

## **2019-2021 Biennium Internal Budget Proposal Narrative**

### **Division: Academic Affairs**

**Evaluation Criteria:** Proposals will be evaluated on every aspect of this template. It is highly recommended that the narrative portion touch on each area. Proposals forwarded to UPRC by unit leaders will be discussed at UPRC and authors are encouraged to attend so that they may answer questions and provide clarification.

#### **Network Refresh and Phone System Replacement**

- This is a revised version of a previously submitted budget proposal.  
*If box is checked please briefly outline any significant changes and/or indicate why it is being resubmitted.*

This is a revised resubmittal of the IT Infrastructure Replacement decision package that went before the state for the 2019-21 biennium, which consolidates previous budget requests for Campus Network Refresh and Phone System Replacement.

**Statement of Purpose:** *(What is the challenge or opportunity being addressed? How does the proposal address this challenge or opportunity? Limit response to 1 page – please link to any existing reports, data, supplemental materials, etc.)*

This is a request to update Western's wired and wireless networks and replace Western's outdated 35+ year old telephone system. Secure, reliable and up-to-date technology is more essential than ever in higher education in order to support students, improve learning outcomes, and prepare graduates to join the workforce. WWU's archaic information technology infrastructure is severely overdue for improvements and upgrades, and because technology affects all students, staff and faculty, this proposal will have wide-reaching impacts throughout campus.

#### **Anticipated Outcome(s):**

An up-to-date, converged (voice, data, video) infrastructure supports all corners of Western's campus, from administration, to academics, to life safety, to educational outreach across the western part of our state. The state of our current infrastructure is holding WWU back, and is putting our ability to address the areas above at jeopardy. For instance, our phone switch is highly susceptible to power fluctuations. Windstorms, brownouts, or switch to generator power causes segments of our phone service to drop because the hardware is 35+ years old and past its usual life. In the past year, we have had five phone outages that affected up to 25% of our campus phones for six to eight hours at a time while we wait for a local third-party to respond. With a reliable VoIP phone service based on SfB, we are better positioned to support our needs internally and get back to business quicker than we are today.

Our wired data network is nine to ten years old, and our network partner, Cisco, no longer provides support or required security updates for hardware this old. We need to update our network and bring our level of cybersecurity up to modern standards so we can conduct the business of being a modern university.

With a new stable, reliable, and properly designed IT infrastructure, outages can be greatly minimized.

**Metrics:** *(How will outcomes be measured? Please include current data points and goals. If this proposal will have any impact on the [Overall Metrics](#) included in the university's strategic plan, please indicate which specific ones here.)*

These large enterprise-wide project will need to be coordinated in an effort to minimize campus disruption as a goal. ITS will assign a project manager to properly scope, communicate and keep the project on task to help achieve this goal. Once complete, this project will aid in minimizing future potential network outages due to aged equipment. Instead of measuring network outages, this project will allow ITS to focus on measuring enhanced uses of our networks, not decreased uses.

**How does this proposal align with your departmental/divisional strategic priorities?** *(Please reference specific items from the recently completed departmental/divisional strategic plan and attach a copy.)*

The replacement of the university's aged network and phone system is ITS's highest priority, because of the significant risk posed to the institution if these foundational technologies are not adequately supported.

**How does this proposal support the University Mission and Strategic Objectives?** *(Please refer to the [2018-2025 Strategic Plan](#) and indicate which core theme(s) this proposal will help achieve.)*

#### Network Refresh

Strategic Object 1.G of the new WWU Strategic Plan requires the university to:

*Provide technological and other academic infrastructure to support curricular innovation, research, scholarship, and creative activity, civic engagement and social justice.*

The introduction to the Strategic Plan states that WWU must:

*...improve our commitment to provide a safe, just, and equitable University for all students and employees.*

Any technology or technology-dependent initiative advanced by this university requires a robust, resilient, secure data network as a foundation for its implementation and sustained success. Some of the university's current highest priority projects, from the upgrade of our Ellucian Banner student and financial information systems (driven by federal mandates) to the expansion of our electronic access control and security systems (driven by our institution's deep concern for the safety and wellbeing of our community), are dependent upon the campus network.

- New academic technologies, from app-based audience response systems in classrooms to microscopes that connect to mobile network devices, are revolutionizing curricular and pedagogical approaches.
- New mobile-friendly work control systems are already being implemented to make the university's custodians and tradespeople more efficient, better prepared, and ultimately more effective at serving the university's operational needs.
- Nationwide surveys by Educause and others show that today's students are bringing an average of three wireless network devices per student to campus, with that number growing every year.

A modern university, best positioned to attract and retain the modern student while implementing the most advanced academic and operational technologies in service of the university's mission, must be able to provide the highest quality wireless network experience across its campus. An investment in a refreshed campus network is not only a strategic investment on its own merits, it is a foundational investment in strategic initiatives to come.

#### Phone System:

Strategic Object 1.G of the new WWU Strategic Plan requires the university to:

*Provide technological and other academic infrastructure to support curricular innovation, research, scholarship, and creative activity, civic engagement and social justice.*

The introduction to the Strategic Plan states that WWU must:

*...improve our commitment to provide a safe, just, and equitable University for all students and employees.*

Western relies heavily on our telephone system for day-to-day communication as well as for special uses, like fund raising, to run the University effectively. Life safety is another mission-critical function telephones play across campus. Without a stable, reliable telephone system, basic operations at the University come to a standstill.

This project will also increase access to collaboration technologies, reducing barriers to students, faculty and staff for creating meetings and collaborating outside traditional environments.

Western will measure project success around: minimizing project impact on day-to-day University business, project cost containments, and enhanced unified communication functions made available to campus to enhance communication efficiency.

#### **What are the consequences of not funding this proposal?**

- We buy resilient, enterprise-grade network equipment that can be run beyond its end-of-support date without fear of immediate failure. However, as more equipment reaches its end-of-support date, the probability of component failure increases, and replacement parts for failed components will become more expensive and more difficult to source. The impact of a failure can be anywhere from the entire floor of a building to the entire campus's connection to the internet, and increased scarcity of replacement parts will increase the projected downtime for impacted users from a couple hours to several days or even weeks.
- Critical network equipment will stop receiving software updates and security patches as soon as they go end-of-support, leaving our campus computers and other networked devices increasingly vulnerable to fast-evolving cybersecurity threats.
- Without more robust and abundant wireless network infrastructure, the campus network will not be able to support increased demand from student devices, from academic technology initiatives like the new microscope-connected tablets, or operational technology initiatives like the new asset management and work control system being deployed by FM.
- Without upgrades to the network equipment in all of our buildings to provide higher capacity of Power-over-Ethernet, the campus network will not be able to support modern wireless access points, the expansion of our IP telephony system to replace the existing, aging analog telephony infrastructure, modern access control and security systems, or other devices that rely on power-over-Ethernet to function.
- The quality of a campus's wireless network, in terms of coverage area and performance, is a highly visible indicator of the university's overall technology stature. A wireless network with poor coverage and/or performance has the potential to place us at a competitive disadvantage when attracting prospective students, and may impact our reputation when hosting conferences and visiting scholars.
- Our aged telephone system requires us to carry an expensive service contract to support, and we are fast approaching a time when no vendor will be willing to support it at any price.
- Because we do not have a fully funded project to replace the old phone system, we are required to maintain a hybrid environment of the old and new systems while we slowly transition the campus using existing operating budgets. This creates a highly unstable environment, which leads to frequent failures of the phone system and prolonged troubleshooting periods to restore service. An unstable phone system interferes with the university's operations, damages our reputation, and puts our campus community at risk.

### **What alternatives were explored?**

- Capital project money was sought in 2014 to support the wireless network expansion in this request. WA state OFM declared the project ineligible for capital funding, because networking equipment does not last at least 14 years before needing to be replaced.
- Replacements of aging network equipment were folded into the capital construction projects to renovate Miller Hall, Carver Academic Center, and the Viking Union/Multicultural Center. Wireless coverage has been expanded to classrooms through capital-funded classroom renovation projects. However, state OFM will not allow these

equipment purchases to exceed 20% of the total project cost, and the purchased equipment must be rationally related to the larger construction project. This approach does not allow us to grow the wireless network across campus fast enough to meet student demand, or to refresh the campus network in time to meet the end-of-support deadlines of the existing equipment.

- Auxiliary Services (VU, University Residences) have self-funded the necessary network equipment refreshes and wireless network expansions in their facilities.
- Because the campus network equipment was all put in by a single capital project in 2000, and all refreshed by a single capital project in 2009, it has all come due for replacement at the same time. But without eligibility to fund the next refresh through a capital project, we must use an alternate strategy to replace aged and supported hardware. By relying on large one-time allocations in the past, the true cost of ownership of our campus network has been hidden from us. We recommend operationalizing that cost through an annualized financing arrangement that will make the true cost of ownership visible and accounted for.
- Multiple replacement voice systems have been evaluated, including an upgrade the existing phone hardware and migration to different hosted or on-premises systems. We have elected to deploy Microsoft’s Skype For Business voice system, because of the lower cost-per-user (due to our existing licensing agreements with Microsoft) and the ability to deploy it in phases in lieu of funding to upgrade the entire campus at once.

**Which units (departments, colleges, etc.) will be involved?**

Network Refresh: ITS, FM, Space Administration

Phone System Replacement: All departments not currently on Skype For Business

**Equipment needed:**

**Total Costs**

	<b>First Year (Rounded)</b>	<b>Annual Ongoing (Rounded)</b>
<b>Phone System</b>	\$1,100,000	\$336,100
<b>Campus Network</b>	\$2,042,000	\$2,042,000
<b>Current Total</b>	<b>\$3,142,000</b>	<b>\$2,378,082</b>
<b>Worst-Case Scenario Totals**</b>	<b>\$3,742,000</b>	<b>\$2,978,082</b>

**Phone System Replacement Costs - Detail**

<b>Year 1</b>	
<b>Equipment Costs</b>	
E911 Equipment	\$50,000.00
Analog Gateways	\$51,000.00

Voice Instrumentation (Headsets & Devices)		\$485,000.00
<b>Configuration Costs</b>		
Installation and Engineering		\$53,500.00
<b>Software Costs</b>		
Electronic Fax		\$25,000.00
Contact Center Software		\$25,000.00
E911 User Software Subscriptions		\$120,000.00
<b>Personnel</b>		\$111,430.00
Sub Total:		\$920,930.00
Est Tax	0.087	\$70,426.50
Total Price		\$991,356.50
<b>Other Costs</b>		
Contingency (12%)	0.12	\$118,962.78
<b>Total All IT Costs – Year 1</b>		<b>\$1,110,319.28</b>
<b>On Going Costs</b>		
<b>Hardware and Software Maintenance</b>		\$243,000.00
<b>Personnel</b>		\$111,430.00
<b>Total Ongoing</b>		\$354,430.00

**Network Refresh Costs – Detail**

Category	FY20	FY21	FY22	FY23	FY24	FY25
Core/Distribution Layer Network Equipment**	\$0.00	\$0.00	\$0.00	\$112,000	\$0.00	\$0.00
Firewall and Security Equipment Upgrades**	\$700,000	\$0.00	\$0.00	\$200,000	\$0.00	\$0.00
Access Layer Network Equipment**	\$5,300,000	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Wireless Network Equipment**	\$2,400,000	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Datacenter Network Equipment**	\$151,000	\$0.00	\$0.00	\$20,000	\$0.00	\$0.00
Power Distribution and Conditioning Equipment	\$945,000	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
FM Electricians T&M - Cabling and Electrical Installs	\$820,000	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Project Implementation Services	\$372,500	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1-Year Project Employees	\$86,065	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Contingency – 8%	\$861,965	\$0.00	\$0.00	\$4,000	\$0.00	\$0.00
Total	\$10,781,450	\$0.00	\$0.00	\$336,000	\$0.00	\$0.00
Annual Repayment (6yr financing @ 2.15%)	\$2,041,532	\$2,041,532	\$2,041,532	\$2,041,532	\$2,041,532	\$2,041,532

**\*\*Due to volatility in the economic relationship between the US and China, and the subsequent risk of tariffs on electronic components, network equipment manufacturers are projecting possible price increases of as much as 25% on certain goods. While the cost breakdowns above do not reflect this possible increase, the total costs summarized at the top of the section include a “worst case scenario” total that incorporates a 25% price hike on network equipment.**

**Human Resources** (Complete the table below adding additional rows if necessary):

<i>Position Title</i>	<i>Total Headcount</i>	<i>Total FTE</i>	<i>Salary and Benefits per FTE</i>	<i>Total Cost</i>
System Engineer (Voice)	1	1	\$111,430	\$111,430

*Table above should match data on budget spreadsheets submitted with this proposal. Complete the spreadsheet to get salary, benefit, and total cost amounts. Contact your division budget officer with questions.*

**Operating & Maintenance Costs (include service contracts, installation costs, etc.):**

\$2,284,532 – see above.

**Space Requirements:**

**What type of space is needed for this proposal? (e.g., private office, lab space, group work/study space, etc.)**

Approximately 500 square feet of space on south campus to relocate core network/data center functionality – funding for the space request was included in a separate capital project request.

**What features must this space have? (e.g., fume hoods, plumbing, 3-phase power, etc.)**

110v and 220v power, cooling, electronic access control, fire suppression system, conditioned power, earthquake mitigated racks and cabinets.

**What needs can be accommodated within your existing space?**

All needs can be accommodated within existing space, if capital funding does not become available for a new network core/datacenter location on south campus.

**How much new space will be required?**

500 sq ft. requested, none required.