

Bolinas Community Public Utility District

Information Technology Proposal: Telemetry Telecommunication

PURPOSE

Fractionalize high cost of telecom fees required by critical equipment monitoring.

Stabilize rising cost of critical equipment monitoring.

TELECOM INFRASTRUCTURE STATUS

PSTN ANALOG VOICE

During the last two years BCPUD has reduced its number of eight PSTN phone lines at four locations to four phone lines at three locations. Converting four of the lines at the main office has reduced the monthly cost to \$8 per month (previously \$900/mo) at the main office where four lines were converted to VoIP technology.

Although the cost of eight phone lines in 2019 was \$1400 per month, the incumbent carrier (AT&T) has increased rates over time and BCPUD is still paying over \$1000 for the four remaining lines, per month.

TRANSMISSION RELIABILITY

The remaining phone lines are used by devices that require the highest level of transmission reliability. VoIP technology requires internet service. If these four remaining phones lines are to be converted to VoIP, the internet service also requires a high level of reliability.

Main office Internet:

- Fiber Optic – High Reliability
- Cellular – High Reliability
- WISP – Moderate Reliability

400 Mesa (Plant) internet:

- WISP – Moderate Reliability

101 Mesa (Lab) internet:

- WISP – Moderate Reliability

41 Wharf (Pump Station) internet:

- No Internet

RECOMMENDED CONVERSION SOLUTION

Utilizing cellular and VoIP technology, a “PIAB” ((Plain Old Telephone System) (POTS In A Box) solution that incorporates full time monitoring of the device itself, and localized monitoring should be used to convert the remaining sites, allowing the current AT&T lines to be eliminated altogether.

The PIAB device itself contains a cellular modem that provides internet service, and an ATA (Analog Telephone Adapter). The cellular modem connects the ATA to the internet. The ATA provides a replacement analog phone line, which is used to replace the existing analog PSTN phone line provided by AT&T.

100% GURANTEED MONITORING

PIAB vendors are able to monitor this internet connection 24/7. The PIAB vendor will notify BCPUD if an interruption to this internet connection occurs. The PIAB vendor is paid a monthly fee to perform this service, and includes a team of staff dedicated to expedite remediation of hardware faults or faults related to contracts with the cellular carrier, which they manage.

Although PIAB vendors can monitor the internet connection, it is not possible for the vendor to monitor the ATA delivery of “dial tone” to the device itself being converted. Although very rare, the ATA module in a PIAB can become unresponsive after software updates or other unexpected events and this may go undetected.

Therefore, it is further recommended that an additional control panel be installed along side the PIAB that not only monitors the “dial tone” but also periodically calls out using the phone line and sends its own reporting which is monitored by BCPUD staff or another Monitoring Central Station company, like an alarm company. (ADT / Bay Alarm).

101 MESA

The lab does not have any critical monitoring but may need a voice line in an emergency or for outside voice communication. This can be accomplished by supplying the same type of phone used by the main office, and configuring it to use the same phone system. This will enable intercom functionality from any other phone connected to the phone system.

51 WHARF

Because this site does not have internet access, the cell modem combined with the integrated battery backup of the PIAB will be used to convert the existing analog voice PSTN telemetry device. A security panel will also be installed along side the PIAB to perform “dial tone” monitoring.

400 MESA

This site has both a voice line and a telemetry device line. This site has WISP internet service which can be used as a primary transport for a PIAB installed here. In the event the WISP service fails, the PIAB will use the cellular as backup. A security panel will also be installed along side the PIAB to perform “dial tone” monitoring.

Another phone will be supplied of the same type used by the main office.

Bolinas Community Public Utility District

Information Technology Proposal: Telemetry Telecommunication

COST

UPFRONT INSTALL COST

DEVICE	UNIT COST	UNIT COUNT	TOTAL
PIAB	\$768	2	\$1,536
Security Panel	\$100	2	\$200
Installation	\$400	2	\$800
SIP Phone	\$100	2	\$200
Installation	\$100	2	\$200
			\$2,936

RECURRING COSTS

SERVICE	UNIT COST	UNIT COUNT	TOTAL
PIAB Service*	\$43	2	\$86
Security Monitoring	\$10	2	\$20
			\$106

* - The chosen PIAB vendor (Mach Networks) requires a 3 year term.