June 9, 2021

To: All Potential Respondents
From: Randy Worstell, Purchasing Agent
Subject: RFP0921285040 – Transmitter & Encoders

Addendum One

Please amend the subject RFP to include answers to the following timely received questions:

1.5 Background
Q1. Just to confirm, the 50Mb/s IP data circuits are 50Mb/s in each direction, correct?
A1. The connection is a copper gigabit Ethernet interface with a 50Mbp/s bi-directional limit. So the circuit allows 50Mbp/s in each direction.

Q2. Are the ATSC Streams on the STL fiber circuits to be unicast or multicast IP streams?
A2. All the circuits are Ethernet point to point connections. We believe the streams need to be unicast to accommodate the rebranding specification further on in the RFP.

4.2.3 …confidence monitoring that terminates at Iowa PBS Headquarters as composite video, stereo audio…
Q3. Is the monitoring equipment at Iowa PBS HQ analog (composite) video and analog audio only? Or will, HD/SD-SDI be acceptable?
A3. The MVP monitoring equipment can handle HD/SD-SDI. The confidence monitors (4 monitors that show the 4 streams from one selectable channel) require composite/YPbPr. However these monitors may change over time so the conversion can be handled by an external device.

4.2.4 and 4.2.5 …along with one AES audio only input… and …two AES audio only channels.
Q4. What are these discrete audios and can they be embedded with one of the video streams?
A4. These are discrete channels and cannot be embedded into one of the video streams.

4.2.7 Encode formatting shall be user adjustable on a channel-by-channel basis from 480i to 4k resolutions.
Q5. Please confirm you want each service to be capable of 4K resolutions as the CPU demands of 4K/UHD would require multiple chassis' for an encoder with four or eight services. Would you consider one UHD license with the rest of the services being at an HD resolution? If UHD is being considered for future use, can UHD licensing and hardware be added at that time?
A5. A single UHD license would be acceptable as long as there is an upgrade path for additional licenses. Estimated pricing for the upgrade should be included in the cost section of the proposal as an option.

4.2.9 The proposed system shall interface with Iowa PBS's existing Myers ProTrack software and generate all standards-compliant PSIP Metadata and shall be inserted into the multiplexed Transport Stream. Any PSIP generation solution offered shall be upgradeable and compliant with NextGen metadata protocols.
Q6. PSIP systems are ATSC1 only, for an ATSC 3 system we would quote a route/MMTP and signaling server along with a Gateway. As the two are different units, do you want both quoted at this time?
A6. Yes.

4.2.10 Data exiting the encoder(s) or forwarded to included multiplexers shall be PSIP branded for unique data streams (TSID, Major/minor Channels, etc…).

Q7. When you say the output of the encoder needs to be "PSIP branded for unique data streams", do you mean you need all eight unique TX versions of PSIP to be present at the output of the encoder or can the ATSC streams be rebranded for each transmitter downstream of the encoder?

A7. Branding can be handled downstream of the encoder at each of the eight direct connected transmitter sites. We currently use Nevion CP524 units at the studios to rebrand individual feeds to the transmitters. There are also Nevions at all transmitters site to rebrand the over the air backup feed.

4.2.12 Four (4) additional transport stream multiplexer outputs shall be provided (at the studio location) to industry standard formats of ASI Transport Stream and IP packets (each output user selectable) representing the input data information.

Q8. Please explain further your request that four additional multiplexer outputs be "user selectable".

A8. We desire to make the system future proof by having the capability to start with ASI outputs and switch to IP outputs at a point in the future.

4.2.13 All 'Headquarters located' encoding/multiplexing/decoding equipment shall include a Primary/Backup system with an auto-failover function.

Q9. Does your request for full redundancy apply to the off-air demodulators at the TX sites and the decoders at the studio for the multiviewer feeds as well?

A9. No. Redundancy for confidence monitoring is not part of this RFP.

4.2.17 Signals arriving at their destination location (transmitter sites) shall be converted to SMPTE-310M format.

Q10. Is 310 required at the translator sites as well as the 8 main sites?

A10. No. Interconnect with translator sites is not part of this RFP.

4.2.18 & 4.2.19 & 4.2.20

Q11. Do you require that both the broadcast data stream and the off-air confidence monitor be sent simultaneously or do you want the ability to switch either into the return path?

A11. The return to the NOC should be the off-air feed. It would be an ASI/IP input on the transmitter side. On the NOC side it would be decoded and feed both the MVP equipment and the confidence monitors.

4.2.21 Equipment support (hardware and software) enabling full IP transition of Transport Stream, SDI, ST2022-6 and ST2110 shall be available.

Q12. Can you clarify what standards of ST2110 need to be supported and what infrastructure is in place to support these high bitrate streams?

A12. Currently no infrastructure is in place for ST2110, the requested support is to allow for possible conversion to an all IP infrastructure at a future date yet to be determined. All published standards to ST2110 shall be supported. Studio interconnect is gigabit speed. After leaving the studio location the current infrastructure is 50Mb symmetrical Ethernet circuits to each of the eight connected transmitter locations.

Q13. Does the requirement for ST2022-6 & ST2110 support apply anywhere in addition to the input of the encoders?

A13. Not at this time.

4.2.22 System shall be capable of encoding and decoding to/from – H.264, H.265, HEVC and other common compression technologies.

Q14. Where do you anticipate needing to encode/decode H.264 & H.265/HEVC other than when encoding for ATSC 3.0? Please clarify where these codecs would be needed.

A14. This specification is to ensure any system purchased is capable of ATSC 3.0 operation. It is anticipated codecs will reside at the studio location only.

4.3.2 Management System shall allow remote configuration of equipment.

Q15. Is it acceptable for remote configuration of equipment like TX site off-air demodulators to be facilitated by individual web GUI or does all remote management need to be accessible under one management system?

A15. While a global management system is not part of the RFP for this project, ideally we would like to incorporate management of the entire interconnection system under a common management system.

4.3.4 National PBS has recently rolled-out their new WARNS system hardware for disseminating EAS messaging via a separate data stream PID. In the current Iowa PBS configuration, this hardware is located between Harmonic encoders and Nevion CP524 rebranders and using an ASI interface to pass encoded data into and out of that hardware. Explain in detail how the proposed equipment would interface this WARNS equipment and where in the data path it would be located.
Q16. Will the WARN stream be available as an ASI input and output or will it be available as IP?
(please detail your WARN system)
A16. WARNS equipment is currently set to be ASI but has IP capability and can be changed when the system is ready for IP.

4.3.7 This project includes adding redundancy to the terrestrial fiber based circuits by using an established 7Ghz microwave link between the Main Studio and station KDIN. The current link is a simplex uni-directional 7Ghz VisLink IPLink radio system. This RFP purchase shall include upgrading the radios to create a bi-directional path or replacing with new. This STL/ICR system shall be incorporated as an additional input/output to the proposed Interconnect System. All hardware to accommodate this configuration shall be included as part of this RFP. Please describe how you would incorporate this additional source into the interconnect plan.
Q17. Can a copy of the duplex license be obtained for technical data?
A17. Yes.

4.3.17 Describe in detail any proposed system capabilities to perform a graceful emergency system shutdown from external signaling devices.
Q18. Can Iowa PBS clarify what is required for "graceful emergency shutdown"?
A18. Upon loss of commercial power and while the system is operating on the UPS, describe the procedure for sending a controlled shutdown command to the interconnection system compontents.

Please acknowledge receipt of this addendum by signing in the space provided below, and <u>return this letter with your bid (do not send back separately).</u>

I hereby acknowledge receipt of this addendum.

_____ _____
Signature Date

_____
Typed or Printed Name