

SOUTH CAMBRIDGESHIRE DISTRICT COUNCIL

REPORT TO: Leader and Cabinet
AUTHOR: Finance and Resources Director

9 June 2005

ICT COMMS ROOM AIR CONDITIONING

Purpose

1. To advise Members of the recent incident in the ICT Comms Room and seek approval to proceed with measures to prevent similar failure in future.

Effect on Corporate Objectives

2.	Quality, Accessible Services	To maintain the accessibility to Council systems and services for both staff and the public.
	Village Life	
	Sustainability	
	Partnership	To maintain the accessibility to Council systems and services for the Contact Centre.

Background

3. The Council experienced a serious problem in its ICT Comms Room on Monday morning, 16 May 2005. The ambient temperature in the room at 8am was 46 degrees C and the air conditioning unit was not providing the cooling function required. The recommended ambient temperature is 18 – 20 degrees. This increased ambient temperature led to a systems overheat.
4. To protect the systems from total failure, under instruction from the Assistant Director F&R (ICT), Serco, the Council's ICT support company, closed down all ICT systems in accordance with previously defined procedures. Additionally, the Disaster Recovery service was placed on standby. Systems were successfully brought back into operational use once the temperature in the ICT Comms Room had returned to an acceptable level.
5. The staff entrance doors were opened in order to assist the lowering of the temperature in the ICT Comms Room. Although that secure access was thereby taken out of commission, it was considered that the security risk was minimal due to the number of staff in the area during the period who would have been able to challenge any perceived attempts at unauthorised access.
6. The total outage time was approximately 4 hours (8am – 12pm) during which there was no service for staff or the Contact Centre.
7. The Contact Centre used previously agreed manual procedures to ensure all calls for SCDC services were handled appropriately; a process of updating systems was brought into play once normal service was resumed.
8. It was at first thought that there might have been a problem over the weekend period with a power failure to the building, which might have caused the air conditioning unit to trip over. This has been checked with various parties as follows:

- the alarm log on the air conditioning unit did not record any event over the weekend period;
- none of the ICT UPS (uninterrupted power supply) units showed a power problem over the weekend period; and
- none of the other businesses on Cambourne Business Park experienced a problem over the weekend;
- the electricity supply company had not received any reported problems in the area over the weekend period.

The conclusion drawn is that there was no power failure attributable to this incident.

9. Engineers from the company which service the air conditioning unit attended site at approx 12pm, the air cooling system was reset and restarted but they could not identify what had caused the problem.
10. On Friday 20 May 2005, there was a recurrence of the problem – at 1pm the ambient temperature in the ICT Comms Room was observed to be 31 degrees C and climbing. The air conditioning unit service company was immediately contacted to send an engineer to investigate.
11. The engineer who attended found that a condenser had tripped out. He reset the system and monitored the unit, which tripped again after a few minutes. He reset the system again and monitored pressures at the condenser and the fan speed controller finally cut in and stabilised pressures. He monitored the unit and pressures for a further hour and found no other faults. He thought that the unit may have had an intermittent fault with the fan speed controller.
12. Due to the unreliable nature of the system, the Finance & Resources Director agreed to hire in 3 commercial mobile air conditioning units and put these in the ICT Comms Room to cover the weekend period, to avoid the risk of computer systems not being available on the following Monday morning. Arrangements were made to ensure the position was monitored and the ICT Comms Room was visited on 4 separate occasions over the weekend, to ensure that the ambient temperature was within limits.
13. Although at the time of writing this report the temperature is now stable and the building installed air conditioning unit still running, the mobile air conditioning units that were hired in are still being utilised, to avoid the risk of the installed air conditioning unit failing again.
14. A number of issues resulting from this occurrence have been raised with the developer (outlined in the Considerations section below), but at the time of writing this report no response has been received from the developer. Efforts are being made to escalate these.

Considerations

15. The air conditioning service company engineer advised that the installed air conditioning unit be monitored over the weekend and that if the unit cut out a new fan speed controller would be ordered. As this seems to be an intermittent fault with the system, the developer has been requested to immediately instruct the order of a new fan speed controller, as recommended.
16. Concerns were raised back in August 2003 when information about the proposed air treatment in the ICT Comms Room was first received, even though comments had previously been made that (a) the air conditioning should be ceiling mounted and (b)

there should be two units, to ensure sufficient capacity to cool the ICT equipment and allow for maintenance or the failure of one of the units. Despite continued debate, the developer and their contractors were sure that their proposed solution would be adequate.

17. Since occupying the premises in May 2004, there have been continual problems with the air conditioning unit, for example:
 - the unit failed on the May 2004 bank holiday weekend over which the Council moved in and an engineer had to be called out to it;
 - when a water leak from the humidifier/ bottle had to be dealt with, it was discovered on lifting the floor that some of the pipework had not been connected and the unit was flooding the floor void - fortunately most of the water had drained away through service holes in the concrete base;
 - there is an ongoing problem with the humidifier/ bottle (recently advice has been that the bottle size installed and originally maintained did not match the size required for the unit);
 - the ambient temperature in the room has never got down to the level required for an ICT Comms Room, the best achieved being 24 degrees C against a recommended 18 – 20 degrees
18. The developers have continued to insist that these are maintenance rather than installation issues and that the unit installed is adequate for the purpose.
19. The air conditioning service company engineer expressed surprise that there was only one air conditioning unit in the ICT Comms Room. The Council's mechanical and electrical (M&E) maintenance company, on their regular visit on Tuesday 24 May 2005 also expressed the opinion that there should be 2 air conditioning units in the ICT Comms Room. In addition, the M&E maintenance company have advised that the air conditioning unit installed is of 9kW capacity, compared to the 12kW air treatment proposed in August 2003. The developers have been advised that the air conditioning unit in the ICT Comms Room is considered not fit for purpose and their comments on how they propose to rectify this problem have been requested.
20. The air conditioning unit does not appear to be covered by the Building Management System (BMS). The ICT Comms Room will necessarily operate under a separate environment from other parts of the building, but it is unclear why the air conditioning unit in the ICT Comms Room, being an item of plant that is essential to the Council's systems and operations, was not included in the plant and equipment to be monitored by the BMS system. The developers have been advised that the air conditioning unit in the ICT Comms Room should be alarmed and added to the list of critical alarms for the Council/ the M&E maintenance company to be notified of.

Options

21. Given the critical nature of the problem, the Council has two options to consider:
 - (a) Continue the hire of the mobile units until such time as the developer is able to propose and implement an agreed resolution. This could take a considerable length of time and would result in ongoing disruption to the facilities on the ground floor. This also has attendant costs, the units being hired in under the Council's instruction, all costs will have to be met by the Council and claimed back subsequently from the developers. There is a risk that they may not agree to fund these.
 - (b) Implement the installation of a second air conditioning unit at the earliest opportunity. As above, this will involve additional upfront investment from the Council which will the developer may or may not agree to fund.

- (c) Install adequate warning and alarm systems to ensure any future events are notified to the appropriate staff to enable them to be dealt with as a matter of utmost priority.

Financial Implications

- 22. Maintaining the current status quo
 - (a) Hire of the mobile air conditioning units: 3 units @ £200 per unit per week (£600 per week for the current solution)
- 23. Installation of a second air conditioning unit
 - (a) This not been costed but early estimates indicate a possible £25,000 - £30,000.
 - (b) Other, as yet unknown, associated costs as a direct result of the installation work.
- 24. Staff time
 - (a) Owing to the dependency on the use of the ICT systems, non-availability on such a wide scale has significant impact in terms of lost productivity. It has been estimated that such failure has an associated cost of approximately £8,000 per hour.

Legal Implications

- 25. The views of the Head of Legal Services have been requested, in particular concerning possible litigation with the developers. His views will be reported orally to the meeting.

Staffing Implications

- 26. None

Risk Management Implications

- 27. Total failure of the Council's business systems would result in major risk to the ability of the Council to deliver its statutory services and would greatly impact on its ongoing financial position.
- 28. If the problem had continued for a longer period, it is possible that there could have been a fire risk to the ICT Comms Room, which could also have affected other parts of the building. This would also result in substantial disruption to the Council's delivery of its services and impact on its financial position.
- 29. The Council's Disaster Recovery plans (operated by Serco as part of the ICT Outsourcing Partnership Agreement 2002) cover all the major systems in use and in particular, those that deliver the business critical services. This plan is tested on two separate occasions per year and allows some confidence in the ability to recover from a disaster affecting the ICT provision. However, this has never been invoked 'for real' and although the service was put on stand by whilst actions to reinstate the cooling were being taken, it cannot be relied upon to provide an instantaneous recovery. The service is designed to provide a short to medium term provision with a lead time of approx 4 – 8 hours depending on system complexity.
- 30. An event such as the air conditioning failure could result in damage to the ICT computer equipment and associated peripherals. In this instance, no damage

occurred but further exposure to high temperatures could result in the requirement to replace equipment. Funding for such replacement is likely to be covered by the Council's own insurance but interim funding from capital reserves will be required. Added to this is the complication that may arise from equipment unavailability, most units are built to spec so as to service the specific requirements, any attendant delays would impact on service availability.

Consultations

31. The following have been apprised and consulted as appropriate:
- (a) Chief Executive
 - (b) Finance & Resources Director
 - (c) Serco
 - (d) The Council's M&E maintenance company
 - (e) The air conditioning engineers
 - (f) The developers and their agents

Conclusions/Summary

32. The environmental controls for the ICT Comms Room have always been in question. Previous discussions and representation with the developers at building design stages were largely ignored and the net result is unacceptable systems failure and service impact. The installed unit is inadequate and the situation needs to be addressed at the earliest opportunity.

Recommendations

33. Notwithstanding the possible legal issues, it is recommended that Cabinet agrees to proceed with the procurement and installation of a second air conditioning unit at the earliest opportunity. The costs of this and the ongoing costs of the hire of the mobile units to be funded either from:
- (a) The retention monies held back subject to successful completion of building snagging issues, or subject to Council approval,
 - (b) Capital reserves, with a separate case then to be made to the developer for reimbursement of all costs incurred.

Background Papers: the following background papers were used in the preparation of this report: Previous correspondence (email and minutes) with developers during building design stages.

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