

Exhibit 1 - First Layer of BCPS Network

The Vision: Utility-Like Internet

Equipment & Spec	Today's Challenges	Future Steps
Uplink, Firewall & Datacenter - <i>Performance:</i> Firewall 99% avg. uptime vs. 99.9% industry standard ¹ ; Firewall CPU utilization 75%	Bond funds were used to upgrade firewall, load balancing, routing and District switching, as well as DNS/DHCP, but funds need to be identified to sustain assets Speeds are good, but there is only one path back to internet provider	Identify funds to refresh District network equipment (SY20 Cat 2 Equipment E-Rate bid) Add 2 nd path to Internet (SY21) Outsource firewall management to experts (SY22 ³)
Wide Area Network (WAN) - <i>Performance:</i> Currently 98.31% avg. ² availability vs. 99.9% industry standard ¹	WAN capacity is dramatically lower than SETDA/FCC recommendation (e.g., 10 Gbps vs. 40Gbps needed for Cypress Bay) WAN design lacks resiliency, resulting in frequent schoolwide outages.	Transition from hub & spoke to ring design (SY20)
School Switching & Routing - <i>Performance:</i> 98.3 avg. uptime vs. 99.9% uptime industry standard ¹	No statistics available on within-school data performance due to lack of tools (e.g., SolarWinds) No refresh cycle defined; equipment replaced on ad-hoc basis	Develop plan to annually refresh E-Rate eligible network equipment (SY20)
Wireless Access Points (WAPs) - <i>Performance:</i> 60Mbps to 160Mbps	WAPs currently running under heavy load (avg. 70% CPU utilization) Currently expecting increased laptop density and BYOD to add 3 additional devices per secondary student.	Identify funding to increase number of WAPs deployed to support classroom



¹ = 99% allows for 88 hours of downtime annually; NB - Fulton County Schools manages to 99.98% uptime; ² = Reported by AT&T based on 24-hr clock; ³ = dependent on FCC approval of firewall features for E-Rate