Council Meeting: 09/04/2012
Agenda: New Business
Item #: 11. d.

CITY OF KIRKLAND
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MEMORANDUM

To: Kurt Triplett, City Manager

From: Donna Gaw, Network and Operations Division Manager

Date: July 25, 2012

Subject: July 18, 2012 Network and Phone System Outage

BACKGROUND DISCUSSION

This purpose of this memo is to help Council and the public understand what happened on Wednesday, July 18th, 2012, at 12:15 p.m. when the computer and phone systems unexpectedly shutdown. This presentation was scheduled for the August 7th Council agenda but was moved by the Council to the Sept. 4th meeting.

The shutdown occurred when the "supervisory module" in the core network switch failed. Staff in the Information Technology Department (IT) were able to immediately identify the source of the problem. A replacement part, which was covered under a support agreement, was ordered and received, and the network was operational by 11:00 p.m.

The core network switch handles all communications between all computers, network servers, printers and phones. If it fails, the network is down. This is a single point of failure. At the time when the city purchased this equipment, the project budget did not have enough money to also purchase a redundant core switch ($132,000 in 2004 dollars), and there had been no previous record of failure. The supervisory module (an element of the core switch) first failed in 2009 and caused a thirty six hour network and phone system outage. In 2009, the Chief Information Officer chose not to spend money on a spare supervisory module ($20,000 in 2009 dollars), but instead to rely on the agreement that provides 24x7 technical support and four hour delivery of replacement parts ($14,350 per year) for the entire core switch, and save the money to apply to the project that is currently underway for replacing our network equipment. The cost to purchase a supervisory module today is still approximately $20,000. One goal of the network replacement project is to attempt to eliminate single points of failure like the core network switch. IT expects to complete this project early in the first quarter of 2013. Engineering cost estimates for this project are $1.1 million.

The core network switch may have failed because of an accidental shutdown of the power in the server room that involved two power spikes during a generator test the previous week, but that cannot be verified definitely. The Facilities group has coordinated with their vendors to correct a problem that was found during the generator testing. They have also reviewed their procedures for generator testing and made some adjustments to prevent future accidental power loss in that room.

IT recommends that we stay on course with relying on the current support agreement with the core network switch. Purchasing the supervisory module part that failed ($20,000) would only cover us if that was the only part that failed between now and the completion of the network equipment replacement project. Purchasing a fully redundant core network switch is approximately $150,000 today. Even with the parts on hand it still requires several hours to install and configure them. So the real difference between the support agreement and having the parts on hand is cost and the "up to four hour delivery time." Down time is a real impact, but these events are rare. So on balance, IT staff feel it is more prudent and cost effective to rely on the support agreement and invest the $150,000 in the network replacement project.