

## Exhibit E-4: Network Management Standards

### Network Management Standards

The District aims to ensure that all network management standards are accurate, up-to-date, and accessible for instruction, student services and administrative services both on campus and off-campus.

- Usability-The system does what it is supposed to do ensuring efficiency from the user's perspective.
- Reliability -The system meets availability requirements. (24/7 uptime)
- Performance-The system performs in an adequate manner based on contemporary standards.
- Security-The systems ensures data security, integrity and appropriate access.

We need adequate bandwidth to support instruction for both on-campus & off campus sites  
*Discussion with the Chancellor's Office needs to be addressed to update our DS-3 with CENIC.*

- 1.0 Plan to increase the speed of the network backbone. *The minimum standard for any new or renovated buildings should be at least 10GB per second.*
- 2.0 Standardize network hardware including switches and be consistent with vendors.
- 3.0 Ensure that we have QoS (Quality of Service) enabled equipment that will let campus needs determine service levels.
- 4.0 Establish wireless capability for the college district at the current wireless standards or to match the student's current hardware.
- 5.0 Establish remote centralized management by testing and monitoring all our networking equipment to facilitate efficient tech support. *Automatic alerts need to be sent to network managers.*
- 6.0 Establish equipment redundancy to eliminate single points of failure in order to attain our service levels, i.e. 24/7 availability, UPS battery backup protection.
- 7.0 Provide secure, remote access for Gavilan employees to work from remote locations.
- 8.0 Provide a system-wide notification of changes in system operations and maintenance schedules.
- 9.0 Provide a secured environment to ensure integrity and privacy to comply with government standards to include physical connectivity to the network.
- 10.0 Plan for a network that includes the capability for new technology services and/or infrastructure. For example, this may include video and voice over IP, i.e. convergence.

- 11.0 Establish the capability of supporting network intrusion, detection, prevention and logging. This includes network access accounting.
- 12.0 Continue to incorporate anti-virus software and malware protection for the network and desktop stations.
- 13.0 Control Gavilan network access to external networks.