

IT Project Proposal Report - Detail
Agency: 047 - EDUCATIONAL TELECOMMUNICATIONS COMM
Budget Cycle: 2021-2023 Biennium **Version: AF - AGENCY FINAL REQUEST**

IT Project : Facility Routing

General Section

Contact Name : Ling Ling Sun	E-mail : lsun@netad.unl.edu	Agency Priority : 3
Address : 1800 North 33rd St	Telephone : 402-472-3611	NITC Priority :
City : Lincoln		NITC Score :
State : Nebraska	Zip : 68503	

Expenditures

IT Project Costs	Total	Prior Exp	FY20 Appr/Reappr	FY22 Request	FY23 Request	Future Add
Contractual Services						
Design	0	0	0	0	0	0
Programming	0	0	0	0	0	0
Project Management	0	0	0	0	0	0
Data Conversion	0	0	0	0	0	0
Other	0	0	0	0	0	0
Subtotal Contractual Services	0	0	0	0	0	0
Telecommunications						
Data	0	0	0	0	0	0
Video	0	0	0	0	0	0
Voice	0	0	0	0	0	0
Wireless	0	0	0	0	0	0
Subtotal Telecommunications	0	0	0	0	0	0
Training						
Technical Staff	0	0	0	0	0	0
End-user Staff	0	0	0	0	0	0
Subtotal Training	0	0	0	0	0	0

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Expenditures

IT Project Costs	Total	Prior Exp	FY20 Appr/Reappr	FY22 Request	FY23 Request	Future Add
Other Project Costs						
Personnel Cost	0	0	0	0	0	0
Supplies & Materials	0	0	0	0	0	0
Travel	0	0	0	0	0	0
Other	0	0	0	0	0	0
Subtotal Other Project Costs	0	0	0	0	0	0
Capital Expenditures						
Hardware	0	0	0	0	0	0
Software	0	0	0	0	0	0
Network	0	0	0	0	0	0
Other	0	0	0	0	0	0
Subtotal Capital Expenditures	0	0	0	0	0	0
TOTAL PROJECT COST	0	0	0	0	0	0

Funding

Fund Type	Total	Prior Exp	FY20 Appr/Reappr	FY22 Request	FY23 Request	Future Add
General Fund	0	0	0	0	0	0
Cash Fund	0	0	0	0	0	0
Federal Fund	0	0	0	0	0	0
Revolving Fund	0	0	0	0	0	0
Other Fund	0	0	0	0	0	0
TOTAL FUNDING	0	0	0	0	0	0
VARIANCE	0	0	0	0	0	0

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EXECUTIVE SUMMARY:

The NET Legacy Routing System was purchased and put in service in 2001. The system is well beyond support and there are no spares available. The current system cannot be upgraded and if it fails it will jeopardize all services for NET including radio, television and internet stream as the central point for all signal distribution. Moving to Media Over Managed Internet Protocol (IP) provides for a high speed IP network to support all media for today and the future replacing traditional legacy routing and distribution systems including the Venus Routing System. An all IP based facility can support all types of media transport including SD, HD, UHD, transport stream, RTMP, HLS, DASH, AES 67 Audio and any other future formats (such as ATSC 3.0 DASH/IF).

IP based architecture provides many benefits and is signal and data agnostic, redundant, resilient, infinitely scalable, reduced cabling and uses generic IT Hardware. NET requests funds to replace the Legacy Routing System to ensure serving Nebraskan with uninterrupted services. The project would begin the summer of 2021 with a proof of concept and would be funded 2022. The project would be completed by summer of 2023. Total costs for this project are estimated at \$500,000 including all hardware, software and professional services.

GOALS, OBJECTIVES, AND OUTCOMES (15 PTS):

The goal is to replace the 20-year-old Venus routing switch with a more holistic approach using common off the shelf IT hardware in order to keep up with technology shifts to IP with higher resolution, higher frame rates and high dynamic range. The measurement and assessment methods will be ongoing metrics and monitoring along with keeping up with the expanding business needs in streaming media, advanced formats and IP video. This project is being done to replacing aging dedicated equipment with more advanced IP centric systems to provide for today's and tomorrow's needs.

PROJECT JUSTIFICATION / BUSINESS CASE (25 PTS):

NET has a statutory requirement to provide broadcast services as well as distribute emergency notifications across the state of Nebraska whether through radio, television or internet. The legacy broadcast routing system supports the statutory requirement. Modernizing the routing system with newer technology is part of NET long term infrastructure refresh plan. Purchasing and installing new advanced hardware and software will greatly increase reliability, flexibility, and reduce maintenance costs. NET intends to start this project as soon as funds are available.

The nature of this project allows few solutions other than replacement of hardware. By doing nothing the current broadcast routing infrastructure will fail to provide services throughout the state.

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This Project is in compliance with the Nebraska Emergency Management Agency's (NEMA) Nebraska State EAS Plan, which states "The Nebraska SP/SR network is comprised of all Nebraska Educational Telecommunications Network radio transmitters, plus KVNO radio in Omaha. State Relay (SR) stations must be configured to automatically transmit statewide EAS alerts from the State Primary (SP) as quickly as possible."

TECHNICAL IMPACT (20 PTS):

The project will replace 20-year-old technology with new efficient and reliable hardware and software that is extensible, resilient and expandable. NET has completed a multi-year project to move to an all IP plant. The Phase 1 started in 2020 with monitoring in IP using SMPTE 2022-6. In FY 2021 we expect in Phase 2 to introduce Precision Time Protocol to provide for advanced synchronization and time reference. The Phase 3 will be "Proof of Concept" and deploy IP based system to replace the aging legacy one.

The project will use the most recent industry standard technology and hardware. It should take these systems beyond the next decade.

The replacement equipment is considered Industry Replacement Standard for this type of system.

These systems are completely compatible with existing power and physical construction of NET's facilities. The system is flexible and can grow as NET's needs do.

PRELIMINARY PLAN FOR IMPLEMENTATION (10 PTS):

NET is planning to purchase and install Media Over Managed IP. NET is the project sponsor. NET Radio, Television and Internet listeners and viewers are the stakeholders.

NET will enter into contract with a qualified technical manufacturers and partners to complete the project.

NET will act as the project manager for this project.

The major deliverable for this project is the removal of the old Venus Routing System and replacement of the new system. The time frame for this work is (90) days from receipt of

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system and getting new system commissioned. Funds will be requested for FY2023 and to be completed by FY2023.

Training will be conducted in-house and will be performed by vendor and NET staff. Operations will be seamless to present day workflow to the extent possible.

Support contract for hardware and software will be required.

RISK ASSESSMENT (10 PTS):

The technology is rapidly changing and new players will join the market. Selecting the best of breed will be the best option.

This purchase will be made under the State Purchasing Guidelines to minimize risk. Any assistance with contractual parties will have bonded and insurance requirements to assure protection to the State of Nebraska.

FINANCIAL ANALYSIS AND BUDGET (20 PTS):

Total Cost is estimated at \$500,000 in FY2023. See details in Financial Tab above. Also under Capital Construction Projects of this Budget System.

	Prior Exp	FY2021 Expend	FY2022 Request	FY2023 Request	Future Add Request	Total
Contractual Services						
Design						
Programming						
Project Management						
Data Conversion						
Other						
Total						
Telecommunications						
Data						
Video						
Voice						
Wireless						
Total						
Training						
Technical Staff						
End-user Staff						
Total						
Other Project Costs						
Personnel Cost						
Supplies & Materials						
Travel						
Other						
Total						
Capital Expenditures						
Hardware			\$400,000			\$400,000
Software			\$100,000			\$100,000
Network						
Other(Contingency)						
Total						
TOTAL REQUEST						\$500,000
General Funds						
Cash Funds						
Federal Funds						
Revolving Funds						
Other Funds						
TOTAL FUNDS						