended that GCHQ pursue an integrated accommodation solution, and that the cost estimates in the appraisal would be tested through a bidding competition. The choice of site was to be left open to bidders in the competition.

1 The Net Present Values of three options were close

The figure shows that the net present values of three of the four options were close, as were the benefits scores of the Benhall and green field options

Option	Net Present Value £ m	Benefit Score
Consolidate at Oakley	421	69
Consolidate at Benhall	424	87
Develop both sites	481	41
Move to local green field site	429	84

Source: GCHQ

GCHQ tested the market extensively to judge the level of interest in the project

- 2.5 GCHQ advertised the project in June 1997 and received 149 expressions of interest. This response indicated that the PFI route for new accommodation was feasible and that there was sufficient market interest for it to hold a meaningful competition. GCHQ held a Briefing Day on 4th July 1997 so that the interested parties could obtain more detailed information on its requirements.
- 2.6 Following the Briefing Day, GCHQ received 18 Requests for Qualification, many from amalgamations of organisations that had attended the briefing. All four eventual bidders confirmed that there had been a great deal of interest from industry in the project, and praised the way GCHQ had initially sought this.

GCHQ set up a management structure to oversee and manage the project

- 2.7 In October 1996 GCHQ had established a team of nine staff to progress the New Accommodation Project. The team would be responsible for the timely and efficient delivery of the Project, and was headed by the Project Director, who reported to the Project Board. This Board was headed by the Director of Administration who in turn reported to the main GCHQ Board, chaired by the Director of GCHQ.
- 2.8 The Project Team did not have any PFI experience so, early in the process, it appointed a team of advisers from a list supplied by the Private Finance Panel Executive and Treasury Task Force (Figure 2). These were all appointed through the normal competition process, and GCHQ and its advisers liaised closely with the Private Finance Panel in preparing the Invitation to Tender and the competition and timetables.

2 GCHQ's external advisers

The Figure shows the advisers GCHQ commissioned to advise on the business case for new accommodation

Type of advice	Adviser
Financial	Dresdner Kleinwort Benson
Legal	Herbert Smith
Financial Management	Capita Consulting
Planning	Chesterton
Risk Management	The Conspectus Partnership

Source: GCHQ

The Invitation to Tender was generally output specified, with a strong emphasis on flexibility

- 2.9 In line with best practice for privately financed projects, GCHQ aimed to specify the services it required from bidders, rather than how these services should be delivered. This approach allowed bidders more scope to decide how best to meet GCHQ's accommodation requirements.
- 2.10 The Invitation to Tender specified that the building should accommodate 3,750 workplaces and be within a ten mile radius of Cheltenham. There was a strong emphasis on flexibility to deal with changes in GCHQ's business needs, due to uncertainties about future intelligence and information technology requirements. This was the first PFI deal to provide Information Technology infrastructure together with serviced accommodation. GCHQ's business is heavily dependent on Information Technology and telecommunications, so these areas of the invitation to tender were more heavily specified than in most PFI building deals.
- 2.11 All bidders told us that there had been sufficient scope for them to provide innovative designs and to choose the appropriate site to meet GCHQ's requirements. They said that the invitation to tender had been well specified in output terms. Bidders also told us they accepted the need for more specification in technical areas due to the unique nature of GCHQ's business. They designed their bids to accommodate these needs, and all considered that they had developed workable solutions to the building design.

The selection process appears to have been sensible and rigorously applied

- 2.12 GCHQ is exempt from normal European Union procurement rules. Nevertheless, it followed a procurement process based on the European Union's Negotiated Procedure in line with best practice for PFI deals. GCHQ's external advisers, who had a great deal of experience of PFI projects, told us they believed GCHQ had made good use of them and had involved them well at this stage of the process.
- 2.13 GCHQ selected nine bidders to pre-qualify from the original 18 organisations that had expressed an interest. GCHQ and its advisers then considered whether the eight pre-qualification submissions were likely to meet the invitation to tender's requirements.

3 The four bidders invited to tender

The Figure shows the four consortia invited to bid in October 1997

Name of bidding consortia	Companies involved
Turing	Aqumen Services, ICL, CIBC Wood Grundy, Scottish Hydro Electric
Oakley Partnership	Amec, Symonds, EDS, Goldman Sachs
Signal	Bovis Construction, Johnson Controls, Stanhope
IAS (originally GSL)	Carillion (originally Tarmac Construction), Group 4, (later) British Telecommunications

Source: GCHQ

2.14 This selection process led to four bidders being short-listed for the invitation to tender stage in October 1997 (Figure 3). Three of the four short-listed bidders told us that they believed that GCHQ and its advisers had handled the bidder selection process well. One, however, believed that GCHQ had not been clear about its objectives.

2.15 GCHQ and its advisers undertook detailed analysis of the four short-listed bids in April 1998. The bids were divided into groups of key aspects such as building design, service provision, security etc. GCHQ was generally disappointed with the level of detail and maturity of the bidders' proposals. The proposals were evaluated against the Treasury's standard criteria and the specific criteria in the invitation to tender. GCHQ found that none of the bids fully met its requirements, for example on security. Also, widely differing assumptions of project scope were used by bidders in compiling their tender prices and they did not include a financial model in the format requested. GCHQ's economic evaluation summary is shown at Figure 4.

2.16 The IAS bid had the best overall rating. Signal's bid, which favoured redevelopment of the Oakley site, was seen to be highly priced, of poor quality and overly complex compared to the other three. Turing's bid was seen to be the best on most criteria except cost.

To maintain competition an extra two bidder procurement stage was introduced

2.17 None of the four bids complied with Treasury's criteria for selecting a single preferred bidder. In addition, GCHQ required substantial changes to the bids to enable them to meet its requirements.

2.18 Following assessment of the four bids, GCHQ decided that the Oakley Partnership (Oakley) and IAS bids were the most likely of the four to offer a deliverable solution at an affordable price. They were short-listed and asked to submit revised bids based on an Invitation to Continue Negotiations, which outlined GCHQ's further requirements and indicated where the earlier bids had not been technically compliant.

2.19 At this stage GCHQ decided to expand the scope of the PFI deal to include physical security, logistics and waste disposal. It did this on the basis of one bidder demonstrating that it could improve value for money by 20 per cent over GCHQ's best estimate for re-engineered services; and the second one saying it could achieve at least the same value for money as GCHQ. This showed that GCHQ was keen to achieve value for money by getting the private sector to deliver what it was best able to supply to satisfy what the public sector wanted.

4 The Results of the Economic Analysis of the four bids

The Figure shows that IAS had the best overall ranking and that Oakley largely ranked second when price was given precedent over quality

Bidder	IAS	Oakley	Turing	Signal
Bid	£328 m	£435 m	£485 m	£480 m
Weighted Score/Price	100.0	75.4	67.6	68.3
Weighted Score/Quality	37.5	34.4	48.2	28.4
Ranking				
Price/Quality Ratio 90:10	1	2	3	4
Price/Quality Ratio 80:20	1	2	3	4
Price/Quality Ratio 70:30	1	2	3	4
Price/Quality Ratio 60:40	1	3	2	4
Price/Quality Ratio 50:50	1	3	2	4

Source: GCHQ

- 2.20 During the subsequent period of further negotiation capital costs increased by 38 per cent. In addition, operating costs increased by 42 per cent and other and financing costs by 56 per cent. Construction costs alone increased by some £79 million and the total increase in real costs was 46 per cent. Some of these increases overlapped with the period of single bidder negotiations described later.
- 2.21 These changes had been foreseen by GCHQ at both the tender evaluation stage and when the Invitation to Continue Negotiations was issued to the two short-listed bidders, IAS and Oakley.
- 2.22 In September 1998, GCHQ and its advisers undertook the final evaluation of these revised bids. **Figure 5** shows that IAS's bid had lower estimated net present value costs than Oakley's. GCHQ also considered that IAS's single "Doughnut" shaped building design was more flexible and cost effective than Oakley's proposals for a complex of standard office buildings.

5 Final Comparison of the IAS and Oakley bids

*The Net Present Values are based on January 1999 discount rates
The Figure shows that the IAS bid had lower Net Present Costs than the Oakley bid
These costs include estimated additions to make each bid compliant*

Net Present Value Costs	
Bidder	£ m
IAS	404
Oakley	493

Source: GCHQ

2.23 GCHQ found that, although a lot of work remained to resolve non-compliances during the final negotiation stage, IAS's bid offered a competitive price and a design solution that addressed its key accommodation and service requirements. On the other hand, the costs of the Oakley bid were significantly higher and left significant design and deliverability issues unresolved. GCHQ considered that, as IAS met Treasury's criteria for selection as a single preferred bidder, it was under an obligation from the Bates Report to minimise bid costs and proceed with a single preferred bidder.

2.24 GCHQ therefore selected IAS as the Preferred Bidder on 15th September 1998. IAS's Best and Final Offer (BAFO) was a unitary payment of £29.5 million. GCHQ's evaluation team estimated that to achieve full compliance with its requirements the unitary payment would need to be £37.5 million based on information received from bidders during the competition. Extending this figure, the total net present value of payments to be made to IAS for 30 years for delivery of accommodation and services defined in the contract was estimated by GCHQ at £404 million. The Unitary Payments are shown in detail later in **Figure 7** (paragraph 3.14).

2.25 GCHQ's move from four bidders to a short-list of two was an additional stage in the competition that bidders had not foreseen and that may have increased their bidding costs. Bidders, however, told us that, despite this extra step, they felt that the competition had been well run and that key dates and milestones had been met. They felt that the Project Manager had been key in keeping the process on track and had built good working relationships with them. In addition, GCHQ undertook a full de-briefing for all losing bidders: good practice that can help bidders to learn for future competitions.



Part 3

Negotiations after selection of the preferred bidder

This Part of the Report examines the outcome of negotiations with IAS after its selection as preferred bidder in September 1998. It shows that, at that time, GCHQ knew that IAS's bid did not comply wholly with its requirements and that substantial uncertainty remained over the services to be provided by IAS, the location of the building and GCHQ's accommodation requirements. It describes how the extra costs of resolving the outstanding issues were contained within the budget approved by Ministers and the Treasury but that due to IAS's status as preferred bidder not all the negotiations could be conducted in a competitive environment. The negotiations resulted in the net present value of unitary payments increasing from £404 million at preferred bidder stage to £489 million at contract signature.

Service requirements had not been finalised and GCHQ needed to select one of the bidder's offered sites

- 3.1 The Invitation to Tender and Invitation to Continue Negotiations envisaged that a number of services would be included in the project's scope and defined in Service Level Agreements. When GCHQ selected IAS as preferred bidder, some of these Service Level Agreements had yet to be negotiated to reflect GCHQ's service requirements over the contract period. As a result, the final cost of those services had not been determined.
- 3.2 Also, the invitation to tender did not specify a location for bidders, other than stating that it must be within a ten mile radius of Cheltenham. When the preferred bidder was selected, there were two possible locations, the existing Benhall site and a green field option at Gloucester Business Park, in Brockworth, some five miles from Cheltenham, under the control of Tewkesbury Borough Council.
- 3.3 IAS's "Doughnut" design was flexible enough to be accommodated on either site; however, the sites were not identical, and these differences had to be recognised in the building design. In order to provide bids for both sites, therefore, IAS had to maintain separate design models and costs for each location. This increased their bidding costs until GCHQ selected the final site.
- 3.4 The requirement to provide bids for both sites was maintained in order to apply pressure on the local planning authorities so that they worked with IAS to overcome the significant planning and local political issues at each place. GCHQ said that this ensured that neither GCHQ nor IAS was held to ransom by any party. GCHQ made their choice once both sites had become viable options.
- 3.5 GCHQ analysed the costs and benefits of each site, including non-financial factors. The initial financial analysis slightly favoured the Gloucester Business Park site. However, this did not take account of environmental factors or the costs of providing temporary telecommunications between the existing and new sites.
- 3.6 GCHQ then sought the advice of the Department of the Environment, Transport and the Regions on the environmental impacts of the site choice. Most GCHQ staff lived in the Cheltenham area and a move to Gloucester Business Park would increase the number of car journeys and be detrimental to the environment. As a result of these environmental and other, unquantifiable, factors, GCHQ chose the Benhall site in May 1999, some eight months after preferred bidder selection.

After preferred bidder selection, GCHQ needed to resolve non-compliances and cater for an increased work force

- 3.7 During Autumn 1998 GCHQ carried out a Value Engineering exercise² to help identify areas where costs could be reduced from IAS's Best and Final Offer. Results of this exercise identified some £3 million of savings from proposals that were taken up as later offers were clarified.
- 3.8 After selection of IAS as preferred bidder, GCHQ's original project manager resigned, and a number of other changes occurred in the GCHQ personnel involved in the negotiation. As a result there was a break in the continuity of the negotiation, with some issues being revisited and thus extra delay.

² Value Engineering comprises an organised effort directed at analysing designed building features, systems, equipment, and material selections to identify changes that will achieve functions at the lowest life cycle costs consistent with required performance, quality, reliability and safety. The process is typically also used by contractors during the ensuing construction phase.

- 3.9 The new Programme Director, who was appointed in December 1998, undertook a further internal consultation exercise with technical end-users and other GCHQ staff to confirm their needs and ensure that the IAS bid met all their requirements. These consultations led to changes in those requirements, the major one being an increase in the number of workplaces from 3,750 to 4,025 (7.3 per cent). This change reflected the fact that GCHQ staff numbers were not decreasing as previously envisaged.
- 3.10 At the same time GCHQ worked with IAS to resolve non-compliances, previously agreed scope changes and lack of sufficient detail and affordability of its bid. These tasks included:
 - 1 provision of a logistics building which IAS had offered only as an option but without which it would be unable to run the specified services for GCHQ under the PFI deal;
 - 2 ensuring that IAS's designs for the supercomputer halls, office floors, and laboratory space complied with GCHQ's requirements; and
 - 3 ensuring that IAS's design for blast proofing the whole building was compliant with GCHQ's requirements.
- 3.11 The resolution of non-compliances, previously agreed scope changes and an increase in workplace numbers resulted in the size of the building increasing by 30 per cent.

GCHQ managed the impact of the consequent changes on the Unitary Payment accordingly

3.12 GCHQ was to pay for the required accommodation services by three levels of Unitary Payments, decided by negotiation with IAS. The level would depend on the services being provided as in **Figure 6**. Failure to provide the agreed levels of service would incur deductions that would be defined in the contract.

6 The three levels of Unitary Payment

The figure shows that IAS would be paid at three different levels depending on the service provided

Period	Description
UP1 Until 2003	Provision of interim services during construction period.
UP2 2003-2010	Provision of full services including Limited Term Services in NAP
UP3 2010-2030	Services excluding Limited Term services in NAP ³

Source: GCHQ

- 3.13 When considering affordability, the Treasury took the Public Sector Comparator cost estimate (see Part 5) at the Best and Final Offer stage as the yardstick by which to measure the changes in Unitary Payments. As a result of the increases during preferred bidder stage, Treasury set a cap on the main annual payment, covering the period of full accommodation and service provision (UP2). This was set at £44.3 million, and GCHQ sought to ensure that the contract changes for design and service provisions kept costs within this cap.
- 3.14 **Figure 7** shows the movement in IAS's bid for the main Unitary Payment, UP2, from £29.5 million at Best and Final Offer stage to £45.6 million at contract signing in June 2000. The Unitary Payment at Best and Final Offer stage excluded many essential elements of the project without which the IAS bid would have been unworkable. GCHQ's Invitation to Continue Negotiations evaluation report had estimated that to meet all its requirements the figure should have been £37.5 million. On top of this there were subsequent increases for the extra cost of the Benhall site (£1.4 million), inflation (£0.9 million), increased building size (£2.6 million) and other items (£1.9 million).
- 3.15 The final figure of £45.6 million exceeded the Treasury's £44.3 million annual cap by £1.3 million, but the Treasury accepted that this small increase was due to market fluctuations in the costs of the bond used to finance the project. At contract signing the net present value of total Unitary Payments was £489 million, an increase of 21 per cent compared with £404 million at the preferred bidder stage.
- 3.16 The GCHQ negotiating team had some difficulty in analysing the movement in bid costs due to the large movements in design and personnel requirements between Best and Final Offer and the revised bids. As a result, and to seek assurance that the costs were reasonable in a non-competitive environment, GCHQ asked its programme management advisers, Capita to reconcile price changes between the key bid stages.
- 3.17 Capita issued a price reconciliation report in January 2000 which covered the movements from September 1998 to the later bids. This concluded that "despite the limited amount of information provided the overall changes in price from Best and Final Offer are acceptable given the detailed clarification of GCHQ's requirements and the changes in scope that have been negotiated.
- 3.18 Capita's conclusions took account of assurances from Northcroft, an independent consultant, on the value for money of the increased construction costs alone. Northcroft's evaluation concluded that, when special cost related aspects of the design were removed, the cost per square metre of £1,400 was within the expected range for a similar landmark private sector office building in the Cheltenham area.

7 Changes in Unitary Payments (UP) during the single bidder negotiation period

The figure shows that the Unitary Payments increased as a result of resolving non-compliances and meeting changes in scope following IAS's selection as preferred bidder

Bid	Date	UP 1 (£ m/year)	UP 2 (£ m/year)	UP 3 (£ m/year)
Best & Final Offer	Sept 1998	16.6	29.5	26.2
Adjusted to meet scope	Sept 1998	16.6	*37.5	34.2
Revised bid	March 1999	16.6	44.3	39.3
Revised bid	June 1999	16.6	41.2	39.2
At Contract Signing	June 2000	16.5	45.6	43.8

*This is GCHQ's estimated increase over the Best and Final Offer to meet the full scope of its requirements. It is comparable in scope with all the subsequent figures up to and including contract signature.

Source: GCHQ



Part 4

The re-assessment of the cost of technical transition

Although technical transition was excluded from the scope of the PFI deal, the building design had to be integrated with the technical transition plans to ensure there would be no break in GCHQ's service to its customers. At this stage GCHQ had not yet considered technical transition plans in any detail. When it did so, very substantial extra costs emerged. The reasons for these increases were reviewed by an independent Cabinet Office appointee and the two elements of the move were re-scoped as a comprehensive business re-location programme, not just a PFI serviced building project.

Original estimates were not comprehensive

- 4.1 When GCHQ had originally scoped the PFI project, its best estimate in 1997 was that completing technical transition in-house would take around two years. This was based on a high level extrapolation of the cost of moving into a new computer hall, a feature of the proposed Cheltenham Building Programme before the privately financed solution had been sought.
 - 4.2 GCHQ had estimated the technical transition costs at some £41 million, based on a "box move" - shutting down each system, moving it to the new building and re-starting it. Given GCHQ's understanding at that time of the inter-relationships between different systems, GCHQ judged that the consequent disruption to its operations would be acceptable. This cost was reported as only £20 million to the GCHQ Board. GCHQ has since been unable to explain why the full estimate of £41 million was not reported. The GCHQ Board considered that £20 million costs could be covered by its existing Technical Investment Programme funding, so there would be no need to bid for further funding to cover the costs of transition.
 - 4.3 GCHQ undertook a review of technical transition costs in Autumn 1998. This review concluded that a "box move" would cost £60 million. As described below, the significant underestimate of technical transition costs did not emerge until later and could not have been known to Ministers when the preferred bidder was appointed in September 1998.
- ### GCHQ reviewed its computer systems for Millennium compliance
- 4.4 From 1998 GCHQ started to consider the impact that reaching year 2000 might have on the integrity of its equipment and systems and gave Millennium compliance its highest priority. This decision had been endorsed by Ministers because of GCHQ's heavy reliance on information technology, the necessity to provide continuity of service to its customers and the nationwide concern over the potential impact of the Millennium on Information Technology systems. GCHQ allocated some 150 man years to this task and, as a result, there were relatively few resources remaining that could be committed to planning and estimating the costs of technical transition.
 - 4.5 During the analysis of Millennium compliance, GCHQ realised the extent of the complex inter-relationships between its networks and equipment. These inter-relationships had arisen due to the evolution of GCHQ's Information Technology systems over many years of operations. As a result, a simple move of equipment piece by piece, known as a "box move", into the new building would not be possible without unacceptable damage to continuity of services - in effect GCHQ would produce little signals intelligence for a two year period.
 - 4.6 The new Project Director arrived in late 1998 and began to work on finalising the PFI deal and planning for the technical and non-technical transition. He created a Technical Board to oversee the planning of technical transition and held workshops to examine how the move of GCHQ's Information Technology systems could be accomplished. These workshops, building on the new-found understanding of the complexity of the inter-relationships between systems, concluded that the transition would be significantly more difficult than previously thought. In October 1999 he established a new technical review team to undertake a detailed review of technical transition and generate a "credible and auditable" set of plans and estimates. In particular, the review team considered the impact of technical transition on the continuity of GCHQ's business and related security issues.

Technical transition costs were found to be much higher than originally estimated

- 4.7 The team reported in late 1999 that undertaking technical transition over a two-year period without unacceptable damage to continuity of services would cost some £450 million. This was some ten times greater than the original estimate, and twenty times the figure initially reported to the GCHQ Board.
- 4.8 Following this review, GCHQ re-appraised the cost of the whole programme and the realistic best alternative available, kept Ministers informed and ensured that decisions were taken with the benefit of the best information available.
- 4.9 GCHQ sought assurance in late 1999 that the Treasury would fund the costs of technical transition, but the Treasury said the costs were too high. Consequently, GCHQ considered extending the technical transition period to try to reduce the costs. It could reduce the overall costs of technical transition to £308 million (cash) for the first five years plus a further £60 million (cash), later reduced to £43 million, for the period to 2012. This proposal required keeping part of the Oakley site open until 2012 and providing associated extra running costs. The revised £43 million included a payment of £17 million to IAS to compensate it for the value of the land at Oakley which would otherwise have been sold, but this sum, less demolition costs, would be recouped in 2012.

4.10 In February 2000, Treasury capped GCHQ's expenditure on technical transition for the first five years at £308 million and agreed to provide additional funding of £216 million as a one off provision. The remainder was to come from GCHQ's existing annual voted provision. The estimated technical transition cost profile and the breakdown of additional funding by Treasury are shown in **Figure 8**.

4.11 Technical transition as finally agreed between GCHQ and Treasury provides significantly more continuity of service to intelligence customers during the transition to the new building than the highly disruptive "box move" approach. This continuity of service is delivered by rationalising or replacing parts of GCHQ's Information Technology infrastructure, providing Information Technology management tools to improve Information Technology problem management and the creation of contingency facilities for use in the event of a serious outage. There are early benefits from the changes delivered by technical transition which reflect the fact that GCHQ planned to do some of the work whether or not it moved to a new building and which are in line with its contribution to the cost of technical transition from its existing provision.

The New Accommodation Project was re-scoped during 1999 as a business relocation programme

4.12 The first time that GCHQ formally considered all the implications of moving its whole business rather than just procuring new accommodation was in January 1999 when the Programme Director Designate

8 The cost of technical transition for the first five years (£ millions, cash)

The figure shows the agreed split of funding of the £308 million technical transition costs between additional Treasury resources and use of existing GCHQ budget provisions

Item	Financial Year					Total (rounded)
	00-01	01-02	02-03	03-04	04-05	
Cost of transition (A)	69.7	97.8	56.7	61.5	22.9	308
LESS Cost in GCHQ capital budget (B)	(21.5)	(20.8)	(2.1)	(1.4)	(0.2)	(44)
Required Additional Funds (A-B)	48.2	77.0	54.6	60.1	22.7	264
Treasury base contribution (C)	31.2	49.8	35.3	38.9	14.7	170
Remainder split 50/50 Treasury/GCHQ (D)	17.0	27.2	19.3	21.2	8.0	94
Required Additional Funds (C+D)	48.2	77.0	54.6	60.1	22.7	264
Treasury funding (C + 50%D)	39.7	63.4	45.0	49.5	18.7	216
GCHQ contribution to funding (B +50%D)	30.0	34.4	11.7	12.0	4.2	92
Cost of transition (A)	69.7	97.8	56.7	61.5	22.9	308

In addition to these costs there is an additional estimated £43 million (cash) to cover the costs of continuing operations on the Oakley site until the transition is fully complete in 2012.

outlined the objectives and organisation of the new Programme Management Office. At this time the project was re-designated as the New Accommodation Programme to reflect the understanding of the totality of the requirement, and the Project Director then became Programme Director to reflect the change. Although the transition of staff and office infrastructure was now inside the scope of the newly designated Programme, it remained the responsibility of GCHQ and was outside the scope of the PFI contract.

4.13 The newly designated Programme Director took a more integrated management approach to the programme than had previously been the case. He had already instigated a number of workshops to begin the transition planning process. This led to the formation of the review team in October 1999 to examine in detail the technical transition requirements and to produce plans and estimates.

4.14 In June 1999 a New Accommodation Programme Business Support Office, run by WS Atkins plc was opened to provide management support to GCHQ's Programme Office.

4.15 In August 1999, about a year after IAS was declared the preferred bidder, GCHQ prepared a New Accommodation Programme Definition Statement. This was adopted for the New Accommodation Programme a month later when detailed guidance first became available from the Office of Government Commerce on its methodology for Managing Successful Programmes. The Statement defined the scope of the overall programme to include the work to relocate staff and equipment to the new building and to transfer services to IAS.

The Cabinet Secretary commissioned a review of the management of the project

The Burton Report identified weaknesses in management of the Project

4.16 When the significant increase in the estimated cost of technical transition from £41 million to £450 million was identified by GCHQ's review team in late 1999, the Cabinet Secretary commissioned Lieutenant General Sir Edmund Burton, formerly a Deputy Chief of Defence Staff (Systems), to report on the project's management. His appointment in March 2000 required him to establish:

- the reasons why a substantially based cost estimate and options for the technical decant only emerged in November 1999; and

- whether the arrangements now in place for managing the project as a whole were effective and adequate and provided confidence that it would be implemented successfully.

His report in May 2000 made forty-three management recommendations on the basis of a more strategic approach.

4.17 On the question of technical transition costs, the report found that the earlier management had focused "solely on the PFI building and associated services", and had not approached the project strategically as a move of GCHQ's whole business. This had been a major reason for the failure to identify the large cost of technical transition, as this had been seen as small in comparison with the overall costs of the project.

4.18 The report recommended that more emphasis should be placed on the technical transition process, in line with the re-designation of the Project as a Programme. It also recommended that GCHQ monitor and review value for money throughout the technical transition process.

4.19 On the management arrangements to achieve the successful implementation of the project, the Burton report recognised the changes in GCHQ's management procedures instigated under the revised programme definition to consider the whole move. However, it identified high level planning and management weaknesses and made recommendations to address these. The failure to co-ordinate the development of the PFI deal and the transition process at strategic level was a symptom of such weaknesses.

4.20 The report recommended the development of a high level "blueprint" which would detail key changes based upon a comprehensive analysis of GCHQ's business process. Further, the report recommended that the current strategic planning process should extend beyond the three-year horizon in operation at the time of the review. These plans would formulate tasks and milestones, assign them to management and establish Directorate Board members' roles and responsibilities in relation to this "blueprint". Such planning would allow the Board to oversee progress at strategic level.

4.21 The remaining recommendations addressed issues of leadership and management; communications between different types and levels of staff; capture of information for planning; investment in people and staff training; project management; and the oversight and control of programmes of work.

GCHQ introduced a sophisticated system of programme management

4.22 In response to the Burton Report, GCHQ produced an Action Plan to address its recommendations. As a result GCHQ decided to manage the New Accommodation Programme under the Office of Government Commerce's programme management framework - Managing Successful Programmes (MSP) - which had just become available late in 1999. The New Accommodation Programme therefore became an early pioneer of the MSP99 framework both in GCHQ, where it was adopted as a standard for all programmes, and more widely. However, because the New Accommodation Programme is a hybrid change programme combining technical, non-technical and behavioural challenges, it was necessary for GCHQ to develop most of the standards, processes and practice in the use of MSP99 to meet the needs of this type of programme.

4.23 GCHQ identified a portfolio of 65 projects to be managed under the Office of Government Commerce's PRINCE2 guidelines but needed to import several other management frameworks to combine them into a coherent and manageable programme. GCHQ adopted the US Military Procurement Standards to define the programme's Systems Engineering approach, the Office of Government Commerce's Information Technology Infrastructure Library for large scale Information Technology management, and the Office of Government Commerce's Gateway Review process to aid in assessing the programme's fitness to move from each phase to the next. In doing so, GCHQ identified that these frameworks overlapped imperfectly and it developed additional tools to manage the inter-project dependencies and a risk management process commensurate with the complex and significant risk profile involved. A significant challenge, which was overcome successfully, was to develop programme and project management tools and techniques to manage the combination of hard and soft projects ranging from Information Technology infrastructure design and build through to green transport management and cultural change initiatives.

4.24 GCHQ also found that the Office of Government Commerce's MSP99 framework provided little or no guidance on benefit delivery and management. To overcome this gap GCHQ has adapted the tools and techniques used for the New Accommodation Programme capability delivery to be used in the benefit delivery environment. The Programme therefore has a parallel benefit delivery environment which is planned, monitored and progressed using standard metrics and the same risk management process used for capability delivery. A systems engineering approach was used for benefit definition and the Programme benefits were derived from GCHQ's business Blueprint and mapped to business change and benefit realisation plans.

In-house staff effort on technical and non-technical transition is prioritised according to need

4.25 Technical Transition includes projects, largely asset creating, covered by the agreed budget of £308 million for the period to 2004-05, the costs of retaining accommodation at Oakley up to 2011-12 and GCHQ's technical manpower costs. GCHQ has said it would be reliant on the availability of its technical manpower to help keep the project within the £308 million budget. This requirement was estimated at 978 man-years of effort by the technical review team in late 1999.

4.26 GCHQ monitored this staff effort as part of its overall business plan. This is built up according to the relative priorities of the competing demands on its manpower. Until the recent introduction of time recording, GCHQ has not monitored actual in-house effort on technical transition but it expects it to come within the 978 man-years estimate.

4.27 GCHQ has said that it monitors all technical and non-technical transition costs and payments to IAS. These details are reported to its New Accommodation Programme Sponsoring Group every two months and are made available to HM Treasury and the Cabinet Office.



Part 5

Value for Money of the New Accommodation Programme

This part of the Report considers the value for money of the New Accommodation Programme. The PFI deal broadly displays the potential benefits and disbenefits of other Government headquarters PFI deals. As regards the cost to GCHQ, the extent of competition before the preferred bidder was selected provides some reassurance on the price of the PFI deal. Limited further reassurance on the costs of the Programme as a whole is provided by GCHQ's Public Sector Comparator, which indicated an apparent cost saving of £71 million from the deal as compared to its realistic alternative at that time and taking into account the high costs of technical transition which had by then emerged. The PFI deal also offered significant specific benefits to GCHQ's working practices and environment compared to the conventionally financed alternative. In addition, subsequent to the choice of preferred bidder, work by its advisors gave GCHQ some assurance that the signed deal was good value. GCHQ considers that the high technical transition costs, which had been significantly understated initially, were inevitable whatever the adopted accommodation solution.

The PFI deal offers extra benefits by comparison with the conventionally financed alternative

There are benefits typical of other Government department headquarters PFI deals

- 5.1 The PFI contract with IAS was signed on 22nd June 2000. The key elements are summarised in **Figure 9 overleaf**. This deal for new serviced accommodation has features that are in line with those for headquarter accommodation for other Government departments. GCHQ has one of the largest computer complexes in Europe, includes a wide range of laboratories and uses Information Technology much more intensively than other Government departments. To accommodate GCHQ's specific requirements, the new building naturally exhibits radical differences from most other office building projects in design and provision of infrastructure.
- 5.2 The deal between GCHQ and IAS follows the principle, important if value for money is to be achieved, of allocating risks to the party best able to manage them. As noted earlier, in accordance with that principle, GCHQ is responsible for managing technical transition.

- 5.3 The deal offers the potential advantages of private sector experience and disciplines in delivering the building on time and of allocating key risks to a party better able and incentivised to manage them. Like all such deals, however, it also ties GCHQ into a long term contract of some 30 years' financial commitments. With technical transition it forms part of an overall programme for moving the entire business, over a period, to modern facilities.

There are also specific business benefits

- 5.4 In concluding that the PFI deal offered the best economic solution GCHQ also considered that the relative business benefits of the two approaches would be significantly greater in the PFI case as compared to the conventionally financed alternative. These include the whole of GCHQ being located ultimately on one site and for staff therefore to be able to work more closely together in a modern environment. There were also likely to be the advantages of getting the building completed on time and in transferring the risks of managing the serviced building largely to the contractor. GCHQ also considered that it offered the best opportunity for upgrading all of the Signals Intelligence architecture to standards required for it to continue in the foreseeable future to provide the required service to its customers.

9 Key PFI Characteristics of the deal

The Figure shows how key characteristics of PFI deals are dealt with under the contract

PFI Characteristic	New Accommodation Programme PFI Contract
Risk allocation	<p><i>Risks transferred</i></p> <ul style="list-style-type: none"> ■ IAS is responsible for design and construction of the building ■ IAS has financial incentives to complete the building and be ready to provide services on time. Full Unitary Payment starts when full services are being provided ■ There are additional financial incentives if IAS complete the building ahead of the programmed date ■ IAS must ensure the building will provide the required services ■ IAS is responsible for the physical move of GCHQ's papers and staff effects to the new building ■ IAS must ensure the building is maintained and repaired throughout the contract and there are procedures to ensure the building is handed back in good condition ■ IAS must provide a wide range of services to agreed standards ■ IAS will manage the security guard force <p><i>Risks retained</i></p> <ul style="list-style-type: none"> ■ GCHQ has retained the risk of technical transition to the new building, due to security issues and the unique nature of the business ■ GCHQ will be responsible for security policy ■ GCHQ will be responsible for furniture and fittings and any utilities cost's not covered by the Unitary Payments
Performance measurement system	<ul style="list-style-type: none"> ■ Service requirements are specified under the contract. This provides for deductions to be made in Unitary payments for failure to meet the service requirements defined or for unavailability of all or parts of the building as defined in the contract ■ A Compliance Monitoring regime allows GCHQ to monitor the performance of IAS to ensure it is meeting GCHQ's requirements under the contract ■ Continued poor performance can lead to contract termination
Incentives for achievement of value for money	<ul style="list-style-type: none"> ■ There are mechanisms to control pricing of variations in the contract. GCHQ can request variations to the contract. These may be minor variations, and absorbed under existing payments, or qualifying variations, which result in a change to Unitary Payments ■ The contract includes arrangements for competitive tendering for works on large variations or other major works ■ The contract provides arrangements for benchmarking and market testing of services. Tested services will be reviewed at five yearly intervals starting at 15 years after contract start. This allows GCHQ to benchmark service prices and consider whether it believes they continue to offer value for money ■ Refinancing. The deal is largely financed by a bond, so refinancing is less likely than it would be if financed by bank debt. However, in the event of refinancing, the contract ensures that IAS' equity return following refinancing does not exceed an agreed rate ■ There are clawback arrangements whereby any additional profits from the sale of land included in the deal is shared between IAS and GCHQ

Source: NAP Project Agreement

The PFI deal is worth £489 million at Net Present Value

5.5 The Net Present Value of the Unitary Payment stream under the contract is £489 million. This was higher than the estimate of £404 million Net Present Value at preferred bidder stage largely due to increases in scope and final resolution of non-compliances during the single bidder period. The total payment is represented in the three stages of annual Unitary Payments, extending for 30 years, shown in **Figure 10**.

10 The three stages of Unitary Payments

The figure shows the final agreed Unitary Payments and the dates that each stage is expected to commence

	£ million/year	Start Date
UP1	16.5	22nd June 2000
UP2	45.6	4th September 2003
UP3	43.8	22nd June 2010

Source: GCHQ

5.6 The building is scheduled to be finished and ready for occupation in 2003 and GCHQ is contracted to pay for the accommodation and services from 4 September that year. If by this time GCHQ is not ready to start moving its staff into the new building, it risks paying IAS for providing accommodation and services which are not being used.

5.7 In common with many PFI projects, the contract also encourages IAS to complete construction early, for which it would be entitled to receive extra payments. GCHQ would have to pay an additional one million pounds if the building were finished one month ahead of schedule; £750,000 a month if it were finished two or three months ahead and an additional £500,000 for the fourth month. In return for these payments, GCHQ would be able to mitigate risk to the programme through having the advantage of early access to the building to fit out and test the secure networks and to install Information Technology equipment. IAS currently expects to finish the new building 9 weeks early.

The cost over thirty years of the New Accommodation Programme is estimated at £783 Million Net Present Value (£1,623 Million Cash)

5.8 When the technical transition costs are added to the cost of the IAS contract and other related costs, a total cost over thirty years for the New Accommodation Programme to move GCHQ's business to the new site emerges. Although the Unitary Payments and, hence, the IAS cash flow are fixed, there are likely to be changes in the transition elements of the cost while GCHQ's projects that effect the move are being finalised. The total estimated cost over thirty years of the New Accommodation Programme at May 2002, in Net Present Value and cash terms as shown at **Figure 11**, amount to £783 million and £1,623 million respectively. The transition costs have been discounted in line with the cash profiles shown in the May 2002 review of GCHQ's management Plan.

11 Estimated cost of the New Accommodation Programme

Type of cost	Cost in cash £m	Net present Value £m
Unitary Payments to IAS for the PFI deal	1,247	489
Additional payments to IAS for contract variations	10	5
Payment to IAS for early completion	3	2
*Technical transition to 2004-05 (approved budget)	308	252
**Retention costs of Oakley Plot 2 - 2005-06 to 2011-12	43	26
Additional costs associated with GCHQ's New Accommodation	12	9
Total cost of programme	1,623	783

This table shows the transition costs of moving GCHQ's business into the new building and the costs of providing accommodation and services for the thirty years of the PFI deal.

*This figure excludes the cost of in-house technical staff effort associated with transition estimated at 978 man-years and other GCHQ manpower and running costs.

**This figure includes provision for payment of £17 million to IAS in July 2007 in lieu of proceeds from the sale of that part of the Oakley site that GCHQ is retaining as part of its extended transition period. It also takes into account recovery of the £17 million in 2011-12 when the land is sold less demolition (£5 million) and other costs (£2 million).

Discount base date January 1999.

Source: GCHQ

Direct evidence of value for money

5.9 The value for money expected from the New Accommodation Programme depends on the balance of the net benefits it may bring, as outlined above, both in terms of costs and business efficiencies. Because the Programme comprises two major components, the PFI deal and technical transition, it is necessary to quantify the cost of each of these components.

The PFI deal

5.10 In our report "Examining the value for money of deals under the Private Finance Initiative"⁴, we established four sets of criteria to test value for money:

- the extent to which the deal is consistent with the authority's strategy;
- the competitiveness of the procurement;
- whether the right private sector partner has been chosen; and
- whether the deal makes sense.

5.11 Parts 1 to 3 of this Report show that some assurance as to value for money can be drawn from GCHQ's sensible approach to the procurement and the achievement of competitive tension from rival bidders. That assurance is incomplete however, because, as noted in Part 3, the net present value of the Unitary Payment, after taking into account the estimated costs of resolving non-compliances in the bid, increased by a further 21 per cent after the selection of the preferred bidder. Of this the majority - 12 per cent - was negotiated in a competitive environment. GCHQ was aware that the preferred bidder's proposals were not fully compliant with GCHQ's specifications and that the scope of the programme was to be increased and had budgeted accordingly. In line with all PFI projects up to that time, the funding for the project was not explicitly obtained through a competitive process.

5.12 To the extent that the price of the deal was not determined competitively GCHQ also sought to:

- test the reasonableness of the overall price by comparison with alternatives;
- exert some restraint on the bidder's ability to exploit its non-competitive position by obtaining independent reviews of important elements of the price to give assurance that they were reasonable; and
- influence achievement of the most economic external financing arrangements for the deal.

The Public Sector Comparator showed that the PFI deal was cheaper

5.13 To measure the value of the deal against an appropriate benchmark, GCHQ estimated the costs of a conventionally financed alternative to the PFI deal. For most of the competition, the comparator assumed building on a single site, in line with the PFI bid. It did not include the costs of technical transition, as these were not part of the PFI deal and GCHQ had not at that time considered them in detail.

5.14 Having calculated a Public Sector Comparator on that basis, GCHQ used it as a benchmark to assess the increases in bid price following IAS's selection as preferred bidder. For example, after the preferred bidder stage, GCHQ increased the size of the building in the Comparator by some 30 per cent and the provision for staff places by some 7.3 per cent to make it compliant with its requirements. This increase was in line with the increase in the size of the PFI building after selection of the preferred bidder.

5.15 When Treasury became aware of the large increase in technical transition costs in late 1999, it suggested that GCHQ look in greater detail at a two site comparator. Both parties thought that this would use existing buildings to a greater extent and, at the time, that it would require less complex equipment moves, thus reducing transition costs. GCHQ considered that a return to the publicly funded Cheltenham Building Programme would be a more likely best alternative to the PFI deal, so the final judgement on costs reasonably used this as a comparator.

5.16 The estimated basic construction costs in the final Comparator were increased by 24 per cent in line with Treasury advice on historical cost overruns on large scale public sector projects. GCHQ did not build into the comparator an estimate of space inefficiencies which would result from continuing to work in multiple buildings on two sites; these inefficiencies were estimated at some 15 per cent and GCHQ considered that the construction costs elements in the comparator were a conservative estimate overall. As in other PFI cases, the adjustment for risk on construction costs of the public sector alternative more than accounts for the estimated cost difference between the comparator and the PFI deal.

5.17 In the final months before contract signature, GCHQ for consistency added an estimate for technical transition to the comparator and to the bid price. The Public Sector Comparator finally included technical transition costs of £68 million. These were much lower than in the PFI figure because, as explained above, it was assumed at the time that some of the existing buildings would be used at the two sites and that this would reduce costs. This was not a robust estimate, however, and it was not re-visited for comparison purposes as the lifetime costs of the adopted, extended, technical transition plan began to emerge.

5.18 **Figure 12** shows the final comparison between the signed deal and the two site comparator that was reported to the Treasury during 2000. This estimated that the IAS bid, leaving aside broadly comparable services to be retained by GCHQ, would cost some £71 million less than the two site comparator in net present value terms, some seven per cent less, including technical transition. In this comparison technical transition costs for the PFI deal covered the first five years only but were included at the high cost which had by then been estimated.

12 The final comparison between the PFI bid and the public sector comparator

	Net Present Value (£ millions)	
	IAS deal	Public Sector Comparator
Building, refurbishment and services	489	Basic 600 Risk Adjustment 156
Technical Transition	264	68
Total	753	824

The exercise also showed broadly similar services to be retained by GCHQ under each option of £99 million (PFI) and £94 million (comparator). These are not significant to the comparison made.

The figure (which excludes retained services as described above) shows that the final IAS bid cost some £71 million less than the Public Sector Comparator, including estimates for technical transition.

The technical transition costs were much lower in the Public Sector Comparator at £68 million because GCHQ assumed it would remain on two sites and use some of the existing buildings if the PFI deal did not go ahead. Technical transition would, therefore be less complex and costly. The PSC technical transition would deliver significantly less benefit to GCHQ and result in later additional expenditure to modernise its infrastructure.

The technical transition costs for the PFI deal shown above cover the first five years only.

Source: GCHQ

The Public Sector Comparator figures are subject to inherent uncertainty

5.19 In common with all Public Sector Comparators, GCHQ's estimates are subject to very great uncertainty. Such uncertainty is inevitable in forming estimates of alternative means of delivering a major 30 year programme of building works and Information Technology development. In accordance with Treasury guidance, GCHQ examined the sensitivity of their conclusions to some changes of assumptions. This sensitivity analysis, outlined at Appendix 4, showed a wide range of figures from £734 million (£19 million below the PFI figure) to £955 million (some £200 million more than the PFI figure). Although the lower end of the range fell below the cost of the PFI deal, it is reasonable to consider other, non-quantifiable factors. For example, the Public Sector Comparator was based on continuing to work on two sites, which would not deliver the business benefits of the single site PFI accommodation.

5.20 In addition, we have examined the effect of changing the discount rate used from 6 per cent a year to 3.5 per cent, the figure now considered by the Treasury to be more appropriate for use in evaluations of this kind. On the assumption that the IAS price would not have been affected by a change in discount rate, our work showed a much smaller difference of £20 million in favour of the PFI deal compared to £71 million at 6 per cent. However, it may well not be reasonable to assume that IAS's price would not have been affected by the use of a lower discount rate.

Individual components of the cost of the deal were benchmarked

5.21 GCHQ used the component costs of the Public Sector Comparator as benchmarks for the final bid from IAS. The estimated building and refurbishment costs, measured by floor area, were similar. The main areas in which the bid costs were lower were service and lifecycle costs. Capita advised GCHQ that an appropriate industry standard for annual lifecycle costs was seven per cent of the value of capital stock. The total estimated value of the capital stock of building plus refurbishment was some £350 million (undiscounted), so GCHQ estimated lifecycle costs of seven per cent of that, some £24.6 million a year.

The external finance was costlier than other PFI deals due to market movements

5.22 Generally in PFI deals there is a choice between two main ways of raising external finance: by borrowing from banks or by issuing bonds. Throughout the period of single bidder negotiation, a bond issue was the cheaper alternative. On 15 June 2000 a £406.85 million bond was launched successfully. Details of the overall deal financial structure and of the bond issues are at Appendix 2.

5.23 Bond prices are set by reference to the financial markets at the time of issue but are not generally determined through an open bidding process. The resulting cost of bond finance is measured by the difference between the return offered to bondholders and that on a comparable gilt-edged security. The final bond rate was 1.80 per cent higher than the comparable gilt, higher than earlier estimates during the competition and for other large accommodation PFI projects. For example, in April 2000 the Treasury Building bond, albeit for the smaller amount of £125 million, was priced at a margin of 1.63 per cent. The main factor which led to a higher bond rate for the GCHQ bond was movement on the bond market. Other factors, including the market's projection of project risk, also affected the rate.

Technical transition

5.24 Technical transition was to be GCHQ's own responsibility and with the growth in the estimated costs of technical transition GCHQ examined ways of limiting or staging the expenditure.

The costs of extended technical transition for the first five years were evaluated

5.25 Technical transition was originally planned to be undertaken over a two year period. When GCHQ reviewed technical transition costs in 1999 and found that Treasury would not fund the much higher costs then identified, it considered reducing them by extending the transition period. It focused on the first five years of the extended period, up to 2004-05, and evaluated the cost of the equipment and any associated external contractor costs required to effect the move. For each option the team assessed in man-years the in-house effort involved. It estimated that some 978 man-years of in-house effort would be needed to effect the chosen extended transition option. It did not evaluate this manpower or other GCHQ costs, such as the technical, operational and administrative support.

5.26 The review team's cost estimates for the extended technical transition period addressed a number of important issues related to a whole of business move. It devised the architecture for the required Information Technology in the new accommodation, planned the move of systems to ensure the continued delivery of key services, and determined the impact on the users of systems outside the Cheltenham complex.

5.27 In addition, the team addressed more strategic, forward looking resource issues. For example, it developed a detailed strategy including extra support resources for the extended retention of part of the Oakley site, and tried to ensure that there were sufficient investment funds to allow continued new systems development and the programmed replacement of obsolete equipment.

5.28 By January 2002 GCHQ had devised the architecture for the systems and determined priorities on the delivery of intelligence to partners and customers during the transition period. Some 60 individual projects covering the period 2000-2005 are in progress to effect the move. GCHQ has periodically reviewed business priorities in order to reduce the emerging technical transition costs to be more in line with the cap of £308 million (cash) to which GCHQ and the Treasury has agreed.

Extended technical transition introduced financial compensation and deferred completion of the move

5.29 Although GCHQ had agreed with Treasury the funding for an extended technical transition period up to 2012 prior to completion of the negotiations with IAS, the contract signed in June 2000 was based upon only a 17 month period. This was to run from the date IAS made the new accommodation available for GCHQ to commence occupation to the date the old sites would be vacated fully. GCHQ had concerns that renegotiating the transition dates in the contract would require a revised schedule of Unitary Payments delaying further the signing of the contract with the risk of not completing the deal. Therefore, to address the extended move, GCHQ and IAS ensured that contract terms would allow for a longer technical transition period although such changes would be subject to financial compensation.

5.30 The beneficial financial effect to IAS from the timing of funds available from the sale of Benhall and Oakley land is reflected in the agreed annual Unitary Payment profile. This assumed that proceeds from land sales would be available to IAS from early 2007. Under the terms of the contract GCHQ is required to finance any delay in receiving sale proceeds due to land not being released by agreed deadlines. The current extended transition period will cause a delay in the release of a significant element of the Oakley site with an estimated sale value of around £17 million. GCHQ expect to compensate IAS for the delay by paying them £17 million in 2007-08 and recovering this when the site is sold in 2011-12.

5.31 The costs of retaining part of the Oakley site open and operational from 2005-06 to 2011-12 and the associated technical transition running costs are currently estimated at £43 million (cash). This includes:

- additional demolition costs due to the delay;
- maintenance costs over the period of decanting into the new building; and
- transition running costs.

5.32 In detail these comprise six years' running costs at about £6 million per year and £7 million extra demolition and associated costs. GCHQ expects that some 70 to 80 per cent of existing equipment will still be on the Oakley site at the start of 2005-06.

GCHQ believes the Programme will deliver best value

There was an unplanned benefit from the extended transition

5.33 In GCHQ's view, even with the benefit of hindsight, any of the possible approaches to achieving new accommodation would have incurred high technical transition costs, and that this cost was therefore unlikely to be a significant factor in deciding between the two options. It has said that the number of staff working at GCHQ has risen since the size of the new accommodation was finalised, in part due to changes in customer requirements after the events of 11 September 2001. Availability of staff accommodation on the retained Oakley plot 2 has given it extra flexibility without requiring a significant expansion of the new accommodation. GCHQ now plans to accommodate some 200-250 staff on Oakley plot 2 up to 2008 by which time it expects to be able to accommodate them in the new building by capitalising on the new and more flexible ways of working offered there.

Inevitable high technical transition costs

5.34 As explained in Part 4 of this Report, the high costs of technical transition could not have been known to Ministers when approval to appoint the preferred bidder was given in September 1998. On the basis of earlier reviews GCHQ had assumed that it could meet the estimated extra costs through its existing budget provision. Further, GCHQ did not re-assess the estimated technical transition costs used in the final comparator when actual costs to be taken on board were found to be much higher at the time the PFI contract was approved in June 2000.

5.35 GCHQ has concluded that the high technical transition costs that were subsequently identified were inevitable and therefore irrelevant to the deal pursued. It considers that these costs would have had a neutral effect on whatever accommodation solution was chosen, whether the PFI deal or a conventionally financed alternative.

5.36 In this respect there would have been no benefit to it in committing resources to a re-assessment of the technical transition costs used in the final Public Sector Comparator especially as the case for the PFI deal was already very strong in cost and benefits.

There was no reason to believe that there was a better alternative to the PFI deal

5.37 In the light of the extra costs of technical transition that have emerged, GCHQ has given careful consideration as to whether a different accommodation option might have offered better value for money.

5.38 First, it concluded, as we have seen, that the PFI deal was better value than the conventionally financed alternative. For example, running costs of the in-house programme and project team might not be identical for either solution but were likely to be of the same order and therefore be cost neutral.

5.39 Second, GCHQ has concluded that its choice of a single site PFI option was still valid and supported by the original cost benefit analysis. It also considered that it would have been difficult to lay off sufficient risk to the private sector for a two-site solution or to get the full benefits from a PFI approach.

5.40 Finally, it has concluded that a better, and earlier, understanding of the shape and duration of technical transition would not have led to a different choice of building design. It has told us that there was essentially no connection between the building design and the length of transition. For example, the computer hall had been designed to provide maximum flexibility over the 30-year life of the building and the length of transition had no effect on this.

Appendix 1

Initial Twelve Accommodation Options in the April 1997 Business Case

Do nothing - assumes zero investment and continue to use Cheltenham accommodation as long as viable- this was seen by GCHQ as a totally impractical option.

Do minimum - this option involves maintaining the Cheltenham sites, limited refurbishment of some buildings on the sites but no new buildings. The investment would be limited to essential works. Although this option was not seen as practical option it was used as a base position to compare other options as became known as the Service Cost Benchmark.

Refurbish Oakley and Benhall - This would be the refurbishment of existing buildings on both sites rather than building new. Does not allow savings of long term running costs to be achieved through collocation of support services. Considered impracticable by GCHQ as it would deliver few long term benefits.

Limited moves between Oakley and Benhall - aimed to concentrate main operations at Oakley and support services at Benhall by means of different combinations of refurbishment and new build. Considered by GCHQ a hybrid option being a mixture of compromise and short-term savings and would only deliver a few of the long term benefits. Therefore considered not practical.

Develop both Oakley and Benhall - this involved the continuation of the Cheltenham Building Programme with new accommodation on a staged basis on both sites. Some disposal of surplus property on the Benhall site would occur. Although some medium term flexibility would be achieved fails to deliver long term running cost savings and inhibited long term flexibility. This option became the basis of the two site Public Sector Comparator for the PFI deal.

Consolidate at Benhall - this involved the development of the site with new accommodation to house all Cheltenham staff and functions. Disposal of the Oakley site would produce revenue. Although there would be the costs of decanting to single site operation it was seen as an option that would deliver long term benefits and cost savings.

Consolidate at Oakley - this involved the development of the site with new accommodation to house all Cheltenham staff and functions. Disposal of the Benhall site would produce

revenue. Although there would be the costs of decanting to single site operation it was seen as an option that would deliver long term benefits and cost savings. Oakley consolidation was seen as more problematic than Benhall as site development whilst continuing operations would be more difficult.

Relocate to local green-field site - this allows the development of an optimum design solution and a shorter construction period than the alternative options It would give the long-term benefits of single site operation. Oakley and Benhall sites would be sold as surplus to requirements. Disadvantages are the need to find and purchase a suitable site, the need to transition and maintain operations in the process and the potential problems associated with local planning.

Relocate to Swindon - This would be similar to the green-field option but using the mainly agricultural site at Blakehill held by GCHQ. The advantages of single site operation would be available but considered that it would be more difficult to obtain the necessary planning permissions and had implications for retaining and employing GCHQ's specialist staff.

Relocate to Chicksands - This option was considered as possibility of combining with the Ministry of Defence plans to move intelligence staff to this location. It allows closer liaison with the intelligence and security community. Concerns were expressed by GCHQ on the considerable disruption of the business operation and the complex planning required. Not considered a practical option.

Relocate to London - This option was considered as it moved the business nearer its customer base in London. The main disadvantage would be the higher disruption to the business than the Cheltenham area moves also a major impact on staff morale of having to move to and commute in the London area. Therefore the option was seen to have greater disadvantages and thus not practical.

Relocate elsewhere - this assumed the closure of the Cheltenham sites and relocation to an unspecified suitable site in the UK. Again as for the London the disadvantages of staff and business disruption outweighed the advantages and it was not seen as a practical option.

Appendix 2

The financial structure of the deal

The table below shows the financial structure of the deal. This was a large bond issue, towards the top end of the bond market. However, DKB estimated that the rate was still some 80 basis points, or some £3 million lower than could have been achieved through financing by bank debt. This led to the final Unitary Payment estimate of £489 million (Net Present Value).

The financial structure of the deal

The figure shows that 75 per cent of the deal was financed by a bond issue

Finance source	(£ Millions)	Percentage of total
Senior debt (Bond issue)	406.9	75.0
Sponsor Equity and Subordinated debt	45.2	8.3
Land sales during construction	3.2	0.6
Interest income	28.8	5.3
Revenue during construction	58.8	10.8
Total	542.8	100.0

Source: Financial model

Details of the GCHQ Bond issued on 22nd June 2000

The figure shows the details of the £406.9 million bond issue

Required debt amount (£ Thousands)	406,850
Maximum bond facility (£ Thousands)	406,850
Final maturity (years)	29
Bond margin	1.8 per cent
Reference gilt (Treasury 06/07 2021) rate	4.68 per cent
Monoline insurance margin	0.3 per cent
Fixed interest rate	6.48 per cent

Appendix 3

Chronology of key events

The table shows that the technical transition assessment proceeded separately from the main procurement, and that GCHO did not realise the likely scale of the costs until its review team reported in November 1999.

Year	Month	Procurement event	Technical transition estimate at time of event
1997	April	Business case for PFI project approved by Directorate	£41 million
	May	Foreign Secretary approval to proceed with PFI approach	
	August	Long list of bidders announced	
	September	Short list of four bidders announced and Invitations to Negotiate issued	
	November	Invitations to tender issued to bidders	
	December	Revised Business Case and Project Plan approved by Board	
1998	February	Deadline for tender responses	£60 million
	June	Announcement of two short-listed bidders	
	September	Directorate approval of IAS (GSL) as preferred bidder	
	December	Business case to Treasury	
1999	January	Project Manager resigned and new Project Director appointed	£450 million
	February	Objective set to produce detailed technical transition plan	
	October	Launch of technical transition review team to assess technical transition issues and costs	
	November	Review team report that technical transition costs will be around ten times higher than previously estimated	
	December	Review team asked to consider ways of reducing technical transition costs	
2000	February	Treasury cap technical transition spending at £308 million	£308 million ¹
	March	Project re-designated as New Accommodation Programme to include whole business move	
	April/May	Lieutenant General Sir Edmund Burton produced his report on management of the project	
	June	£408.65 million bond issued	
		Contract signed with IAS	
2001	January/October	Continuing re-assessment of technical transition costs	£308 million ¹
2002	June	Estimated total cost for moving GCHO's business into the new building and for providing accommodation and services for the 30 years of the PFI deal: £1,623 million in cash terms, £783 million Net Present Value, including extending technical transition costs up to 2012	

NOTE

1. This technical transition estimate covers the five year period to 2004-05 and represents the approved budget.

Appendix 4

Sensitivity Tests on Public Sector Comparator

In common with all Public Sector Comparators, GCHQ's estimates of the costs of the public sector comparator are subject to very great uncertainty. Such uncertainty is inevitable in forming estimates of alternative means of delivering a major 30 year programme of building works and Information Technology development. In line with Treasury guidance, GCHQ undertook a number of sensitivity tests on the costs of the two site public sector comparator to examine the extent of the uncertainty. All the following costs are Net Present Values.

Capital Expenditure

The costs in the base case for new build and fit-out, of £3,377 per square metre, were based on standard office accommodation, except those for the computer hall, which were higher to reflect the more specialised nature of that accommodation. Estimates from Northcroft reflected that GCHQ's specialised requirements could suggest costs of around £4,000 per square metre. This would add some £42 million to the public sector comparator costs.

Refurbishment costs could similarly be increased, giving an additional £14 million.

Capita consultants advised that design risk may have been underpriced in the base case. As a result, GCHQ added a further 10 per cent as a test. This gave an additional £4 million.

The model assumed that construction started in year 1. If this were brought forward to year 0, this would lead to an increase in the Net Present Value to reflect a year's less discounting. However, this would be offset against a reduction in the tender price inflation figure. GCHQ estimated the net effect of this would be an increase of £4 million.

Services

Annual Lifecycle costs were estimated at seven per cent of capital stock, following advice from Capita consultants. This was the mid-point of a range of between six and eight per cent. If this were increased to eight per cent a year, the Net Present Value would increase by £51 million.

However, if the Lifecycle cost estimate were "stepped" to match the profiles of the Unitary Payments, these costs would fall by around £49 million.

Land Sales

GCHQ estimated the impact of reducing land sales receipts by 10 per cent; this would reduce receipts by £4 million, thus increasing the Net Present Value by the same amount.

Discounting and Timing differences

Capita considered the effect of adjusting the discounting to reflect differences between the IAS methodology used in calculating the Net Present Value of the PFI deal and the methodology used in the Public Sector Comparator. This reduced the Net Present Value by some £27 million, compared to the base case.

Technical Transition Costs

GCHQ estimated these costs at between £60 million and £90 million (undiscounted), and chose £76 million for the base case, giving £68 million when discounted. When discounted, the lower end of the range was £54 million and the upper end £80 million.

Difficult to quantify items

GCHQ also identified a number of omissions from the Public Sector Comparator which would be difficult to quantify in monetary terms but which would add to the cost of the Public Sector Comparator. These were the cost of raising the specification of the Public Sector Comparator to match that of the negotiated PFI deal, and the cost of time overruns, specification, maintenance and operational risks materialising which would be retained by GCHQ in the Public Sector Comparator but transferred to IAS in the PFI deal.