IT PROPOSAL FOR TARMAC SPECIAL PROJECTS
HEAD OFFICE

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1.0 OVERVIEW

The need to review and propose a new IT action plan within Tarmac Special Projects has become apparent to combat the apparent directionless approach to which IT in Special Projects is drifting. The proposal shall provide a platform on which to build an IT strategy that is robust enough to assist striving to continue improving operating efficiency and flexible enough to enable Special Projects to take advantage of new technologies and approaches that will empower the unit to drive the business forward and be ahead of the competition.

Our mission statement asserts that leading communication and IT systems are essential for Special Projects to achieve its goals, this proposal describes the infrastructure and systems that need to be implemented to underpin this aspiration.

Assuming that acceptance of this proposal is forthcoming, an action plan will be generated and a project managed implementation conducted.

A cost summary of the major components of this proposal is detailed in Appendix 1.

2.0 SCOPE

This proposal, though specifically targeted at Special Projects, recognises that in many areas there are interfaces with Building Division and other parts of the business that have to be considered. In every case, these interfaces are identified and suggestions made for the improvement or consolidation of these interfaces, however, in some cases, such as the core Conax and Cyborg systems that are used across the company no recommendations are made as they are considered to be outside of the scope of this proposal. Primarily, this proposal focuses on head office but also recognises that tighter integration with systems implemented and yet to be implemented at project offices will be key to improving overall operational efficiency of Tarmac Special Projects.

As well as describing IT strategy and identifying specific hardware / software solutions, it also provides a full costing of this proposal and identifies areas where further research / investigation is required before suitable recommendations can be made.

For clarity, the proposal is organised into five main sections: infrastructure, communications, applications, systems and practices; although it is recognised that there will inevitably be overlap in some areas.

A document management system for Special Projects is not within the scope of this proposal and is being specified by Peter Finch, though the DOX office management system has already been identified as being unsuitable for head implementation in head office. A proposal relating to application training for Special Projects is included in Appendix 7.

3.0 PROPOSAL

3.1 INFRASTRUCTURE

In the context of this IT proposal, infrastructure can be considered as the hardware base upon which IT functions. The infrastructure has been split into five main categories for which proposals have been made, those being: server platform, client PCs, printing, cabling and also a miscellaneous category.

3.1.1 Server Platform

Special Projects presently have the majority of their LAN based IT services hosted on a server situated on the seventh floor of Construction House, those services being file, print, remote access and mail (Microsoft Exchange). Derwent House staff use this same server for file and mail, while their print services are hosted on a server located in Derwent House.

The hosting of all these services on a single machine is considered to be an inherent flaw in the resilience of the IT service that is provided to Special Projects. In plain terms, having *all of your eggs in one basket* results in all services being in jeopardy when any one of the services being offered by that machine fails. It is more appropriate to split services across separate machines to increase resilience and subsequently reduce downtime.

It is proposed that a new server platform is installed on sixth floor (re-deploying a server that is presently under-utilised in Building Division) of Construction House to take on the role of file and print serving and also any new document management system. It is not intended to move the mail service from the existing machine. The hosting of remote access to the Tarmac network should not be performed by the new server configuration. Initially, the addition of two PCs equipped with modems to the Bromborough RAS pool should provide ample RAS connections in the near future, while in the longer term a site serving remote access infrastructure is to be installed by the Central IT department which Special Projects will be able to use.

The new server will not only increase the resilience of IT services but also give Special Projects the flexibility to host additional services and systems when felt appropriate and ensure that backups are controlled by Special Projects IT persons.

The specification and cost of the proposed new server is detailed in Appendix 2.

3.1.2   Client PCs

3.1.2.1 Desktops PCs

The present specification of desktop PCs within Special Projects is generally considered to be adequate. However, to simplify support and reduce compatibility issues, it is proposed that all desktop PCs be consolidated so that there is a common *minimum* standard model and specification. To achieve this, it is proposed that a program of replacement / upgrading should be instigated, the aim being to ensure that all desktop PCs will be Compaq DeskPros equipped with a minimum 133MHz Pentium processor, 32MB of RAM and 14" / 15" colour monitors (capable of being driven at a resolution of 1024*768). Multi-media support such as CD-ROMs and sound cards are not presently considered to be a requirement on desktop PCs. The specification of a minimum standard for new desktop PCs (which shall be reviewed on a six monthly basis) is detailed in Appendix 3.

3.1.2.2 Portable PCs

The present policy of specifying portable PCs with the present usage of the intended user in mind with no consideration of future proofing the significant investment in portable PCs or re-allocation of that portable PC should the user leave the department or take on different roles should cease. This policy has resulted in a wide ranging *mixed bag* of portable PCs which can often be difficult to support and difficult to re-allocate. It is recognised that portable PC technology moves at a faster pace than many other IT technologies and that choosing the *right* laptop can seem like trying to hit a moving target, however, that shouldn't stop the establishment of a *minimum* standard specification to which all future portable PC procurements will adhere to. As with desktop PCs, it is proposed that a program of replacement / upgrading should be instigated, the aim being to ensure that all existing portable PCs will have a minimum specification of a 100MHz Pentium processor, 16MB RAM, 600MB hard disk drive and 10" screen. Additionally, all portable PCs should have a 28.8kbs modem card / Nokia data card installed as well as an Ethernet card. All new

portable PCs procurements should have a combined modem / GSM data card specified instead of separate cards as these work out less expensive and reduce the need to carry multiple cards and cables.

The specification of a minimum standard for new portable PCs (which shall be reviewed on a six monthly basis) is detailed in Appendix 3.

3.1.3 Printers

Special Projects presently have six printing devices on the sixth floor of Construction House, a colour laser - HP Colour LaserJet 5M, two office printers - both HP LaserJet 4, a personal printer - HP LaserJet 5P, an A3 colour inkjet - HP PaintJet XL300 and a portable printer - Canon DeskJet 320. Special Projects in Derwent House have a single office printer - HP LaserJet 4. All of these printers are attached to network print servers with the exception of the A3 colour inkjet, the HP LaserJet 4 in David Benson's office and the portable printer.

It is proposed that a new high volume, high flexibility office printer, the HP LaserJet 5Si, is procured. This printer will be equipped with two five-hundred sheet capacity A3 / A4 paper trays, a two-thousand sheet capacity A3/A4 paper tray, a one-hundred envelope capacity envelope feeder and a one-hundred sheet capacity multipurpose input tray. The printer will be capable of twenty-four pages per minute and have duplex (double-sided) printing capability.

A replacement for the A3 colour inkjet, the Canon BJC-5500, will be procured, offering A2 colour capability as well as A3 and A4. The A2 colour inkjet printer gives the capability of clearly printing relatively large plans and is only marginally more expensive than similar A3 printers.

All printers within Special Projects will be network attached and hence available to everyone in the department, with the exception of David Benson's printer and the portable printer.

The existing HP LaserJet 4 office printer should be retained as a secondary office printer, replacing the HP LaserJet 5P which should be moved to Derwent House and serve as a backup printer. The HP PaintJet XL300 should be disposed of as it is old, unreliable and particularly prone to breakdown and print miss-feeds.

The specifications and cost of the proposed new printers are detailed in Appendix 4.

3.1.4   Cabling

It is not proposed to make any changes to the existing installation of category five UTP data outlets and UTP Ethernet hub units installed in Special Projects in Construction House and Derwent House.

Large project offices will also be specified with category five UTP data outlets and UTP Ethernet hub units, however, small project offices will be specified with a hub-less thin Ethernet cabling configuration to enable a simple workgroup environment to be implemented.

3.1.5   Miscellaneous

3.1.5.1 Scanner

The existing Fujitsu 3096GX A3 / A4 document scanner is a high calibre scanning device, though it is clearly under-utilised. No changes are proposed to be made to the scanning hardware, however, proposals to make better use of this resource are described in the systems section of this proposal.

3.1.5.2 Digital Cameras

A digital camera should be procured for Special Projects Head Office. As well as excellent picture quality, the camera should be capable of transferring images to PCs by means of infra-red (IRDA) ports to remove the need for slow and clumsy serial port transfers. It is proposed that a suitable camera be researched.

3.2   COMMUNICATIONS

3.2.1   Derwent House

It is not proposed that any changes be made to the present leased line due to the impending move of Special Projects staff from these offices.

3.2.2   Project Offices

Since project offices can consist of a wide ranging number of users and differing IT requirements it is not possible to specify a defined communications model for them, however, some guidelines can be recommended.

It is suggested that all sites with a user population of more than fifteen users shall have their own server and leased line connection to the Construction House LAN. Due to the behaviour of the Windows NT Server operating system, it is recommended that all links of this nature have a minimum bandwidth of 128 kbit/s. Smaller project offices will in most instances be unable to justify the expense of a permanent leased line, in these cases it is recommended that dial-up network capability is implemented for both mail and data connections, hosted on a workgroup class server.

3.2.3   Mobile Users

The present method of connecting into the Construction House LAN by means of modem cards for land-line connections and GSM data cards for mobile phone users is satisfactory. It is not proposed to make any changes in this method in the near future except to ensure that combined modem and GSM data cards are procured in preference to separate cards.

3.2.4   External Partners

Interfaces with Special Projects' *external partners* is presently very crude, with the majority of the interfaces being satisfied by floppy disk transfer and in some cases SMTP e-mail.

It is proposed that a full and thorough investigation into our interfaces with external partners be carried out, the anticipated outcome being a mixture of dial-up networking and ISDN links being implemented.

3.3   APPLICATIONS

3.3.1   Standard 'PC' Applications

The Microsoft Office 95 suite of applications are widely considered to be best of breed and a corporate standard and therefore evaluation of any alternative suite is not recommended. However, a newer release of the Microsoft Office suite has been available for some time and it is proposed that an evaluation of the new suite be carried out to establish whether there is a worthwhile case for upgrading.

Similarly, Microsoft Exchange and Schedule+ clients are well regarded and there is no reason to look at alternatives, however, Microsoft has released a new client - Outlook, that

replaces both Exchange and Schedule+ clients with a single application and an evaluation should be carried out at the same time as the evaluation of Microsoft Office 97.

3.3.2 Non-Standard 'PC' Applications

A number of *one-off* applications are in use in Special Projects and efforts shall be made to ensure that more and more of these applications are not implemented in an uncoordinated manner, causing a significant support issue.

Of the main non-standard PC applications in use in Special Projects, particularly ASTA PowerProject and Lotus Freelance Graphics it is recognised that commitment to future development is not clear. PowerProject appears to be getting a little *long-in-the-tooth* now and more powerful and flexible applications may be available. Freelance Graphics is a powerful application, however, it is not particularly integrated with the existing office applications and a more suitable application may be available.

David Love is presently evaluating suitable project planning software. A suitable alternative to Freelance Graphics has already been established, CorelDraw, and is presently being evaluated.

3.3.3 Bespoke Applications

There are presently no changes proposed to be made to bespoke systems such as CoMaS. A new IT hardware logging and tracking system is to be implemented to enable better management and distribution of IT equipment. Authorisation will be sought to investigate areas where bespoke applications could replace time consuming manual processes that are in place in the department such as completion of expense account forms, requisitioning, etc.

3.4 SYSTEMS

As previously stated, document management systems do not fall within the scope of this proposal.

3.4.1 Platforms

All desktop and portable PCs used in Special Projects now have the Windows 95 operating system installed on them and most users are now familiar with the system. It is not recommended that any changes are made to this choice of platform in the near future,

however, it is proposed that an investigation into the suitability and benefits that could be gained by implementing the Windows NT Workstation operating system be conducted. Perceived benefits of the new system being increased robustness, significantly better security such as users being able to set file permissions themselves, tighter integration with the server operating system, superior networking capability and a more future proof platform upon which to implement new services and applications as it is widely seen as the strategic desktop operating system of choice.

3.4.2   Faxing

The use of manual fax machines is a cumbersome and time consuming process and does not lend itself to proper management and archiving of documents. Crown House are presently implementing a fax system that provides all users with a direct fax number which re-directs all faxes sent to the direct fax number through an fax / e-mail gateway and into the user's Exchange *inbox*. Crown House have been approached and are happy for Special Projects to be users on this system. It is proposed that a fuller understanding of the Crown House faxing solution is gained with the view to using this service.

3.4.3   Scanning

As previously stated, the scanner that is installed in Special Projects is woefully under-utilised. The scanner clearly must form an essential part of any document management system that is implemented in Special Projects, however, good use of this scanner can be made in the meantime by the installation of suitable OCR (optical character recognition) software that will enable the reading in of printed documents and conversion of them into editable word processing documents and also facilitate the scanning in of graphical images. Suitable software has been purchased for the Dartford project office and it is proposed that the same package be used in head office.

3.4.4   Document Publishing

It was clear during the LG bid process that the present applications and systems are not entirely suitable for generating complex bid documents. Apart from difficulty in managing the insertion / editing of graphical images in documents and creating sophisticated page layouts, the cross-referencing of objects such as pictures and tables while repeatedly adding / removing sections of the document meant that a significant amount of effort was used just to

ensure that referential integrity was maintained. It is recommended that to streamline the process and maintain total control of the bid document that the entire bid document is created in-house to draft standard and only sent to a bureau for final printing.

To this end, discussions have been held to help identify a better approach to streamlining the bid document creation process. It is proposed that a high power desktop publishing (DTP) workstation be procured with appropriate DTP software and that Special Projects secretarial staff be trained to use the DTP workstation. It is proposed that the Tarmac Proposals unit be used in two capacities: in a consultancy role to aid in the setting up of initial document templates and assist with ongoing issues; and to provide the final production work. A suitable DTP workstation and choice of software has been established, see Appendix 5. It proposed that an investigation into suitable training for Special Projects staff be carried out.

3.4.5   Internet / Intranet

Access to the Internet for WEB browsing is now available to everyone on the Tarmac network and Internet e-mail is provided as part of the Microsoft Exchange infrastructure. A number of senior Special Projects staff have WEB browsing software (Microsoft Internet Explorer) installed on their PCs and it is not recommended that everyone is given this software as it is likely to give rise to many casual users who will abuse the service, causing an increase in the already slow response times and may lead to Crown House (who provide the Internet gateway) restricting access and introducing charges for use of the service.

Tarmac do have a WEB site on the Internet (www.tarmac.co.uk) which is entirely accessible to anyone on the Internet. Because it is available to the public in general, it cannot be considered an Intranet and hence cannot be used to share confidential information within Tarmac.

It is proposed that an investigation be conducted into whether Special Projects have any material suitable for the WEB site and to establish the mechanisms required to publish it.

3.5   PRACTICES

An SLA (service level agreement) has been written by Martin Stacey and Peter Finch and is listed in Appendix 8.

3.5.1 PC Configuration Management

Although all new PCs issued to Special Projects users have identical applications installed and the same *look and feel,* the majority of users then undertake a customisation process that often makes the PC unrecognisable from the one that was issued. Apart from disregarding the principle aim of ensuring that all PCs look and function the same way, making PC sharing easier and reducing the learning curve required when receiving a re-allocated PC it poses significant issues with respect to IT support of that PC. The installation of applications on the PC without full knowledge of the impact that the application may have on other installed applications can make troubleshooting of problems that inevitably arise extremely difficult as well as making them more susceptible to virus infiltration. The instances when a portable PC is returned for re-allocation and can be passed on without the need for a complete (and timely) re-installation of the operating system and applications is very rare. The popular saying 'a little knowledge is a dangerous thing' is entirely appropriate in this circumstance.

To this end, it is proposed that system policies are implemented to ensure that the user's capability to meddle is significantly reduced by restricting access to configuration settings. Furthermore, the use of logon scripts is to be implemented to ensure that consist drive mappings, printer connections, time synchronisation, etc. are achieved.

3.5.2 Security

As specified in the server platform section of this document, a backup system will ensure that a full system backup of all data generated on the server is taken on a daily basis. It is not proposed that desktop or portable PCs are backed up, it shall remain the responsibility of each individual user to make sure that important files are copied to / sourced on the server, hence, ensuring that they will be backed up. Cartridges used for the backup process are presently stored alongside the server on the seventh floor of Construction House, open to the threat of fire or theft. It is proposed that on at least a weekly basis, backup cartridges are stored remotely in a fire-proof safe, suitable facilities will be investigated.

The visibility of data to all system administrators throughout the Tarmac organisation is an area in which due consideration should be given and it is proposed that the level of visibility be agreed with Special Projects management.

The present virus countering software measures are considered to be adequate, however, it is proposed that a planned roll-out of new anti-virus software be implemented whenever new issues are released, ensuring that all SP PCs are updated within one week of issue.

3.5.3 Archiving

The archiving of data onto near or off-line storage simply because of volume is not considered appropriate due to the continuing advances in disk storage capacity and access speeds making it possible to maintain all data in an on-line state. The archiving of data for legal purposes is a separate issue altogether and to this end it is proposed that compact disk writer be used to *burn* data onto CDs as and when this becomes a requirement.

3.5.4 Spare / Consumables Holding

It is proposed that a small, spare / consumables holding is maintained within Special Projects to aid the speedy resolution of common faults and ensure that key consumables are always available.

A list of the proposed spares / consumables holding is detailed in Appendix 6.

3.5.5 Inventory Maintenance

It is proposed that a three monthly perpetual inventory check is carried out of all Special Projects IT equipment to ensure that the integrity of the IT hardware database described in the applications section of this document is maintained. Due to the time consuming and laborious nature of perpetual inventory (PI) checks, it is proposed that it should be carried out by contract staff. Arrangements for this to be tied-in with Building Division PI checks should be investigated.

3.5.6 General Awareness

To complement the specific application training that Peter Finch is investigating for Special Projects, it is believed that there is a very real need to educate staff in how to make best use of the *systems and applications* available to them now. Many of the features of the systems and applications are under utilised due to a lack of understanding of them. It is believed that significant increases in the efficiency and effectiveness can be achieved by having a greater awareness of items such as:

- Laptops: Remote access techniques, synchronisation of data files with the server when changing between on-line and off-line use, etc.;
- Corporate Issues: Awareness of fonts, templates, logos, document standards;

- Mail: Correct use of Schedule+; Exchange configuration / options and features;
- Document Building: Use of revisions and annotation to aid collaborative working, use of document styles and print bin selection, etc.

It is proposed that a series of short seminars be run whereby demonstrations are given showing how these little practices can make a significant difference to the effectiveness of the user and make a big impact in the reduction of IT support required.

3.5.7 Miscellaneous

Acceptance will be sought to conduct research into the feasibility of 'cloning' of desktop and portable PCs. The expected benefits of cloning are the ability to define a precise specification which all PCs built from it will be identical to and speed up re-allocation of PCs that have to be re-installed.

4.0 REVIEW OF KEY ELEMENTS OF THE PROPOSAL

For clarity, the key elements of the proposal have been split into two categories: areas where actions have been proposed for execution now and areas for which investigation / research have been identified.

4.1 PROPOSALS FOR EXECUTION NOW

- Installation of new server platform in Special Projects
- Program of upgrading / replacement of desktop and portable PCs
- Procurement of two new printers, a fast, sophisticated office printer and a large format colour printer
- Procurement of a new digital camera
- Implementation of new hardware software database
- Installation of OCR software for scanner
- Production of complete draft copy of new bid documents entirely in-house
- Implementation of system policies and logon scripts
- Implementation of three-monthly perpetual inventory checks
- Running of a series of short seminars on general IT awareness

4.2 PROPOSALS FOR FURTHER INVESTIGATION / RESEARCH

- Identification and improvement of interfaces with *external partners*
- Investigation of Crown House fax system with a view to implementation in Special Projects
- Evaluation of Microsoft Office 97 and Microsoft Outlook applications
- Evaluation of alternative / complimentary software to present 'non-standard' PC applications
- Evaluation of Microsoft Windows NT Workstation operating system
- Identification of suitable alternative software / systems for creating bid documents
- Evaluation of alternative print service bureaux
- Identification of suitable remote storage facilities for backup cartridges
- Review of the visibility of Special Projects server sourced documents across the Tarmac network
- Identification of suitable CD-writers for the archiving of data for legal purposes

- Identification of manual systems which could be better served by bespoke applications
- Research into cloning of desktop and portable PCs

APPENDICES

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