

DATA CENTRE / MODERN RECORDS UNIT (MRU) RELOCATION

DATA CENTRE MRU RELOCATION AND CORPORATE ICT STRATEGY UPDATE

1 CURRENT SITUATION

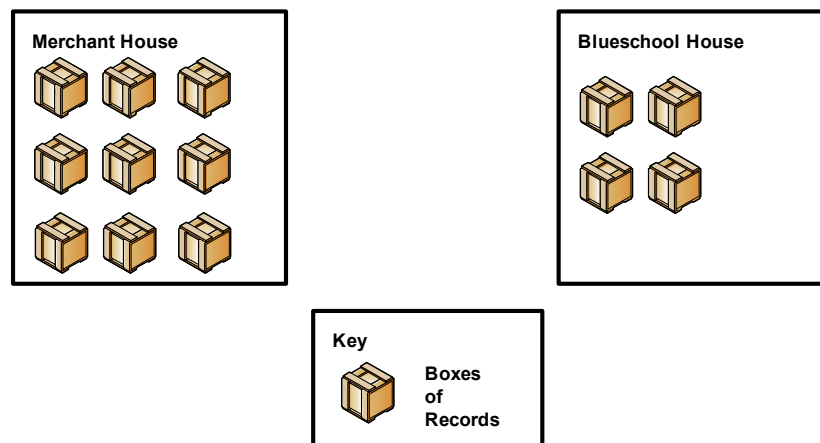
1.1 Modern Records Unit (MRU)

1.1.1 INTRODUCTION

The Modern Records Unit (MRU) operated by Information Services stores the paper records of Herefordshire Council in compliance with data and records legislation.

The Modern Records Unit covers the storage of semi-current council documents in purpose built facilities, providing access to stored files where appropriate. It also has responsibility for the Record Management function at a corporate level, supporting internal customers with record creation, storage, retention and disposal.

Records are boxed up by staff from all over the Council and sent over to the MRU for indexing and storage. The MRU team also provide retrieval of requested records.



There are currently two buildings being used to provide the storage for the MRU; Merchant House, Burcott Road (a dedicated, leased facility) and Blueschool House (spillover).

The requirements for a records facility are as follows:

- **Physical conditions and security** - standards exist for archival storage [BS 5454]. Full compliance with this standard is not considered to be a requirement for modern records. Protection in the event of fire is. Storage areas also need to be protected from any water damage, and because of the highly confidential nature of the material, have access restricted to staff members. There is currently no fire suppression system in either of the Modern Records Unit stores.

Further information on the subject of this report is available from
Rob Knowles, Programme Manager (Corporate ICT Strategy) on (01432) 263764

- **Special shelving/storage** – oversized maps and plans need to be accommodated.
- **Standard shelving** – mobile and static shelving is used at the Modern Records Unit. Space between the shelving is required for access with trolleys and ladders.
- **Space for consulting records on site** - seating for 4 persons, with sufficient space to allow for the examination of 20 boxes.
- **Destruction** - able to handle 100 bags at a time for destruction.
- **Staff accommodation** - for 5 permanent staff members with additional space for a further 5 temporary workers. Further staff members would need to be accommodated on a permanent or temporary basis for professional and clerical records management duties, or if the facility took on extra staff to deal with backlogs of material resulting from accommodation moves, or if the facility became involved in any electronic document management projects.
- **Loading area** - for deliveries of records from departments and a covered area for unloading is required. This area should also be large enough to store a transit van if required.
- **Processing Area** - a processing area adjacent to the loading area is required, for staff to enter data about the records that have arrived on to a database, before storing the boxes in the shelving bays.
- **Meeting / Training Room** – Small training facility to allow on-site records management training activities to which Council employees are invited, , including how to use the Modern Records Unit, document scanning, record keeping standards such as version control, Freedom of Information Act and information sharing.
- **Courier Service** - The Modern Records Unit would need to deliver paper files on request to offices, and collect boxes of records to be transferred from offices. The Pedicargo and the Amey courier services currently deliver files, but not boxes for transfer. It may be that a scan on demand service or a program of back scanning would at some point reduce the need to deliver as many files. Initially, however, provision would need to be made for records to be transported either by use of a van owned or rented by the Unit, or through contracting courier services, since the Unit would no longer be centrally located for staff to collect files from or deliver boxes to.

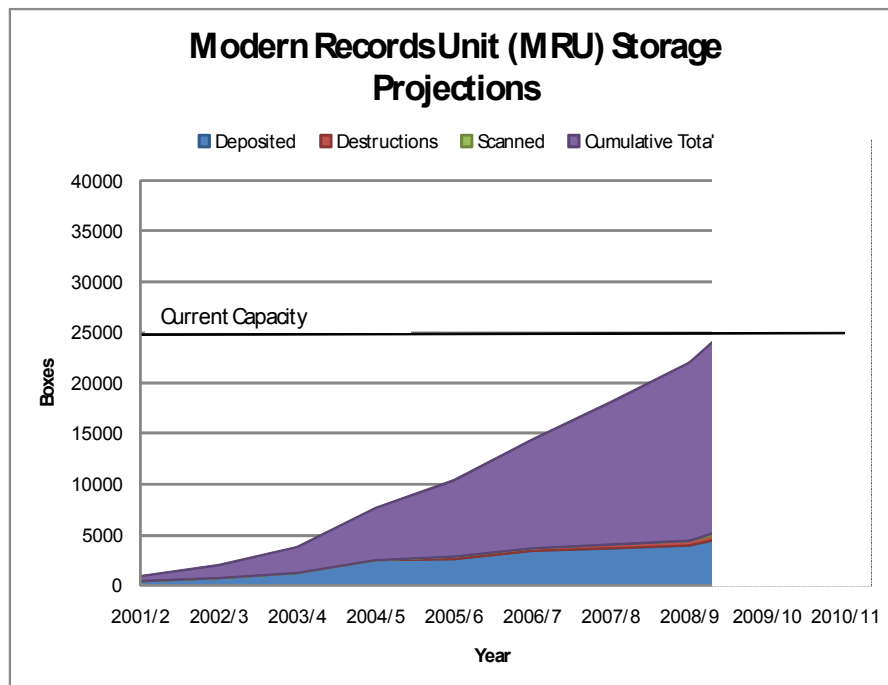
1.1.2 CURRENT ISSUES

1. Storage in the Modern Records Unit buildings is filling up, and there is a serious risk that in one year the storage services provided will reach their capacity. The storage space has been put under pressure by the requirements of the Council's Accommodation Strategy and by the recognition under Herefordshire Public Services that space could be shared to store records for the Primary Care Trust as well under some form of paid service level agreement.
2. There is no fire suppression in the current MRU.

3. The MRU is split between Merchant House and Blueschool House meaning additional operational support and cost over two buildings.
4. The projection for Modern Records does not take account of the future level of annual destructions, which are currently not fully known. There will be destructions of files at the end of their retention period, which can be projected, and destruction of files transferred to another media through scanning. Scanning of documents would substantially affect the number of physical files held, but how many files would be scanned, and over what time period, is currently undecided but within the scope of Herefordshire Connects. Some files may be scanned but paper versions retained due to issues of long-term preservation. For other files, it may not be cost-effective to scan them due to a short retention period. Some records will need to be kept in paper form for legal reasons, such as sealed contracts.
5. On this basis, we would expect to see a net increase in the current volume of records needing to be held, from 18,500 boxes plus 40,000 planning applications filed out of boxes at present, to approximately 34,660 boxes by April 2011. However, with a corporate programme of document scanning (within the scope of Herefordshire Connects), these figures could be greatly reduced.
6. The total capacity of all facilities is 19,500 boxes plus around 6,500 boxes of loose planning documents – total of 25,000 boxes.

1.1.3 PROJECTED CAPACITY REQUIREMENTS

The diagram below shows projections for the rate of deposit of records to the Modern Records Unit until April 2011, alongside the rate of destruction of boxes of records in line with their retention schedules, and the effect of scanning the planning applications and Social Care records currently stored in the Modern Records Unit.



It should be noted that these 'best estimates' are based on current retention periods and rates of deposit. Other factors will have a bearing, such as changes in legislation or the adoption by the entire Council of a legally admissible Electronic Document and Records Management System (EDRMS) – currently within the scope of Herefordshire Connects.

1.2 Data Centre

1.2.1 INTRODUCTION

A data centre is a specially equipped facility designed to securely hold the computers (servers) and electronic storage used to run the Council's applications. Every directorate and department uses the applications, servers and electronic storage provided by the data centres every day to run the Council and deliver services to citizens. Examples of applications include email, the new social care system, the intranet, the Internet sites, Customer Relationship Management (CRM), planning, HR, payroll, finance and procurement. Without these vital applications the Council would cease to function.

Due to the high value of the equipment and data stored within, data centres must have the following characteristics:

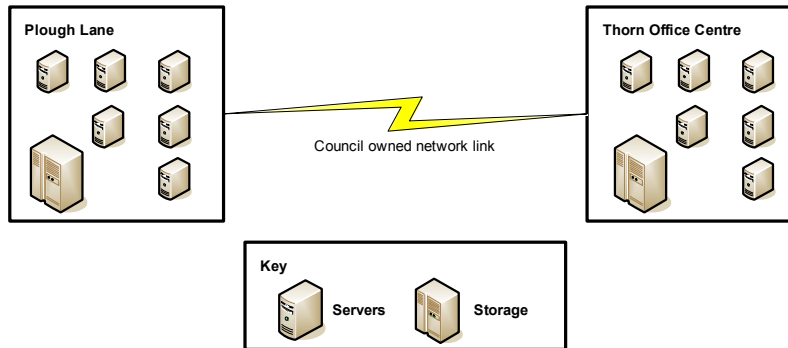
- Physically secure both internally and externally;
- 'Air gap' – physical space between data centre and surrounding buildings to prevent spread of fire;
- Fire suppression system;
- Highly resilient power supply;
- Emergency power supply;
- Air conditioning;
- Space for servers, storage and personnel.

Herefordshire Council currently operates two data centres, one at Plough Lane and one at Thorn Office Centre (Rotherwas).

The Council owns neither of these buildings with the current leases running out in 2010 and 2011 respectively. Work was carried out through the Community Network Upgrade project to provide suitable business continuity across the county with the 2 main data centres feeding the satellite offices.

Best practice states that data centres should always be paired. This avoids the situation whereby if one data centre is damaged or put out of action, the other one can take over the running of the applications and electronic storage and still enable the Council to function. It is advisable to site the data centres at least a mile apart should any incident at one affect the surrounding area.

The diagram below shows a high level representation of the Council's current data centres.



The amount of servers and electronic storage that a data centre can safely hold is determined by several factors:

- **Physical Security** – the data centre needs to be secure. Ideally the building should be at ground level with no windows and heavy security doors with electronic access to limit physical access to the building and minimise the ability to enter the data centre via any other means. The building should ideally not be sited next to other buildings to provide an 'air gap' to prevent fire spreading from neighbouring buildings to the data centre. The facility should have a secure perimeter fence.
- **Physical Space** – computers running applications (servers) sit within storage racks. Each rack can contain multiple servers depending on size. The number of racks that can fit within a data centre and still allow access is one limiting factor. The unit of measure for the physical size of a server is called a 'U'.
- **Power** – servers consume power (measured in Watts) and place a load on the electricity supply (measured in Amps). A data centre is limited by the amount of load that servers place on the electricity supply. Unlike your home electricity supply which is supplied on one phase (power line), power is supplied over three phases with each phase able to take a part of the load. Overloading the supply with too many servers is very dangerous and could result in a serious fire. There are safe margins within which to operate.
- **Emergency Power** – in case of electrical supply failure, the data centre will rely on large batteries called UPS's (Uninterruptible Power Supply) to provide enough electricity in the seconds between a failure and the generator kicking in. The generator (petrol driven) will then provide enough power for around 8-12 hours of usage. It is important that the load on both the batteries and the generator does not exceed safety recommendations. Too many servers can cause the UPS batteries to explode or the generator to shutdown.
- **Cooling** – servers generate heat in various quantities. Heat causes servers to stop working; therefore, the data centre must be kept cooled through powerful air conditioning units. There is a limit to the number of servers within the data centre depending on how powerful the air conditioning units installed are.

- **Electronic Storage** – all the electronic data generated by the Council has to be stored somewhere. It must also be stored multiple times (backups) to ensure that no important data is lost. The Council uses something called a Storage Area Network (SAN) to store its electronic data. This is effectively a dedicated server that can hold hundreds and hundreds of hard disks. For comparison the computer you use at home usually contains just one hard disk. There is a restriction based on the physical size of this dedicated server as to how many hard disks and, therefore, how much electronic data, can be accommodated. The total storage available is measured in Gigabytes (Gb). A Gigabyte is the electronic equivalent to 20,000 A4 pages (about two four-drawer filing cabinets). A Terabyte is 1,024 Gigabytes or 20m pages of A4.

1.2.2 CURRENT ISSUES

The current issues facing the Council surrounding its current data centres are as follows:

1. The lease on the data centre at Thorn business centre expires in February 2011. This data centre **does not** meet current standards namely fire suppression and we will be obliged to move the data centre at that time. There is an anticipated lead time of 12 months to realistically move this data centre. Within the context of the Accommodation Strategy review by Knight Frank of options for the provision of headquarters accommodation in Hereford, it is necessary to look at alternative options for the future of the council's data centres.
2. The Thorn data centre is very susceptible to electricity spikes as the current power load is so high.
3. The current 2 main data centres are near capacity and would not be able to accommodate any expansion expected over the next 5 years.
4. Herefordshire Connects will deliver new applications to replace the ageing and outdated multitude of systems the Council currently operates. However, this introduces requirements for extra physical space to site the new servers required to run the applications and electronic storage space to store the data. Currently, neither data centre can support these additional requirements without major risk to the business.

Considerations for new facilities moving forward should consider:

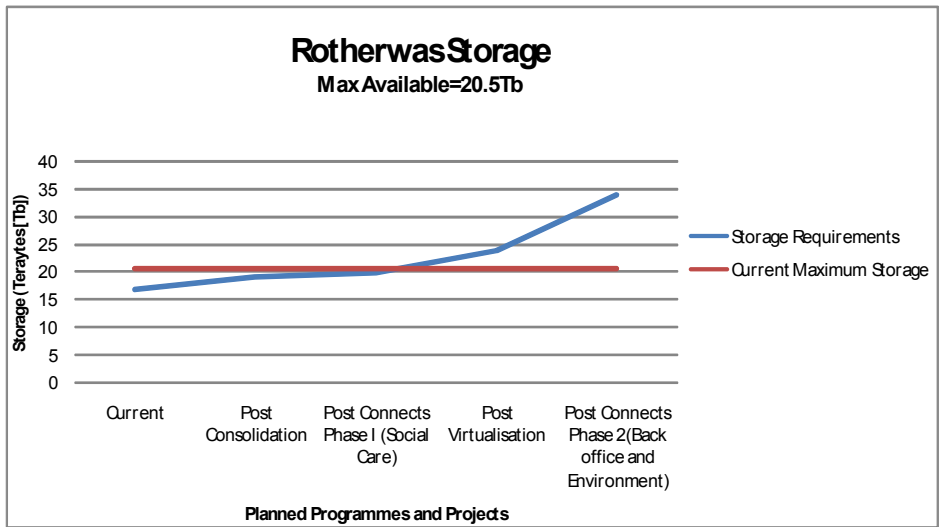
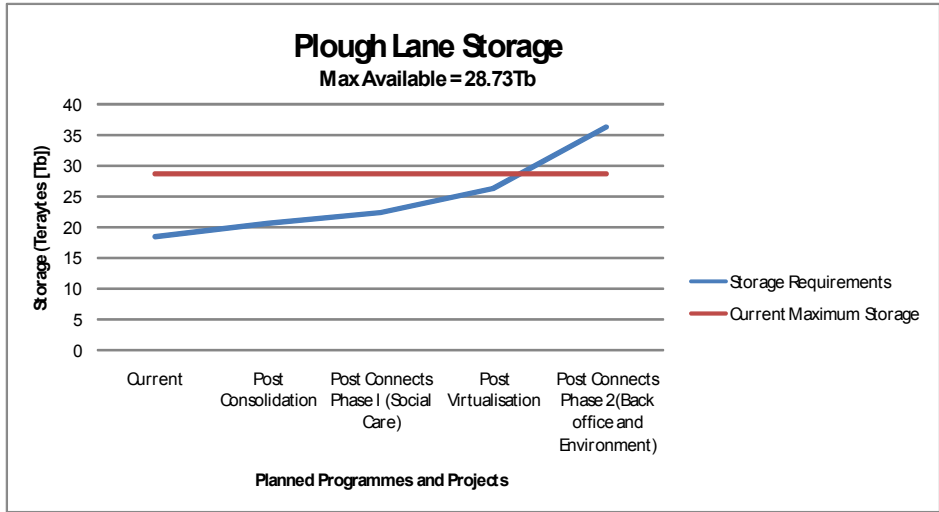
5. The Council has 2 data centres to allow the capability to have resilience for applications and servers. These data centres must be sited at least 1 mile apart, with one site being north and one site south of the river.
6. Herefordshire Health Informatics (Primary Care Trust and Herefordshire Hospitals Trust) also has two data centres, one of which is located at Belmont and the other at the hospital. They are keen to explore the possibility of joint utilisation of data centres. Joint use would involve agreeing joint funding or leasing of space within the data centre with the local NHS.
7. The new facility offers the potential to contribute towards economic regeneration by providing data centre facilities to Herefordshire businesses or a new wireless broadband service provider. It should be noted that although the council will be able to improve the infrastructure for a broadband service we would be in breach of state aid legislation

should we then continue to manage this provision. Consequently, this element would have to be handed over to a third party ISP provider.

1.2.3 PROJECTED CAPACITY REQUIREMENTS

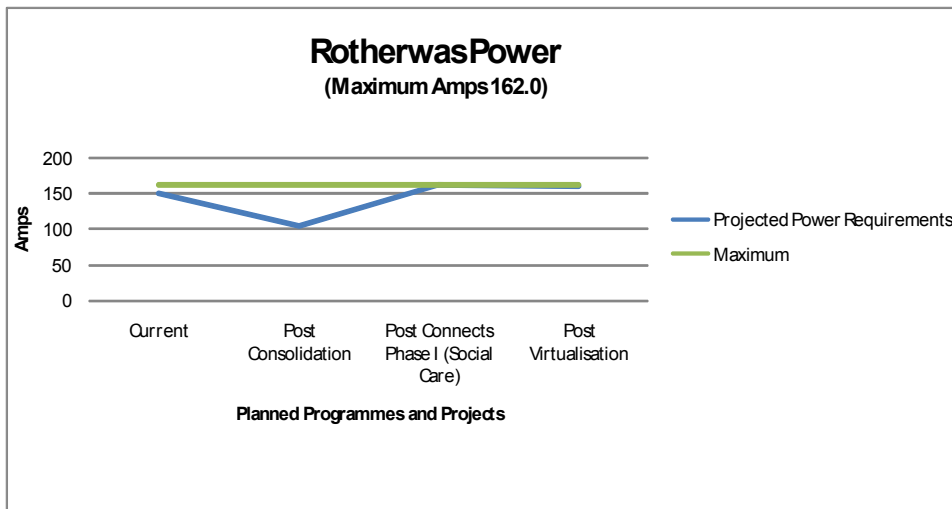
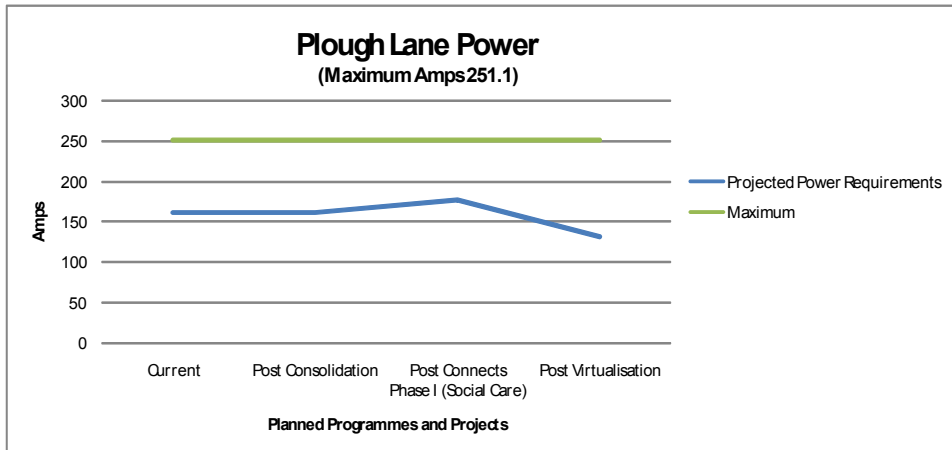
The charts below shows the current and projected requirements for the two data centres.

1.2.3.1 ELECTRONIC STORAGE



Capacity will be exceeded meaning that no further applications could be installed or no further data generated by the Council (and safely stored) unless the project goes ahead.

1.2.3.2 POWER



Please note that Post Connects Phase 2 (Back Office and Environment) figures will not be known until the final technology selections are made as this determines the number of servers required. However, it can be seen from the above figures that the data centre at Thorn Office Centre, Rotherwas is very close to the maximum safe load. The electricity supply architecture at Thorn could not be safely reconfigured without major electrical contracting work.

1.2.3.3 SUMMARY

Both electronic storage and power requirements will be exceeded as Herefordshire Connects begins to deliver new applications. Even without Connects the Council's electronic storage requirements are expected to grow an additional 20% per annum on top of the figures above (based on industry standard projections). A new data centre and electronic storage system must be put in place.

The lack of power and storage will also have an impact on other Herefordshire Public Services partners (particularly the NHS Primary Care Trust) who have expressed an interest in co-locating facilities.

2 PROPOSED SOLUTION

2.1 Introduction

When looking at alternative building options currently available within Herefordshire Council properties, Wallbrook Court in the Rotherwas industrial estate has been identified.

Due to the size of this building Property Services have made a recommendation that another service is co-located at this property to maximise the space and rental income. The service that has been identified as suitable is the Modern Records Unit currently housed at Burcott Road with a second store at Blueschool House.

2.2 Considerations

Considerations for the new facility:

1. There is a pressing need to move quickly due to the demands of Herefordshire Connects and the expiry of the leases on the buildings. Wallbrook Court offers the ability to move quickly.
2. The modern records storage, electronic storage and disaster recovery requirements from the business must be met quickly to enable them to continue to improve their services whilst complying with retention schedules.
3. Wallbrook Court is vacant now and owned by the Council managed through the Rotherwas Futures joint venture with Advantage West Midlands. The current rent/lease cost is c£50k per annum, however, in ensuring this accommodation meets all the necessary needs for the data centre and Modern Records Unit structural works will need to be undertaken within this building which may increase this slightly. There is scope for Rotherwas Futures to carry out all the necessary work, subject to the amounts involved, and add that cost spread over the term of the lease to the future rent.
4. The new facility offers the potential to contribute towards economic regeneration by providing data centre facilities to Herefordshire businesses or a new wireless broadband service provider. It should be noted that although the council will be able to improve the infrastructure for a broadband service we would be in breach of state aid legislation should we then continue to manage this provision. Consequently, this element would have to be handed over to a third party ISP provider.

2.3 Risk Management

The following risks on the Council's corporate risk register will be substantially mitigated by this project:

1. **CR4 Organisational Improvement and greater efficiency** - The inability to provide critical services due to the failure of the ICT networks: *This project would reduce the risk of service failure through the provision of a robust and fit-for purpose data centre*

facility with disaster recovery capabilities.

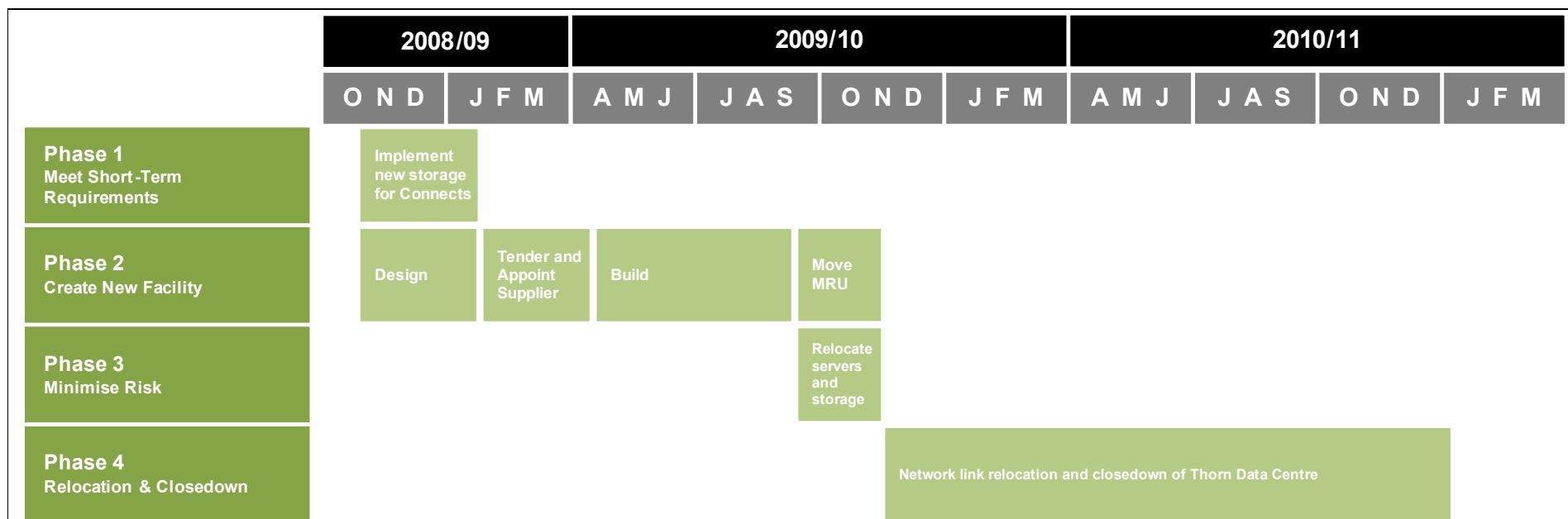
2. **CR28 Organisational improvement and greater efficiency** - Deliverable benefits from Herefordshire Connects not realised: *This project is required to mitigate the risk that the systems and applications implemented as part of Connects remain operational within agreed service continuity tolerances in the event of an incident and can therefore deliver the benefits.*
3. **CR29 Organisational improvement and greater efficiency** - Both Data Centres are in leased accommodation, are near capacity, plus there are environment issues such as power and fire suppression that need to be addressed. Loss of data centres will affect delivery of all services: *This project will mitigate some of the risk by replacing one of the data centres with a robust and fit-for-purpose facility.*
4. **CR30 Organisational improvement and greater efficiency** - Legacy systems out of support with vendors, and on old hardware. Compounded by CR28 Benefits from Connects e.g. Cedar: *This project will provide additional storage capacity to enable the safe and secure retention of legacy systems whilst they are required by the Council or by legislation and allow the introduction of replacement systems from Herefordshire Connects.*
5. **CR36 Organisational improvement & greater efficiency** - Failure to deliver services and meet key objective of achieving performance targets due to lack of Data Base Administrator support and sufficient server capacity for housing benefit and local tax systems (risk BES1 from the Benefit & Exchequer Services risk register refers): *This project will mitigate some of the risk through the provision of extra storage capacity to house these systems.*
6. **CR45 Organisational improvement & greater efficiency** - Human Resources - an inability to develop robust and fit for purpose data management and strong transactional services to Directorates, which will enable and inform sound decision making and planning within the Council: *This project will contribute to the risk mitigation through providing a robust and fit for purpose facility in which to store HR data and host HR systems delivered through Herefordshire Connects.*

2.4 Approach

The proposed solution takes account of several important factors:

1. Herefordshire Connects requires further physical and electronic storage space to adhere to its timescales. The approach attempts to minimise any disruption to these timescales.
2. Accurate building costs cannot be determined until designs and suppliers have been selected. This requires at least five months from the approval date. This means currently we cannot supply accurate costings for all phases of the project.
3. The data centre must be removed from Thorn Office Centre before the lease expires in February 2011.
4. The Community Network Upgrade (CNU) contract with Siemens expires March 2010.

A four phase approach is proposed, designed to provide minimum impact on existing programmes and projects and take advantage of other required infrastructure projects to reduce costs.



Phase	1	2	3	4
Name	Meet Short-Term Connects Requirements	Create New Facility	Minimise Risk	Relocation and Closedown
Summary	Meet Herefordshire Connects requirements for physical space and storage within that programme's timescales.	Refit Wallbrook Court as new data centre and Modern Records Unit.	Relocate additional Connects servers and storage from Plough Lane to new data centre.	Relocate communication links and closedown Thorn Data Centre.
Objectives	<ul style="list-style-type: none"> Provide enough physical space and power to accommodate new applications and servers to 	<ul style="list-style-type: none"> Refit Wallbrook Court to accommodate data centre and MRU. Extend fibre network link 	<ul style="list-style-type: none"> Relocate servers from Plough Lane and Thorn to new data centre to ensure disaster recovery 	<ul style="list-style-type: none"> Relocate all network links from Thorn to Wallbrook Court. Remove all equipment from

		deliver Connects. ■ Provide enough electronic storage to store the data for the new Connects applications.	from Thorn to Wallbrook Court. ■ Move MRU to Wallbrook Court	compliance.	Thorn data centre and reuse where possible. ■ Closedown Thorn data centre.
Constraints		Connects – go-live for Environment/HR & Payroll in July 2009.	Design and build work expected to take around 9 months.	Requires new data centre to be in place.	Lease expiry February 2011
Dependencies		Server Virtualisation must continue to timescales to free up enough space.	Property Services design and supplier selection. Property Services build.	Requires new data centre to be in place.	Community Network Upgrade (CNU) re-tendering process must be completed and a new supplier selected.
Timescales	Start	October 08	October 08	October 09	March 2010
	Finish	January 09	November 09	November 09	January 2011
Duration		3 months	12 months	3 months	10 months
Cost		£ 217,408	£1,475,508 Plus building costs*	£ 24,323	£ 273,125
Funding Source (s)		Existing ICT Budgets – Strategy Budget (2009/10 rolled forward)	Capital Bid Process * Rotherwas Futures	Existing ICT Budgets	CNU Budget Existing ICT Budgets Capital Bid Process