Quality Assurance Review
ABC Company

Introduction

The ABC Company has requested NIS to perform commissioning services in the form of a quality assurance review of the new phone system as installed by CDF Vendor. This review will cover the following areas:

1.1. Review of final contact and change orders issued during the project
1.2. Request to all departments for comments and issues with regard to the any problems or missed expectations for the system operation
1.3. On-site inspection of the installation and
1.4. Review system documentation
1.5. Review network configuration
1.6. Prepare "Punch List"

2. Contract review

2.1. There is a clear documented change order process which resulted in the following costs:

2.1.1.	Original Contract	$94776.00	Schedule A equip & install
2.1.2.	Change Order 151A	$ 2720.89	Station upgrades
2.1.3.	Change Order 151B	$ 40.48	
2.1.4.	Change Order 151C	$ 616.33	
2.1.5.	Change Order 171	$ 758.00	Cable work
2.1.6.	Change Order 171A	$ 253.00	Cable work
2.1.7.	Total Contract	$98548.37	

2.2. The final acceptance 30 day period started February 3.

3. **Site review**

NIS performed an on-site inspection of both the general installation and primary answering point for client feed back. NIS also completed the "Test Plan" with Mike from CDF Vendor.

3.1. Client Hall

3.1.1. General installation was professionally completed and in acceptable order
3.1.2. Grounding was found to be derived from a cold water pipe which does not meet code. CDF Vendor has extended a #6 ground wire from the ground buss to the electrical panel which will need to be connected by licensed electrician.
3.1.3. Power for systems is connected to a new UPS (provided by Client) which is running at 25%+ load. UPS is connected to emergency generator. Vladimir confirmed that generator and UPS are operating correctly.
3.1.4. Power strips connected to the UPS need to be replaced by the Client with rack mounted strips to reduce the possibility of accidental disconnects. Recommend Wiremold JO6B2B w/ 15' cord. At the same time it would be advisable to install two additional rack mounted power strips in rack for data equipment and dress all power cables to rack rails.
3.1.5. Administrative access to the Coral 500 was accomplished by the installation of an Ethernet serial adaptor at each site. Administrative access is now available across the LAN with Coral View Administrator. This application provides a GUI interface for basic station administration; however, it does not provide for adding and deleting stations. Currently this must be accomplished through the direct

terminal access with basic command codes. It is recommended that the Client consider the addition of Coral View Designer for station add/deletes.

3.1.6. Voice mail system was tested and is operational. Administrative access is through a web based browser. It has been designed and programmed to block any toll access on out dial for protection against toll fraud.

3.1.7. The installing technician has designed to protect against "hacking" or general remote access that would allow an unauthorized caller to route calls to toll numbers.

3.1.8. E911 was tested. PSAP is receiving the correct number but no address. Correct billing address for the DID number is needed.

3.2. Client Hall Qwest Demarcation

3.2.1. The Qwest entrance cable is located across the lower level from the equipment and is extended by copper cable. This room termination needs the following corrections:

3.2.1.1. RJ21x should reflect the active circuits only; remove all unused circuit ID and jumper wires.

3.2.1.2. Ground wire is terminated on the stairway steel structure but is questionable for building steel as this is a frame building. Extend the # 6 ground to the service ground in the main panel on the opposite side of the terminal room.

3.3. Police Station

3.3.1. HVAC is limited to exhaust air; it is recommended that the air temperature in this room be monitored during summer months for over temperature. The cost of an Ethernet addressable temperature probe with reporting capabilities is worth the protection.

3.3.2. Ground – extend to the panel ground by an electrician.

3.3.3. Dress power strip to wall and mount to wall.

3.3.4. E911 was tested. 911 calls were not being allowed; technician corrected during walk though. PSAP is now receiving the correct number but no address. Correct billing address for the DID number.

3.3.5. Elevator calls are not displaying location of elevator at dispatch. A voice announcement device needs to be installed to automatically notify the dispatch center of the elevator address.

3.4. Public Works

3.4.1. The equipment is located in a small closet which includes phone system, fire panels and electrical panels. The current installation does not meet building codes for clearance. The fire panel does not have the required clearances due to mounting location. The current space is not adequate for equipment. It doesn't have provision for air flow nor space to provide the required clearances. Recommendation: Relocate telephone equipment and connect with tie cable.

3.4.2. The back boards need to have jumper wires verified for current active use and marked; all jumpers that are inactive need to be removed. Remaining wiring needs to be dressed. This wiring was left in this condition due to the metering connections that pass through this room.

3.4.3. Ground needs to be extended into the electrical panel ground buss.

3.4.4. Access door can not be secured. This space is vulnerable to unauthorized access.

3.4.5. Closet needs to be cleaned.

3.4.6. E911 was tested. 911 calls were not being allowed; technician corrected during walk though. PSAP is now receiving the correct number but no address. Correct billing address for the DID number.

3.5. Library

3.5.1. This equipment room is the best of the three outlying buildings.

3.5.2. Ground source is not known; however, CDF Vendor tested and it is at 1 ohm. Recommend that source be determined and extended to building ground.

3.5.3. E911 was tested. 911 calls were not being allowed; technician corrected during walk though. PSAP is now receiving the correct number but no address. Correct billing address for the DID number.

3.5.4. HVAC air flow is a concern. It appears that temperature is controlled via the building system which may or may not provide 7 by 24 cooling. Any heat inflow needs to be blocked.

4. Punch List

Site	Condition	Remedial Action	Client	CDF Vendor
Client Hall				
3.1.2	Improper ground source	Extend ground to electrical panel	**X**	
3.1.4	Power strips need to be mounted in rack	Install mounted power strips; Wiremold JO6B2B	**X**	
3.1.8	No address displayed at PSAP	Establish a billing address for DID number		**X**
3.2.1.1	Old circuit IDs on RJ21x; unused jumper wires	Request demarcation cleanup; remove unused jumper wires		**X**
3.2.1.2	Improper ground source	Extend ground to electrical panel	**X**	
Police				
3.3.1	HVAC is questionable	Install temperature probe to monitor temperature	**X**	
3.3.2	Improper ground source	Extend ground to electrical panel		
3.3.3	Power strip laying on floor	Secure power strip to wall; dress power cables to wall	**X**	
3.3.4	No address displayed at PSAP	Either subscribe to E911 data base or install 2 emergency lines for 911 calls		**X**
3.3.5	No automatic location indication to dispatch on elevator	Install a voice announcement device in elevator panel	**X**	
Public Works				
General	See comments in document		**X**	
3.4.6	No address displayed at PSAP	Either subscribe to E911 data base or install 2 emergency lines for 911 calls		**X**
Library				
3.5.2	Ground source is unknown	Verify ground source and extend to electrical panel if not to code	**X**	
3.5.3	No address displayed at PSAP	Either subscribe to E911 data base or install 2 emergency lines for 911 calls		**X**
3.5.4	Hot air flow needs to be restricted		**X**	

5. Network Configuration

5.1. The network configuration was installed per design with the exception of the 911 emergency trunks. The Client needs to review to two alternatives for providing E911 address information:

5.1.1. Install 2 separate POTs lines in the Public Works and Library which will be dedicated to 911 calls. These lines will provide the address of the building which meets current requirements.

5.1.2. Subscribe to the E911 data base (Qwest @ $56 per month). This will allow the Client to provide the address and location for each department (phones are currently configured to send department phone numbers).

5.1.3. The current software will allow outgoing caller ID to be set for one number only for both PSTN calls and 911 calls. There is a feature package license that will allow the system to be programming to provide a separate number for 911, but this is not necessary unless the Client wants to provide different number identification.

6. Training

6.1. Staff: There was a general comment that there were enough changes in operation that the general staff would benefit from a second training session. The training and documentation materials cover the operation; however, due to the substantial jump in functionality, staff is having trouble understanding how to utilize features. It is recommended that the Client schedule a follow up training class (s) at each facility now that staff has had several weeks to become familiar with the general operation of the system.

6.2. Administration: Due to the administration interface for adds/deletes of phones, the Client either needs to consider adding Coral View designer or scheduling additional work on the terminal interface. The system documentation has been provided; however, it is not intuitive and additional training would be beneficial.

7. Summary

7.1. The overall installation was professional and meets terms of the contract with the noted exceptions listed in the “Punch List”. The critical items that need attention are:

7.1.1. E911 location issues

7.1.2. Public Works installation brought to code

7.1.3. Grounding corrected at all sites

7.1.4. Follow up training provided for each site