



Nebraska State College System

CHADRON | PERU | WAYNE

July 12, 2022

Executive Board of the Legislative Council
Board Chairman, Dan Hughes

RE: LB1014 ARPA Report Requirement

Honorable Chairman Dan Hughes:

I write this letter today to meet the requirements identified in LB1014, Sec. 10:

Sec. 10. All grants utilizing Federal Funds allocated to the State of Nebraska from the federal Coronavirus State Fiscal Recovery Fund shall meet the eligible uses under the federal American Rescue Plan Act of 2021 and any relevant guidance on the use of such funds by the United States Department of the Treasury. Each agency, board, or commission shall complete guidance documents related to the distribution of the Federal Funds appropriated pursuant to this act within sixty days after the effective date of this act. Each such agency, board, or commission shall provide a report to the Executive Board of the Legislative Council within ninety days after the effective date of this act that outlines whether the projects or appropriations assigned to the agency, board, or commission by the Legislature comply with the federal act or regulations.

The required guidance document for the Nebraska State College System can be found on our website at the following address:

<https://www.nscs.edu/resources/e30d:rd9ypc-1z2/files/76905064z55b5bbcb/fn/2022ARPA-Funds-Guidance-NSCS.pdf>

The following information supports the requirement that we document how the appropriations and related projects will meet the Federal ARPA Act and regulations. The funds were appropriated in Sec. 37 to the Board of Trustees of the Nebraska State College System:

Sec. 37. AGENCY NO. 50 — BOARD OF TRUSTEES OF THE NEBRASKA STATE COLLEGES Program No. 48 - Nebraska State Colleges - System Office. There is included in the appropriation to this program for FY2022-23 \$8,000,000 Federal Funds for purchase of equipment and for water and sewer upgrade projects, which shall only be used for such purpose. Of the amount appropriated to this program, it is the intent of the Legislature that \$2,000,000 Federal Funds be used to purchase needed equipment to prepare health care

professionals in combating the effects of COVID-19 and that \$6,000,000 Federal Funds be used to upgrade water and sewer systems on the three state college campuses.

Equipment to Prepare Health Professionals in Combating the Effect of COVID-19

The Nebraska State College System Board of Trustees has allocated the \$2,000,000 for equipment to Chadron State College - \$600,000; Peru State College - \$510,000; and Wayne State College - \$890,000. The list of equipment and justification of how the expenditures meet the Federal ARPA Act and related regulations have been included in Attachment I. We submitted the information to the Department of Administrative Services for review and feedback on June 27, 2022, and await their approval of the equipment purchases.

Water and Sewer Projects

The Nebraska State College System Board of Trustees evenly allocated the \$6,000,000 for ARPA water and sewer projects to the three State Colleges, each receiving \$2,000,000. The three projects were submitted to the Nebraska Department of Environment and Energy for review on June 27, 2022, as directed by the Department of Administrative Services. The three proposed water and sewer projects involved the replacement of water distribution lines to replace old constricted water lines, eliminating old lead pipes, improving the quality of water delivered, enhancing water pressure to consumers, and fire protection.

On July 8, 2022, the Department of Environment and Energy notified us that only the Peru State College proposal qualified under the Drinking Water State Revolving Fund (DWSRF) guidelines referenced in ARPA guidance. Because Peru State College is considered a public water system. We are currently evaluating the federal guidance and alternative proposals to determine how they may be eligible under the ARPA guidelines for water and sewer projects. We will continue to assess and seek guidance at the State and Federal levels to identify projects that will allow us to move forward and expend the appropriated dollars.

The water and sewer project proposals and our rationale and justification of how the expenditures meet the Federal ARPA Act and related regulations have been included in Attachment II. We will continue to pursue eligible water and sewer projects that meet the Federal ARPA requirements.

We thank the Legislature and the Governor for these dollars, which will significantly enhance our ability to train healthcare workers and improve our infrastructure at the State Colleges.

Sincerely,



Dr. Paul Turman
Chancellor of the NSCS

Attachment I – ARPA Equipment - \$2,000,000

**Chadron State College
ARPA Equipment
Agency 50 – Board of Trustees of the Nebraska State College System College
June 24, 2022**

Equipment Allocation (Please attach list of equipment):

The full equipment list with cost estimates is attached. The equipment will be used in the following ways:

1. Microscopes, histology slide sets, and Vernier probes will be used in a variety of biology and chemistry classes including our introductory biology/chemistry classes, Microbiology, Anatomy, Physiology, Hematology, Genetics, Pathogenic Microbiology, Physics, and Parasitology. Most of these classes are required for health science and biomedical research professional programs and all are recommended for preparation for these programs. These items will be used to replace aging, outdated, and broken equipment.
2. Virtual reality systems and programs will be used in a variety of classes but are particularly useful in Anatomy to visualize the human body in both normal and disease states, in Molecular Biology to visualize how molecules change in response to cellular signals, and in Chemistry to visualize the effects of chemical reactions. These systems are an enhancement of our existing program. Professional schools are investing heavily in virtual reality simulations to allow students to visualize and manipulate complex systems without the risk of harming real patients. Having a system at the undergraduate level will allow us to better train future health care professionals.
3. Manikins, cell analyzer, and urinalysis analyzer: These pieces of equipment are used in professional schools and in clinical settings to help student prepare to work with real patients. The equipment will be used to enhance our ability to train students to work in healthcare settings.
4. Biological safety cabinet: This piece of equipment is used to help with the sterile transfer of cells from one dish to another and to do PCR without contamination. This would be used to replace an aging piece of equipment that was damaged as we moved equipment in preparation for our building remodel. The safety cabinet is used for Genetics and for undergraduate student research. Student research is important in our Chemistry program which graduates students in our pre-medicine, pre-pharmacy, and pre-dentistry programs. This piece of equipment will also be used by students interested in biomedical research, an important field for finding treatments for diseases such as Covid.
5. SEM: This piece of equipment will allow us to visualize and analyze very small organisms such as viruses. It will be quite useful for courses in several scientific fields. One potential use will be in Microbiology/Pathogenic Microbiology, allowing us to add in the study of viruses to the curriculum.

6. Centrifuge, spectrometer, chromatograph, NMR, and distillation kits: these pieces of equipment are used in chemistry labs which are required pre-requisite courses for health professionals. These items are standard chemistry equipment that would be found at most universities. Most of our equipment has not be updated or repaired in 20+ years as we have lacked the funds to repair or replace equipment. Obtaining new equipment will help us modernize our Chemistry laboratory experiences for future health professionals or biomedical research students. Additional instrumentation is also required to ensure that students can complete labs on time. Each prepared sample requires 15-30 minutes for these types of analysis. This means that a class of 8 groups would require 2 -4 hours to run only the sample analysis with just one instrument. Our labs are 2 hours each week and typically students prepare and analyze new samples weekly. Therefore, additional instrumentation will be critical to ensuring each student has the opportunity to experience the setup and analysis of their own sample.

Explanation of how the Equipment Meets Federal Guidelines:

Chadron State College is an appropriate recipient of ARPA funds for this project. Chadron State is in a remote, rural area of Nebraska, serving the Western end of the state, primarily the 43rd, 47th, and 48th legislative districts. The household median income of the area that we serve is below \$53,000, below the 185% of the Federal Poverty Guidelines. In addition, access to quality health care is limited, and the population in this region is older, sicker, and less likely to be vaccinated than the population of Nebraska in general, making the area served by Chadron State College disproportionately impacted by the Covid pandemic. ARPA funds will help Chadron State College to recruit and train the next generation of health care professionals, helping to alleviate the health care shortage in rural Nebraska.

Source: http://news.legislature.ne.gov/lrd/files/2018/01/01312018_mow_medianincomeLD.png

Explanation of how the Equipment Meets LB1014- "Federal Funds be used to purchase needed equipment to prepare health care professionals in combating the effects of COVID-19.":

A primary focus of the Biology and Chemistry programs of Chadron State College is to prepare students to become health professionals, with a particular focus on preparing students to practice in underserved areas of rural Nebraska. The highly successful Rural Health Opportunities Program (RHOP), started at Chadron State in the 1990s, was designed to prepare rural students for professional school in the health sciences and then encourage these students to return to rural Nebraska. Graduates of Chadron State College work as health professionals (doctors, nurses, dental hygienists, dentists, clinical laboratory scientists, physical therapists, physician assistants, pharmacists, occupational therapists, respiratory therapists, public health workers, and biomedical researchers) throughout the state of Nebraska. As Covid-19 has acerbated the health professional shortage in Nebraska, leading to the resignations and early retirements of thousands of health care workers, our well-prepared students are needed to help overcome the looming health care shortage.

During their college years, Chadron State students are actively involved in working in health care in nursing homes, hospitals, and clinics in Chadron, Hay Springs, Alliance, Gordan/Rushville, and Scottsbluff as well as communities near their hometowns during school breaks. In 2020-2021, while Nebraska was

in the middle of the Covid-19 pandemic, our students worked at Covid-19 testing stations for Test Nebraska and for meat processing plants, in clinics and hospitals including Covid hotspots, and in nursing homes throughout Nebraska. In addition, we had one student working on contact tracing for the state of Nebraska and one student running the Covid testing program at Chadron Community Hospital. The skills that the students learned in their classroom studies helped our students to be on the front lines combatting these initial waves of Covid-19. As these students mature into health care or biomedical research professional schools, they will be well prepared to meet the needs of patients who continue to suffer the long-term effects of Covid-19 and other diseases and to meet the challenges of emerging infectious diseases.

The equipment requested will be used in essential pre-requisite classes to help train these health professional students as described in the answer to the first question. We have focused on equipment that will modernize our chemistry program, add practical hands-on training to our human biology classes, enhance our students' ability to visualize scientific processes and living systems, and develop scientific thought processes. These pieces of equipment will greatly enhance our ability to train the next generation of health care providers. Thank you for your consideration.

Chadron State College ARPA Equipment List

Equipment Needs	Quantity	Est. Cost	Est. Total Cost
Microscopes (1000X-2000X)	36	\$ 1,200.00	\$ 43,200.00
Dissecting Microscopes	4	\$700	\$2,800
Polarizing Microscope	1	\$1,200	\$1,200
Histology Slide sets	200	\$ 100.00	\$ 20,000.00
Microscope slide storage cabinets	4	\$800	\$ 3,200.00
Vernier System with Probes	30	\$ 1,500.00	\$ 45,000.00
Cell Analyzer	1	\$32,000	\$ 32,000.00
Basic Nursing Manikin	2	\$1,100	\$ 2,200.00
Urinalysis analyzer + test strips	1	\$2,000	\$ 2,000.00
Virtual Reality Science Software	1	\$25,000	\$ 25,000.00
Virtual Reality System Set	1	\$24,000	\$ 24,000.00
Biological Safety Cabinet	1	\$10,000	\$ 10,000.00
Tabletop SEM	1	\$ 91,500.00	\$ 91,500.00
Scientific Calculator Classroom Sets	50	\$ 22.00	\$ 1,100.00
Floor centrifuge with 2 rotors	1	\$ 50,000.00	\$ 50,000.00
Infrared Spectrometer	1	\$ 40,000.00	\$ 40,000.00
Gas Chromatographs	2	\$ 40,000.00	\$ 80,000.00
Fast Protein Liquid Chromatography	1	\$ 50,000.00	\$ 50,000.00
Benchtop NMR	1	\$ 72,000.00	\$ 72,000.00
Distillation Kits	16	\$ 300.00	\$ 4,800.00
			\$ 600,000.00

Biology

Interdisciplinary Science

Chemistry

Peru State College

ARPA Equipment

Agency 50 – Board of Trustees of the Nebraska State College System College

June 24, 2022

Equipment Allocation (Please attach list of equipment):

Nuclear Magnetic Resonance Spectrometer

Fourier Transform Infrared Spectrometer

Langmuir-Blodgett Trough

Scanning electron microscope (SEM)

Classroom Microscopes

High-performance liquid chromatography unit

Physics classroom equipment

Arlektra Kits

Force Tables

Dynamics Cart & Tracks

USB Digital Microscopes

Burglar Alarm Soldering Kits

Lie Detector Soldering Kits

Global Specialties PB-10

Soldering Iron Kits

Cordless Drill Combo Kits

20-V 7-1/4 Circular Saws

20V batteries

Color Mixer Kits

Optics Expansion Kits

Standard Carts

Plunger Carts

Eddy Current Brakes

Van de Graaff Generators

Immunology / Molecular biology lab equipment

Cytiva AKTA start chromatography system

Cytiva XK Chromatography column

Prepacked Gel filtration column

Liquid nitrogen tank

Midi CO2 incubator

Orbital Shaker

Hoefer GD 2000 Gel Dryer system

Bench top freeze Dryers

Air conditioning unit for Chemical storage room and SEM room

Classroom tables, shelving, and storage cabinets to hold equipment in this request

Explanation of how the Equipment Meets Federal Guidelines:

The equipment listed here would be used in classes for pre-health professional programs. Last fall, Peru State College had 45 students in pre-health programs and another 18 in the Disease and Human Health major. Additional students in Natural Science and Kinesiology also go on to health professions and would use this equipment in classes.

Peru State students are also part of the Rural Health Opportunities Program (RHOP), which provides a guaranteed seat at the University of Nebraska Medical Center in a health program upon completion of their requirements at the College. By meeting the educational needs of students in the RHOP program, this proposal also addresses health disparities. The stated purpose of the RHOP program is to “recruit and educate individuals from Rural Areas who intend to return to underserved Rural Areas to practice in their professional field.”

UNMC, along with many other institutions, requires students to have certain pre-requisite courses before admission. These courses often include Organic Chemistry, Analytical Chemistry, Biochemistry, Microbiology, and Physics. The equipment listed here would be used in these courses. Additionally, students for some professional health programs are required to have a bachelor's degree. They will be taking courses using this equipment as they complete their degree.

A Nuclear Magnetic Resonance Spectrometer (NMR) uses magnetic poles to affect a molecule which allows the users to detect its molecular structure. This instrument is vital in Organic Chemistry and will be used for Organic Chemistry, Biochemistry and Analytical Chemistry to learn how molecules are structured and new molecules are formed.

A Fourier Transform Infrared Spectrometer (FTIR) is used to detect molecules that cannot be found with an NMR. This further expands our instruction to students and diversifies the scientific approaches they can use. This instrument is also used in Organic Chemistry, Biochemistry and Analytical Chemistry.

The Langmuir-Blodgett Trough provides analysis of the surface chemistry of molecules. This allows a user to understand the length of molecules, which can determine their size. This instrument would allow interactions between hydrophobic and hydrophilic molecules. It would be used in Organic Chemistry, Biochemistry and Analytical Chemistry.

An SEM can magnify an object up to 350,000x using an electron beam but provides the best resolution at about 200,000x. Thus, the resolution is about 200-300 times greater than a light microscope, allowing us to observe objects in detail at nanoscales. An SEM would be used for demonstration, data collection, and training in existing biology courses such as Microbiology, Experimental Biology, and Histology. Once in place, we would develop a new Microscopy and Imaging course incorporating student training and use of the SEM.

The microscopes would be used in the Biology labs. This will provide better optical resolutions using visible light. This will allow students to learn the initial steps in identifying disease. They will also provide fluorescence, which allows the user to tag certain proteins and aids in the identification of specific diseases, such as COVID-19.

The high-performance liquid chromatography (HPLC) system is the most efficient tool used in the separation of compounds. This instrument will be employed in our Organic Chemistry, Analytical Chemistry, and Biochemistry courses. As shown in numerous literature articles and research institutions, HPLC is a vital tool used in separating infectious diseases such as COVID-19 and SARS variants as well as molecules used in treating these infections.

The physics equipment would update lab settings to current educational standards. By using updated equipment, students will gain experience with real-world computer interfaces used in the health industry. The Physics class is a pre-requisite for many professional health programs as well as the majority of Science-based graduate programs.

The Immunology Molecular biology lab equipment items are used together in the identification, purification, growth, maintenance, and storage of pathogenic organisms like COVID-19. The lab equipment would be used by health education students in Immunology, Biochemistry, Molecular Biology, and Endocrinology.

Additional equipment would include an air conditioning unit for the Chemical storage room and SEM room as well as additional classroom tables, shelving, and storage cabinets to hold equipment in this request.

The equipment listed here are often standard pieces of equipment at many institutions. Peru State has not had the funding to purchase them and doing so now will elevate the education we can provide to students in high demand health fields. As an example, when faculty have needed SEM in the past, the College has purchased SEM time at the University of Kansas, Sam Houston State University (Texas), or the University of South Dakota and traveled to conduct the work. Such limited access precludes student training and undergraduate research that requires high magnification as well as chemical composition analysis. The instruments we will purchase will be used directly by undergraduate students. At other institutions, direct use of this equipment is usually restricted to graduate students. The addition of this equipment at Peru State would give direct access to undergraduates.

We will be providing direct, hands-on experiences for our undergraduate science and health majors.

Explanation of how the Equipment Meets LB1014- “Federal Funds be used to purchase needed equipment to prepare health care professionals in combating the effects of COVID-19.”:

Peru State graduates have been on the front lines of combating the effects of COVID-19 since the start of the pandemic. In particular, Grant Brueggeman (Southeast District Health Department), Seph Fauver (Yale School of Public Health), and Lori Seibel (Community Health Endowment of Lincoln) are health professionals who have led or directly been involved with responses to the COVID-19 pandemic.

Nine to ten students in our science programs have been working with Auburn Family Health while they were in school to assist with testing at regional locations (e.g. nursing homes, power plants, and Peru State College). Recent graduates who have gone into the health field have also been directly involved in providing care to COVID-19 patients in nursing or pharmacy.

Peru State is preparing health professionals and researchers for the future to address illnesses such as COVID-19 as well as future diseases. They will also be addressing patients afflicted with the long-term consequences of COVID-19. This equipment is used by health professionals in the identification and treatment of diseases such as COVID-19. For example, the NMR would allow students to learn an important technique that of analytical chemistry which leads to drug discovery, development and manufacturing.

The equipment that would be purchased with this proposal will also prepare students to be researchers who will address COVID-19 and other diseases in their careers.

Wayne State College
ARPA Equipment
Agency 50 – Board of Trustees of the Nebraska State College System College
June 24, 2022

Equipment Allocation (Please attach list of equipment): See attached.

Explanation of how the Equipment Meets Federal Guidelines:

Sec. 10. All grants utilizing Federal Funds allocated to the State of Nebraska from the federal Coronavirus State Fiscal Recovery Fund shall meet the eligible uses under the federal American Rescue Plan Act of 2021 and any relevant guidance on the use of such funds by the United States Department of the Treasury.

Based on Federal guidelines, Wayne State College is an appropriate recipient of ARPA funds for this equipment project. Within Wayne State College's service region (including NE Legislative Districts 15, 17, 19, 40, 41, 36, 37, and 38) the Median Household Income falls below 185 % of the Federal Poverty Guidelines. For our students that come to us from these communities, which include local tribal lands and governments, Treasury presumes these areas have been Disproportionately Impacted by the Coronavirus Pandemic. Further, Treasury recognizes projects delivered by schools, which include educational equipment and facilities, to be eligible to respond to the disproportionate impacts of the pandemic. Therefore, Wayne State College is uniquely positioned for the disbursement of these funds to have a significant impact for the students and families in northeast Nebraska.

Sources:

http://news.legislature.ne.gov/lrd/files/2018/01/01312018_mow_medianincomeLD.png

Explanation of how the Equipment Meets LB1014- "Federal Funds be used to purchase needed equipment to prepare health care professionals in combating the effects of COVID-19.":

There is included in the appropriation to this program for FY2022-23 \$8,000,000 Federal Funds for purchase of equipment and for water and sewer upgrade projects, which shall only be used for such purpose. Of the amount LB1014 2022 LB1014 2022 -10- appropriated to this program, it is the intent of the Legislature that \$2,000,000 Federal Funds to be used to purchase needed equipment to prepare health care professionals in combatting the effects of COVID-19 and that \$6,000,000 Federal Funds be used to upgrade water and sewer systems on the three state college campuses.

Wayne State College's project focuses on the procurement of modern STEM equipment that will be utilized by pre-professional students (medicine, nursing, physician assistant, etc.) in the classroom to better prepare them for future employment in healthcare and associated STEM fields. This project is an appropriate expenditure of ARPA funds for several reasons: advances in science lead to improved and novel instrumentation; exposing and training students on these devices teaches them important fundamental science concepts and prepares students to use these devices in the workforce; the equipment used in medicine, drug discovery, and STEM industry use equipment, which operates with the same underlying mechanisms as the equipment Wayne State College is requesting.

At Wayne State College, much of the scientific instrumentation was purchased through three funding sources. The first was a significant infusion from INBRE 20 years ago that equipped many of the labs at that time and has sustained small equipment purchases and/or occasional replacements during the lifespan of that grant. The second source of funding came through cost-savings from the Carhart Science renovation in 2015. The last source of funding has come through purchases utilizing remaining end-of-year funds. This intermittent funding has been utilized to repair and/or replace aging equipment, but this approach has not allowed for significant future planning, modernization, or purchase of highly specialized equipment. The ARPA funds will allow for the replacement of several existing pieces of equipment that are at or near their end of life and will also allow for the expansion of our Cell Biology and Chemistry teaching labs. This expansion will allow Wayne State to convert an existing space into a new cell biology teaching lab. Additionally, these funds will expand the instrumentation and analytic ability of the inorganic, organic, and biochemistry chemistry labs. With current and projected enrollment growth and overall interest in pre-professional healthcare programs (e.g., medicine), Wayne State College will be well positioned to meet the educational needs of future students who choose to pursue a career in healthcare.

STEM & Anatomy Purchase plan: WSC has been awarded \$890,000 of LB1014 project funds by the NSCS office to support improving STEM and human anatomy education. Items ranked #1 in purchase tier will have the greatest positive impact on STEM teaching. These items are estimated to cost \$890,621 combined and WSC expects cost savings on the final purchase of several items. This cost savings will allow for the purchase of additional items on the list **as ranked in the highlighted section of this table**. If costs exceed \$890,000, WSC will internally reallocate funds to make up the difference.

Impact group	Item name	Explanation	Cost estimate	Purchase tier
Molecular Bio	CFX Connect Real-Time PCR System	For DNA fingerprinting and analysis	INBRE Purchased	N/A
AnatomyRoom	Anatomy Education	Modernize Anatomy Rooms (camera, lights, monitors)	\$50,000	1
Biology	Vernier update	Data collection instrument for class labs	\$26,500	1
Biology	LabQuest	Data collection instrument for class labs	\$5,000	1
Cell Biology	Inverted Fluorescent Scope	Microscope to observe cells marked with chemicals	\$17,690	1
Cell Biology	Class II Biosafety cabinet	For the safe handling of bacteria	\$12,777	1
Cell Biology	CO2 Incubator	Grows cells in lab	\$11,728	1
Cell Biology	Ref. Desktop centrifuge	Refrigerated separator of substances in liquid	\$8,110	1
Cell Biology	Ice Machine (nuggets)	Ice to cool experiments	\$7,450	1
Cell Biology	CO2 gas regulator	Regulates flow of gas for incubator	\$1,212	1
Chemistry	Waters UPLC with QPDA	Measures mass of chemicals	\$170,000	1
Chemistry	NMR (Nuclear Magnetic Resonance)	Identification of trace amounts of chemicals	\$154,000	1
Chemistry	GC/MS (Gas Chromatograph/Mass Spec.)	Separation of chemicals in mixtures	\$105,000	1
Chemistry	JASCO 1500 Dichroism Spectrometer	Measures frequencies of light from chemicals & reactions	\$82,000	1
Chemistry	Atomic Absorption (AA)	Analysis of metals	\$51,500	1
Chemistry	Dynamic Light Scattering	Measure molecular mass and characteristics	\$50,000	1
Chemistry	Polarimetry	Differentiate molecules with similar structures	\$34,000	1

Chemistry	UV/Vis/luminescence	Microscope to observe tagged molecules/cells	\$30,700	1
Chemistry	Refrigerated Floor Centrifuge	Refrigerated separator of substances in liquid	\$9,113	1
Exercise science	GE Case System	Cardiac health assessment tool	\$20,600	1
Exercise science	Force Plate with software	Measures force during human movements	\$13,000	1
Exercise science	ActiLife Accelerometers (and accessories)	Monitor activity and sleep	\$5,800	1
Exercise science	Humac Norm updates	Testing range of motion and limb strength	\$3,500	1
Forensic Sci.	DSLR cameras	Collection of photographic evidence in crime scene investigation	\$12,580	1
Molecular Bio	Lab Armor Bead Bath	Temperature controlled box for growing bacteria	\$5,718	1
Molecular Bio	34.8 L LN2 Storage Dewar	Stores liquid nitrogen	\$2,643	1
Chemistry	FTIR	Identification of substances	\$30,000	2
Exercise science	Motion Capture/Analysis System	Study human motion for analysis	\$20,000	3
Molecular Bio	Portable vacuum pump	Rapidly dry samples without heating	\$1,113	4
Physics	Pasco Basic Optics System (OS-C515C)	Kit for teaching optics in physics	\$2,295	5
Molecular Bio	Pipet Controller	Precision dispensing of liquids	\$1,280	6
Chemistry	Fermentation refrigerator	Refrigerator for fermenting products	\$6,000	7
Chemistry	Stirring Hotplates	Stirs and heats mixtures	\$18,000	8
Chemistry	Bruker Microflex LRF	Measure masses of large molecules like DNA and protein	\$240,000	9

ARPA Water and Sewer Projects
Agency 50 – Board of Trustees of the Nebraska State College System College
Chadron State College
June 9, 2022

Project Title: Upgrade and Replace College Water Main Infrastructure

Project Description: The campus water mains are original to the college and some sections are over 100 years old. The water main line sizes are inadequate to support the campus water needs and there aren't an adequate number of isolation valves. We believe some of these water mains are cast iron with leaded joints. CSC needs to install new water mains, preferably 12" in diameter with isolation valves, as the current water mains are varying sizes of 4"-10" which do not provide the volume or pressure needed to appropriately support campus. If there is a fire emergency on the east end of campus the water main could collapse, due to fire pumps in buildings and fire hydrant usage by the fire department, it is insufficient to support the kinds of volume and pressure this situation would create. CSC would like to add a water main to the east of the Math Science Center of Innovative Learning building to the south of Andrews to help with the volume and pressure issues at the corner of 12th and Chapin Street. This will also provide a loop to allow water flow to this building in the event the water main on 12th Street needs repair. If there are water main issues on campus several buildings are without water until the issue is resolved. This is specifically a concern with the residence hall complex (Andrews, High Rise, and Kent Halls), CSC would like to add a water main to the west of Kent Hall to provide the redundancy necessary to continue service to the residence hall complex. If there is a catastrophic water main failure it could mean weeks if not months to restore water on campus.

- a. The sections we are proposing to add new 10" or 12" water mains and isolation valves are as follows (these sections are highlighted in yellow on the attached map):
 1. Start at the intersection of 10th and Shelton Street and go south to the water main line running east west to the south of Kent Residence Hall. This would allow a water main loop to service the residence hall complex where there is currently no water loop. This should also allow better water service to the complex.
 2. Start at the intersection of 12th and Chapin Streets and go north to the water main line running east west to the south of Andrews Residence Hall. This would allow a water main loop to service the east end of campus where there is currently no water loop. This should allow better water volume and pressure to the east end of campus where there are pressure challenges.
- b. The sections we are proposing to replace current water main with new 10" or 12" water main and isolation valves are as follows
 1. Start at the intersection of 10th and Main Street and go south to the utility tunnel for the Sheman Heating Plant. This water main line is original to the campus and is over 100 years

old. We believe all of these sections are cast iron with leaded joints and should be abandoned in place after the installation of the new water main.

2. Start at the intersection to the south east of Andrews Residence Hall and go west to tie into the proposed new line mentioned a.1. above. This section needs several isolation valves in order to provide better service to the three residence halls in the complex when there are water main issues. This water main line is original to the east side of campus and is close to 80 years old. This section is highlighted in blue on the attached map.

Estimated Total Cost: \$2,000,000

Project Components and Estimated Costs of Components: Project planning and design – estimated \$175,000; 10" or 12" PVC water mains, water main isolation valves, dirt work, replace cement in areas affected, fill and cap old water mains to abandon in place due to the potential of the water main joints containing lead – estimated \$1,825,000.

Rationale for Project: Chadron State College has volume and water pressure issues on the east end of the campus. Also, the water mains are original to the campus with some sections over 100 years old. These sections should be replaced before there is a failure.

Federal Guidelines Qualification: Projects eligible under EPA's Drinking Water State Revolving Fund (DWSRF). This project falls under category 2 – transmission and distribution.

Covid-19 Harm or Need Being Addressed: Adequate water supply for drinking water and hygiene for individuals living in the residence halls on campus.

Rationale for Capital Expenditure: Replace aging infrastructure as well as increase volume and water pressure for Chadron State College.

Comparison to Two Alternative Projects and Justification of Why Proposed Project is Superior:

Chadron State College also considered the following water main replacements:

1. The section of water main at the intersection of 10th and Shelton Street east to the corner of 10th and Chapin Street. This water main line is original to the east side of campus and is close to 80 years old. This section is a lower priority than the projects described above.
2. Start at the intersection of 10th and Chapin Street and go south to the south to connect to the proposed new line mentioned in a.2. above. This water main line is original to the east side of campus and is close to 80 years old. This section is a lower priority than the projects described above.

ARPA Water and Sewer Projects
Agency 50 – Board of Trustees of the Nebraska State College System College
Peru State College
June 3, 2022

Project Title: Campus Main Line

Project Description: Replacing pipes with modern materials to handle water coming from Auburn.

Estimated Total Cost: \$2,000,000

Project Components and Estimated Costs of Components: \$2,000,000

Rationale for Project: In the late fall of 2022, Peru will connect with the water system in the neighboring town of Auburn, bringing reliable, high-quality water to Peru for the first time in several years. Peru State College needs to replace many of its old and heavily clogged underground pipes to the various buildings. Peru's mineral-laden water has caked the pipes significantly, lining them with so much thick scale that in places and the water must pass through holes smaller in diameter than pencils. The College proposes replacing the most affected pipes with fresh pipes made of modern materials to handle the water coming in from Auburn much more effectively.

Federal Guidelines Qualification: As part of the water and sewer infrastructure eligible use category, recipients may invest in certain projects to support lead remediation and improve water pressure. Investments to improve access to clean drinking water is also an eligible category. Project is eligible under EPA's Drinking Water State Revolving Fund (DWSRF). This project falls under category 2 – transmission and distribution.

Covid-19 Harm or Need Being Addressed: "Safe drinking-water, sanitation and hygiene are crucial to human health and well-being" per the World Health Organization Website. Link below:

<https://www.who.int/health-topics/water-sanitation-and-hygiene-wash>

Rationale for Capital Expenditure: In the late fall of 2022, Peru will connect with the water system in the neighboring town of Auburn, bringing reliable, high-quality water to Peru for the first time in several years. Peru State College needs to replace many of its old and heavily clogged underground pipes and pipes to buildings. Peru's mineral-laden water has caked the pipes significantly, lining them with so much thick scale that in places and the water must pass through holes smaller in diameter than pencils. The College proposes replacing the most affected pipes with fresh pipes made of modern materials to handle the water coming in from Auburn much more effectively.

Comparison to Two Alternative Projects and Justification of Why Proposed Project is Superior:

Peru State College identified two alternative projects for ARPA funding. These projects are below.

- Running water to the baseball and softball fields
- Replacing water pipes in TJ Majors and AV Larson buildings

While these two projects would improve the student experience, they did not rise to the same priority as Main Campus Line project. The baseball and softball fields will receive water during the Indoor Recreational Complex project. Replacing water pipes in the building should be replaced after the main water line is replaced.

ARPA Water and Sewer Projects
Agency 50 – Board of Trustees of the Nebraska State College System College
Wayne State College
June 17, 2022

Project Title: Campus Water Main Line Replacement Project

Project Description: Several of the campus water mains are over 50 years old, there are not an adequate number of isolation valves, they have previously abandoned branch supply lines which can cause additional failure points and lead to contamination, and these water mains are believed to be cast iron with leaded joints. WSC proposes to install replacement water mains along Lindahl Drive, Walnut Street, Anderson Drive, Wendt Drive, and Gulliver Drive. Furthermore, WSC would like to add water mains to the southwest of the Energy Plant building and to the North of the Student Center in order to provide loops to allow water flow to these buildings in the event the existing water mains to these buildings need repairs. If there is a water main failure to the existing building lines it could mean weeks if not months to restore water to these buildings. The Student Center houses the campuses main dining program and the Energy Plant requires water to operate the steam and chilled water systems.

Estimated Total Cost: \$2,000,000

Project Components and Estimated Costs of Components: \$2,000,000

Project planning and design – estimated \$200,000

Section A-Walnut Street/Lindahl Drive Replacement – estimated \$250,000

Section B-Lindahl Drive/Anderson Drive Replacement and New Lines – estimated \$600,000

Section C-Wendt Drive/Gulliver Drive Replacement – estimated \$825,000

Section D-Berry Hall Line Replacement – estimated \$125,000

Rationale for Project: The water mains are over 50 years old. These sections should be replaced before there is a failure.

Federal Guidelines Qualification: As part of the water and sewer infrastructure eligible use category, recipients may invest in certain projects to support lead remediation. Investments to improve access to clean drinking water is also an eligible category.

Covid-19 Harm or Need Being Addressed: “Safe drinking-water, sanitation and hygiene are crucial to human health and well-being” per the World Health Organization Website. Link below:

<https://www.who.int/health-topics/water-sanitation-and-hygiene-wash>

Rationale for Capital Expenditure: Wayne State College has several water main lines that are over 50 years old. These lines provide water to residence halls, academic buildings, and student services buildings. Replacing the existing lines with new modern materials will eliminate possible piping and lead joint failure. Also, adding redundancy to the water mains will assure water service to the Energy Plant and the Student Center is not interrupted in the event of failure or maintenance needs.

Comparison to Two Alternative Projects and Justification of Why Proposed Project is Superior:

Wayne State College has identified two alternative water main projects for ARPA funding. These projects are below.

- Section E-Lindahl Drive New Line (estimated \$350,000) and Section F-Stadium Drive Water Main Replacement (estimated \$625,000)
 - While this project would replace old existing water lines and add redundancy to the campus water main system, it did not rise to the same priority as the other campus water main lines. These lines serve fewer students and less critical activities.

- Section G-Wendt Drive Replacement – estimated \$300,000
 - While this project would replace an existing water line, it did not rise to the same priority as the other campus water main lines. This line is around 10 years newer than the other lines suggested to be replaced.