

- R. ANSI/TIA/EIA-758-1, Addendum No. 1 to TIA/EIA-758, Customer-Owned Outside Plant Telecommunications Cabling Standard (March 1999).
- S. TIA/EIA TSB-67, Transmission Performance Specifications for Field Testing of Unshielded Twisted-Pair Cabling Systems (October 1995).
- T. TIA/EIA TSB-72, Centralized Optical Fiber Cabling Guidelines (October 1995).
- U. Institute of Electrical and Electronic Engineers (IEEE) 802.3 (Ethernet), 802.3Z (Gigabit Ethernet over optical fiber), 802.3ab (Gigabit Ethernet over 4 pair category 5 or higher), 802.11 (Wireless LAN).
- V. BICSI Telecommunications Distribution Methods Manual (2000 or latest).
- W. FCC Part 68.50.
- X. National Electrical Manufacturer's Association (NEMA).
- Y. National Fire Protection Association (NFPA), NFPA-70.
- Z. CCR Part 3 - California Electrical Code.
- AA. CCR Part 2 - Uniform Building Code.

1.05 SUBMITTALS

Submit the following in accordance with the approved submittal schedule.

- A. Materials list of items proposed to be provided under the specification.
- B. Furnish catalog cuts, technical data, and descriptive literature on components. Data shall be clearly marked and noted to identify specific ranges, model numbers, sizes, and other pertinent data.
- C. Design drawings shall indicate equipment locations, wiring and schematics, details, panel configurations, sizes and a point-to-point wiring diagram of all circuits. Design drawings shall indicate interfaces to equipment furnished by others, identifying numbers of wires, termination requirements, and other pertinent details. Responsibility for each end of the network interfaces shall be clearly noted on all design drawings.
- D. Each submittal shall be bound and shall contain an index organized vertically by assembly and item number and horizontally by columns. The first assembly shall be the major head end equipment. The leftmost column shall be the item number; next shall be the description, followed by the applicable specification section number, and followed by the specified item, which is followed by the submitted item. The rightmost column shall be for notes, which shall be used to reference the reason for submitting items other than as specified.
- E. Each submittal shall contain product data sheets or catalog cut sheets for each item listed in the Index. These shall be arranged in the same order as the index and if more than one item is shown, the submitted items shall be highlighted or marked with an arrow. The product data shall be sufficiently detailed to allow the engineer to evaluate the suitability of the product and to allow other trades to provide necessary coordination.
- F. Drawings that are specific to this specification section shall be included in the submittal. "A" size (8 $\frac{1}{2}$ "x11") and "B" size (11"x17") shall be bound into the manual. Larger drawings shall be folded and inserted into transparent envelopes that are bound into the manual.
- G. Provide weekly status reports indicating work progress and planned activities for the following three weeks.
- H. Provide a comprehensive Asset Management report monthly indicating the status of each hardware component listed by school.

- I. Provide a test and network commissioning plan and test results for each school campus.
- J. Provide a migration plan prepared in conjunction with the Project Architect.

1.06 QUALITY ASSURANCE

- A. The Contractor shall use adequate numbers of skilled workmen who are thoroughly trained and experienced on the necessary crafts and completely familiar with the specified requirements and methods needed for the proper performance of the work.
- B. The Contractor must provide a project manager who has demonstrated the ability to supervise a network and telecommunications project. The project manager must be available to be interviewed by SDUSD and/or their representative, and must be deemed acceptable by SDUSD and/or their representative. Acceptance by the SDUSD will not be unreasonably withheld. The Project Manager must be available to attend meetings as required.
- C. The work of this section shall conform to California Code of Regulations, Part 3, and all other applicable codes and standards.
- D. Only qualified Contractors that hold licenses required by legally constituted authorities having jurisdiction over the work shall do work. The Contractor shall have completed at least 5 projects of equal scope to systems described herein and shall have been engaged in business of supplying and installing specified type of systems for at least 5 years.
- E. The Contractor must use equipment manufacturers' certified installers.
- F. Manufacturer through the Contractor shall warranty availability of spare parts common to proposed system for a period no less than that stipulated within the California Multiple Award Schedule (CMAS) terms and conditions. If no time period is contractually stipulated, the Contractor shall provide a warranty of 3 years.
- G. Contractor shall guarantee that all work executed and materials furnished shall be free from defects of material and workmanship for a period of 2 years from acceptance date of Contract Completion, excluding specific items of work that require a warranty of a greater period as set forth in this Specification. Immediately upon receipt of written notice from the District, the Contractor shall repair or replace at no expense to the District, any defective material or work that may be discovered before final acceptance of work or within warranty period; any material or work damaged thereby; and adjacent material or work that may be displaced in repair or replacement. Examination of or failure to examine work by the District shall not relieve Contractor from these obligations.
- H. Persons skilled in trade represented by work, and in accordance with all applicable building codes, shall install system in accordance with best trade practice.
- I. The Contractor shall include in the Material List Submission copies of the manufacturers' certifications that the Contractor is an authorized distributor of the submitted manufacturers' products and has been adequately trained in the design, integration, configuration and installation of those products. This applies to all fiber optic components, fiber optic cable, the cable connectors and termination of the fiber cable plant as it pertains to the network infrastructure. The Contractor shall employ a Certified Fiber Optic Technician as recognized by the Fiber Optic Association for the termination and testing of the fiber optic cables.
- J. The Contractor shall include in the Material List Submission, a list of five projects of similar scope acceptable to the District and shall have a service organization capable of responding to warranty service requests within 24 hours of receipt of written notification and resolution within 1 day for MDF equipment and 3 days for equipment located either in the BDF or CDF. The Contractor shall include the telephone number of the customer's client contact for each project and a letter signed by a corporate officer, partner, or owner of the contracting company describing

the service capability of the company and stating the company's commitment to maintain that service capability through the warranty period.

1.07 TRAINING

- A. LAN Switching Equipment. A minimum five-day training course shall be provided by a certified course instructor, no later than 30 days prior to the first equipment installation, for four designated persons from the Information Technology Department (IT) The training shall be provided at the switch manufacturer's authorized training facility. Training shall include a CD-based Computer Based Training (CBT) course covering an "Introduction to Switching Technology" which is to be available for student review prior to attending training classes.
- B. General Training. The Contractor shall provide general operation and troubleshooting training of the completed system. Training modules will consist of a combination of appropriate classroom and hands on training. The training shall begin at least 30 days after the first school LAN is operational. The District shall have the right to deliver, reuse and customize the Contractor provided training modules as long as the LAN equipment installed under this contract is in use.
- C. The Contractor shall provide classroom based training for the following:
 - 10 people trained on the operation and maintenance of the hardware
 - 10 people trained on configuring and programming the LAN network.
 - 25 people trained on general operation and troubleshooting of the LAN
 - 5 people trained in the use of the Network Administration software
 - 5 people trained in the use of the Asset Management software
- D. Class instruction is to consist of intensive course work covering the following topics: Product Features and Technical Specifications; Implementation and Design, Installation, Configuration and problem diagnosis. The authorized training participants may also participate as observers in the network installation, configuration, and testing process as the network switching equipment is deployed at their school site.

1.08 Coordination of School Site Work

- A. The Contractor must coordinate cable runs, rack equipment, MDF, BDF, CDF, PPF and Main point of Presence locations with the Architect during the initial walk through and design of each school's Cable Plant. In order to ensure that the aforementioned items are properly located and both the Contractor, the Architect and the Owner must agree as to the location and design of each school's equipment, cable plant and overall infrastructure.

PART 2 – PRODUCTS

2.01 EQUIPMENT STANDARDS

- A. Where applicable all components installed under this Contract shall be registered and listed by the Underwriters Laboratories (UL).
- B. All major managed switching equipment and components shall be of like products from a single manufacturer except otherwise approved by the District.
- C. Equipment Requirements.
 - 1. In order to establish a standard of quality as required by the District, various manufacturers' equipment must meet the requirements in this document. As a reference for comparison of

vendors, the equipment specification sheets on all items must be included with the submitted bid and design.

2. The School District or designated agent will establish equivalency and compliance of product or components offered for use under this Contract.
- D. Equipment Substitutions. Equipment substitutions must be pre-approved by the District prior to bid date. The Contractor must show operation of equipment and compliance with functions and features specified herein. Equipment substitutions that were not pre-approved prior to bid date will be rejected. In the event that no equipment is found to meet all the requirements specified herein, the equipment meeting the most requirements will be given preferential treatment during the selection process.
- E. Non-Proprietary Implementation. The District reserves the right to refuse or accept the use of any vendors network equipment whose equipment employs the use of a vendor proprietary protocol(s) or capabilities required to deliver an overall operational system. Furthermore, the District reserves the right to refuse or accept the use of any vendors proprietary protocols or capabilities that would prohibit future network implementations that rely on current prevailing industry standards. Unless approved by the District the Contractor shall guarantee that the Contractor's design and implementation precludes the use of any network equipment vendor proprietary protocols or capabilities required to either deliver an operational overall system or preclude future implementations that rely on prevailing industry standards.

2.02 LAN EQUIPMENT

A. Routers.

1. The router shall be required to provide a variable interface capability to support individual site requirements. While many of the interfaces may not be required during the initial implementation, the ability to implement any of the listed capabilities is required.
2. The router shall be SNMP manageable as well as provide RMON statistics.
3. The primary interfaces currently projected for the LAN include Ethernet and Fast Ethernet interfaces, but support for a Token Ring interface capability is also required.
4. The interfaces providing connection to the DWAN include the capability for dedicated T-1 and Fractional T-1 circuits, Frame Relay, Integrated Services Digital Network (ISDN), along with higher rate interface options to support SONET and Asynchronous Transfer Mode (ATM) capabilities.
5. The router shall support Systems Network Architecture (SNA) and Internet Protocol (IP) protocols as well as supporting SNA over IP. The router shall also support variable-length subnet masking for the IP addressing as well as allow user definable access control lists.
6. The router shall support trunking of a minimum of sixteen VLANs and shall fully support IEEE 802.1q tagging functions and IEEE 802.1p quality of service functions.
7. The router must be capable of supporting the following modules:
 - a. Two auto-negotiating 10Base-T/100Base-TX ports.
 - b. One Token Ring port.
 - c. One T-1 multi-channel Primary Rate ISDN (PRI) port.
 - d. Two synchronous serial ports supporting data rates from 56Kbps to 1.544Mbps.
 - e. One SONET or ATM port.
8. The router shall have at a minimum the following ports installed, unless otherwise specified by the District:

- a. Two auto-negotiating 10Base-T/100Base-TX ports.
 - b. One T-1 synchronous serial port.
9. The router shall support the following routing protocols.
- a. BGP4
 - b. DVMRP
 - c. IGMP
 - d. OSPF
 - e. PIM (dense mode and sparse mode)
 - f. RIP
 - g. RIPv2
 - h. IP
 - i. TCP
 - j. IPX
 - k. Unicast
 - l. Multicast
 - m. VOIP
 - n. Apple-Talk
- B. Core Switch (CS).
- 1. The CS shall be a modular, rack mountable, chassis based switch with the number of slots as required by the site network configuration.
 - 2. The CS shall be a Layer 3 device.
 - 3. The CS shall have sufficient redundancy so that despite the failure of any single replaceable component, the Core Switch will maintain its configuration information, the ability to enforce Virtual LANs (VLANs), filtering/forwarding policies, perform routing and to support network management functions.
 - 4. The Core Switch shall be SNMP manageable as well as provide RMON statistics.
 - 5. The Core Switch shall have sufficient redundancy so that despite the failure of any single replaceable component, the Core Switch will maintain its configuration information and the ability to enforce Virtual LANs (VLANs), filtering/forwarding policies, maintain routing and network information.
 - 6. The CS shall be of sufficient size to accommodate and of appropriate functional design to support the following available modules regardless of whether all of these modules are required to be furnished at time of installation:
 - a. Fiber optic based Gigabit Ethernet Switch Modules with a minimum of four 1000Base-LX ports. Fiber optic based Gigabit Ethernet Switch Modules with a minimum of four 1000Base-SX ports. The number of such modules configured in the core switch should be sufficient to provide one port for each ES configured with a 1000Base-LX or 1000Base-SX uplink connection.
 - b. A copper twisted-pair based Fast Ethernet Switch Module or Modules, as required, to provide a minimum of six auto-negotiating 10Base-T/100Base-TX ports in the Core

Switch for legacy network equipment such as new or existing file, directory, application, CD ROM and/or authentication servers or other network resources.

- c. Provide a minimum of 25% empty module slots with a blank cover for future expansion.
 - d. The CS must be equipped with at least dual, redundant, load sharing, hot-swappable, power supplies.
 - e. The CS family must provide connectivity to legacy systems through either an Ethernet Switch Module with AUI ports (10Base-5) and/or BNC (10Base-2) ports or media converters to adapt to a 10Base-T interface for connection into an auto-negotiating 10Base-T/100Base-TX module.
7. The Core Switch product line shall include modules that are compatible with specified uplink modules of corresponding data rates and media types for the provided Edge Switches.
 8. The Core Switch shall perform IP routing at a minimum using at least the following routing protocols: BGP, OSPF, IGMP, DVMRP, PIM (dense mode and sparse mode), RIP and RIPv2.
 9. The Core Switch shall be able to interface to the Edge Switches and inter-operate with the same user-created VLANs as on the Edge Switches to include the capability for VLANs to span across multiple Edge Switches connected to different ports on the Core Switch. Further, the Core Switch shall support a minimum of sixteen VLANs and shall fully support IEEE 802.1q tagging functions and IEEE 802.1p quality of service functions.
 10. The Core Switch shall be user configurable to perform forwarding and filtering decisions based on protocols and applications to include Transmission Control Protocol (TCP) application ports and source/destination IP address filtering. The forwarding and filtering decision abilities must be capable of enforcing policies on communications between different subnets or VLANs within the campus network as well as communications through the DWAN connection or the Internet.
 11. In order to support future increased efforts to deploy multimedia presentations to the classroom, the Core Switch shall be capable of inter-operating with other equipment manufacturer's routers operating in a standards-based IP environment.
 12. The Core Switch's performance must provide at a minimum:
 - a. Provide a worst case switch throughput of no less than 100Gbps.
 - b. No less than 10 million 64-byte packets per second throughput Layer 2 with any or all features enabled.
 - c. No less than 6 million 64-byte packets per second throughput Multicast/Layer 3 with any or all features enabled.
- C. Edge Switch (ES).
1. The ES shall be a stackable, rack mountable Layer 2 switch.
 2. The ES shall be SNMP manageable as well as provide RMON statistics.
 3. The ES shall provide a minimum of twelve auto-negotiating 10Base-T/100Base-TX ports each and shall provide a modular slot to accommodate a variety of uplink modules. The available Uplink module options must include 100Base-TX, 100Base-FX, 1000Base-SX and 1000Base-LX.
 4. The ES furnished under this specification shall be supplied with a 1000Base-LX or 1000Base-SX uplink module for connection to the Core Switch. Only one of the 1000Base-LX or 1000Base-SX ports per ES will be connected to the Building or Core Switch at time of installation, unless otherwise required.

5. If the total number of assigned and spare ports in an ES exceeds 24, multiple uplink connections shall be provided from that ES so that the total number of ports using each uplink connection shall not exceed 24.
 - a. Classroom switches shall have 12 10/100 ports and one 1000Mbps uplink
 - b. Non classroom switches located in libraries, labs and supporting administration areas shall have no more than 24 10/100 ports and no less than one 1000Mbps uplink.
 6. The Edge Switches must be capable of providing a “stackable” or “cascading” capability. This capability can be provided either through backplane inter-switch connectivity or through the use of additional 1000Base-SX or 1000Base-LX uplink ports between the switches.
 7. In the event an additional Edge Switch is required to provide the auto-negotiating ports but is only using 25% or less of the available ports, the switch may use a 1000Base-SX uplink connection of another collocated switch to provide inter-switch connection to the Core Switch. The District’s representative must approve this connection.
 8. The Edge Switch shall be able to interface to the Core Switch and inter-operate with the same user-created VLANs as on the Edge Switches to include the capability for VLANs to span across multiple Edge Switches connected to different ports on the Core Switch. Further, the Edge Switch shall support a minimum of sixteen VLANs and shall fully support IEEE 802.1q tagging functions and IEEE 802.1p quality of service functions.
 9. The Edge Switches’ performance must provide at a minimum:
 - a. Provide a worst case switch throughput of no less than 2Gbps.
 - b. No less than 2 million 64-byte packets per second throughput Layer 2 with any or all features enabled.
 - c. No less than 3 million 64-byte packets per second throughput Multicast with any or all features enabled.
 - d. Support prioritization and quality of service.
- D. Warranty. All LAN equipment shall have a 3-year standard warranty. The warranty shall cover the fan assembly, power supplies, and the device itself. The warranty shall consist of onsite 24-hour part replacement with four hour response time the first year and the remaining two years with 48-hour part replacement. All equipment must have the option for the SDUSD to extend the warranty beyond the initial 3 years. Equipment manufacturers must have a toll free 24-hour help center to assist with troubleshooting and operation of the equipment.
- E. Fiber Optic Patch Cords.
1. Multi-mode 50/125 or Single-mode 9/125 duplex cable, OFNR rated. Pre-manufactured with SC-SC connectors with same transmission characteristics as the terminated fibers.
 2. Fiber optic patch cables shall be jacketed with polyvinyl chloride with yellow indicating a single-mode patch cable and orange indicating a multi-mode patch cable. The cable shall meet all requirements of TIA/EIA-568B.3 except for the more stringent requirements on bandwidth and attenuation identified in this Specification.
 3. All patch cords shall meet or exceed the Switch manufacturers standards
- F. Category 5E Inserts. All CAT 5E data inserts shall be wired to the T568B wiring pattern. CAT 5E data inserts shall meet ANSI/TIA/EIA minimum requirements for return loss, propagation delay, delay skew, NEXT loss, PSNEXT loss, FEXT loss, ELFEXT, and PSELFEXT for CAT 5E connecting hardware as detailed in ANSI/TIA/EIA-568-A-5, TSB-95.

- G. Category 5E Patch Cords. Patch cords shall be CAT 5E rated, 24 AWG, 4 pair assemblies. Patch cords shall be factory assembled by the manufacturer of the cabling system. All patch cords shall meet or exceed the Switch manufacturers standards.
- H. Spare Parts: The Contractor shall provide the minimum hardware vendor recommended spare parts for all hardware furnished each school campus.
- I. Warranty. The Contractor must provide a manufacturer system performance at one gigabit per second warranty for the installed components for a minimum of two years after system is turned over to the District.

2.03 SOFTWARE PROGRAMS

- A. Asset Management Software- Provide 3 licenses for commercially available Asset Management Software program. The program shall be as developed by Peregrine Systems using a SOL database or approved equal.
- B. Enterprise Network Management Systems- Provide three licenses for Hewlett-Packard "Open View" network management software or approved equal and complete stand alone platform
- C. The Contractor will provide Enterprise network monitoring system consisting of software, complete CPU required to run the software and any specialized hardware that allows the SDUSD to accomplish the following network tasks from any remote location:
 - b. Collect remote monitoring statistics for all network devices.
 - c. Allow full software configuration and administration for all network routers and switches to include VLAN's, access lists, QOS and priority of service.
 - d. Allow monitoring and isolation of network traffic down to the system level
 - e. The software shall be Hewlett-Packard "Open View" or approved equal. Provide three operating licenses.
 - f. Software should provide failure alerts when any network device fails to include computer systems, printers, routers and all switches.

PART 3 – EXECUTION AND INSTALLATION

3.01 EXECUTION AND INSTALLATION OF LAN EQUIPMEN

To ensure a timely proper installation that does not diminish the existing capabilities of any school, and as precursor to the execution and Installation of any LAN equipment the Contractor must review the migration plan for each school with the SDUSD and the Architect.

- A. Routers.
 - 1. The router shall provide the interface to connect the local network to connect to centralized DWAN access points.
 - 2. The router shall provide the point of DWAN connection from the BBS for the entire LAN.
- B. Core Switch (CS).
 - 1. There is only one CS per campus site.
 - 2. The CS is the central point to which all connections from BDFs and CDFs are terminated. It is also the point at which connection to the DWAN is made along with connectivity to designated primary campus servers.

3. The Core Switch constitutes the intelligent electronics portion of the hierarchical architecture upon which the system design is based.
- C. Edge Switch (ES).
4. The Edge Switches are used are to extend connectivity in all areas of the school campus to the MDF via patch cables installed between horizontal and vertical patch panels located within the BDF.

3.03 CERTIFICATION AND TESTING OF LAN EQUIPMENT

All hardware components (e.g. switches, routers) will be tested for proper installation (per manufactures' recommendations) and configuration. All components will be tested using standard TCP/IP tests that collectively address network layer connectivity, IP packet path routing, and network performance. These tests are to be conducted during normal operation and for each site individually. Tests must meet or exceed ANSI/TIA/EIA/TSB95 standards.

- A. Internet Control and Message Protocol (ICMP) Ping Test. This test verifies the network layer for connectivity by using Ether-type frame pings to reach IP target addresses and obtain or verify four results—the target IP address, the local media access control (MAC), the number of responses, and the response time. Each test will be conducted from all areas to the Servers located in the MDF and from at least one connection per VLAN to at least one connection on all other VLANS, as required. Each test includes two steps, if necessary:
 1. Obtain the four results by performing an address resolution protocol (ARP) for the target IP address and by verifying the ping.
 2. Obtain the four results by executing an ARP for the default router, then use the acquired MAC address to determine the IP address, send an ICMP echo request, and monitor for the ICMP reply.
- B. Trace Route/Path Discover. This test determines the path IP packets follow and reports each router encountered in the path. Testing elicits an ICMP TIME-EXCEEDED response from each router encountered. Each hop is tested three times to help identify changing routes.
- C. Configuration Test. This test verifies that each new network wall connection port is operational. Perform an ICMP ping from each port, ensuring each port has a link light indicating port operability. Any failures in any one port shall constitute the return of the failed equipment for new network equipment from the appropriate vendor.

3.04 CERTIFICATION AND TESTING OF CABLING SYSTEM

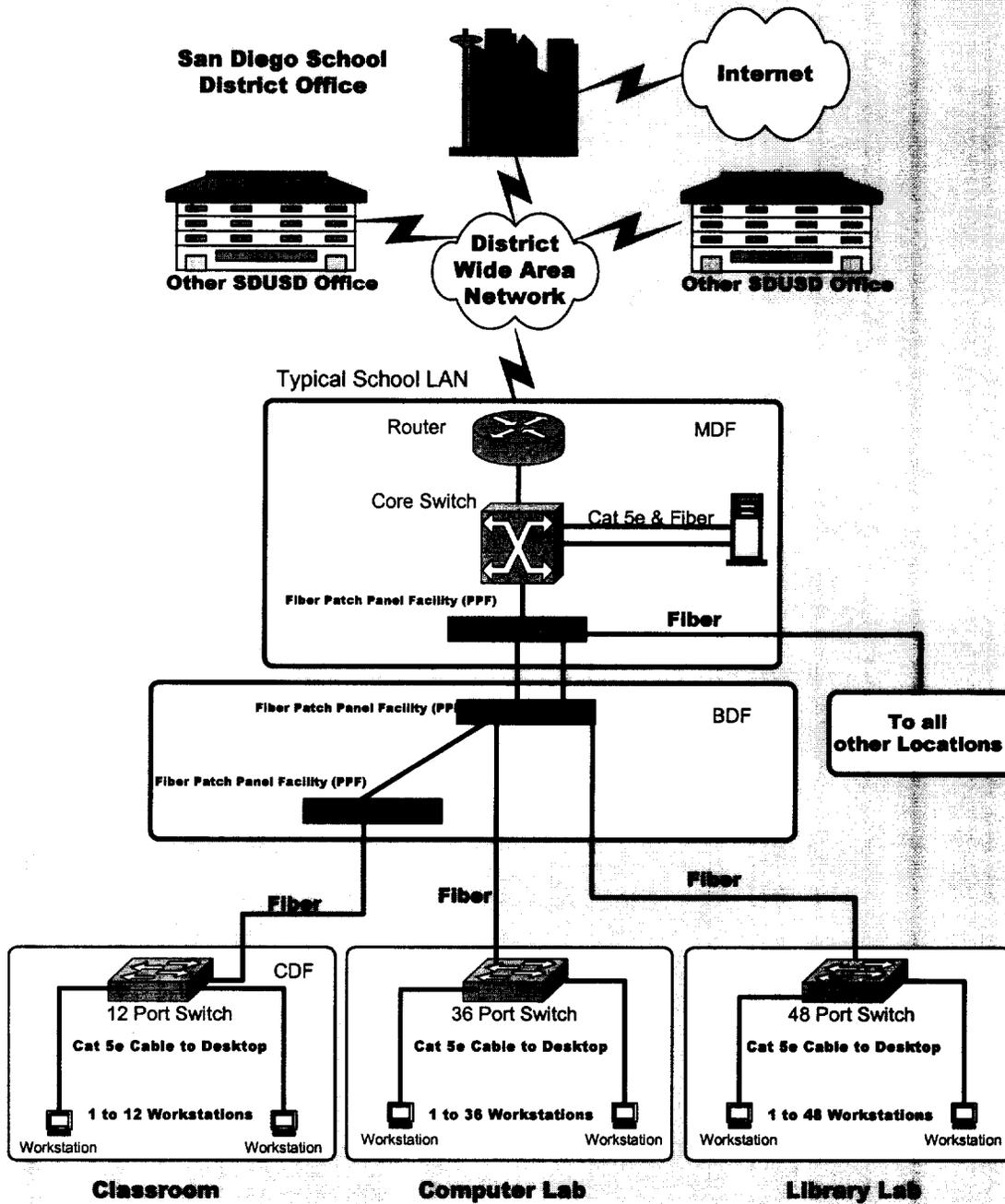
- A. The Contractor shall test and verify in writing that the Premise Wiring contractor has properly installed all cables and verified that termination of hardware has been 100% tested for defects in installation and verified cable performance under the installed conditions. All conductors of each installed cable shall be verified useable by the premise wiring contractor prior to system acceptance. Any defect in the cabling system installation including but not limited to cable, connectors, feed through couplers, patch panels, and connector blocks discovered after acceptance by the Systems Contractor shall be repaired or replaced by the this Contractor . The Contractor will ensure that 100% useable conductors are installed.
- B. The Contractor shall perform such tests and inspections to verify that
 1. The Premise Wiring contractor has installed all cables and termination hardware
 2. They have been 100% tested for defects in installation
 3. The cable performance has been verified under installed conditions.
 4. All conductors of each installed cable shall be verified useable by this Contractor prior to hardware installation.

5. Any defect in the cabling system installation including but not limited to cable, connectors, feed through couplers, patch panels, and connector blocks discovered after acceptance by the Systems Contractor shall be repaired or replaced by the Systems Contractor in order to ensure 100% useable conductors in all cables installed.

C . Completion. Contractor's work for each school installation shall be considered complete after the following have been accomplished:

1. All system testing has been completed, and the Contractor certifies that entire system is in working order, and Cable Test Forms have been submitted to the District.
2. All ceiling panels previously removed have been put back in place.
3. All system labels have been put in place.
4. All construction debris and scrap materials have been removed from project site.
5. All marked up, project record documents have been returned to the District.
6. All unused customer material has been returned to the District.
7. The District has successfully completed acceptance testing of the network installation.
8. The District's Inspector has inspected and accepted the installation.

LAN General Depiction:



ACRONYMS

ANSI	American National Standards Institute
ARP	Address Resolution Protocol
BICSI	Building Industry Consulting Services, International
BOOTP	Bootstrap Protocol
BDF	Building Distribution Frame
BS	Building Switch
CMAS	California Multiple Award Schedule
CAT 5E	Category 5E
CDF	Classroom Distribution Frame
CS	Core Switch
DHCP	Dynamic Host Configuration Protocol
DVMRP	Distance-Vector Multicast Routing Protocol
DWAN	District's Wide Area Network
EIA	Electronic Industries Alliance
ESM or ES	Edge Switch-Managed
ESU	Edge Switch-Unmanaged
FEP	Fluorinated Ethylene Propylene
HVAC	Heating, Ventilation, and Air Conditioning
ICMP	Internet Control and Message Protocol
IDE	Integrated Drive Electronics
IDF	Intermediate Distribution Frame
IEEE	Institute of Electrical and Electronic Engineers
IP	Internet Protocol
IPX	Internetwork Packet Exchange
ISA	Industry Standard Architecture
ISDN	Integrated Services Digital Network
ISM	Intermediate Switch-Managed
ISP	Internet Service Provider
LAN	Local Area Network
LIU	Light Interconnection Unit
MAC	Media Access Control
MDF	Main Distribution Frame
MDF-BBS	Main Distribution Frame Backbone Switch
MPOP	Main Point of Presence
NEC	National Electrical Code
NTP	Network Time Protocol
OFNR	Optical Fiber Non-Conductive Riser
OTDR	Optical Time Domain Reflectometer
PCI	Peripheral Component Interconnect

SYSTEM INTEGRATOR

REV 0

SEPT 2001

PAGE 15 OF 16

PCMCIA	Personal Computer Memory Card International Association
PIM	Protocol-Independent Multicast
PRI	Primary Rate ISDN
PPF	Patch Panel Facility
RMON	Remote Network Monitoring
RMON2	Remote Network Monitoring Version 2
SCSI	Small Computer System Interface
SDUSD	San Diego Unified School District
SNA	Systems Network Architecture
SNMP	Simple Network Management Protocol
TIA	Telecommunications Industry Association
TCP	Transmission Control Protocol
UL	Underwriters Laboratories Inc.
UPS	Uninterruptible Power Supply
UTC	Coordinated Universal Time
UTP	Unshielded Twisted Pair
VLAN	Virtual Local Area Network
WAN	Wide Area Network
WEP	Wired Equivalent Privacy

Appendix A

APPENDIX A
SAN DIEGO UNIFIED SCHOOL DISTRICT
PROPOSITION MM TECHNOLOGY UPGRADE PROGRAM
SYSTEM INTEGRATOR PREQUALIFICATION FORM

San Diego Unified School District (District) is in the process of seeking responses from California Multiple Award Systems (CMAS) certified systems integrators to install hardware (switches, routers, etc.) for Local Area Networks at schools throughout the District. The systems integrators must illustrate to the District that they are CMAS certified, are financially capable, have the professional staff with the proper certifications, and have the experience in similar work to be successful if awarded the contract.

The following questionnaire is a part of the Request for Information entitled "Request for Information For CMAS Certified Systems Integrators to Provide and Install Local Area Networks For Proposition MM Technology Upgrades at Specified School Sites", dated September 5, 2001 and must be submitted as soon as possible but no later than SEPTEMBER 12, 2001. The information provided will be used solely for evaluating the qualifications of the vendor to satisfactorily perform the Scope of Work defined in this Request for Information. This questionnaire must be filled out accurately, completely and submitted by the date indicated. **Any error, omissions or fraudulent information may be considered as a basis for a rejection of the vendor's submittal and termination of any subsequent CMAS agreement.** You are limited to twenty-five (25) pages, single sided with a font no less than 10 pitch. Please submit 10 copies, 5 in binders and 5 stapled together without binding.

Provide requested information on the Primary Firm that will contract with the District as well as any subcontractor that will furnish or install equipment or provide services which would represent over ten percent (10%) of the contract value.

1. Firm Information:

NAME: _____

HOME OFFICE ADDRESS: _____

LOCAL OFFICE ADDRESS: _____

CONTACT NAME: _____

E-MAIL ADDRESS: _____

TELEPHONE No.: _____

FAX No.: _____

YEARS IN BUSINESS: _____

PRIMARY ROLE FOR THE SDUSD PROJECT: _____

2. Financial Information:

The Primary Firm is to provide sufficient financial information necessary to assure SAN DIEGO UNIFIED SCHOOL DISTRICT that the vendor can independently complete the required work. This includes Company Financial Statements for the past **three (3) years**. Additionally attach Dunn and Bradstreet report or other credit agency rating.

3. Professional Capability:

- a. Provide the organizational structure for the project
- b. Indicate team arrangements with subcontractor firm
- c. Provide resumes of key personnel (at least one from each firm) indicate the role of each individual listed.
- d. List specialized experience on similar projects and the technical capabilities of the vendor, subcontractor and individuals. Provide Professional Qualifications of individuals , i.e. training, registration, certifications, licenses, degrees, and overall and relevant experience. This should include certifications such as: Cisco (CCNA, CCNP), 3 COM (3COM Certified Solutions Expert) or Nortel (Certified Field Specialist).

4. Past Performance:

Provide a full description of not more than seven (7) previous projects that are similar in nature to this Request for Information. As a minimum, include the following: Name and current telephone number of the **contact** for previous clients, description of the projects, contract/order amounts. The projects should illustrate:

- a. E-Rate Experience
- b. Specific K-12 School experience
- c. Multiple site LAN installation experience
- d. Contract values in excess of \$1,000,000

5. Debarment and Suspension Certification

The District is prohibited from contracting with any firm or individual that has been debarred or suspended in accordance with regulations implementing Executive Order 12549, Debarment and Suspension, 7CFR Part 3017, Section 3017.510, Participant Responsibilities. Vendor is to complete the attached "CERTIFICATION REGARDING DEBARMENT, SUSPENSION OR INELIGIBILITY FOR AWARD (EXECUTIVE ORDER 12549)" and include in the submittal.

6. Vendor Qualifications:

Include any additional information regarding your firm's ability to provide for the District's needs, as specified. You may include supporting literature and attachments that the District may use to establish the responsibility and capacity of your firm to meet District's schedule of working on up to ten schools concurrently.

7. Not public records:

The Questionnaire and Financial Statements shall not be Public Record and shall not be open to Public Inspection.

8. Submission:

Submit the prequalification information by **4:00 PM September 14, 2001** to:
San Diego Unified School District
4860 Ruffner Road,
Prop MM Implementation Department
Room 8
San Diego, CA 92111
Attention: Joanne Pilgrim

CERTIFICATION REGARDING DEBARMENT, SUSPENSION OR INELIGIBILITY FOR AWARD (EXECUTIVE ORDER 12549)

The following certification is applicable only to contracts for \$100,000 or more which are funded by Federal funds. By signing this RFI document, the Vendor certifies that:

The Vendor and any of its principals are not presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contract(s) by any Federal agency, and have not, within a three-year period preceding this RFI, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a Federal, state or local government contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property; and are not presently indicted for, or otherwise criminally or civilly charged by a Government entity with, commission of any of these offenses.

If the Vendor is unable to certify to any of the statements in this certification, the Vendor shall provide an explanation below.

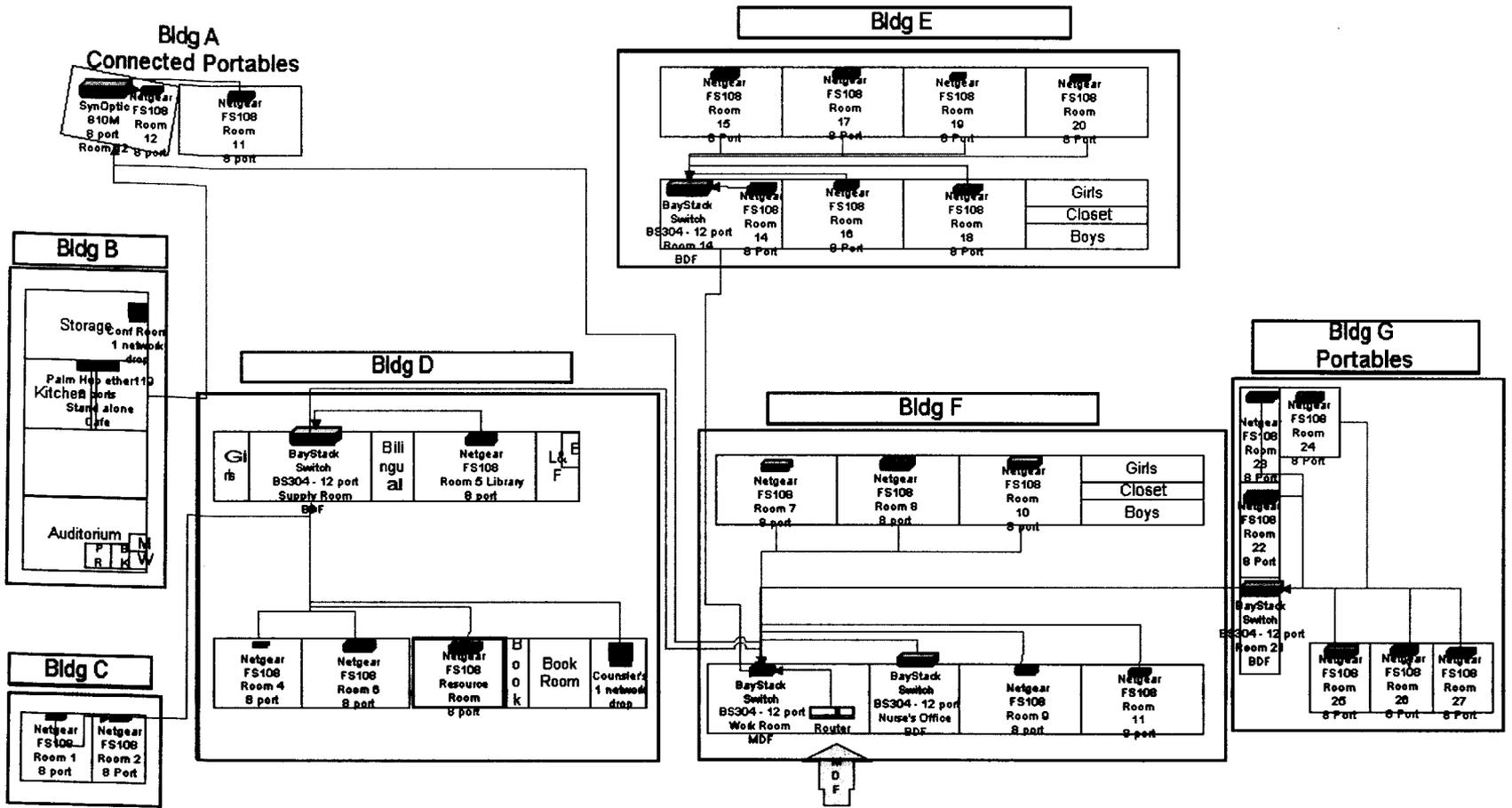
Name of Firm: _____
By: _____
(Signature)
By: _____
(Print Name)
Title: _____
Dated this _____ Day of _____

DEBARMENT AND SUSPENSION CERTIFICATION

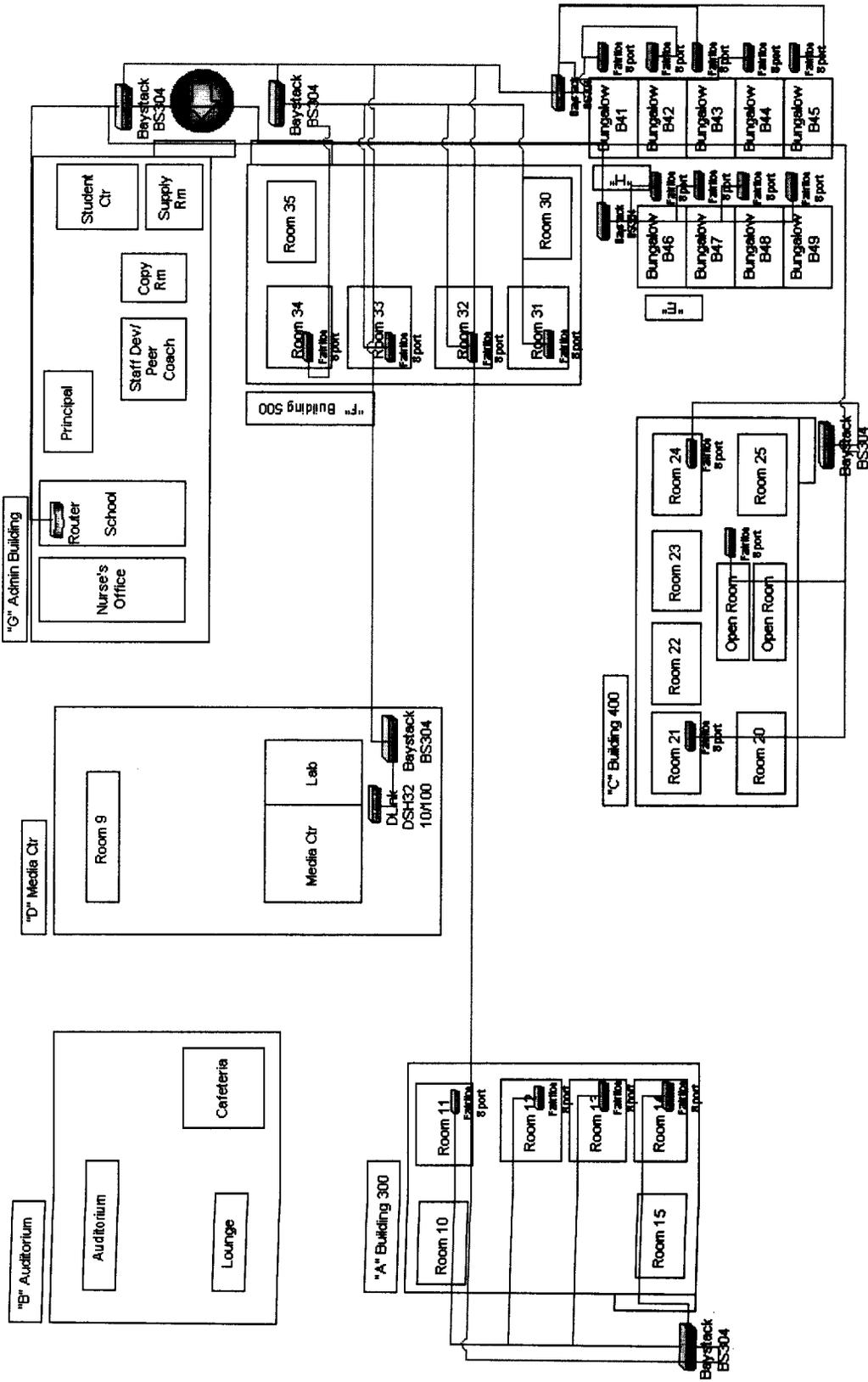
If the Vendor is unable to certify to any of the statements indicated in the above Section, "Certifications Regarding Debarment, Suspension or Ineligibility for Award (Executive Order 12549), indicate below or attach to this Questionnaire, a full explanation as to the Circumstances for such non-compliance.

Appendix A
Current School Campus Layout
And
Network Components

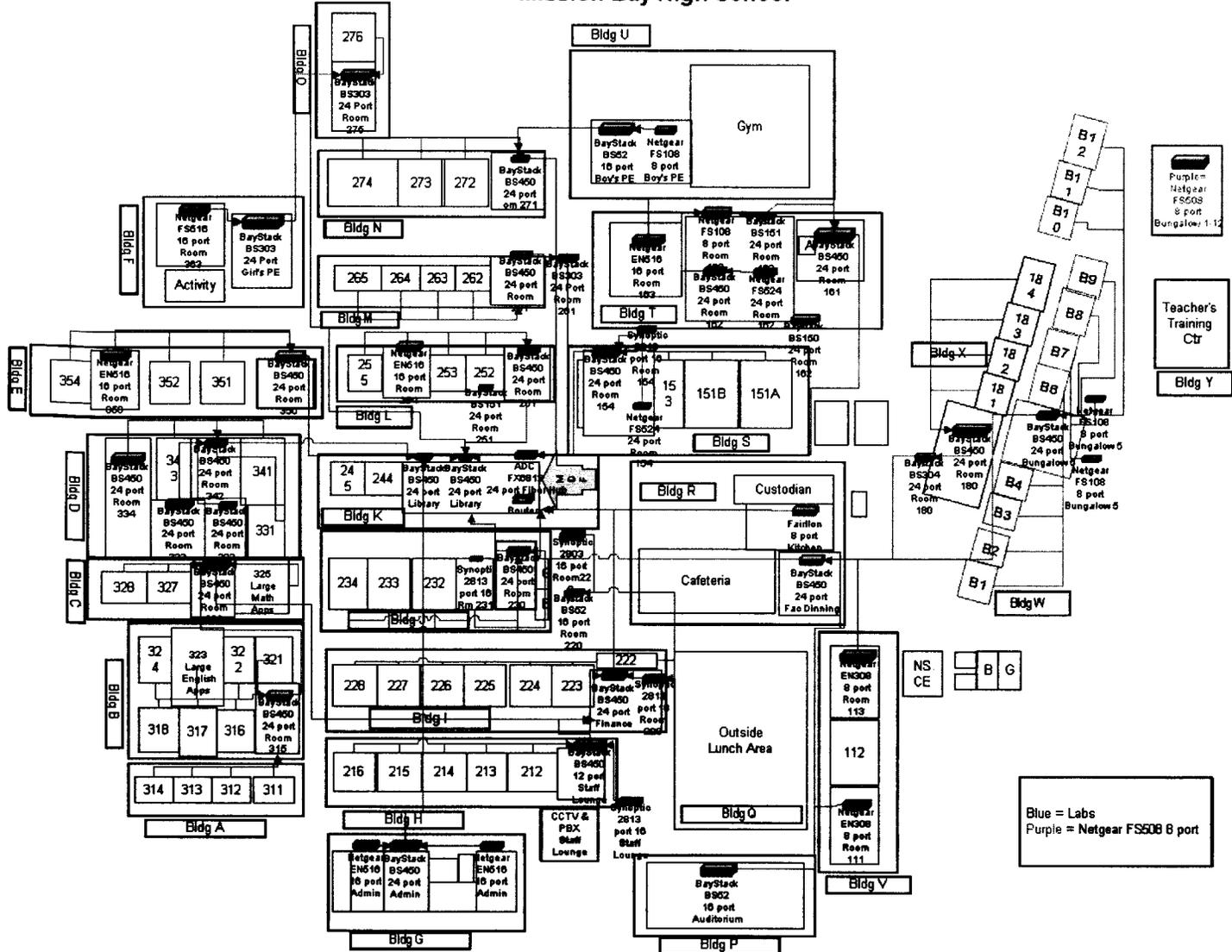
Bay Park Elementary



Chesterton Elementary School



Mission Bay High School



SAN DIEGO UNIFIED SCHOOL DISTRICT - SYSTEM INTEGRATOR CAMPUS LISTING

School	LOC #	Type	E-Rate Funding	Proj Start Year	Classrooms	Admin	Library	Lab
DANA ELEMENTARY	080	EL	50%	1	17	3	1	3
TUBMAN (HARRIET) VILLAGE CHA	214	EL	80%	1	19	3	1	3
	103	EL	90%	1	21	3	1	3
HARDY ELEMENTARY	139	EL	80%	1	23	3	1	3
LOMA PORTAL ELEMENTARY	179	EL	50%	1	24	3	1	3
	065	EL	90%	1	26	3	1	3
SEQUOIA ELEMENTARY	253	EL	80%	1	27	3	1	3
ALCOTT ELEMENTARY	004	EL	50%	1	28	3	1	3
MARVIN ELEMENTARY	197	EL	60%	1	28	3	1	3
	007	EL	90%	1	30	3	1	3
BAY PARK ELEMENTARY	021	EL	50%	1	31	3	1	3
DAILARD ELEMENTARY	078	EL	50%	1	31	3	1	3
FOSTER ELEMENTARY	111	EL	50%	1	34	3	1	3
GAGE ELEMENTARY	121	EL	50%	1	35	3	1	3
BETHUNE (MARY MC LEOD) ELEM	123	EL	80%	1	38	3	1	3
	289	EL	90%	1	41	3	1	3
	089	EL	90%	1	53	3	1	3
	177	EL	90%	1	57	3	1	3
	149	EL	90%	1	59	3	1	3
MILLER ELEMENTARY	206	EL	80%	1	63	3	1	3
	091	EL	90%	1	83	3	1	3
LA JOLLA SENIOR HIGH	342	HS	40%	1	66	10	2	10
SCRIPPS RANCH HIGH	359	HS	40%	1	100	10	2	10
SAN DIEGO SENIOR HIGH	356	HS	80%	1	107	10	2	10
MORSE SENIOR HIGH	352	HS	80%	1	156	10	2	10
WALKER ELEMENTARY	285	EL	80%	2	52	3	1	3
SAN DIEGO SCHOOL OF CREATIV	368	ATY	50%	2	70	10	2	10
FLETCHER ELEMENTARY	105	EL	80%	2	15	3	1	3
	073	EL	90%	2	18	3	1	3
CABRILLO ELEMENTARY	041	EL	80%	2	19	3	1	3
BARNARD ELEMENTARY	017	EL	80%	2	22	3	1	3
GREEN ELEMENTARY	131	EL	60%	2	22	3	1	3
HEARST ELEMENTARY	143	EL	40%	2	24	3	1	3
BIRD ROCK ELEMENTARY	029	EL	60%	2	26	3	1	3
	119	EL	90%	2	26	3	1	3
SESSIONS ELEMENTARY	255	EL	50%	2	28	3	1	3
SUNSET VIEW ELEMENTARY	269	EL	50%	2	28	3	1	3
	023	EL	90%	2	29	3	1	3
	188	EL	90%	2	31	3	1	3
PERRY ELEMENTARY	237	EL	80%	2	32	3	1	3
CHESTERTON ELEMENTARY	061	EL	80%	2	34	3	1	3
GRANT ELEMENTARY	127	EL	50%	2	36	3	1	3
AUDUBON ELEMENTARY	009	EL	80%	2	36	3	1	3
MCKINLEY ELEMENTARY	203	EL	80%	2	36	3	1	3
	229	EL	90%	2	36	3	1	3
TIERRASANTA ELEMENTARY	274	EL	50%	2	36	3	1	3
LONGFELLOW ELEMENTARY	181	EL	50%	2	38	3	1	3

**SAN DIEGO UNIFIED SCHOOL DISTRICT -
SYSTEM INTEGRATOR CAMPUS LISTING**

School	LOC #	Type	E-Rate Funding	Proj Start Year	Classrooms	Admin	Library	Lab
TWAIN JUNIOR/SENIOR HIGH (CO	362	EL	60%	2	41	3	1	3
	055	EL	90%	2	42	3	1	3
	031	EL	90%	2	44	3	1	3
	115	EL	90%	2	46	3	1	3
	011	EL	90%	2	46	3	1	3
HICKMAN ELEMENTARY	201	EL	50%	2	46	3	1	3
	057	EL	90%	2	48	3	1	3
PENN ELEMENTARY	235	EL	80%	2	48	3	1	3
SANDBURG ELEMENTARY	219	EL	50%	2	48	3	1	3
BOONE ELEMENTARY	033	EL	80%	2	50	3	1	3
ERICSON ELEMENTARY	217	EL	50%	2	53	3	1	3
	267	EL	90%	2	54	3	1	3
MASON ELEMENTARY	199	EL	60%	2	54	3	1	3
	95	EL	90%	2	56	3	1	3
	059	EL	90%	2	67	3	1	3
	063	EL	90%	2	70	3	1	3
	153	EL	90%	2	72	3	1	3
ZAMORANO (AGUSTIN VINCENTE)	125	EL	80%	2	78	3	1	3
POINT LOMA SENIOR HIGH	354	HS	50%	2	77	10	2	10
CLAIREMONT SENIOR HIGH	332	HS	80%	2	78	10	2	10
MIRA MESA SENIOR HIGH	349	HS	60%	2	78	10	2	10
	334	HS	90%	2	82	10	2	10
MADISON SENIOR HIGH	346	HS	80%	2	89	10	2	10
	338	HS	90%	2	102	10	2	10
SERRA SENIOR HIGH	357	HS	50%	2	106	10	2	10
MISSION BAY SENIOR HIGH	350	HS	80%	2	115	10	2	10