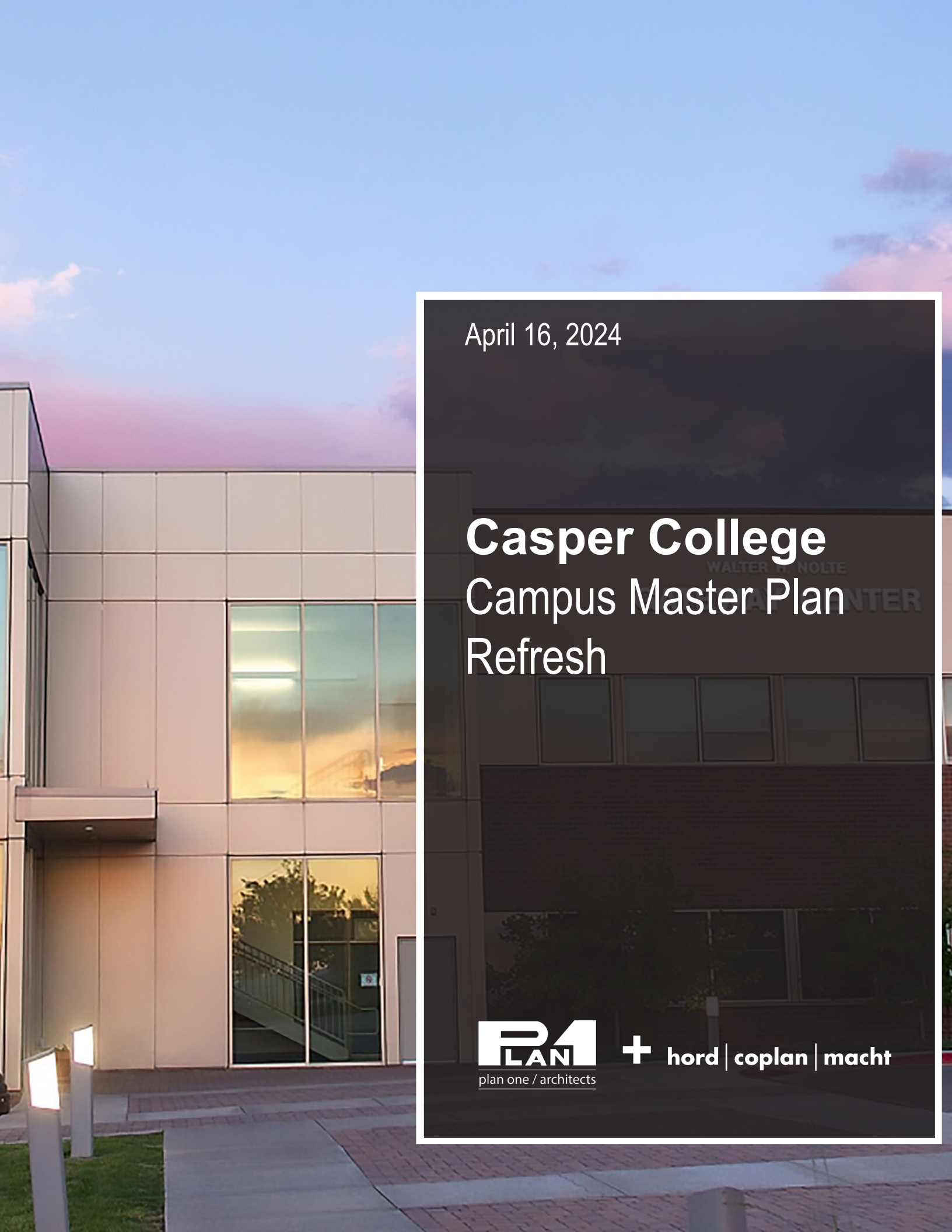




April 16, 2024

Casper College Campus Master Plan Refresh



+ hord | coplan | macht

Index

Executive Summary	1
Architectural Design Program	16
Wheeler Terrace Assessment	57
Aley Hall Assessment	67
Monument Signage	84
Mechanical Electrical Assessment	88
Civil Engineering Assessment	101
Information Technology Assessment	133
Construction Cost Estimates	162

EXECUTIVE SUMMARY

Plan One/Architects and Hord Coplan Macht would like to take this opportunity to thank the members of the Master Plan Committee, Administration, College Deans, and faculty that gave their time to the master planning process to develop the following report. Without their input, vision and dedication to the planning process we would not have been able to provide a thorough evaluation of the College's specific needs. The Plan One/Architects + Hord Coplan Macht planning team was selected to perform Master Planning activities on Casper College in the following areas:

Major Areas of Academic Focus

1. School of Health Sciences
2. School of Business and Industry

Athletics

1. Collegiate Level Soccer Field / Complex
2. New Athletic Center/Gymnasium/Field house

Set Goals and Objectives for Additional Facilities

1. Gertrude Krampert Theatre
2. Harry T. Thorson Institute of Business

Utilizing a series of meetings with the Master Plan Committee and stakeholders vested in each area of focus, criteria for what would constitute successful solutions for identified goals were determined.

Independent facility assessments of Aley Hall and Wheeler Terrace were added to the scope of the report as well as potential monument signage for the main entrances to Casper College's campus. These items were important to leadership to add to the scope of the report due to the overall age, existing structural issues, and other noticeable deficiencies to the buildings. The monument signage was added to the report as it would enhance the first impression of the Casper College and help support a cohesive identity for the campus.

This Executive Summary provides an overview of the solutions the Master Plan Committee determined were the preferred solutions for the identified areas of academic growth and facility usage. This report itself summarizes those goals and criteria that were discussed and refined during the master planning process and offers insight as to how the final solutions were developed. Several appendices have been included with the master plan that provide supporting documentation gathered during the process. This document is a refresh to the 2018 master plan document completed by GSG Architecture and Robert Peccia & Associates.

Community Input

As a community college, Casper College maintains a symbiotic relationship with not only its students, but the community in general. To ensure that this connection was captured in the master planning process, town hall meetings were held with both the student body and community leaders.

All students were emailed a questionnaire that touched on how they utilized services available on campus and why they chose particular aspects of campus life. Topics included where they preferred to study, where they chose to perform collaborative and group work, where they choose to socialize on campus, and the top spaces they spend time on campus. Pedestrian circulation was also addressed as a primary topic of the surveys. Approximately 3% of the student population responded to the survey. Generally speaking, respondents identified parking, way finding, and more/better food options as their top campus priorities. A summary of the results of the student survey is included in Appendix A Community Input.



The student town hall reinforced the need for the campus improvements identified by the survey.

Casper College Master Plan Refresh

Community leaders were invited to a luncheon at which they were asked how Casper College could better serve the community through educational opportunities offered through the College. Developing relationships that provided internship opportunities for trades, maintaining growth, quality, and current technology in healthcare related fields, and supplementing degree programs with certification opportunities were all considered high priority for those in attendance.

Expansion into dental hygiene, radiology tech and pharmacy tech were all listed as specific interests in the Health Sciences curriculum. Maintaining current technology for student use and more emphasis on writing/communication skills were also mentioned as general areas that can improve students employment options upon graduation.

School of Health Sciences

The unanimous goal for the School of Health Sciences is consolidating program and instructional space into a facility that showcases the programs offered and maximizes educational relationships. To do so, the master planning team identified existing program offerings and their location on campus. The Saunders Health Science Center, Liesinger Hall, and Aley Hall all host classes for the Health Sciences program. With the exception of the lab space in Aley Hall, utilized for Medical Laboratory Technician, it was determined all other program spaces should be co-located in a single, new facility. Housing the majority of Health Science curriculum in one facility not only meets the goal of unifying the department on campus, but allows Casper College to achieve the following as well:

- Interdisciplinary collaboration between programs.
- State-of-the-art technology to support pedagogy for all programs.
- Better support of local healthcare which has evolved over time.
- Increased size of Simulation Center to provide adequate training to support all programs
- Support work force needs for life-long learning and Continuing Education Credits.

With this in mind the master planning team analyzed optimal square footages for each program to be relocated based on current cohort counts and potential growth expectations. The following space plan quantifies the spaces to be included within the new facility:

Program Area	EXISTING PROGRAM SPACES				PROPOSED PROGRAM			
	Existing Qty. of Spaces	Existing NSF/ Space	Existing Room Nos	Notes	NSF/ Space	Qty. of Spaces	Total NSF	Mult. NASF
Summary of Departments							Total NSF	NASF
School of Health Sciences		8,605					12,960	14,943
Radiography		1,824					2,370	2,931
Nursing		4,345					6,020	6,146
EMS EMT		2,863					1,920	2,016
Respiratory Therapy		1,355					1,770	1,851
Occupational Therapy		2,749					1,770	1,836
Kinesiology and Health Promotion		2,494					2,240	2,357
Pharmacy Technology		2,301					2,220	2,256
Medical Lab Tech/Phlebotomy		2,244					1,020	1,056
Support Space Common Areas		350					2,330	2,729
Total Net Assignable Square Feet		29,130					34,620	38,121
Available Square Feet from 65% Grossing Factor								20,527

TOTAL GROSS SQ FT - 65% Efficiency

*** 58,648**

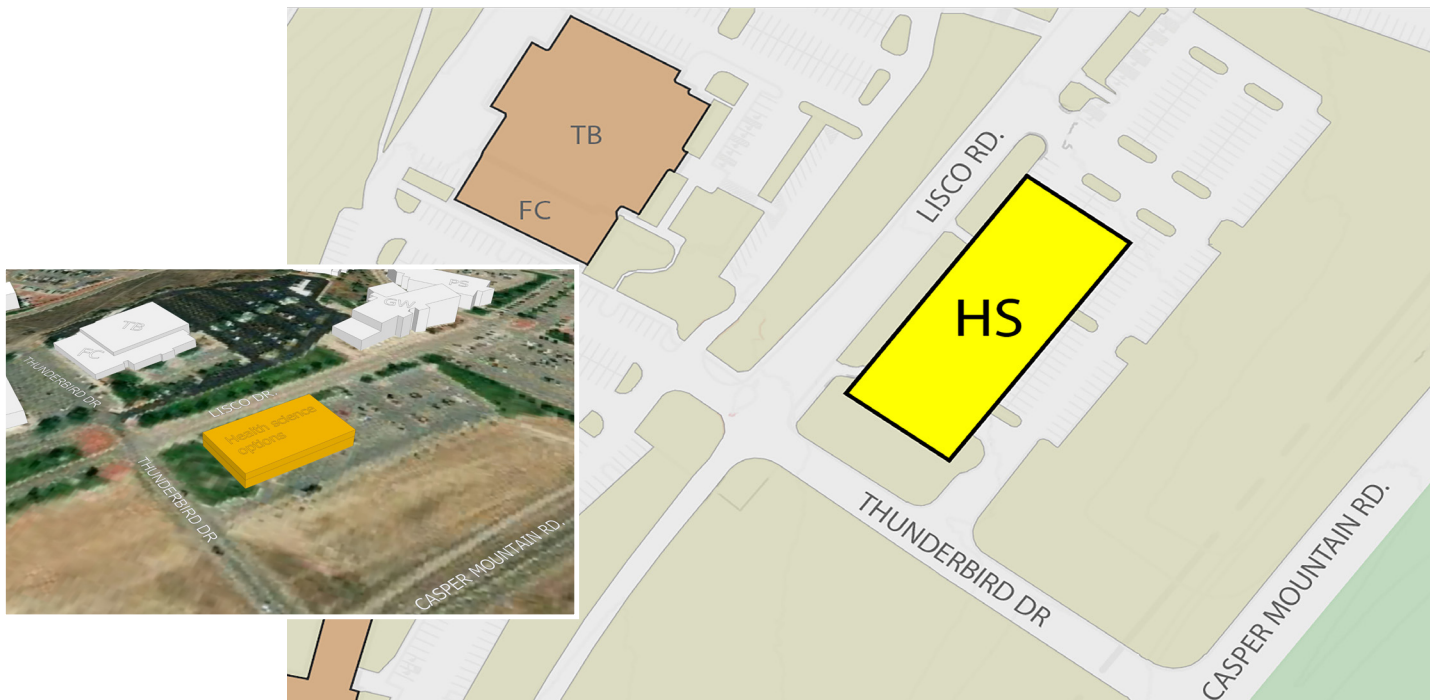
* note: a adjust efficiency factor as needed for project type

Full program space allocations can be found in Appendix B Space Program Worksheets

Casper College Master Plan Refresh

Based on the space requirements, a basic footprint of the potential facility was developed and tested on multiple sites on campus for both the adequacy of the site for the facility and how the new facility connected with the campus as a whole. After reviewing possible locations for the new Health Sciences facility with the master planning committee, two potential locations were determined to be the most desirable: Parking Lot 6 at the intersection of T-Bird Drive and Lisco Drive, and Parking Lot 7 north of T-Bird Gym.

While the Master Plan Committee did see merit in both locations, they felt Option 1 better met the goal of having a planned Community Clinic be easily accessible to the community with adequate parking.



Option 2, located adjacent to Thunderbird Gym, offers an acceptable alternative to the Lisco Road site, with the primary benefit for this location being a direct connection to the academic center of campus.



Large scale massing models can be found in Appendix C Master Plan Committee Discussions

As both site options are relatively flat and both have implications for parking on campus, a final determination will have to be made as to the ultimate location when a Level I /II study is undertaken. Estimated construction and project costs are comparable for both sites, with Option 1 construction costs estimated at \$50.3 million and total project costs of \$61.3 million; and Option 2 construction costs estimated at \$50.5 million and total project costs of \$61.6 million. It is anticipated that the overall costs of Option 2 might also be impacted by higher excavations costs due to its location near the bluff. Complete construction cost estimates can be found in a separate section of this report.

SCHOOL OF BUSINESS AND INDUSTRY



The same process was employed when developing the goals and objectives for the School of Business and Industry. In addition to adjacencies and optimizing space for each program, the poor condition of the existing Werner Technology Center was a primary consideration when determining the solutions suitable for achieving the Master Plan Committee’s goals. Ultimately it was decided that the Construction Management and Technology, Welding, Auto Body, and Machine Tooling programs worked well together and should be considered for relocation to a new facility. A discussion was held regarding the possible benefits of locating the Auto Body program with the Auto Mechanics program, however, it was determined that the Welding and Machine Tooling programs provided more opportunities to collaborate than the Auto Mechanics program. The following space program was developed to meet the needs of those programs in a new location:

Program Area	EXISTING PROGRAM SPACES				PROPOSED PROGRAM			
	Existing Qty. of Spaces	Existing NSF/ Space	Existing Room Nos	Notes	NSF/ Space	Qty. of Spaces	Total NSF	Mult. NASF
Summary of Departments							Total NSF	NASF
School of Business & Industry		0					3,750	3,810
Construction Management (Woodworking)		7063					5,770	5,806
Welding		6823					6,790	6,706
Auto Body		3257					6,220	6,256
Machine Tooling		5787					5,420	5,456
Support Space Common Areas		0					980	1,214
Total Net Assignable Square Feet	22,930			29,234 Total ASF Werner Trades			28,930	29,248
Available Square Feet from 65% Grossing Factor								15,749

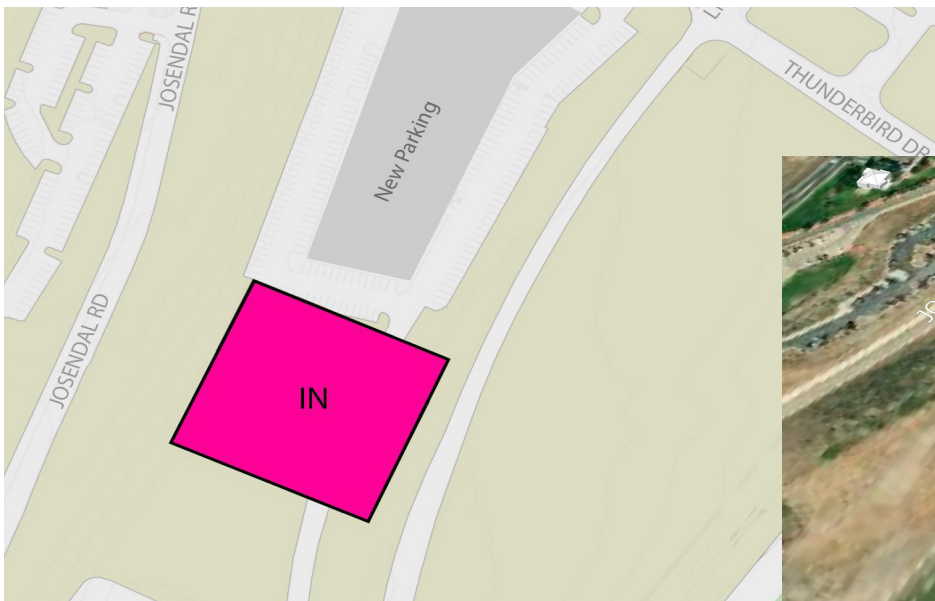
TOTAL GROSS SQ FT - 65% Efficiency

* 44,997
*note: adjust efficiency factor as needed for project type

Full program space allocations can be found in Appendix B

Casper College Master Plan Refresh

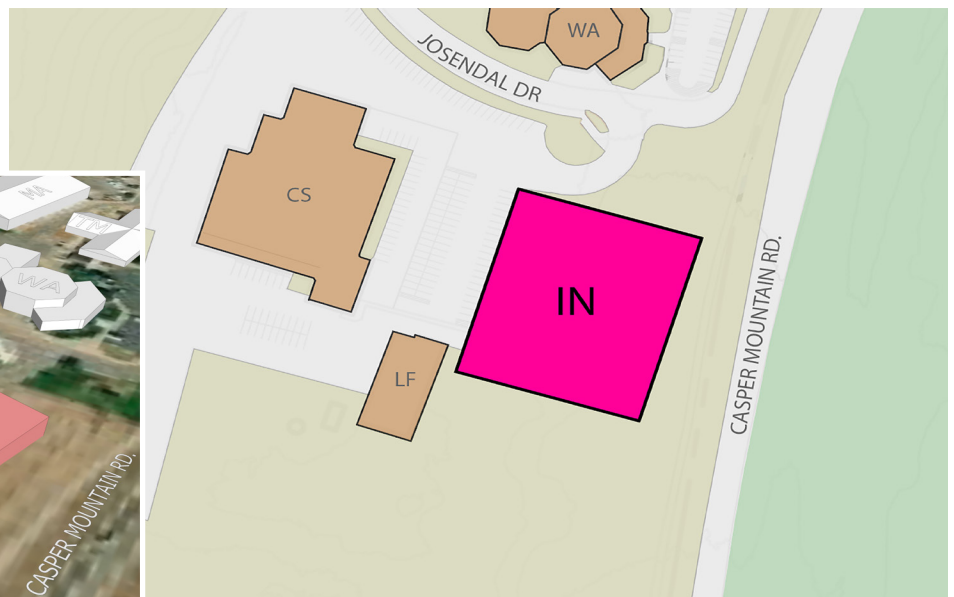
Again, multiple locations on campus were considered for a new Career Technology Education (CTE) facility, with the most suitable options presented to the Master Plan Committee, south of the existing Werner Technology Center on Lisco Drive, and east of Career Studies on Josendal Road.



Option 1 - South of existing Werner Tech



Option 2 - East of Career Studies



Both options were well received with Option 2 allowing for adjacency to the existing Career Studies facility for interdisciplinary collaboration and better connection and visibility to Casper Mountain Road. Additionally, Option 2 maintains the current separation of the trades programs on campus, which the students enjoy. The final decision will need to be made when a Level I/II study is undertaken.

Overall the new CTE facility will:

- Provide the opportunity to explore potential collaborative projects between programs.
- Showcase the successful trades programs Casper College offers its students.
- Improve infrastructure to the facility to correctly size educational space and potentially expand enrollment.
- Deploy state-of-the-art trades technology.

Casper College Master Plan Refresh

Construction costs for Option 1 are estimated at \$22.1 million, with a total project cost estimated at \$27.6 million. Option 2 is slightly less at an estimated \$20.7 million in construction costs, due to less anticipated sitework, with a total project cost of \$25.9 million.



INTERDISCIPLINARY CAREER TECHNICAL CENTER

Due to the positive impacts both the School of Health Sciences and the School of Business and Industry have on Casper College's campus, a combined Career Technical Center was also proposed as a means of meeting the College's goals. The combined facility served several functions, most notably, both programs could be addressed simultaneously, the College could see potential cost benefits from shared common spaces between the programs, the combined facility could be located in a prominent location on campus to put two of Casper College's most successful programs on display.

Programming, planning, designing, and constructing individual facilities of the sizes proposed for the Health Sciences and Industry Tech programs are multi-year, multi-million dollar undertakings on their own. Proposing two projects of this size would most likely require one be prioritized over the other due to the State's funding model and potential fund raising opportunities. Combining the programs into one facility would minimize the time required to see both facilities open to students and would maximize the College's construction dollars.

While there were benefits to this option, it was ultimately decided this was not a direction Casper College wished to explore further. For the sake of providing complete documentation of the master planning process, information on this option can still be found within the report.

Casper College Master Plan Refresh

SOCCER COMPLEX / FIELD HOUSE / THUNDERBIRD GYM

The success of Casper College's soccer program has spotlighted the need for collegiate quality facilities for the teams. The ultimate goal would be for a soccer complex that supports a collegiate competition field, a potential practice field, spectator seating, and a field house that contains locker rooms, coaches' offices, and equipment storage.

A major consideration of the current Murane Field is its proximity to College Drive. College Drive is a heavily traveled street with several blind corners that the students and other spectators need to cross to attend a match. Additionally, cars park on College Drive above Murane Field to watch games, or sit on the side of the hill, which the administration views as a safety issue should an accident occur at that location. Placement of appropriate spectator seating is a priority at this location.

Two potential locations were tested for the proposed soccer complex. The first option is developing the existing Murane Field site with the desired amenities.



A second option considered was developing the complex south of Thunderbird Gym. Upon further review, it was decided not to explore co-locating a potential soccer complex on the main campus.

Construction costs are estimated at \$4.6 million, with total project costs estimated at \$6.6 million.

GERTRUDE KRAMPERT THEATER

Our meetings with the stakeholders of Casper College's Theatre and Dance program focused on identified safety and accessibility issues. Additionally, much of the lighting and sound system is dated technology which impacts the College's ability to provide a real world educational experience in these areas.

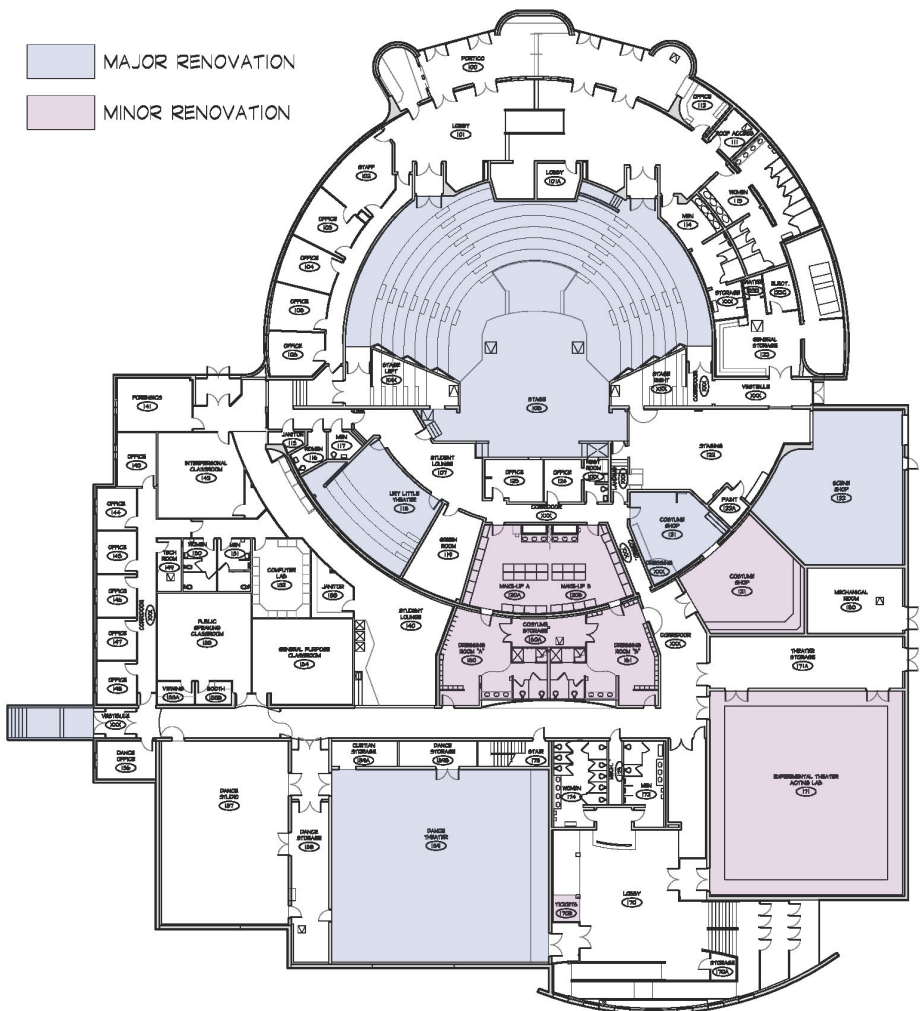
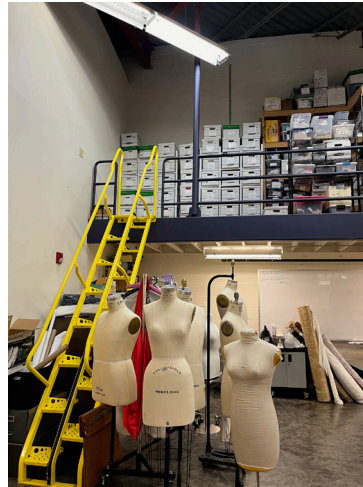
The planning team has identified areas as needing either major or minor renovations based on the needs of the space.

The McMurry Main Stage requires the most significant renovations within the facility. The lighting grid system is deemed unsafe as it lacks a complete harnessing system to protect students from a fall. With the student's safety in mind, the Department is utilizing a Genie lift to perform the tasks the students should be completing on the grid. The stage curtains are original to the facility and are in need of cleaning and reapplication of fire retardant. Replacement of these curtains should be considered. Any renovation of the McMurry Main Stage should include updating the seating to enhance the patron's experience. The seating is also original to the facility and is uncomfortable, dated, and worn.

Accessibility and safety issues are found particularly backstage and in student work areas. The addition of a wheel chair lift will help with backstage accessibility. In student work areas, particularly the Costume Shop and Scene Shop, renovations are recommended to increase student and faculty safety. The Costume Shop has an elevated storage mezzanine that is accessed by a ships ladder. Safety is an issue as the students are required to retrieve items from storage on a regular basis. Small items are not as much of a concern as larger, bulkier items that must be moved up and down the ladder. The addition of a dumb waiter would help this process greatly. The Scene Shop has inadequate ventilation and an incomplete dust collection system. The paint room has had the ventilation hood removed and does not provide adequate ventilation for students working in the room. It is recommended that both systems be updated to current standards.

The Barbara K. and Leland Scifer Dance Theatre has moisture issues which need to be researched outside of the scope of this Master Plan. The ongoing issues have created buckling in the dance floor which is a concern for the dancer's safety. Once the moisture issues are resolved the floor can be reevaluated for replacement. Lighting is also an identified issue within this space.

The Ken Ury Little Theater is also in need of seating, AV, and lighting upgrades to make the space more user friendly and ensure students are learning with current technology.



Casper College Master Plan Refresh

Based on the discussions with the Master Planning Committee and the Theater and Dance Department, the following priority list was created including the potential time frame, project impetus, and cost:

Priority Matrix - Krampert Theatre**							
	Life Safety/ Code Deficiencies	Accessibility	Educational Suitability	Security/ Program Need	Updated Aesthetics/ Past Useful Life	Project Grouping***	Conceptual Cost Estimate*
Project Timeframe (1-3 Years)							
Costume Shop - New Dumbwaiter	•						\$ 40,000.00
McMurry Backstage Access - ADA Lift		•					\$ 30,000.00
Scene Shop - Paint Enclosure	•						\$ 15,000.00
Scene Shop - Plaster Trap	•						\$ 3,500.00
South Lobby Ticketing				•			\$ 25,000.00
Make-Up Room Flooring					•		\$ 12,900.00
Costume Storage Closet - Add Returns	•						\$ 10,000.00
Black Box Theatre - House Lighting			•				\$ 56,320.00
Scifers Dance Studio - Moisture Study	•						\$10,000-20,000
Project Timeframe (3-5 Years)							
Scene Shop - Dust Collection System	•				•		\$ 175,000.00
Ken Ury Theatre - Seating, Finishes, and House Lighting			•		•	◊	\$ 213,000.00
Ken Ury Theatre - Performance Lighting & Controls			•		•	◊	\$ 50,000.00
Ken Ury Theatre - A/V Upgrade			•		•	◊	\$ 30,000.00
Project Timeframe (5-10 Years)							
McMurry Theatre - Seating, Finishes, and House Lighting			•		•	◻	\$ 1,489,500.00
McMurry Theatre - Performance Drapery and Track	•				•	◻	\$ 95,000.00
McMurry Theatre - Performance Lighting & Controls, Motorized Rigging	•		•		•	◻	\$ 500,000.00
McMurry Theatre - Auditorium Sound Reinforcement and Video Presentations		•	•		•	◻	\$ 320,000.00
Overall HVAC and Electrical Review	•				•	◻	\$ 738,540.00
Sound System Dressing Room				•		◻	\$ 100,000.00
Scifers Dance Studio - Moisture Issue, Flooring, and House Lighting	•		•				\$ 751,250.00
Scifers Dance Studio - Performance Lighting and Controls			•	•		◻	\$ 185,000.00
Carpeting					•		\$ 97,300.00
Addition at Exterior Southwest Entry	•						Unknown

* Does not include contractor mark-up or inflation - see Conceptual Cost Estimate Provided in Appendix

** Arranged based on perceived priority and funding timeframe

*** Projects can also be grouped based on similar subcontractor usage, ie. Seating replacement for Ury and McMurry Theatres

HARRY T. THORSON INSTITUTE OF BUSINESS

The master planning team's primary focus on the Harry T. Thorson Institute of Business was how to engage students more effectively in the existing space and encourage utilization outside of scheduled class times. The Student Lounge/Business Center located on the first floor is a prime example of a space designed to encourage student engagement. The initial design of the facility has created classrooms and corridors that lack natural lighting and are generally uninviting. In addition, fixed furnishings in some areas make the spaces less desirable for today's hi-flex environments.



Casper College has the infrastructure in place to provide in person, real time on-line, and video taped lectures to their students. Some classrooms have the capability to digitally record lectures as well. This ability for students to learn away from the Thorson Institute of Business necessitates the need to further engage the students that choose in person learning at the facility. The master planning team has identified several potential student engagement zones that could be developed to provide group collaboration space as well as individual study spaces. Ways of activating dim corridors and other spaces include opening the structure in the hallways, providing soft seating and texture to the spaces.



The primary deficiency noted with the building is that the stair railing is not code compliant and should be replaced. This can also be utilized as an opportunity to update and add to the existing focal point of the building.

The following prioritized list of projects is included to assist Casper College in planning future projects:

Priority Matrix - Harry T. Thorson Institute of Business**

	Life Safety/ Code Deficiencies	Accessibility	Educational Suitability	Security/ Program Need	Updated Aesthetics/ Past Useful Life	Project Grouping***	Conceptual Cost Estimate*
Project Timeframe (1-3 Years)							
New Stair Guardrail/Railing	●					◇	\$ 30,500.00
Sound Proofing Existing Offices				●			\$ 100,500.00
Wall Repair from Leaks					●	◇	\$ 3,000.00
Furniture, Fixtures, and Equipment			●		●	□	\$ 200,000.00
Secure Roof Access	●			●			\$ 24,000.00
Project Timeframe (3-5 Years)							
Corridor Renovation - Finishes and Transoms			●		●	□	\$ 525,000.00
BU-216 Renovation			●		●	□	\$ 196,500.00
Student Spaces - Finishes and Technology			●		●	□	\$ 212,250.00
Stairs - Finishes					●	◇	\$ 67,500.00
Project Timeframe (5-10 Years)							
Other Shared Spaces - Finishes					●	□	\$ 230,000.00
Makerspace Entrepreneurship Room			●				Unknown
Add Restrooms					●		Unknown
Coffee Kiosk			●				Unknown

* Does not include contractor mark-up or inflation - see Conceptual Cost Estimate Provided in Appendix

** Arranged based on perceived priority and funding timeframe

*** Projects can also be grouped based on similar subcontractor usage, ie. Upgrading finishes

WHEELER TERRACE APARTMENTS ASSESSMENT

The Wheeler Terrace Apartment complex, constructed in 1970, is showing its age in several areas observed during the facility assessment. Items of particular concern include the following:

- Pipe chases do not meet OSHA requirements for maintenance.
- Wheeler Terrace Apartment units are not ADA compliant and ADA access is limited
- The exterior balconies are subject to water infiltration and the wood has started to warp and swell
- The lack of exterior flashing has allowed water to infiltrate the exterior foundation over the years causing damage
- Poor site drainage exacerbates water intrusion issues at the facility

A structural assessment was completed on Wheeler Terrace and notes that structural systems are in good condition at this time and with continued maintenance there is no need for significant structural repair in the next five years.

While many of the items listed in the assessment can be addressed as individual projects at the facility, repairs will not necessarily correct the underlying issues that the facility is experiencing. Water damage will continue at the facility due to overall site drainage. Additionally, Casper College would have to weigh the cost of corrective measures against the realistic useful life remaining in the facility. Given the age of the facility and current issues with drainage and water infiltration it is recommended that Wheeler Terrace Apartments be replaced in the next three to five years.

The following estimated cost matrix is based on this recommendation.



Priority Matrix - Wheeler Terrace Apartments**						
	Life Safety/ Code Deficiencies	Accessibility	Educational Suitability	Security/ Program Need	Updated Aesthetics/ Past Useful Life	Conceptual Cost Estimate*
Project Timeframe (1-3 Years)						
Destructive Testing Balcony	•					\$10,000-\$20,000
Balcony Replacement	•				•	Unknown
Plumbing Fixture Replacement					•	\$144,000
MEP Upgrade					•	\$1-\$3 Million
Project Timeframe (3-10 Years)						
Wheeler Terrace Apartment Demolition	•	•			•	\$ 140,000.00
Asbestos Abatement if Required	•				•	\$ 40,000.00
New 20,000 SF Apartment Building - \$325/SF					•	\$ 6,500,000.00
Sitework for New Apartment					•	Unknown

* Does not include contractor mark-up or inflation - see Conceptual Cost Estimate Provided in Appendix

** Arranged based on perceived priority and funding timeframe

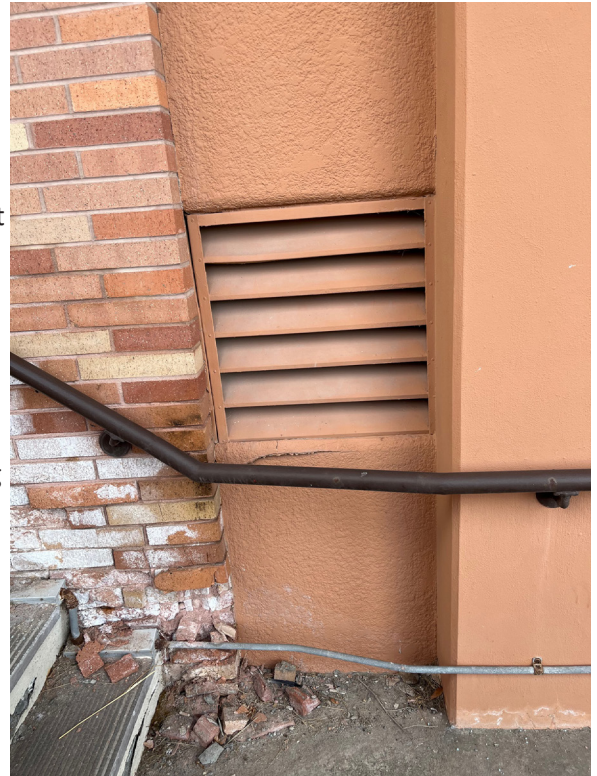
Aley Hall Assessment

Constructed in 1968, Aley Hall is in generally good condition for its age and houses a mix of classrooms, labs, faculty office space and an auditorium. Lateral pressure on the south side of the building where it was built into the hill has caused the structural integrity of the building to be evaluated multiple times in the past several years. An updated structural evaluation was also conducted for this assessment. The impact of the lateral loads from the south side of the facility are evident on the north side of the building where there is noticeable damage to the brick and stairs. The updated structural report indicates that, despite the outward appearance of the building, structurally speaking Aley Hall has a potential minimum of 20 years of expected useful life remaining.

Prioritizing the exterior improvements to the facility includes replacing the exterior stairs on the north side of the building; removing, replacing and repointing damaged brick; and repairing the stucco. It is also recommended that Casper College consider enclosing the north side entry which would protect the stairways from the elements and future deterioration. Additionally, several windows leak and should be replaced for energy efficiency and to prevent further damage to the building.

Durham Hall located in Aley Hall is heavily used by academic departments for lectures as well as being a popular venue for visiting guest speakers. The auditorium is also used by the community for public meetings needing to accommodate large audiences. The seating in the auditorium is dated and it is in need of replacement. It is also recommended that lighting and audio-visual capabilities be updated.

The following cost matrix outlines potential construction costs for repairs to Aley Hall:



Priority Matrix - Aley Hall**							
	Life Safety/ Code Deficiencies	Accessibility	Educational Suitability	Security/ Program Need	Updated Aesthetics/ Past Useful Life	Project Grouping***	Conceptual Cost Estimate*
Project Timeframe (1-3 Years)							
Structural Repair	•						\$ 100,000.00
Window Replacement - For Leaking and Single Pane Windows					•		\$ 47,500.00
Stucco Repair					•	□	\$ 99,000.00
Project Timeframe (3-5 Years)							
Enclose Northside Entry & Repair Stairs & Brick	•				•	□	\$ 675,000.00
Durham Hall - Seating, Finishes, and House Lighting			•		•	◇	\$ 872,500.00
Durham Hall - Performance Lighting & Controls			•		•	◇	\$ 50,000.00
Durham Hall - A/V Upgrade			•		•	◇	\$ 35,000.00
RTU Replacement					•		\$100,000-\$500.000
Durham Hall AHU Replacement					•	◇	\$100,000-\$500.000
Project Timeframe (5-10 Years)							
HVAC Upgrade					•		\$1-\$3 Million
Aley Hall Demolition					•		Unknown

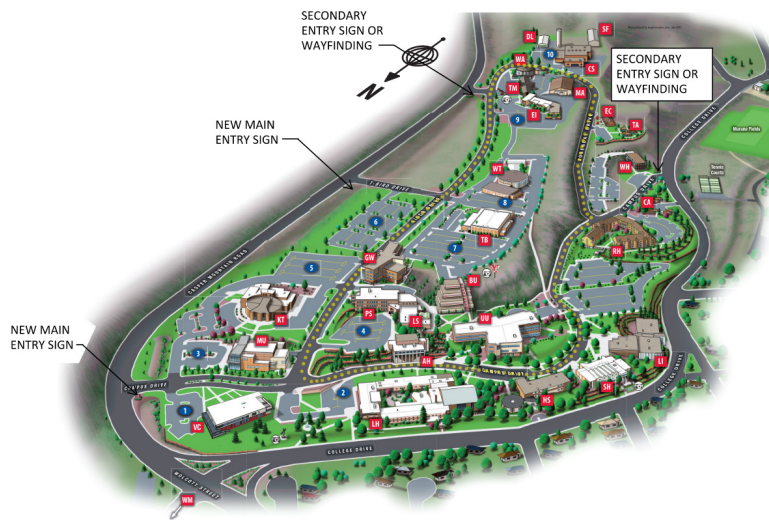
* Does not include contractor mark-up or inflation - see Conceptual Cost Estimate Provided in Appendix

** Arranged based on perceived priority and funding timeframe

*** Projects can also be grouped based on similar subcontractor usage, ie. Upgrading finishes

Monument Signage

Casper College's current campus entry signage is undersized and dated. At less than five feet tall and just six feet across it is often difficult to see. Options for a more modern look and feel were developed that include LED visual display options that could be used to promote campus activities. Larger signage options would be posted at the main entrances with smaller scale signs posted at secondary entries. This will also alleviate any light pollution from the signs disturbing neighbors or students living in the dorms and apartments. Any lights used on the secondary entries will be designed to light the sign and not the surrounding areas. Anticipated costs for smaller signs is approximately \$100,000, larger signage is anticipated to be between \$225,000 and \$250,000, per sign.



Other Disciplines

Applicable mechanical, electrical, plumbing, information technology, and civil assessments were also undertaken as part of this master plan refresh. Each discipline has provided a written narrative and recommendations in a separate section of this report. It is important to review each of these sections for potential recommendations that may be identified within that are not mentioned elsewhere.

Generally speaking MEP and IT listed projects specific to a building or application and were included in architectural narratives as relevant. The following items were recommended to be completed in the next 1-3 year time frame:

Campus Wide

- Create a comprehensive equipment / device listing per building.
- Establish preventative maintenance program per building.

Thorson Institute of Business

- Investigate ground water issues and address as suitable.

Saunders Health Science Center

- Relocate or improve access to the existing water backflow preventer located in the crawlspace.

Werner Technical Center

- Should interim upgrades to Werner Tech be considered, the electrical power system should be upgraded throughout the tech areas.

Gertrude Krampert Theater

- Upgrade or renovated ventilation system in the Costume and Scene Shop inclusive of the dust collection system and the paint/dye area exhaust.
- Evaluate, repair, and commission the inconsistent HVAC system.
- Upgrade Scene Shop utility sink and add plaster trap.
- Review existing electrical service and upgrade at deficiencies.

The civil engineering assessment did call out several campus-wide items that they felt should be addressed:

- Assess whether backflow protection for domestic water is provided for the older buildings on campus. Include a water distribution assessment and study.
- Perform a detailed drainage study for the entire campus in order to develop a long-term plan to mitigate current and future drainage issues. Observations around the site and discussions with facility maintenance staff revealed that there were a handful of spots where the storm sewer infrastructure and drainage patterns need improved. It was also brought up that the storm sewer system along the southern and central portion of the site may not be adequately sized to convey flows or may not be extensive enough to capture the site runoff, especially from roof drainage and downspouts.
- Sanitary sewer system on southern end of campus has had multiple issues every year, review replacement of older clay pipe service.
- Perform exterior accessibility access and parking review for entire campus focusing on pedestrian paths for ADA compliance and repair.
- Future improvements should include a sitewide comprehensive pavement striping and parking plan. This should also include pavement inspection, parking count, and maintenance plan.
- Traffic Study

Thank you for the opportunity to assist Casper College with their master planning process. We look forward to working with the College moving forward to help achieve its goals for its students and campus.



Casper College Campus Master Plan

Architectural Design |
Program



hord | coplan | macht

PLANNED NEW FACILITIES

The Master Plan Committee identified three priority program areas that need new facilities on campus;

- A consolidated health science facility that integrates most School of Health Science programs in one building,
- An Industry Technology facility for programs currently housed in Werner Technical Center for the School of Business and Industry, and
- A collegiate sized soccer field with an adjacent field house.

All prioritized programs within each School were analyzed to identify realistic program space requirements to determine an overall facility size for each building. The master plan team then analyzed a range of locations on campus for each facility, and also considered options that consolidated both Schools' programs into one interdisciplinary Career Technical Education (CTE) facility.

The following summarizes the goals for each proposed new facility:

New Consolidated Health Sciences Facility

Casper College's goal is to consolidate most of the Health Science programs that are currently spread across five buildings on campus into one interdisciplinary health science facility. At 27,955 GSF, the Saunders Health Science Center is severely undersized to accommodate all health science related programs in the existing space. Constructed in 1959, with the most recent renovation in 2013, the building is generally in good condition, however there is no fire sprinkler system, there is asbestos in flooring, wall and ceiling materials, and the electrical systems were last updated in 1994 except for new lighting that was provided in 2019. The roofing assembly has a warranty through 2029, and boilers were replaced in 2018. The College estimates they need to spend approximately \$295,000 to replace the rest of the HVAC system and update controls to bring the systems up to date. The facility will need a complete renovation once the Health Science programs move to a new facility.

The master plan process initially considered consolidating all (19) School of Health Science programs into one facility. However, after reviewing each program's focus area, the committee determined that there are three primary categories within the School of Health Science, and that some programs should stay in their current locations based on these categories due to special facility needs or adjacencies to other buildings:

1. Healthcare Focused Programs – The programs listed below have all been identified as good candidates to be consolidated into one health science facility. Their current locations across three campus buildings are included to show the extent of the disconnect between the programs, thus preventing the capability of providing an interdisciplinary approach to healthcare education:
 - a. Assistive Technology - Liesinger Hall
 - b. Interprofessional Health Care - Saunders Health Science Center
 - c. Gerontology - Liesinger Hall
 - d. Health Science - Saunders Health Science Center
 - e. Medical Laboratory Technician – Aley Hall: this program space will likely need to stay in Aley Hall as the science lab is used for other science classes.
 - f. Certified Nursing Assistant - Saunders Health Science Center
 - g. Healthcare Simulation Lab - Saunders Health Science Center
 - h. Nursing - Saunders Health Science Center
 - i. Occupational Therapy Assistant - Liesinger Hall
 - j. Paramedic Technology - Liesinger Hall
 - k. Pharmacy Technology - Liesinger Hall
 - l. Phlebotomy - Aley Hall

m. Radiography - Saunders Health Science Center

n. Respiratory Therapy - Saunders Health Science Center

2. **Equine Assisted Therapy** – This is a certificate under the Occupational Therapy Assistant program and is currently housed in the Werner Agricultural Pavilion; the special facility needs to accommodate horses makes the Werner Agricultural Pavilion the right home for this program.
3. **Physical Fitness Focused Programs** – These programs are currently located in the Energy Institute, and also utilize Thunderbird Gym’s fitness center and gym. The committee indicated that some of these programs are ideally located near the health science center as they collaborate and provide interprofessional experiences with the Occupational Therapy program. For this master plan, however, it was determined that the following programs will stay in their current locations:
 - a. Physical Education
 - b. Personal Training
 - c. Athletic Training
 - d. Coaching Certificate
 - e. Kinesiology and Health Promotion

Program Summary

The program space analysis for a consolidated health science center indicates the need for a 57,725 GSF new facility. In addition to lab spaces specific to each program, the new building will also include shared classrooms, offices, and student support spaces such as study and collaboration rooms, and student lounge space. The new Health Science Center is needed to provide state-of-the-art technology for healthcare professions to prepare students for jobs needed in the community. The facility must be flexible in its design to shift programmatic space focus as the healthcare industry evolves. It is important that the Health Science Center is located somewhere on campus where it is easily visible, with adjacent parking and accessible for community members, as several of the health science programs would like to provide various healthcare services to the public through a community clinic.

The program summary below indicates the overall space needed for each department as well as shared spaces. A detailed space summary for each department is included in Appendix B Space Program Worksheets.

Program Area	EXISTING PROGRAM SPACES				PROPOSED PROGRAM			
	Existing Qty. of Spaces	Existing NSF/ Space	Existing Room Nos	Notes	NSF/ Space	Qty. of Spaces	Total NSF	Mult. NASF
Summary of Departments							Total NSF	NASF
School of Health Sciences		8,605					12,960	14,943
Radiography		1,824					2,370	2,931
Nursing		4,345					6,020	6,146
EMS EMT		2,863					1,920	2,016
Respiratory Therapy		1,355					1,770	1,851
Occupational Therapy		2,749					1,770	1,836
Kinesiology and Health Promotion		2,494					2,240	2,357
Pharmacy Technology		2,301					2,220	2,256
Medical Lab Tech/Phlebotomy		2,244					1,020	1,056
Support Space Common Areas		350					2,330	2,729
Total Net Assignable Square Feet		29,130					34,620	38,121
Available Square Feet from 65% Grossing Factor								20,527

TOTAL GROSS SQ FT - 65% Efficiency

*** 58,648**

* note: adjust efficiency factor as needed for project type

Health Sciences Site Options

Several site locations were analyzed for the new Health Science Center. After review with the master planning committee, the following sites were eliminated:

1. Addition to the existing Saunders Health Science Center: This option was eliminated because of site limitations, as it would require a complicated, phased approach to the project with the need to:
 - Demolish the existing octagonal simulation suite wing,
 - Build the addition where the wing was demolished while the existing facility was still occupied,
 - Move occupants out of the existing building and into the addition,
 - Renovate the existing building

Finally there is no easily accessible parking for community members to access the building, which is a goal for the new facility.

2. Several locations were studied along Campus Road at the academic core, including the parking lots between the Library and Wheeler Terrace or the parking lot east of Liesinger Hall, however, parking is at a premium at the academic core, so these options were dismissed.

The following site options for a stand-alone Health Science Center were the preferred options by the master planning committee:

1. Health Science Option 01 - Parking Lot 6 at Intersection of T-Bird Drive and Lisco Drive

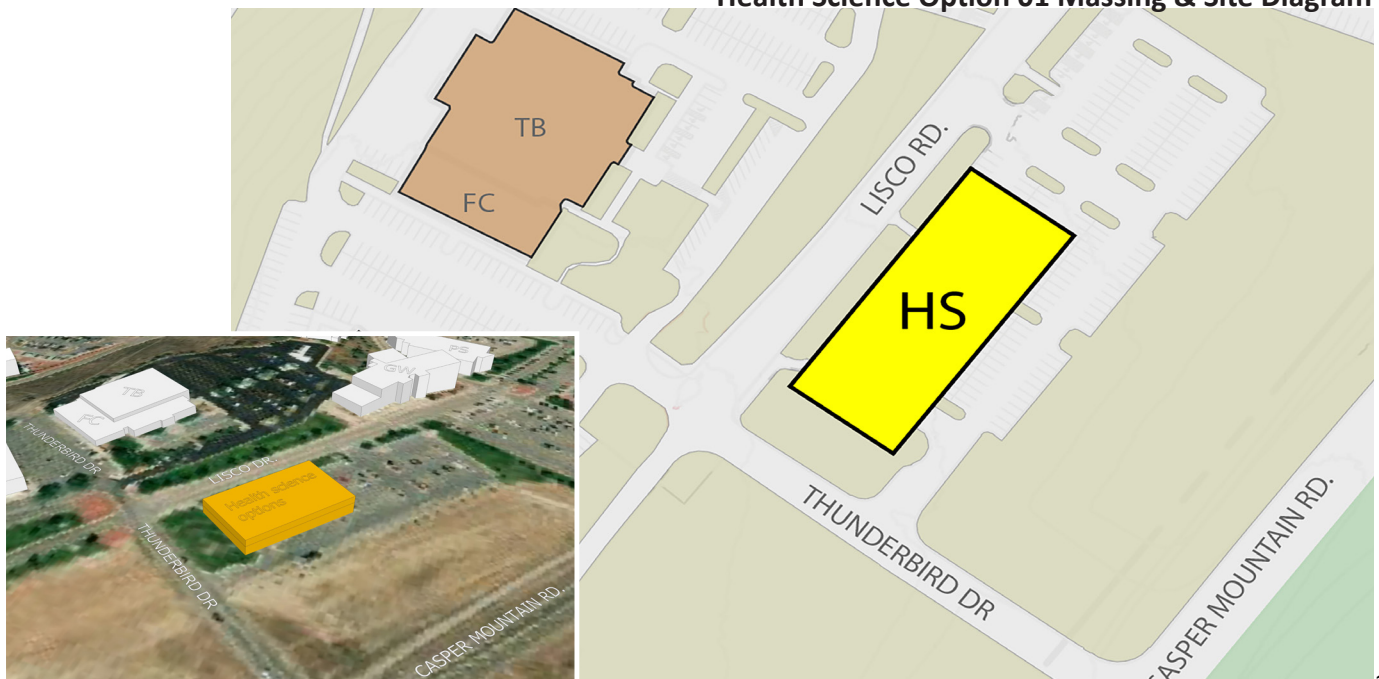
a. Pros:

- i. Provides a new front door building at the main entry from Casper Mountain Road
- ii. Extends the academic core to a new part of campus that will allow for future academic development and growth
- iii. Highly visible to the community from Casper Mountain Road and easily accessible to community members with abundant adjacent parking
- iv. Space for future growth to the Health Science Center

b. Cons

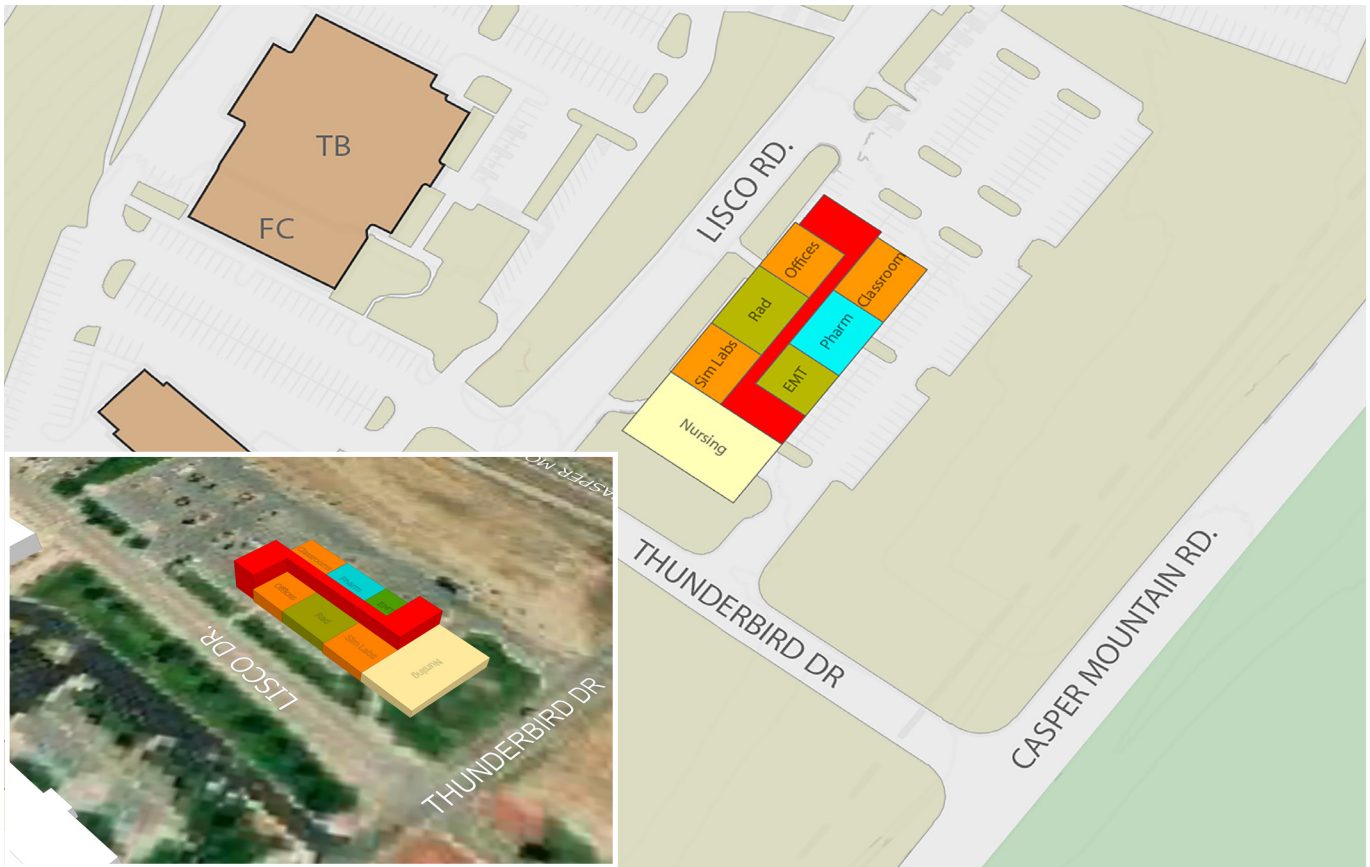
- i. Somewhat remote from academic core - potential to isolate facility
- ii. Loss of approximately 100 parking spaces

Health Science Option 01 Massing & Site Diagram

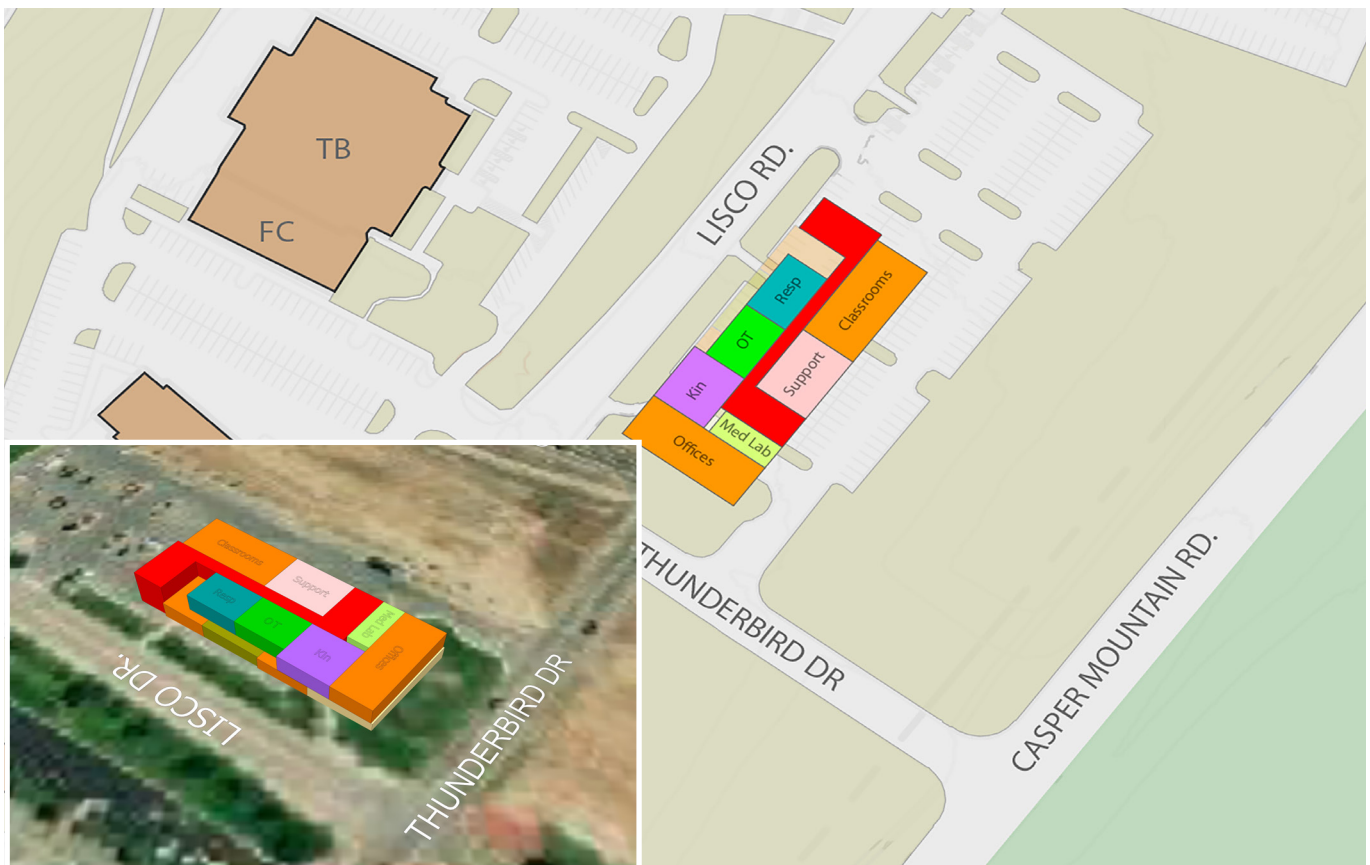


Casper College Master Plan Refresh

Health Science Option 01 - First Floor Programs



Health Science Option 01 Second Floor Programs



2. Health Science Option 02: Parking Lot 7 north of T-Bird Gym

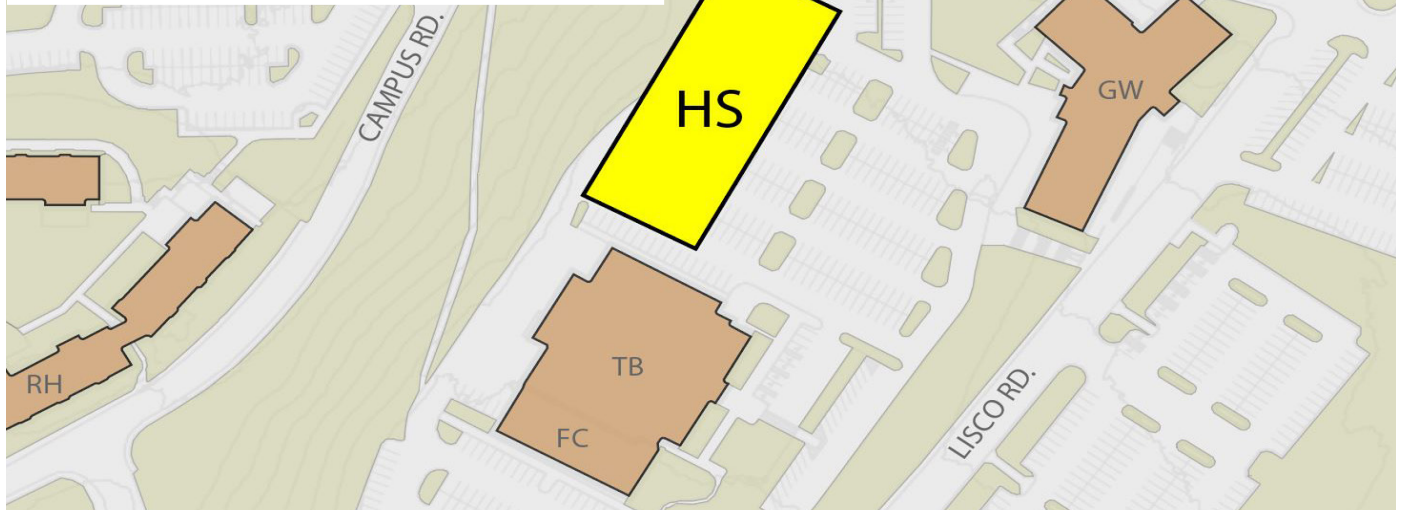
a. Pros

- i. More connected to academic core; offers the ability to connect to the established interior pedestrian route from the bottom of the mesa to the top of the mesa, which minimizes outdoor pedestrian travel during bad weather.
- ii. Highly visible on top of the mesa from Campus Road, and visible from entry off of Casper Mountain Road.
- iii. Would increase traffic through Thorson Business Institute facility.
- iv. Potential to address drainage issues.

b. Cons

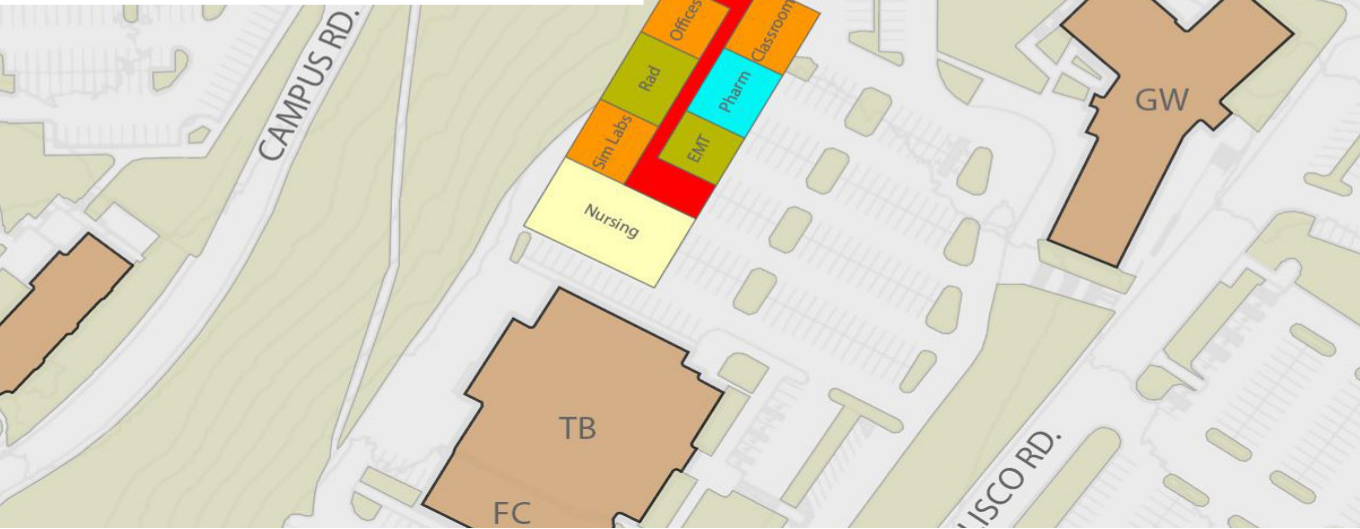
- i. Loss of approximately 80 parking spaces near academic core and T-Bird Gym which supports parking for athletic events. If Werner Technology is demolished, additional parking could be extended to the south of the gym to support event parking.
- ii. Less visible and accessible to the community than Option 1.
- iii. Potential Conflict with new T-Bird Gym sign.
- iv. Would require users of Gateway Building to alter parking habits.

Health Science Option 02 Massing & Site Diagram

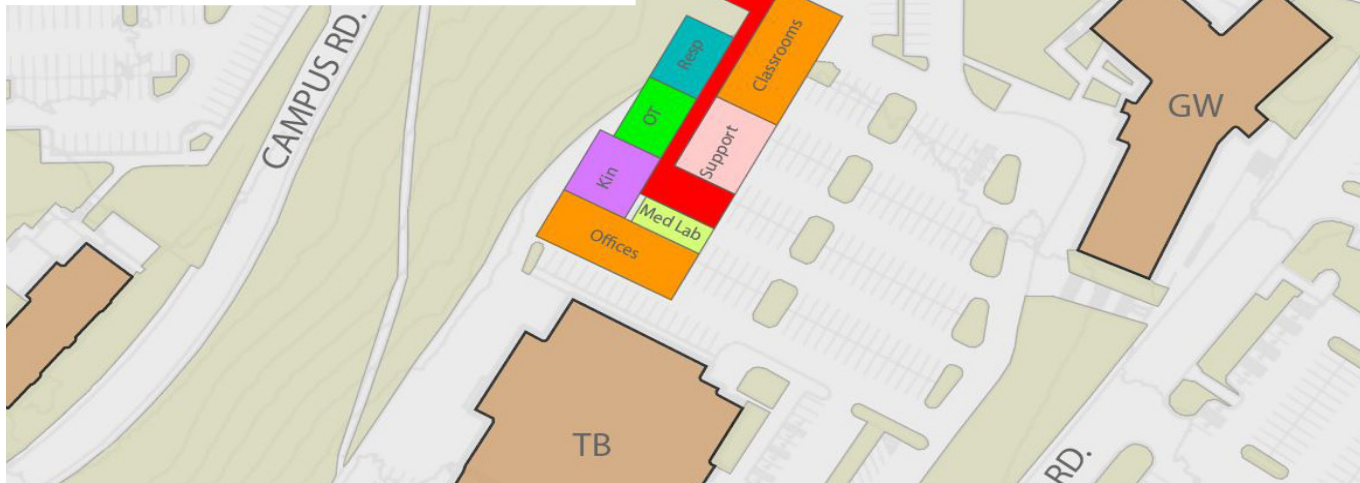




Health Science Option 02 1st Floor Programs



Health Science Option 02 2nd Floor Programs





NEW INDUSTRY FACILITY TO REPLACE WERNER TECHNICAL CENTER

The Werner Technical Center was built in 1967 as a vocational technical building that included classrooms and labs for vocational programs with a 12-sided polygon structure to house the Auto Mechanics program and an adjacent small welding and machine shop. A subsequent addition north of the polygon structure enlarged the campus Machine and Welding Shops.

The Auto Mechanics program moved to the Career Studies building that was constructed in 1984, and that area of Werner has since been subdivided to house the Auto Body program, a woodworking shop, classrooms, and offices. The existing Auto Body shop is drastically undersized, with multiple vehicles crowded into the space, making the shop unsafe. Additionally, a relocated paint booth in the shop has inadequate ventilation.

The south wing was renovated in 2014 for the Adult Learning Center and is in good condition, although it does not have a fire sprinkler system. The HVAC, Boilers, Lighting and all finishes were replaced in this area with this renovation.

Everything north of the south wing has had minimal renovations and is in very poor condition. The electrical systems, HVAC and boilers are original to the 1967 building. The windows are single pane steel windows, the roofing warranty has expired, and the building does not have a fire sprinkler system. There are issues with the electrical and fire alarm systems in the welding shop area and the College has estimated that it will cost \$244,000 to replace these systems. There are also precast structural issues in the welding shop area.

Many of the shops are undersized and the occupants have retrofitted existing spaces to make them work as best they can. However, there is not adequate electrical supply for today's technology to support these programs, the shops have inadequate ventilation for equipment when in use, and the building condition is in poor enough shape that it would not be a good investment to renovate the north half of the facility. Therefore, the north wing of the building is recommended to be demolished. An overview of the facilities deficiencies include the following:

- There are electrical and fire alarm issues in the Welding Lab. Overall electrical distribution services are undersized to support the new technology and equipment necessary for the Industry Tech programs.
- The roofing warranty has expired and the facility needs a new roof.
- The electrical, HVAC and boilers are original to when the building was constructed.
- The building does not have a fire sprinkler system which is especially a concern with the Industry Tech machinery required for the programs housed in the facility.
- The paint ventilation system is insufficient.
- The building is not educationally suitable for Welding, Woodworking, Auto Body and Machine Tooling because of the odd shape of the building and the classroom size limits class enrollment, as well as what can be taught.
- The configuration of the space prevents the teachers from being able to demonstrate best practices. Auto Body and Woodworking students will be sanding in the same area as someone who is painting.



Casper College Master Plan Refresh

- The lack of space forces students to work on class projects outside instead of in a controlled environment and it makes it difficult for the instructor to supervise.
- The windows are single pane and original to the building making the building costly to heat. This also contributes to heat gain at the south wing which is not air conditioned. Industry Tech classes cannot take place in the summer at the south wing because the building becomes too hot.
- There are precast structural issues in the welding lab area that need repairs, and renovations are extremely costly and difficult because of the precast concrete construction.
- The water service line going to Werner Tech is in poor condition due to corrosion and damage to the lines due to tree root growth.
- The sewer service for Werner Tech is still clay pipe and has had severe damage due to tree root growth and the age of system. This is an ongoing, yearly maintenance issue.
- There are storm sewer drainage issues around Werner Tech.

Therefore, the Werner Tech building should be replaced with a larger, new building to better accommodate these industry trades program. The College has considered keeping the south wing of the building since it has been recently renovated, however, because of the age of the building envelope it may be a better investment to relocate the Adult Learning Center into one of the facilities that will be vacated once the Health Science programs new building is constructed.

Program Summary

The master planning team completed a program space analysis to support the campus woodworking, welding, auto body, and machine tooling programs. Spaces include shared classrooms, offices, and student support spaces such as collaboration/study rooms, and lounge space. The new facility is needed to provide state-of-the-art technical training programs to prepare students for jobs needed in the community. The facility must be flexible in its design to accommodate multiple programs and changes as job markets evolve. The building would also hold non-credit programming and training classrooms.

The facility requires a fenced, secured, exterior storage yard for vehicles for the Auto Body program, for materials storage, and space for large projects for the Woodworking program. Additional storage for large items for Welding and Machine Tooling is also required. Ideally part of the exterior yard would be covered to protect stored items.

The new building is estimated to be 40,289 GSF. The following program summary indicates overall space needed for each program and support spaces. A detailed space summary for each department is included in Appendix B.

Program Area	EXISTING PROGRAM SPACES				PROPOSED PROGRAM				
	Existing Qty. of Spaces	Existing NSF/Space	Existing Room Nos	Notes	NSF/Space	Qty. of Spaces	Total NSF	Mult.	NASF
Summary of Departments					Total NSF		NASF		
School of Business & Industry		0					3,750		3,810
Construction Management (Woodworking)		7063					5,770		5,806
Welding		6823					6,790		6,706
Auto Body		3257					6,220		6,256
Machine Tooling		5787					5,420		5,456
Support Space Common Areas		0					980		1,214
Total Net Assignable Square Feet		22,930		29,234 Total ASF Werner Trades			28,930		29,248
Available Square Feet from 65% Grossing Factor									15,749

TOTAL GROSS SQ FT - 65% Efficiency

*** 44,997**

*note: adjust efficiency factor as

New Industry Building Site Options

1. Industry Option 01: Industry Tech – South of Werner Technology Center on Lisco Drive

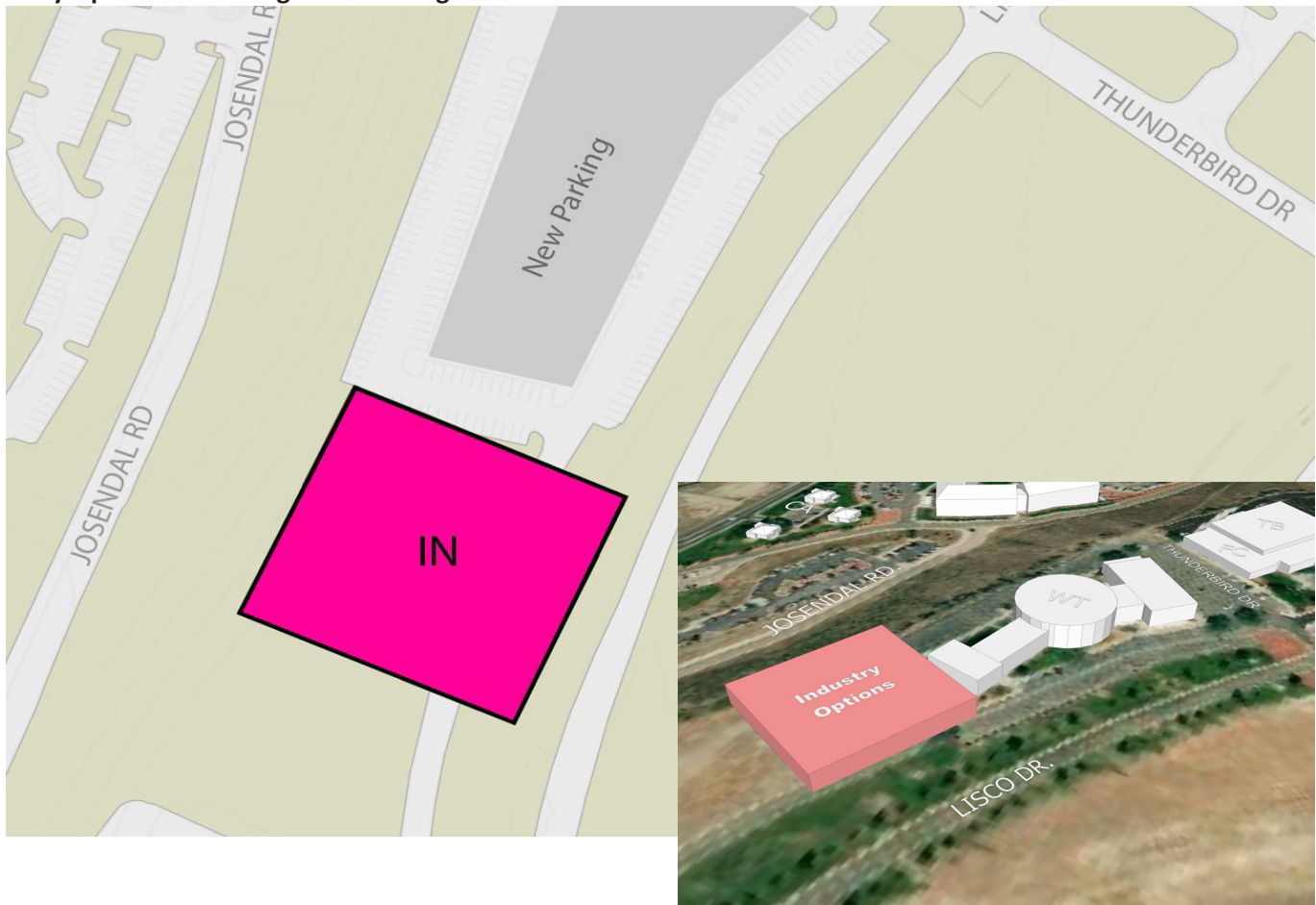
a. Pros

- i. Central location on campus with prominent visibility from main entry off Thunderbird Drive and from Casper Mountain Road, providing visibility to innovative programs to attract future students.
- ii. Ability to build a new Industry building, while maintaining classes in Werner Tech. Once all occupants move into the new spaces, Werner Tech is recommended to be demolished to create approximately 200 more parking spaces.
- iii. Ability to keep vehicles, equipment, and stored items out of sight for Auto Body, Woodworking and Welding in an outdoor 'yard' west of the building and screened from the public side of campus.
- iv. Provides an opportunity to connect the north and south sides of campus which are currently disconnected.
- v. Space for future growth of programs

b. Cons

- i. Remote from Career Studies facility. There is a natural programmatic connection between the Auto Body, Welding, and Machine Tooling programs with the Automotive and Diesel programs in Career Studies.
- ii. The location is remote from both the academic core at the north of campus, and the industry building south of campus, creating a disconnected feel from each end.

Industry Option 01 Massing and Site Diagram



Industry Option 01 First Floor Programs



2. Industry Option 02: Industry Tech – East of Career Studies on Josendal Road

a. Pros

- i. Adjacent to Career Studies which provides opportunities for interdisciplinary collaboration between Auto Body, Welding and Machine Tooling in the new building with the Automotive and Diesel programs in Career Studies
- ii. The inclusion of student study, collaboration and lounge space in the new building could support students in Career Studies and Werner Agricultural Pavilion which currently have minimal student support spaces outside of the labs and classrooms.
- iii. Ability to hide vehicles, equipment, and stored items for Auto Body, Woodworking and Welding in an outdoor 'yard' south of the building which would be screened from Casper Mountain Road by a hill and from the rest of campus.

b. Cons

- i. Less visibility to the building location from the rest of campus and the public, although it would have some visibility from Casper Mountain Road. To optimize visibility signage could be provided which has display opportunities to advertise programs in the building.
- ii. Maintains disconnect between north and south side of campus, especially once Werner Tech is demolished leaving a larger gap between the two sides of campus.
- iii. Constrained site, so there is little room for growth for future programs.

Industry Option 02 Massing & Site Diagram



Industry Option 02 First Floor Programs





hord | coplan | macht

COMBINED INTERDISCIPLINARY CAREER TECHNICAL EDUCATION CENTER

Health Science and Industry Building

An integrated Career Technical Education Center provides an opportunity to build one building with shared student support spaces such as study, collaboration, and student lounge spaces, and shared mechanical, electrical and utilities systems. This results in a more efficiently sized building and more cost effective project than two separate buildings.

Program Summary

The program summary below indicates overall space needed to support an integrated Health Science Center and an Industry Technical Center. The combined facility saves approximately 2,000 GSF, which could be worth more than \$1 million in savings in square footage costs, not including additional site development costs and systems savings to develop one site instead of two. The new building is estimated to be 94,223 GSF.

Program Area	EXISTING PROGRAM SPACES				PROPOSED PROGRAM				
	Existing Qty. of Spaces	Existing NSF/Space	Existing Room Nos	Notes	NSF/Space	Qty. of Spaces	Total NSF	Mult.	NASF
Support Spaces Total		350					2,330		2,729
Summary of Departments							Total NSF		NASF
School of Health Sciences		8,605					11,710		13,693
Radiography		1,824					2,370		2,931
Nursing		4,345					6,020		6,146
EMS EMT		2,863					1,920		2,016
Respiratory Therapy		1,355					1,770		1,851
Occupational Therapy		2,749					1,770		1,836
Kinesiology and Health Promotion		2,494					2,240		2,357
Pharmacy Technology		2,301					2,220		2,256
Medical Lab Tech/Phlebotomy		2,244					1,020		1,056
Support Space Common Areas		350					2,330		2,729
Career Trades Summary		22,930					24,350		24,374
Total Net Assignable Square Feet		52,060					57,720		61,245
Available Square Feet from 65% Grossing Factor									32,978
TOTAL GROSS SQ FT - 65% Efficiency								*	94,223

Site Options

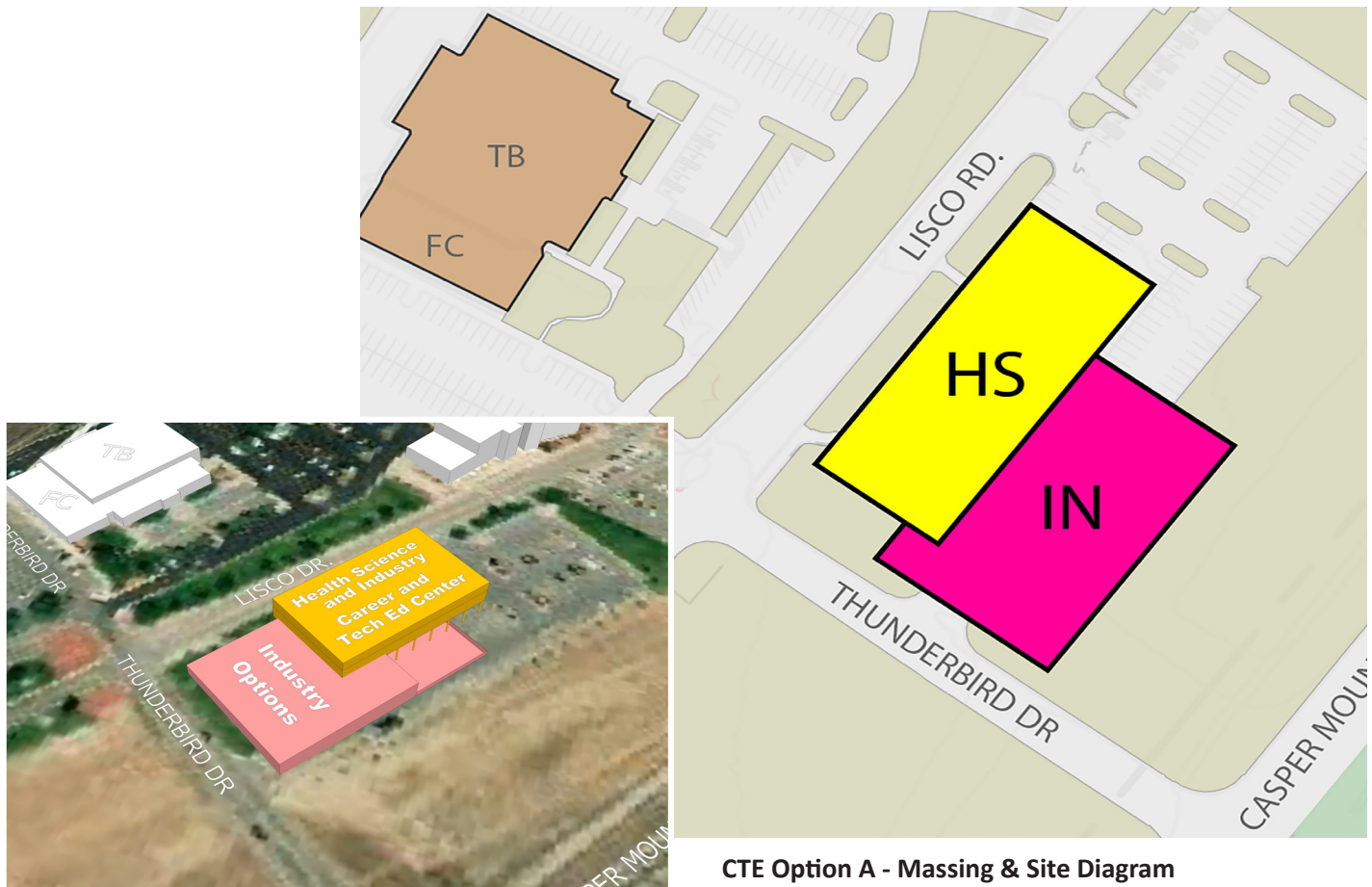
1. Career Technical Education Option A: Combined CTE Center – Parking Lot 6, Intersection of T-Bird Drive and Lisco Drive

a. Pros

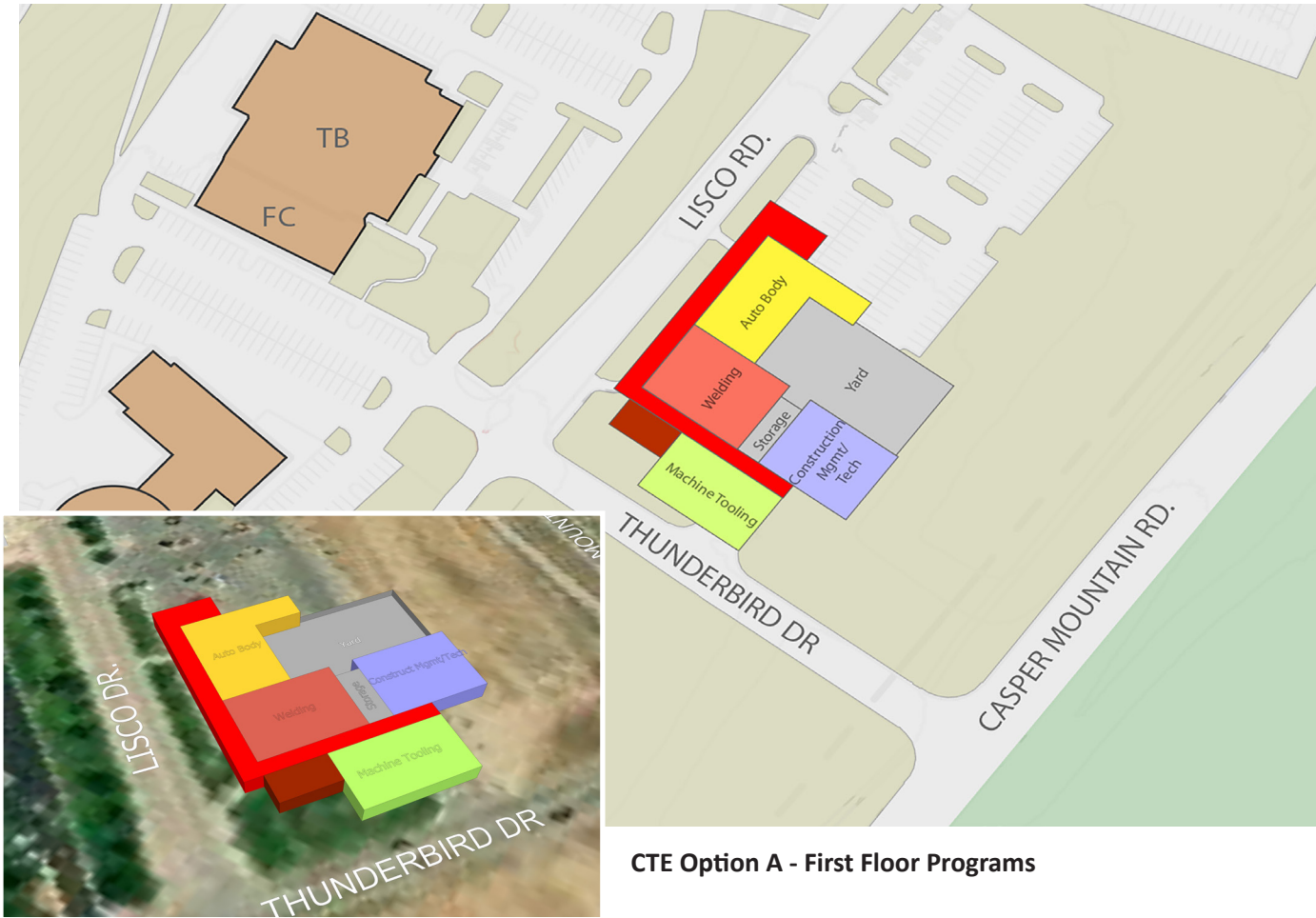
- Provides a new front door building at the main entry from Casper Mountain Road
- Extends the academic core to a new part of campus that will allow for future academic development and growth.
- Highly visible from Casper Mountain Road and easily accessible to community members for the Health Science Center with abundant adjacent parking.
- Space for future growth of programs
- Ability to put the buildings unique academic programs on display to attract new students.
- Second floor Health Science Center projects over the exterior storage yard, providing a covered yard area to protect stored items.
- Less price escalation over time.

b. Cons

- i. Somewhat remote from academic core
- ii. Loss of approximately 150 parking spaces
- iii. Potential visibility to a storage yard near the campus front door and visible from Casper Mountain Road. The project will need to incorporate screening structures to hide items stored in the yard. The conceptual massing below includes a second story Health Science Center projecting over the exterior yard to assist with screening.
- iv. There is a concern that potential donors would not want to contribute to a combined facility
- v. Sterile health sciences environment combined with trades that create dust and debris.

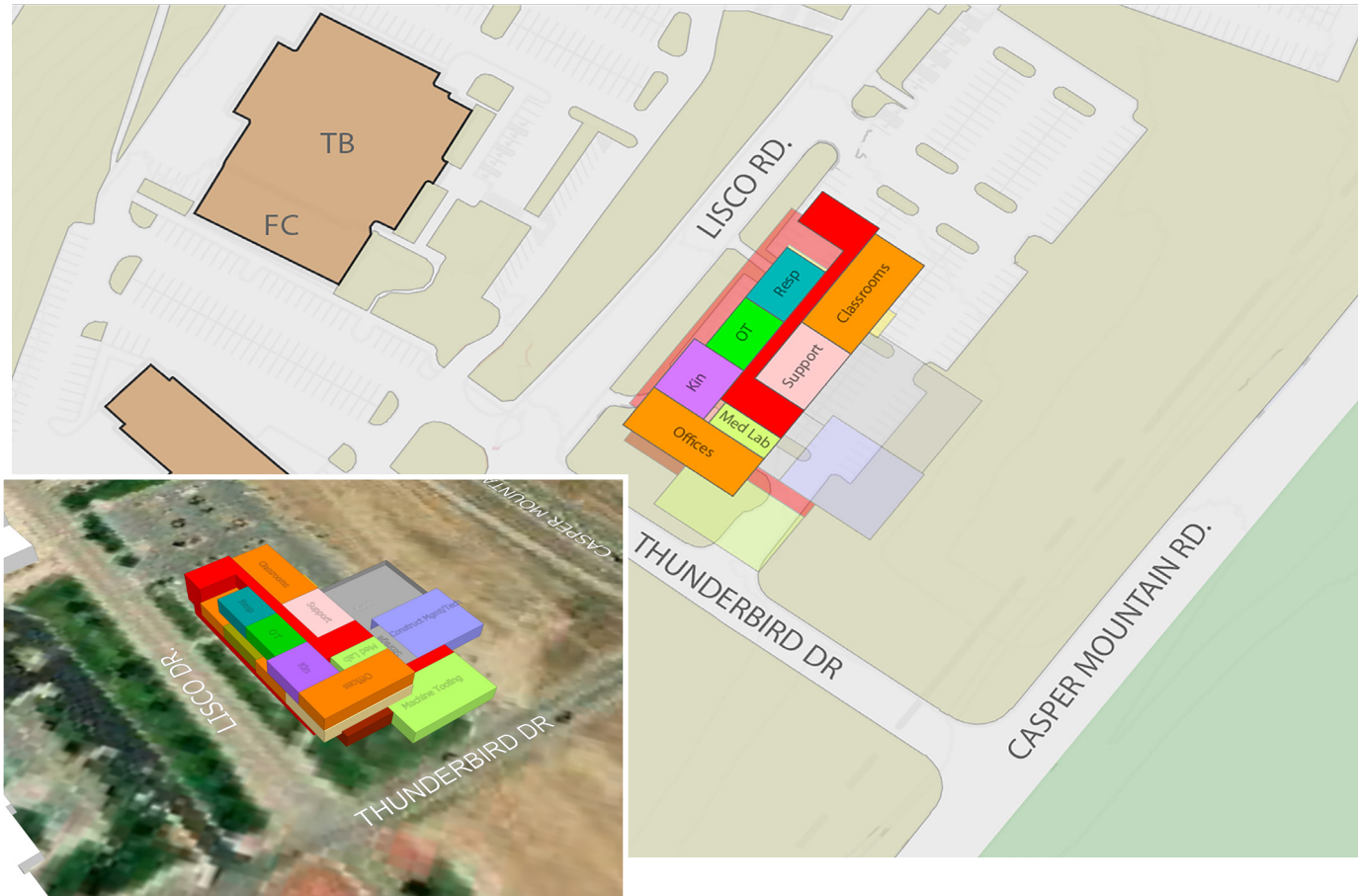


CTE Option A - Massing & Site Diagram



CTE Option A - First Floor Programs

CTE Option A - Second Floor Programs



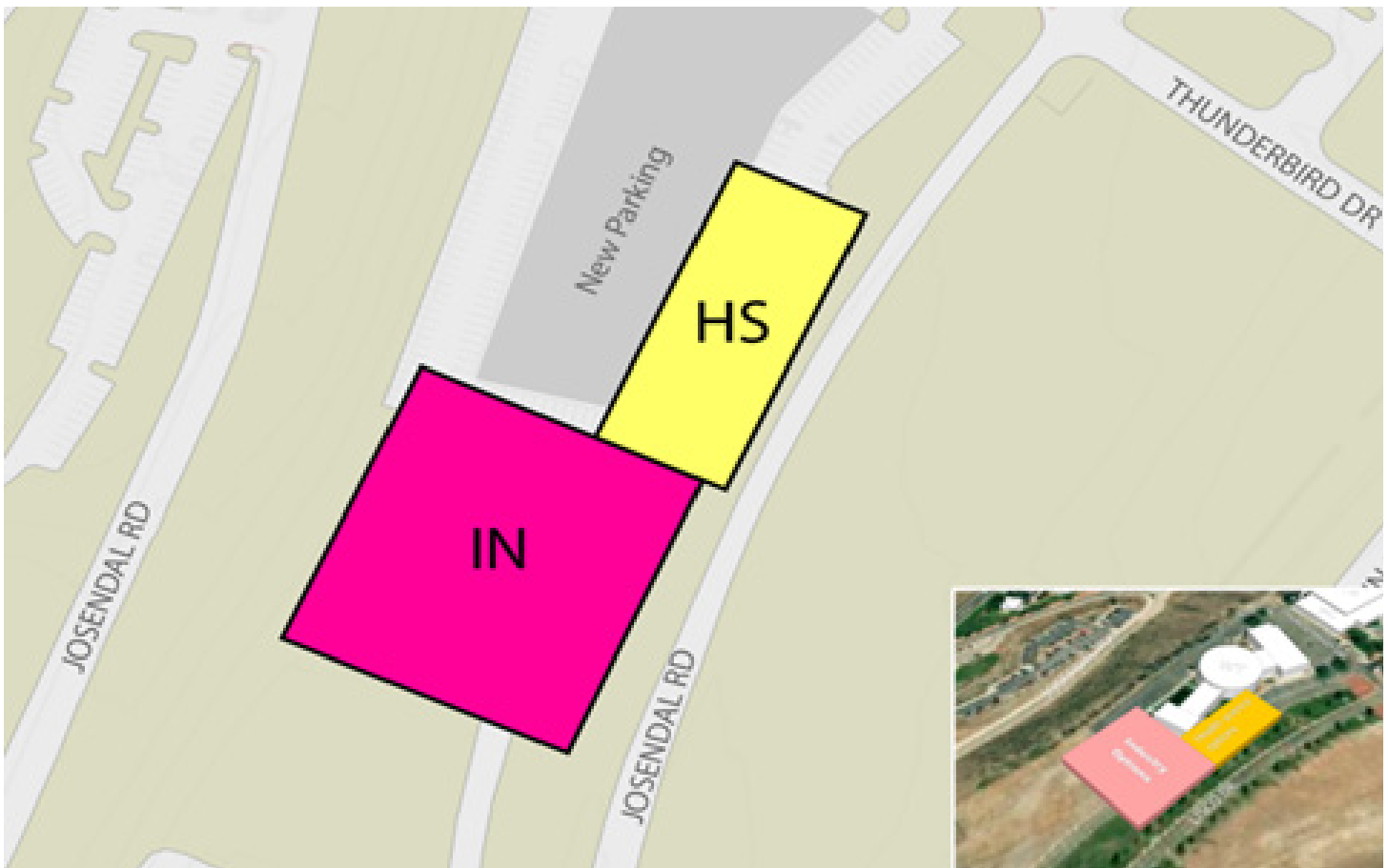
2. CTE Option B: Combined CTE Center – South of Werner Tech

a. Pros

- i. Central location on campus with prominent visibility from main entry off Thunderbird Drive and from Casper Mountain Road, providing visibility to innovative programs to attract future students.
- ii. Easily accessible and highly visible to community members for the Health Science Center with abundant adjacent parking.
- iii. Ability to build a new Industry building, while maintaining classes in Werner Tech, and once all occupants move into new spaces demolish Werner Tech and create more campus parking. Initially there would be a loss of approximately 80 parking spaces, overall, more spaces would be available than lost when complete.
- iv. Ability to hide vehicles, equipment, and stored items for Auto Body, Woodworking and Welding in an outdoor yard west of the building that is screened from the public side of campus.
- v. Provides an opportunity to connect the north and south sides of campus which are currently disconnected.
- vi. Space for future growth of programs

b. Cons

- i. Industry programs remote from Career Studies facility.
- ii. Location is remote from the academic core at the north of campus, and the industry building south of campus which feels disconnected from each end.





CTE Option B - First Floor Programs



COLLEGIATE SOCCER FIELD AND FIELD HOUSE

Program Summary

The soccer program is fairly new to the College but has been very successful and is growing quickly. There is a need for a collegiate-sized soccer field with lighting, parking, scoreboards, and spectator seating. Additionally a field house with locker rooms, coaches offices, storage and other support needs for the soccer field is desired.

Site Options

1. Soccer Field Option 01: Murane Field Location

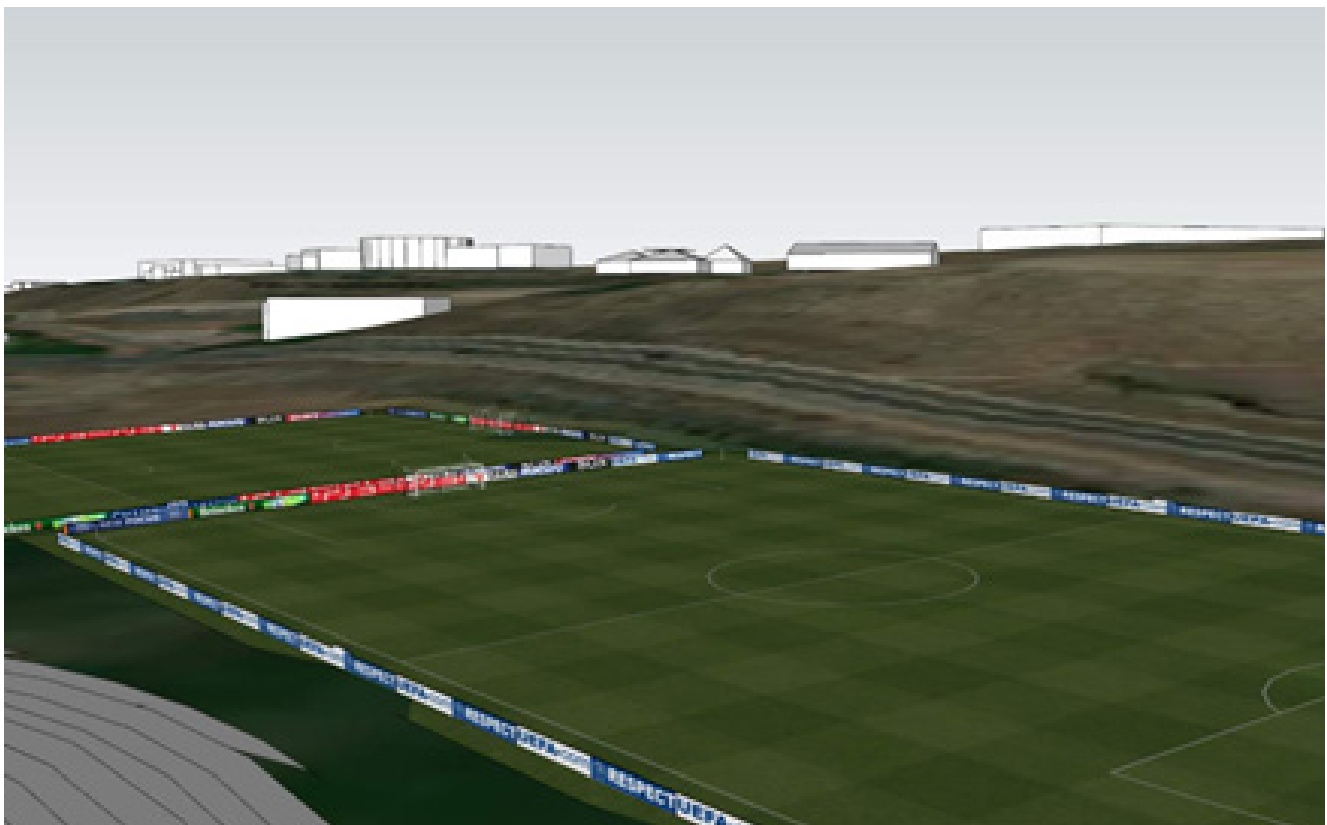
a. Pros

- i. The Murane Field was donated to the College and is located adjacent to the campus on the east side of College Drive. The College would like to find the best use for this land to support the College with the soccer teams currently using the existing fields for practice.
- ii. There is abundant space for two fields, one collegiate sized field, and a second, smaller, practice field. There is room for expanded parking and a new field house to support the fields.
- iii. Visibility to the fields from College Drive will encourage community participation and draw future students to the soccer program.

b. Cons

- i. College Drive is a barrier between campus and the fields. The road is heavily traveled and has blind curves making it dangerous. College leadership ideally does not want students crossing this road to access campus fields.
- ii. Infrastructure for utilities to the field house will have to be extended to the site as none currently exist.
- iii. Distance from Thunderbird Gym's locker rooms

Soccer Field Option 01 - View from College Drive



Soccer Field Option 01 - Aerial View Looking Toward Campus and Site Diagram



a. Pros

- i. Proximity to Thunderbird Gym is ideal for athletes to use existing locker rooms and keeps the athletic programs connected. Better utilization of the existing facility.
- ii. Integrated into the campus
- iii. Existing parking can support soccer game visitors rather than building a new parking lot at Murane Field

b. Cons

- i. Not adequate room for both a collegiate sized field and the practice field, so the practice field would remain at Murane Field
- ii. Losing land that could be used for future facilities
- iii. Werner Tech facility has to be demolished for this option to work
- iv. Potentially a windier location

Aerial View Looking Toward Thunderbird Gym and Site Diagram



THUNDERBIRD GYMNASIUM UPGRADES

Program Summary

The Thunderbird Gym was constructed in 1968 and is the primary sports facility for the College. The gym is utilized by multiple College classes and College sports programs, including basketball and volley-ball. The gym is also currently used heavily by local high schools for large multi-day tournaments, how-ever, there are two new high schools with nice gyms, and the city is building a new sports complex with new gyms that should take pressure off of the Thunderbird Gym.

The gym has had several recent renovations, including the following:

- Replacement of the boiler in 2017,
- Replacement of HVAC equipment and lighting in 2019.
- The gym has new wood flooring, updated technology and sound system, and updated automation.
- Concessions was updated within the past few years.

Overall, the facility is in very good condition and has been maintained well. The athletics department has requested an addition to the building to alleviate scheduling conflicts, and because the athletics programs have outgrown the facility. Athletics classes are currently offered in the Energy Institute building to supplement space needs not adequately available in the Thunderbird Gym facility.



The following are space and facility needs for the T-Bird gym that justify the need for an addition:

- The existing locker rooms are too small and are not handicap accessible. There is also a need for more locker rooms to support multiple athletics programs concurrent use.
- The athletics offices should ideally be consolidated in one location for team coordination, and are currently spread throughout the T-Bird Gym and in other buildings.
- The athletics Team Room is currently used more as a classroom than for team's uses because of a lack of educational spaces in the building. The College would like to have dedicated Team Rooms separate from dedicated classrooms.
- The fitness center is heavily utilized by athletics classes and sports teams; therefore, it is not currently open to the general campus population on a walk-in basis and class enrollment is required to access the fitness center. A student survey included many requests for access to the fitness center by those not enrolled in sports or athletics classes.
- There is an existing auxiliary gym located in Liesinger Hall that would ideally be located adjacent to the TBird Gym in a new addition. If the auxiliary gym can be relocated it would allow the Liesinger Gym to be converted into needed classroom space.

An addition to T-Bird Gym would provide more flexibility for the College athletics programs to grow and expand offerings, to enlarge the existing fitness center, and to support the greater student population. An addition could be constructed to the south side of the T-Bird Gym facility once Werner Tech is demolished.

A new facility was not programmed with this master planning effort and would need further study and programming analysis to determine space needs and to identify a cost estimate for an addition. The 2013 master plan refresh included an estimated 14,000 SF addition that would include Physical Education Classroom space, Physical education lab and storage spaces, combined athletic offices, and a practice gymnasium. These program needs should be verified with current athletic department space needs as this was determined prior to the addition of competitive soccer, and any facility updates that have been made since that time can be accounted for.

CAMPUS GROWTH STRATEGY OPTIONS

The following three campus site plans reflect growth strategy options that were preferred by the Master Plan Committee for each facility.

Campus Master Plan Option 01 – Stand-alone Health Sciences and Industry Technology Buildings and Collegiate Soccer Facility at Murane Field

Option 01 Campus Growth Strategy

CAMPUS BUILDINGS

AU	ALEY HALL
BU	HARRY T. THORSON INSTITUTE OF BUSINESS
CA	CIVIC APARTMENTS
CS	CAREER STUDIES BUILDING
EC	EARLY CHILDHOOD LEARNING CENTER
EI	MRYA FOX SKELTON ENERGY INSTITUTE
FC	FITNESS/WEELNESS CENTER
FS	FIRE STATION - LEASED BY CASPER COLLEGE
GW	GATEWAY BUILDING
HS	SAUNDERS HEALTH SCIENCE CENTER
KT	GERTRUDE KRAMPERT THEATRE
LF	LIVESTOCK HOLDING FACILITY
LH	LIESINGER HALL
LI	GOODSTEIN FOUNDATION LIBRARY
LS	LOFTIN LIFE SCIENCE CENTER & CC GREENHOUSE
MA	MAINTENANCE BUILDING
MU	MUSIC BUILDING
PR	PRESIDENT'S RESIDENCE
PS	WOLD PHYSICAL SCIENCE CENTER
RH	RESIDENCE HALL
SH	STRAUSNER HALL
ST	CAMPUS STORAGE
TB	SWEDE ERICKSON THUNDERBIRD GYMNASIUM
TM	TATE GEOLOGICAL MUSEUM
TT	INGA THORSON APARTMENTS STUDENT CENTER AND UW/CC
VA	GOODSTEIN VISUAL ARTS CENTER
WA	GRACE WERNER AGRICULTURE CENTER
WH	WHEELER TERRACE APARTMENTS
WM	WERNER WILDLIFE MUSEUM
WT	WERNER TECHNICAL CENTER
YM	YMCA - NOT OWNED BY CASPER COLLEGE

**STAND-ALONE HEALTH
SCIENCE BUILDING
56,725 GSF, TWO-STORY**

**RECOMMEND ADDING
CROSS WALK WITH PEDES-
TRIAN FLASHING LIGHTS.
EXTEND PEDESTRIAN
PATH TO FIELDS**

**ADD PEDESTRIAN PATH TO
CONNECT NORTH AND SOUTH
ENDS OF CAMPUS. ELIMINATE
VEHICULAR ROAD PARALLEL TO
LISCO RD. (RE: 2018 MP)**

**REPLACEMENT PARKING FOR
SPACES LOST FOR HEALTH
SCIENCES BUILDING**

**STAND-ALONE INDUSTRY
TECH BUILDING
39,370 GSF, ONE-STORY**

**COLLEGIATE SOCCER FIELD+
PRACTICE FIELD AND
6,000 GSF, 1 1/2-STORY
FIELD HOUSE**

**CITY OWNED PARKING TO
BE EXPANDED TO
ACCOMMODATE 100
VEHICLES**

**FUTURE CITY PROVIDED
WALKWAY ALONG
COLLEGE DR**

1" = 120'

Proposed Planning Options

- Property Campus Boundary
- Campus Extent
- SF Soccer Field Location Option
- IN Industry New Build Location Option
- HS Health Science New Build Location Option
- FH Field House Location Option

Campus Districts

- Arts
- Academic Core
- Residential
- Athletics
- Industry Trades



Campus Master Plan Option 02 – Alternate locations for stand-alone Health Sciences and Industry Technology Buildings, and Collegiate Soccer Facility remains at Murane Field.

Option 02 Campus Growth Strategy

CAMPUS BUILDINGS

AU	ALEY HALL
BU	HARRY T. THORSON INSTITUTE OF BUSINESS
CA	CIVIC APARTMENTS
CS	CAREER STUDIES BUILDING
EC	EARLY CHILDHOOD LEARNING CENTER
EI	MRYA FOX SKELTON ENERGY INSTITUTE
FC	FITNESS/Wellness CENTER
FS	FIRE STATION - LEASED BY CASPER COLLEGE
GW	GATEWAY BUILDING
HS	SAUNDERS HEALTH SCIENCE CENTER
KT	GERTRUDE KRAMPERT THEATRE
LF	LIVESTOCK HOLDING FACILITY
LH	LIESINGER HALL
LI	GOODSTEIN FOUNDATION LIBRARY
LS	LOFTIN LIFE SCIENCE CENTER & CC GREENHOUSE
MA	MAINTENANCE BUILDING
MU	MUSIC BUILDING
PR	PRESIDENT'S RESIDENCE
PS	WOLD PHYSICAL SCIENCE CENTER
RH	RESIDENCE HALL
SH	STRAUSNER HALL
ST	CAMPUS STORAGE
TB	SWEDE ERICKSON THUNDERBIRD GYMNASIUM
TM	TATE GEOLOGICAL MUSEUM
TT	INGA THORSON APARTMENTS STUDENT CENTER AND UW/CC
VA	GOODSTEIN VISUAL ARTS CENTER
WA	GRADE WERNER AGRICULTURE CENTER
WH	WHEELER TERRACE APARTMENTS
WM	WERNER WILDLIFE MUSEUM
WT	WERNER TECHNICAL CENTER
YM	YMCA - NOT OWNED BY CASPER COLLEGE

RECOMMEND ADDING
CROSS WALK WITH PEDES-
TRIAN FLASHING LIGHTS.
EXTEND PEDESTRIAN
PATH TO FIELDS

STAND-ALONE HEALTH
SCIENCE BUILDING
56,725 GSF, TWO-STORY

ADD PEDESTRIAN PATH TO
CONNECT NORTH AND SOUTH
ENDS OF CAMPUS. ELIMINATE
VEHICULAR ROAD PARALLEL TO
LISCO RD. (RE: 2018 MP)

EXTENDED PARKING

COLLEGIATE SOCCER FIELD+
PRACTICE FIELD AND
6,000 GSF, 1 1/2-STORY
FIELD HOUSE

FUTURE CITY PROVIDED
WALKWAY ALONG
COLLEGE DR

STAND-ALONE INDUSTRY
TECH BUILDING
39,370 GSF, ONE-STORY
(PREFERRED INDUSTRY
TECH LOCATION)

120' 60' 30' 15'
SCALE: 1"=120'

Proposed Planning Options

- Property Campus Boundary
- Campus Extent
- SF Soccer Field Location Option
- IN Industry New Build Location Option
- HS Health Science New Build Location Option
- FH Field House Location Option

Campus Districts

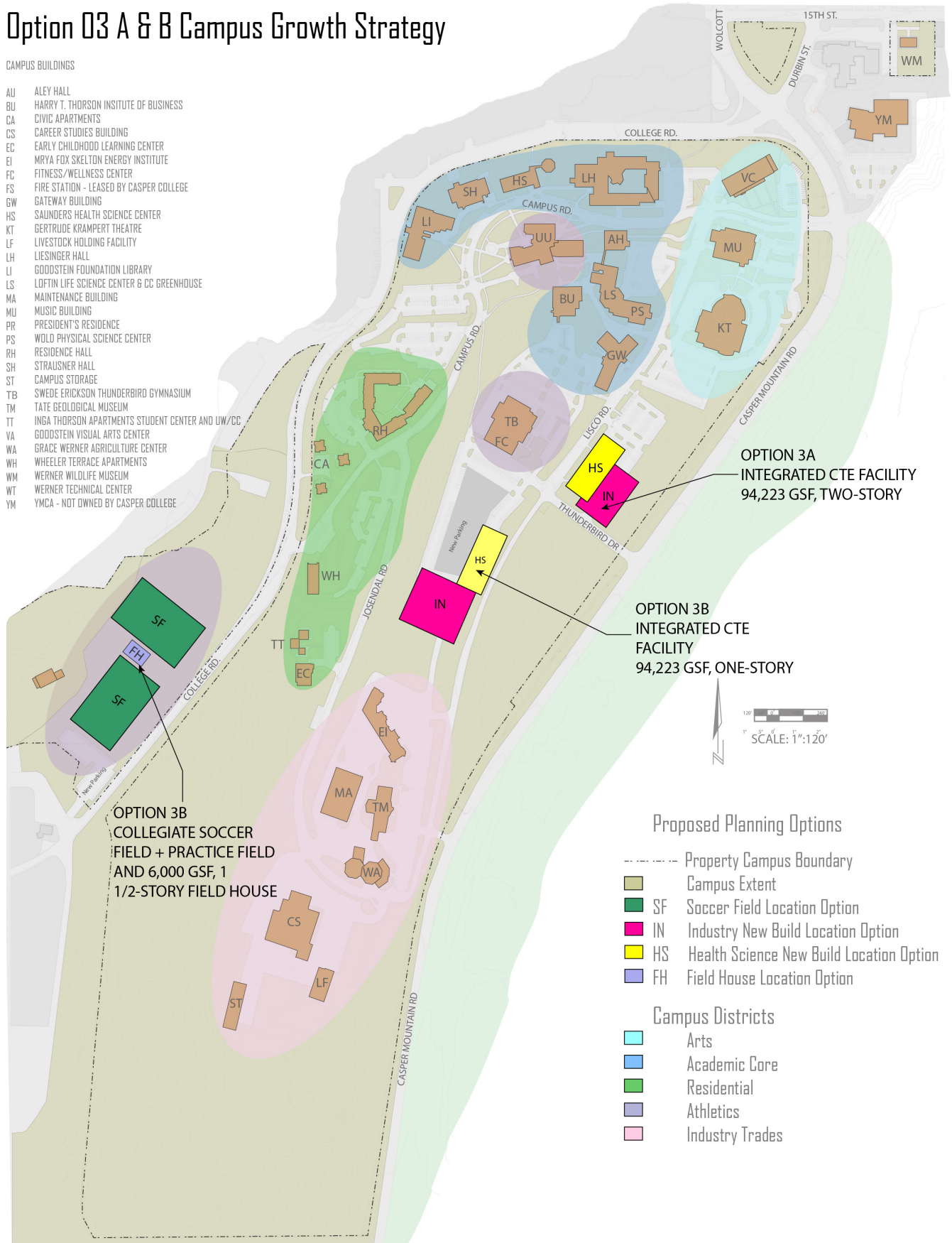
- Arts
- Academic Core
- Residential
- Athletics
- Industry Trades

Campus Master Plan Option 03 – Integrated Career Technical Education Center with Combined Health Sciences and Industry Technology Programs - Presented for informational purposes only, the combined CTE Option was eliminated as a potential solution for Casper College.

Option 03 A & B Campus Growth Strategy

CAMPUS BUILDINGS

AU	ALEY HALL
BU	HARRY T. THORSON INSTITUTE OF BUSINESS
CA	CIVIC APARTMENTS
CS	CAREER STUDIES BUILDING
EC	EARLY CHILDHOOD LEARNING CENTER
EI	MRYA FOX SKELTON ENERGY INSTITUTE
FC	FITNESS/ WELLNESS CENTER
FS	FIRE STATION - LEASED BY CASPER COLLEGE
GW	GATEWAY BUILDING
HS	SAUNDERS HEALTH SCIENCE CENTER
KT	GERTRUDE KRAMPERT THEATRE
LF	LIVESTOCK HOLDING FACILITY
LH	LIESINGER HALL
LI	GOODSTEIN FOUNDATION LIBRARY
LS	LOFTIN LIFE SCIENCE CENTER & CC GREENHOUSE
MA	MAINTENANCE BUILDING
MU	MUSIC BUILDING
PR	PRESIDENT'S RESIDENCE
PS	WOLD PHYSICAL SCIENCE CENTER
RH	RESIDENCE HALL
SH	STRAUSNER HALL
ST	CAMPUS STORAGE
TB	SWEDE ERICKSON THUNDERBIRD GYMNASIUM
TM	TATE GEOLOGICAL MUSEUM
TT	INGA THORSON APARTMENTS STUDENT CENTER AND UW/CC
VA	GOODSTEIN VISUAL ARTS CENTER
WA	GRACE WERNER AGRICULTURE CENTER
WH	WHEELER TERRACE APARTMENTS
WM	WERNER WILDLIFE MUSEUM
WT	WERNER TECHNICAL CENTER
YM	YMCA - NOT OWNED BY CASPER COLLEGE



Proposed Planning Options

- Property Campus Boundary
- Campus Extent
- SF Soccer Field Location Option
- IN Industry New Build Location Option
- HS Health Science New Build Location Option
- FH Field House Location Option

Campus Districts

- Arts
- Academic Core
- Residential
- Athletics
- Industry Trades

PLANNED RENOVATIONS

The Master Plan Committee identified the Gertrude Krampert Theatre and the Harry T. Thorson Institute of Business buildings as having the potential for renovation or repurposing.

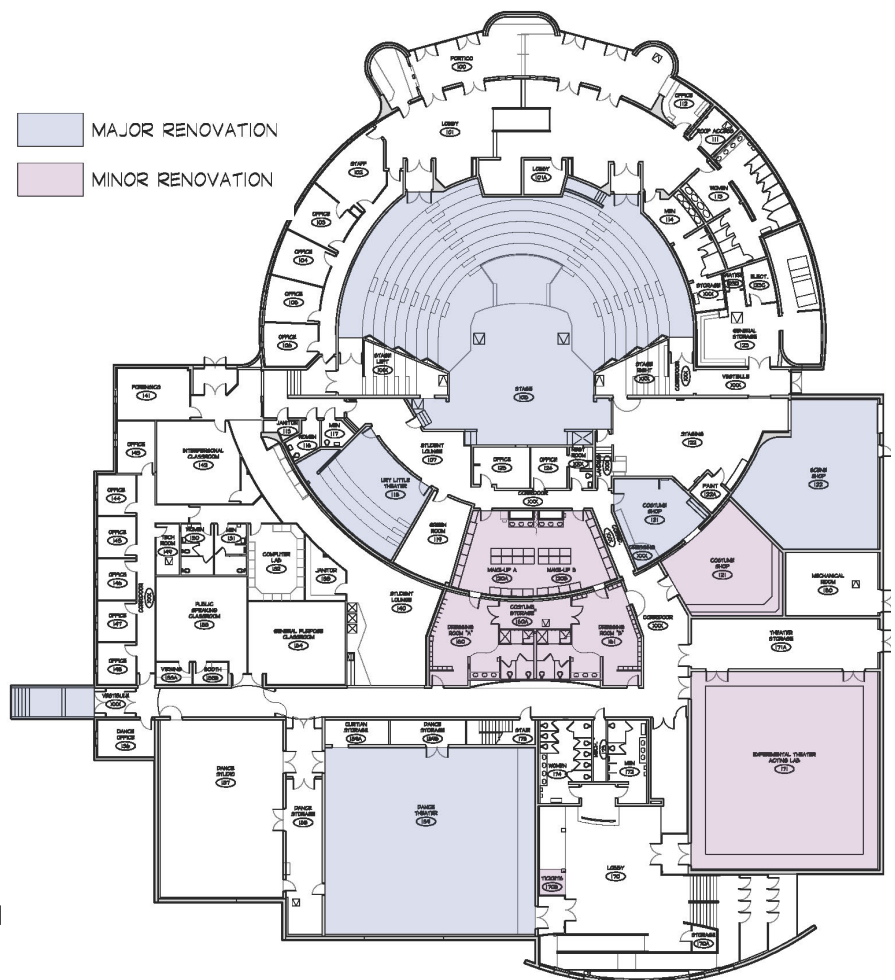
The Gertrude Krampert Theatre is long overdue for a major renovation to the McMurry Theatre and the Ken Ury Theatre. The finishes are deteriorating and technology is outdated. It is one the public faces of the campus and needs to be upgraded for real world educational suitability, accessibility, and safety.

It was determined that the Harry T. Thorson Institute of Business building should be renovated to become more inviting for students and teachers. Options to improve facility usage include providing more collaborative spaces and increasing daylight into the mountain side classrooms and corridors.

The original scope of the Master Plan had called for a review of the Sanders Health Science Center and Loftin Life Science Center for the potential backfill of health science spaces that would occur if a consolidated health sciences facility was built. Given the time line for a new facility to be constructed, it was decided that any decisions on backfilling open space would be premature. Therefore, the Saunders Health Science Center and Loftin Life Science Center are not being reviewed for repurposing or renovation other than what is identified by mechanical, electrical, and plumbing narratives.

GERTRUDE KRAMPERT THEATRE

The Gertrude Krampert Theatre has housed the Theatre and Dance programs since its completion in 1985. At approximately 49,236 square feet, it has had several renovations over the years, one completed in 1994 and a major addition completed in 2003. The Barbara K. and Leland Scifers Dance Studio Addition was added in 2003 at which time a new Black Box Theatre (Thomas Empey Theatre) was also completed. The Theatre and Dance academic programs, faculty offices, and classrooms are collocated in this facility. This allows the students to complete their academic coursework and provides performance opportunities in one facility. The Theatre and Dance programs are nationally accredited through the National Association for Schools of Theatre and the National Association for Schools of Dance. They had approximately 4,000 community members attend various events during the 2022-2023 school year. There are 8-10 students in each of the 4 different academic programs offered. In addition to meeting the educational needs of the theatre and dance majors, the program provides cultural and artistic resources and opportunities for the broader Casper College community and fulfills the role of an intellectual and cultural leader for Central Wyoming. One of the missions of the program is to provide high-quality, safe, and accessible opportunities for both students and patrons to learn, perform, and experience the arts. There are several items that need to be addressed by any potential renovation to help the faculty achieve their mission. It is anticipated that funding will be a combination of major maintenance and legislative requested funds.



See Appendix G Gertrude Krampert Theater Discussions for larger image.

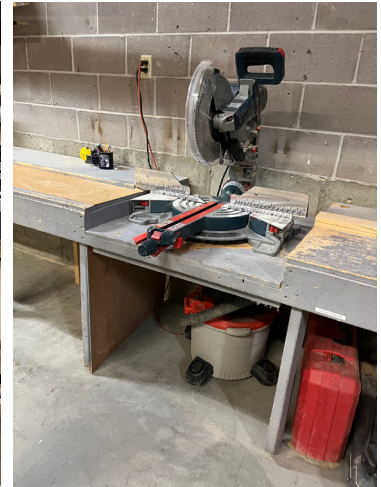
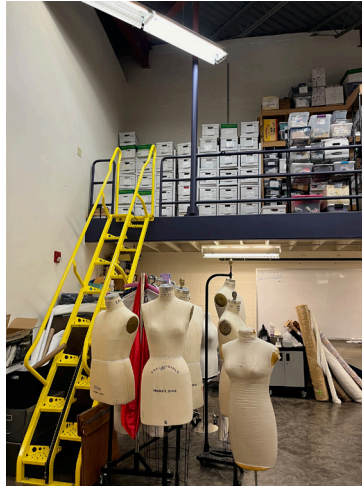
SAFETY

The primary concerns with the Krampert Theatre are centered on faculty and student safety. Several safety concerns were identified by the user group, many of which were noted in the 2018 Master Plan as well. The following outlines the safety concerns identified by specific location:

Costume Shop KT-121: has an elevated storage area and the only access is a ships ladder which is steep and should not be utilized for carrying materials. They move heavy and cumbersome items up and down the ladder. There needs to be a safe system to transfer costumes and scenes. The design team would recommend a dumbwaiter system.

Costume and Scene Shop: have inadequate ventilation for their use. The paint room has had the paint hood removed and it is only an open duct with paint storage. Provide a paint enclosure with adequate ventilation to spray paint. The dust collection system is incomplete in the Scene Shop and needs to be replaced and adjusted to accommodate the current and future equipment. Ventilation over the dye vats in the Costume Shop is also inadequate. Upgrade the ventilation system for the Costume Shop and provide a new dust collection system and paint enclosure for the Scene Shop.

Dance Studio KT-159: floor is buckling and needs to be replaced. The buckling is a safety concern for the dancers. Consistent moisture problems have led to issues with mold and will continue to lead to buckling of the dance floor. Not only is this a tripping hazard, an unsafe amount of moisture is constantly collecting in electrical boxes in the floor. Mold, electrical issues, and buckling will continue until the moisture issue is solved. The first item that needs to be addressed is the moisture intrusion. The moisture issue primarily occurs during warmer temperatures. The area is known to have high ground water due to an existing spring in the area. The exact cause needs to be determined to provide a solution and a cost. Once the water is no longer creating issues, the flooring may or may not need to be replaced.



Exterior Safety Issues: The southwest entrance steps near Office KT-156 builds up with snow and ice and remains that way for long periods of time. This entrance is frequently utilized by faculty and dance students. An addition would be costly, but would eliminate the exterior stairs and make them interior instead. Another exterior safety issue that was identified by staff are the stairs to the overflow parking in winter. The snow drifts over the stairs in the winter. With the direction and ferocity of the prevailing winds, there is not an easy solution to this issue.



Southwest Entry



Stairs from Overflow

ACCESSIBILITY

The second priority list discussed with the user group includes providing accessibility for students, faculty and patrons to the various areas in the facility. This item is particularly challenging because of the different levels for performance spaces, seating, and backstage areas; as well as current technology limitations for those that are hearing and/or visually impaired.

Backstage Access: Students or faculty that need mobility assistance currently have to go outside and around the building to the Scene Shop entrance in order to access the stage for a performance. The renovation options are limited because of space limitations. The design team would recommend a handicap lift from backstage to the stage.

Student and Audience Accessibility: The current theatre and dance studio technology and lighting limits the experience and support for the hearing and/or visually impaired. When an American Sign Language interpreter is scheduled, the current seating and accessibility limitations make interpreter placement and viewing awkward. With limited technology, hearing assisted devices are not as useful/versatile as they could be. Upgrade the lighting and sound system for the theatre and create an area during the renovation for an ASL interpreter that is visible for the audience.



AESTHETIC/MAINTENANCE CONSIDERATIONS

Make-Up Room KT-120: Refinish wood floor or it is recommended that the floor be changed to something more durable and cleanable.

Carpeting: Replace carpeting throughout facility.

DRESSING ROOMS KT-160 and KT-161

Privacy: The men's and women's dressing rooms are connected by a shared costume storage closet, causing privacy issues, and has inadequate ventilation. There is also no visual privacy between the make-up room and dressing rooms. Provide a privacy screen between the make-up room and dressing rooms. It would also be ideal to have 1-2 permanent private dressing stalls. This item is currently under construction and being addressed. Provide return air ducts for the costume storage closet.

Sound System: There is no sound system in the dressing rooms for performance cues. Provide new sound system which includes the dressing rooms.



MCMURRY MAIN STAGE (369 PEOPLE CAPACITY)

The McMurry Main Stage requires a major renovation. It is the venue for the largest productions and most often represents the face of the College to the public who attend the performances.

Houselights: The current houselights are original and obsolete. The bulbs are no longer available. Many lights are in disrepair and create dark spots and safety issues. Replace the houselights with a new system.

Grid System: The grid system is unsafe and lacks a complete harnessing system to protect students in case of a fall. The department has to use a Genie lift to replace bulbs and move lights instead of using the grid system. The refocusing of lighting instruments for each production should be a simple task, but instead takes days to complete. The performance lighting is so outdated, that replacement bulbs are difficult if not impossible to obtain. Staff and faculty have been utilizing other lights to set for production needs which in turn create tripping hazards. The lighting system currently being used is pasted together from several sources and generations of lighting technology and dimmers. Newer color changing LED lighting technology reduces ongoing costs and gives students experience with technology that they will actually use in the field.



This needs to be updated to the current industry standards to ensure educational integrity of the Theatre Tech degree. The design team would suggest upgraded performance lighting that can be raised and lowered for safety and ease of use. The lighting controls board and dimmer racks should also be replaced.

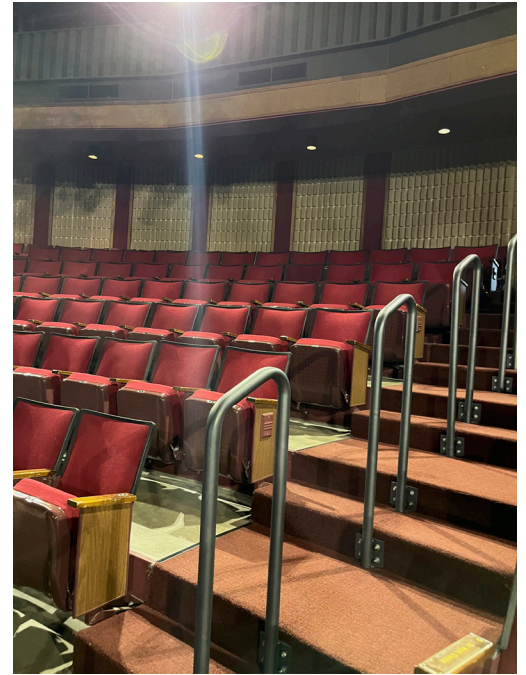
Stage Curtain: The stage curtains are original and are deteriorating. It is not believed that they can be cleaned and have fire retardant reapplied, it is therefore recommended that they be replaced.

Sound system equipment and Control Booth Remodel: Replace sound system equipment with updated technology for teaching purposes. The sound and control booth view is blocked by the lighting system. With the lights on motorized rigging, they may be able to be adjusted so the view is no longer obstructed.

Audience Seating: Seating is original to the building and needs to be replaced. The seating is not comfortable and the seats are worn. Audience members are reacting to the seating conditions by buying tickets to avoid sitting in certain parts of the theatre. It is recommended that upgraded seating that meets new code requirements, is comfortable, and adds to the patron's experience be provided.

Stage Floor: Relevel stage floor and eliminate high point. This is a low priority item since the stage was recently refinished. It is an existing problem which was originally caused from settling.

Acoustics: During the 2003 renovation, acoustics were improved with the added shaped walls along both sides of the stage. It would be prudent to review acoustics during any major renovation in the design stage and implement the recommendations. It is not a high priority until the facility is being renovated.



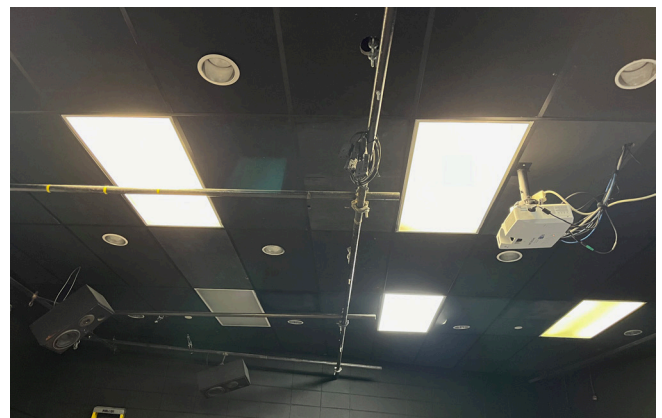
KEN URY LITTLE THEATRE KT-118 (44 STUDENT CAPACITY)

The Ken Ury Little Theatre is currently considered underutilized. It is a flexible space that could be used for instruction as well as small performances provided it receives a major renovation.

Seating: The theatre is limited in use because of the broken and unusable seating. Seats that are not broken are uncomfortable and worn. The space is set up well for teaching acting, however, it is not utilized for instruction as much as it could be because of the condition of the space. Replacing the seating with new seats with tablet arms would help the usability of this space.

A/V: The Fundamentals of Theatre Class could be expanded if the Audio Visual was upgraded for teaching. The age of the audio visual in the space also limits any remote learning opportunities. It is recommended that the Audio Visual in the room be upgraded to the level of the other classrooms on campus.

Theatre Lighting: The existing lighting system for performances is obsolete and needs to be updated, precluding the space from being used for small performances. It is recommended that the theatre lighting be upgraded to industry-standard equipment so it can be used for both curriculum and performances.



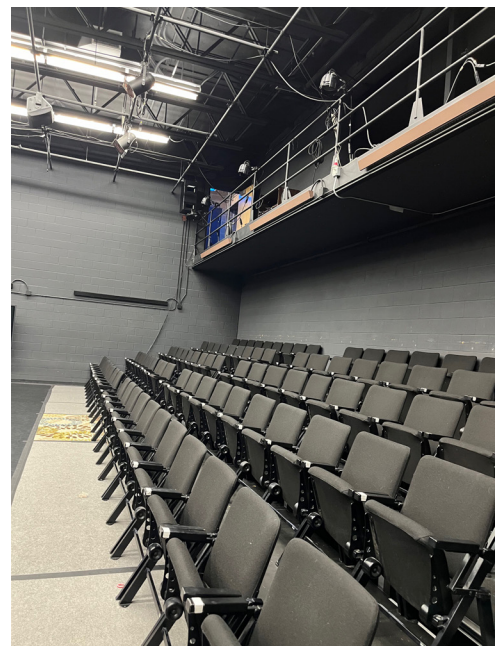
BARBARA K. AND LELAND SCIFERS DANCE THEATRE

As mentioned earlier, the flooring needs to be replaced as a safety concern for the dancers. The Theatre needs some additional renovations that are listed below. Due to the cost and infrastructure required for these renovations, this is being classified as a major renovation.

House Lighting: There are no house lights in the audience area. The lack of house lighting makes navigation around the railing, footers and space difficult. This is a potential safety concern for audience members tripping. Add house lighting that can be controlled from the control board.

Performance Lighting: Several updates to the performance lighting are necessary to keep students working with industry-standard equipment. The current setup is ad hoc and requires relocating lights, rigging, and equipment from other performance spaces. It is recommended to be replaced with new color-change LED lights (large reduction in recurring costs for gels and bulbs) and dedicated control board, as well as rigging system. This will keep the space at the forefront of other Dance programs and educate the students on the latest equipment that they will be using in the field once they graduate.

Storage Space Shelving: Upgrade shelving in space so it can be more efficiently used and can be used as a pass-thru for performers without obstruction. This item has been remedied with added shelving.



SOUTH LOBBY TICKETING:

Although on-line ticketing has reduced the number of tickets bought on site the day of a performance, the south lobby still needs a secure area to lock the box-office computer, money and other ticket items. Adding a secure ticketing area in the South Lobby would be a minor renovation.



MECHANICAL | ELECTRICAL | PLUMBING:

An assessment of the Gertrude Krampert Theater's mechanical, electrical, and plumbing systems was completed as part of the master planning process. The primary areas of concern which were identified include the following:

Overall: The facility has inconsistent heating and cooling throughout since the 2003 addition. This may be the cause of a faulty relay. The cause should be identified and a remedy implemented. Additionally, the electrical power distribution system needs to be evaluated for the entire facility.

Costume Shop and Scene Shop: Install a new and improved plaster trap and wash out sink. Upgrade ventilation system inclusive of the dust collection system and exhaust at the paint and dye areas.

Please see the Mechanical Electrical Assessment section of this report for the complete report.

PRIORITY MATRIX:

The following priority matrix outlines potential projects based on timing, primary impetus behind the project, and estimated project costs.

Priority Matrix - Krampert Theatre**							
	Life Safety/ Code Deficiencies	Accessibility	Educational Suitability	Security/ Program Need	Updated Aesthetics / Past Useful Life	Project Grouping***	Conceptual Cost Estimate*
Project Timeframe (1-3 Years)							
Costume Shop - New Dumbwaiter	•						\$ 40,000.00
McMurry Backstage Access - ADA Lift		•					\$ 30,000.00
Scene Shop - Paint Enclosure	•						\$ 15,000.00
Scene Shop - Plaster Trap	•						\$ 3,500.00
South Lobby Ticketing				•			\$ 25,000.00
Make-Up Room Flooring					•		\$ 12,900.00
Costume Storage Closet - Add Returns	•						\$ 10,000.00
Black Box Theatre - House Lighting			•				\$ 56,320.00
Scifers Dance Studio - Moisture Study	•						\$10,000-20,000
Project Timeframe (3-5 Years)							
Scene Shop - Dust Collection System	•				•		\$ 175,000.00
Ken Ury Theatre - Seating, Finishes, and House Lighting			•		•	◊	\$ 213,000.00
Ken Ury Theatre - Performance Lighting & Controls			•		•	◊	\$ 50,000.00
Ken Ury Theatre - A/V Upgrade			•		•	◊	\$ 30,000.00
Project Timeframe (5-10 Years)							
McMurry Theatre - Seating, Finishes, and House Lighting			•		•	◻	\$ 1,489,500.00
McMurry Theatre - Performance Drapery and Track	•				•	◻	\$ 95,000.00
McMurry Theatre - Performance Lighting & Controls, Motorized Rigging	•		•		•	◻	\$ 500,000.00
McMurry Theatre - Auditorium Sound Reinforcement and Video Presentations		•	•		•	◻	\$ 320,000.00
Overall HVAC and Electrical Review	•				•	◻	\$ 738,540.00
Sound System Dressing Room				•		◻	\$ 100,000.00
Scifers Dance Studio - Moisture Issue, Flooring, and House Lighting	•		•				\$ 751,250.00
Scifers Dance Studio - Performance Lighting and Controls			•	•		◻	\$ 185,000.00
Carpeting					•		\$ 97,300.00
Addition at Exterior Southwest Entry	•						Unknown

* Does not include contractor mark-up or inflation - see Conceptual Cost Estimate Provided in Appendix

** Arranged based on perceived priority and funding timeframe

*** Projects can also be grouped based on similar subcontractor usage, ie. Seating replacement for Ury and McMurry Theatres

While the McMurry Theatre has been identified as a priority for the College, the projects are listed with a 5-10 year timeline due to the magnitude and overall cost of the projects.

HARRY T. THORSON INSTITUTE OF BUSINESS

The Harry T. Thorson Institute of Business was constructed in 1983. It has had several renovations over the years with the latest in 2021 which replaced the lighting. The approximately 30,874 square foot building is a four-story tiered building housing a mixture of classrooms and faculty offices. The facility is constructed into the side of a mountain and the overall design provides inadequate daylighting to the classrooms on the mountain side. Additionally, restrooms are located on every other floor which is very inconvenient to both faculty and students. The building is generally in good condition, however the electrical system has never been upgraded except for the new lighting in 2021. Maintenance on the facility has included the roofing assembly which has a warranty through 2029 and the boilers were replaced in 2018. The last interior renovation was completed in 2015, but did not include the entire building and was focused primarily on the first floor. The Business programs are growing in a few different areas including Economics, Cyber Security, and Introduction to Business. The following programs are currently in the building:

1. Business programs – The programs listed below are currently located in the Harry T. Thorson Institute Business Building:

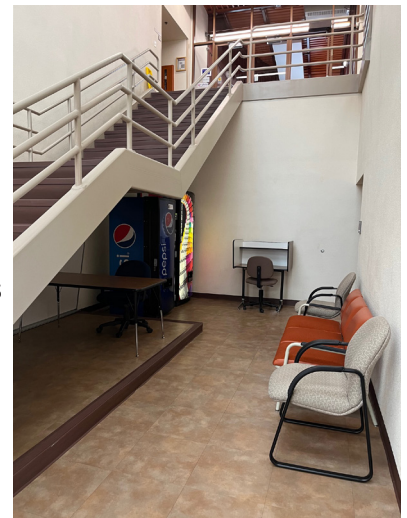
- a. Accounting
- b. Bookkeeping
- c. Business Administration
- d. Entrepreneurship
- e. Cyber Security
- f. Economics
- g. Hospitality & Tourism Management
- h. Management
- i. Marketing
- j. Office Management
- k. Outdoor Recreational Tourism
- l. Web Design and Development
- m. Testing Center

Due to the content of the programs, they have the opportunity to by taught High Flex to capture the most students. Some of the classrooms have already been upgraded with the WIFI and sound technology required to run the classes in person, on-line live, and recorded. The current classroom utilization is low for the classrooms without natural daylight and that are tiered with permanent furniture. These classrooms limit the flexibility of use and the are not the first choice for faculty.

For the purposes of this Master Plan, the planning team was tasked with making the facility more inviting for both faculty and students. Programming of existing spaces was not included in this scope.

CODE DEFICIENCIES

Stair Railing: The current stair railing does not meet the current code requirements for a guardrail and handrail. It should be replaced to meet current code for safety of the students and faculty. Replacing the handrail will also provide an opportunity to improve/update the aesthetics of the focal point of the building.



Casper College Master Plan Refresh

FACILITY DEFICIENCIES

ROOF ACCESS: The current roof access is not secure and allows easy entry from the surrounding site. The existing interior corridors utilize the design to prevent them from being considered dead end corridors under code. Due to their overall length, the corridors will need to continue to maintain exiting access to the roof. There are several items that can be changed to help deter unauthorized access. First, the railing could be changed to vertical pickets to hinder climbing. Secondly, the access gate could be changed to a locking gate with egress only from the roof. While these items will not completely deter motivated individuals, they could help significantly reduce access.

OFFICES: The offices average approximately 110 square feet which is fairly typical for faculty offices at other community colleges. Current and future office need:

1. Full-Time Faculty - 10
2. Adjunct Faculty - 3
3. Testing Center - 7 private rooms (these could also be used for adjunct/visiting faculty when not in use for private testing)
4. Staff - 3

This does not include the Dean and Academic Assistant office area. There are currently sixteen (16) offices shown on the floor plan. All Testing Center rooms would ideally be in a secure area, however, due to limited space, the center utilizes unsecured private testing rooms. Since these rooms are in an unsecured area, they could be used for adjunct/visiting faculty when not in use for private testing. If it is assumed that adjunct/visiting faculty can use the private testing rooms, the plan is short four (4) offices. The other issue is that the current offices are not sound proof. The first priority should be extending the office walls to structural deck and adding acoustic batting in the walls.

FACULTY MEETING ROOM: Provide a faculty meeting room for meeting with students and parents since offices are too small for larger groups. This room could also be used for student group meetings and breakout space for teachers.

AESTHETICS: The plaster is peeling from the main stairway area. Refinish the walls and potentially add images. Add an S&P type ticker to the building to draw interest to the Business College.

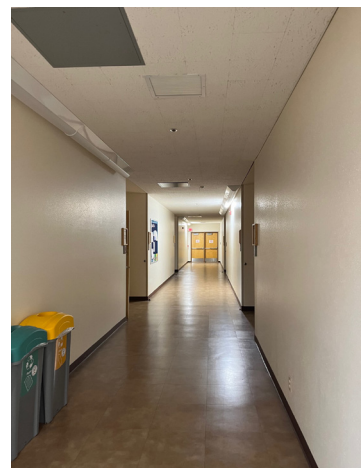
DAYLIGHT: The daylighting in the corridors and classrooms on the mountain side is inadequate. Transoms or sidelites could be added to the doors down the corridor to share light between classrooms and the corridor. This would make the corridors and classrooms more pleasant to spend time in.

STUDENT ENGAGEMENT/RETENTION

STUDENT SPACE: Create group work rooms, study rooms, collaborative spaces, and pod spaces to keep students in the building. Provide breakout areas with comfortable seating. The Student Lounge/Business Center works well on the first floor and they would like to bring that level of engagement to the rest of the building. Room BU-216 is currently being used for Yoga, but it can be moved to another space. This area would be a good space to create student space and possibly a faculty meeting room.

Another idea was to locate a coffee kiosk within the building which could be run by the business students and be part of the curriculum. This would require a business plan and funding to implement.

FUTURE ITEMS: Ideally, there would be restrooms on every level, but at this time, it is not a priority and would be very costly to add the infrastructure for the restrooms. This would also be a trade-off in space for instructional space and faculty offices. Creating a Makerspace Entrepreneurship room or rooms could double as space for clubs that they could reserve instead of having rooms dedicated to specific clubs.

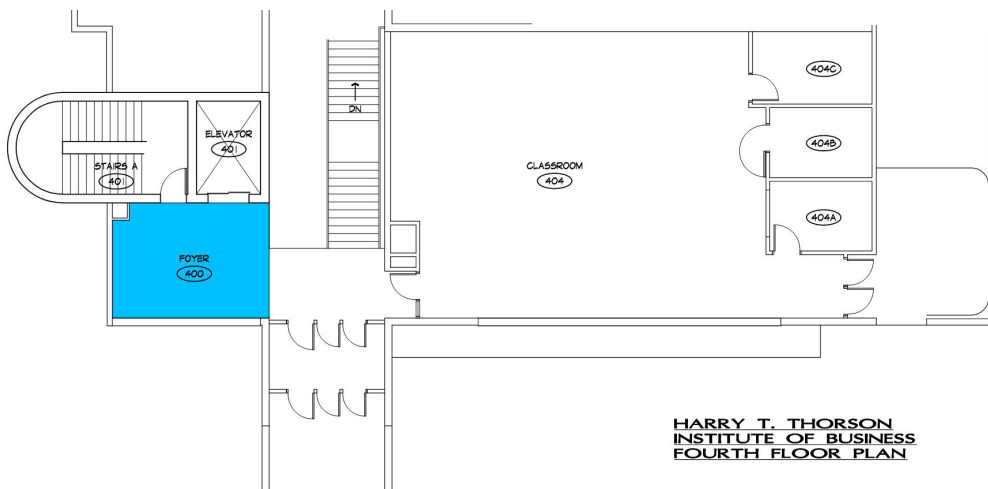
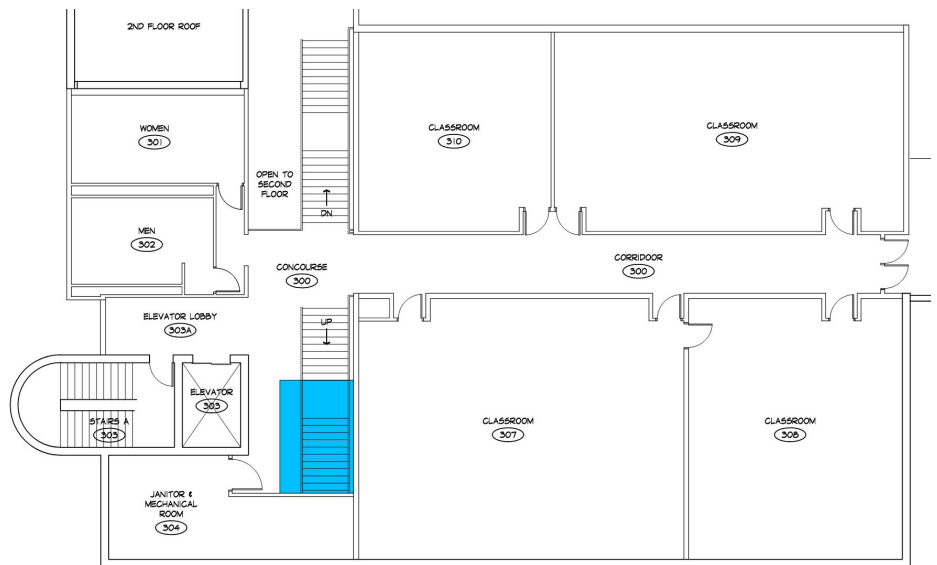
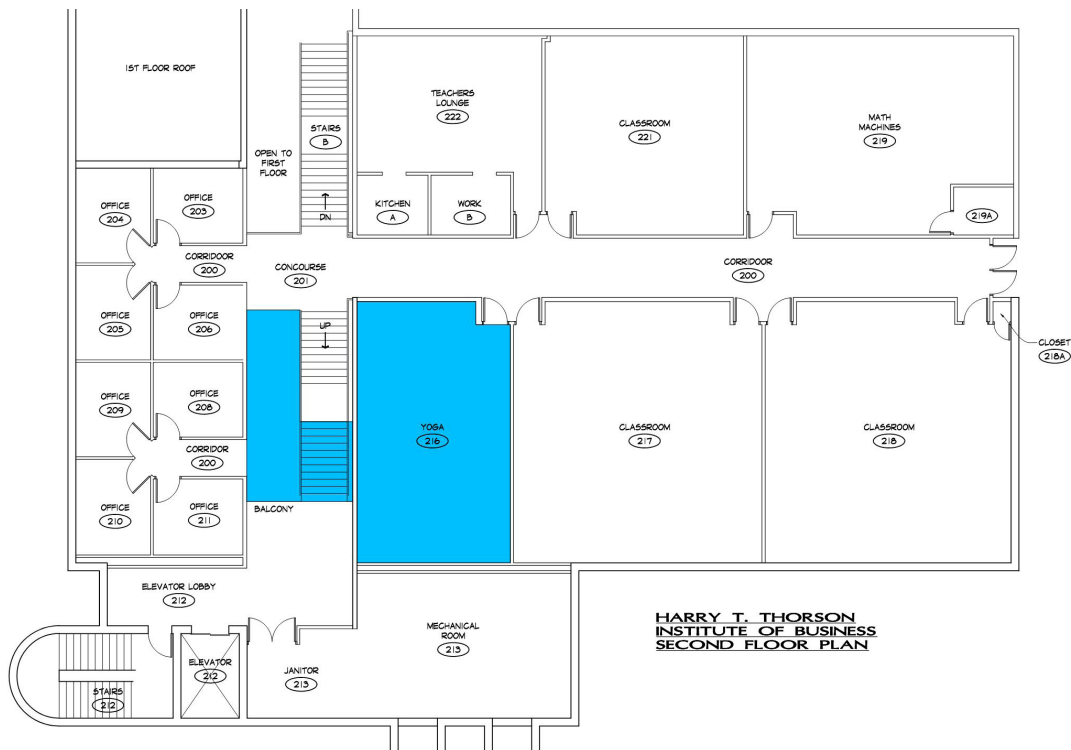


POTENTIAL STUDENT ENGAGEMENT ZONES

The following locations have been identified as potential student engagement zones within the Harry T. Thorson Institute of Business:



POTENTIAL STUDENT ENGAGEMENT ZONES



Please see Business and Industry Appendix E for larger images.

Casper College Master Plan Refresh

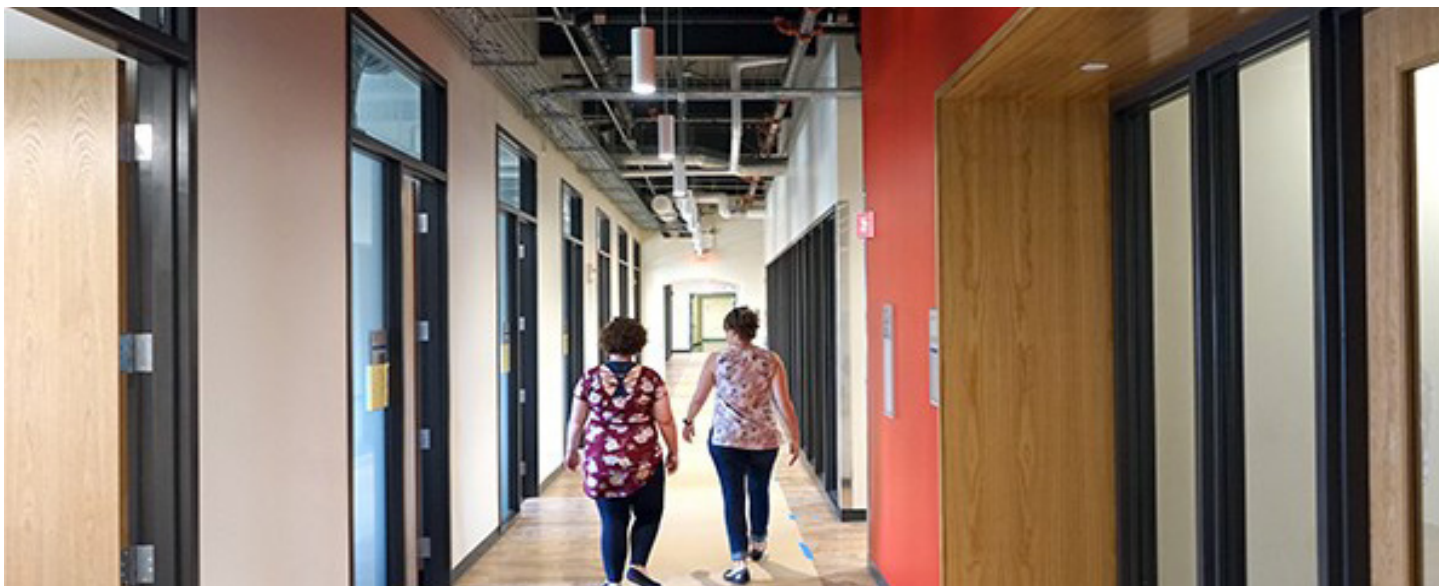
DAYLIGHT: Different finishes and break out spaces could make the corridors feel more inviting.



Existing corridor is not inviting and dark.



Ceilings are at 9'-0" so transoms could be added above doors to share light. Ceiling grids could be removed to add more height and interest to the space.



STUDENT STUDY/GATHERING AREAS:

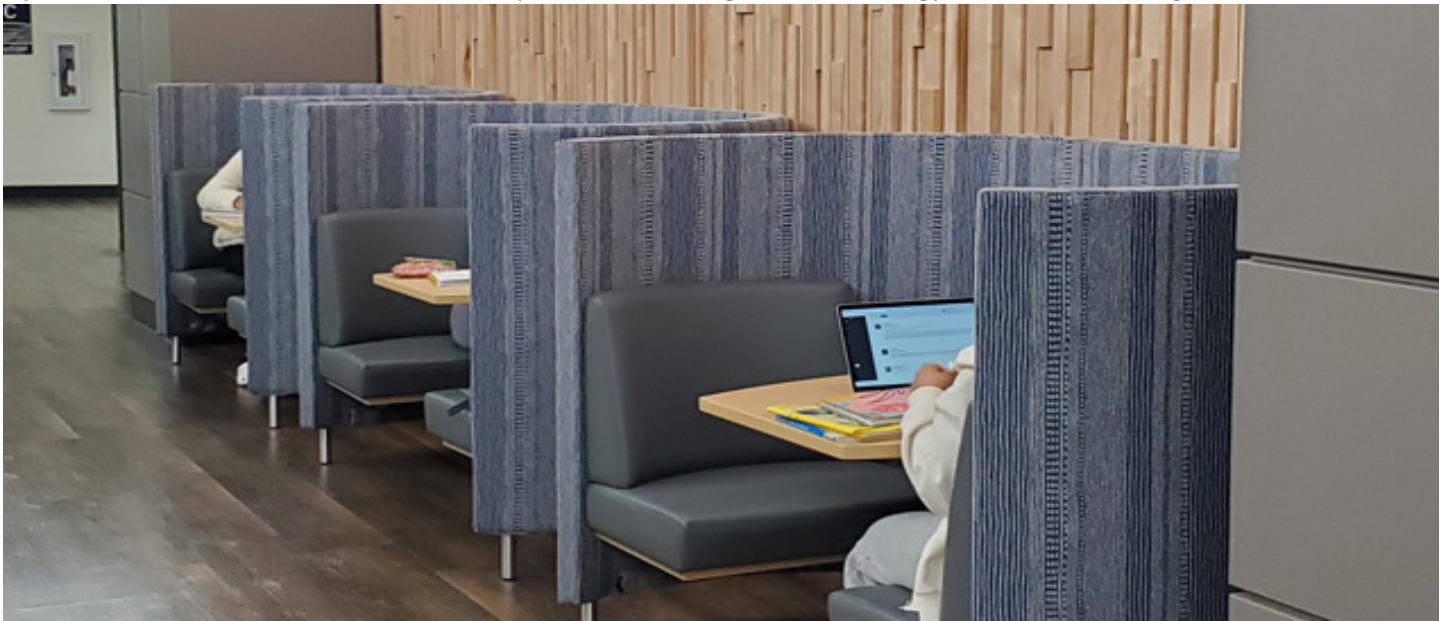
Existing pockets of space where students can gather, collaborate and study.



Add soft, inviting furniture that can easily be rearranged - provide pods for individual or group study.



Update finishes for acoustics and to make space more inviting. Add technology so students will linger.

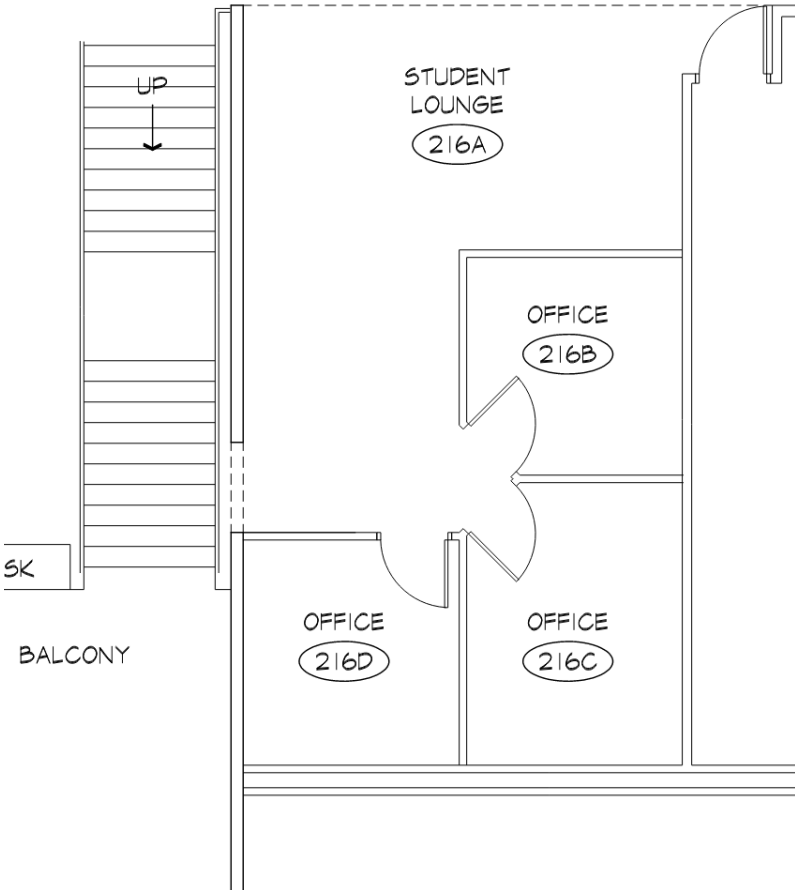


RENOVATE CLASSROOM BU-216:

Space can be renovated for large group collaboration / faculty meeting room, or additional offices / small group collaboration spaces. It provides a larger area for student gathering and opens up the corridor. Use storefronts to create a more open feel.



CONCOURSE
201



PRIORITY MATRIX:

The following priority matrix outlines potential projects based on timing, primary impetus behind the project, and estimated project costs.

Priority Matrix - Harry T. Thorson Institute of Business**							
	Life Safety/ Code Deficiencies	Accessibility	Educational Suitability	Security/ Program Need	Updated Aesthetics/ Past Useful Life	Project Grouping***	Conceptual Cost Estimate*
Project Timeframe (1-3 Years)							
New Stair Guardrail/Railing	●					◇	\$ 30,500.00
Sound Proofing Existing Offices				●			\$ 100,500.00
Wall Repair from Leaks					●	◇	\$ 3,000.00
Furniture, Fixtures, and Equipment			●		●	□	\$ 200,000.00
Secure Roof Access	●			●			\$ 24,000.00
Project Timeframe (3-5 Years)							
Corridor Renovation - Finishes and Transoms			●		●	□	\$ 525,000.00
BU-216 Renovation			●		●	□	\$ 196,500.00
Student Spaces - Finishes and Technology			●		●	□	\$ 212,250.00
Stairs - Finishes					●	◇	\$ 67,500.00
Project Timeframe (5-10 Years)							
Other Shared Spaces - Finishes					●	□	\$ 230,000.00
Makerspace Entrepreneurship Room			●				Unknown
Add Restrooms					●		Unknown
Coffee Kiosk			●				Unknown

* Does not include contractor mark-up or inflation - see Conceptual Cost Estimate Provided in Appendix

** Arranged based on perceived priority and funding timeframe

*** Projects can also be grouped based on similar subcontractor usage, ie. Upgrading finishes



Casper College Campus Master Plan Refresh

Wheeler Terrace Apartments Assessment

WHEELER TERRACE APARTMENTS BUILDING ASSESSMENT

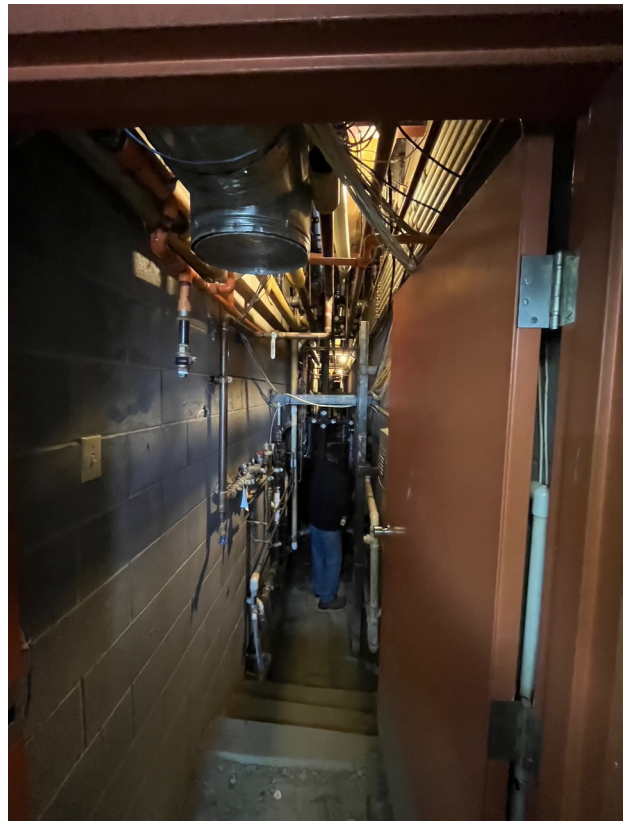
Wheeler Terrace Apartments were constructed in 1970. The approximately 19,985 square foot building is three-stories and houses eighteen (18) two-bedroom apartments. It is a combination wood framed and reinforced masonry structure with redwood plywood and brick exterior. The operable windows are vinyl. The doors are in terrible condition and the frames are rusting. The site does not slope away from the building which has led to water infiltration and deterioration around the doors, siding, brick, and CMU.

Wheeler Terrace Apartments used to be the married student apartments. It has had several renovations over the years with the latest in 2010. The interior of the building is in need of new paint, flooring and ceilings. The asbestos sealer paint in all block walls needs to be removed and replaced. The roof is a ballasted EPDM roof and is no longer under warranty. The HVAC system and lighting was upgraded in 2019. The building has some existing structural issues that are discussed further in the structural narrative.



SAFETY ISSUES

PIPE CHASE: The existing pipe chase is extremely unsafe for maintenance personnel. It is poorly lit, the pathways to service the piping are narrow, rickety and wobbly. This access does not comply with OSHA requirements. There are no cost effective ways to make the space OSHA compliant.



FACILITY DEFICIENCIES

EXTERIOR BALCONY: The exterior balconies are an ongoing maintenance problem. The structural report has noted that they are in serviceable condition at this time. The new railing project left exposed holes in the fascia that were never sealed. Water has infiltrated the holes and has started to make the wood warp and swell. The wood framed walkways are very vulnerable to deterioration and the coating applied makes it difficult to determine any issues. The metal fascia is rusted and the paint has started to peel. The railings were replaced in 2000 and are performing well structurally, but need to be repainted. Destructive testing could be used to determine condition of wood under coating.



EXTERIOR DOORS: Replace the exterior hollow metal doors and frames into the mechanical spaces. They are dented and rusted.



EXTERIOR AESTHETICS: The old redwood plywood has been replaced with OSB siding over the years. It was never meant to be a finished exterior surface. No flashing has been provided at the exterior foundation which has allowed water over the years to infiltrate and damage the concrete, brick, CMU, and siding. Paint is peeling and overall the exterior is in a state of disrepair. The finishes have exceeded their service life.



ROOF: The roof cap is falling apart. The roof fascia is mismatched and has partially blown off the building leaving exposed wood. The existing roof is a ballasted EPDM system. It is performing well, but is no longer under warranty.



Casper College Master Plan Refresh

DRAINAGE: The drainage around the site has cause issues with the concrete and building materials. Part of the issue is the sidewalks do not slope away from the building. The other issue is it is built in a hole and water comes off the mountain into the building causing concrete to crack and spall. The pipe chase has water in it in the spring time from the site.



INTERIOR: The apartments are not ADA accessible and there is not sufficient space to upgrade them unless a bedroom is removed. There is not ADA access to the second floor. The apartments last renovation was in 2010 and they need new paint, flooring, and ceilings.



MECHANICAL, ELECTRICAL, AND PLUMBING

Mechanical and electrical systems were recently upgraded. The main issue with the building is maintenance access to the plumbing chase. Plumbing fixtures need to be upgraded in the apartments. See MEP narrative for more information.

FUTURE ITEMS

Wheeler Terrace Apartments have exceeded their service life. The drainage around the building has caused water infiltration issues that have deteriorated the foundation, siding, brick, and CMU. The building is unsafe to maintain and has aging infrastructure that will be costly to replace when it fails. The building should be replaced within the next 3-5, years, if possible, due to the myriad of issues presented above.

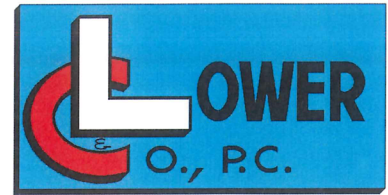
ESTIMATED COSTS

The following matrix shows a list of potential costs associated with the replacement of Wheeler Terrace Apartments:

Priority Matrix - Wheeler Terrace Apartments**						
	Life Safety/ Code Deficiencies	Accessibility	Educational Suitability	Security/ Program Need	Updated Aesthetics/ Past Useful Life	Conceptual Cost Estimate*
Project Timeframe (1-3 Years)						
Destructive Testing Balcony	•					\$10,000-\$20,000
Balcony Replacement	•				•	Unknown
Plumbing Fixture Replacement					•	\$144,000
MEP Upgrade					•	\$1-\$3 Million
Project Timeframe (3-10 Years)						
Wheeler Terrace Apartment Demolition	•	•			•	\$ 140,000.00
Asbestos Abatement if Required	•				•	\$ 40,000.00
New 20,000 SF Apartment Building - \$325/SF					•	\$ 6,500,000.00
Sitework for New Apartment					•	Unknown

* Does not include contractor mark-up or inflation - see Conceptual Cost Estimate Provided in Appendix

** Arranged based on perceived priority and funding timeframe



February 20, 2024

Ms. Brit Morgan, A.I.A.
Plan 1 Architects
325 West 18th Street
Cheyenne, WY 82001

REF: Wheeler Terrace Housing Building Structural Assessment,
Casper College, Casper, Wyo.

Dear Brit:

At your request I observed the above referenced building on February 7, 2024. The purpose of my observations was to assess the condition of the Building's Structural Systems. I toured the building with you, Damon Saunders and Mitchel Masters of the Casper College Physical Plant.

The Wheeler Terrace Housing Building was constructed in 1969. It is now 55 years old. The building's structural systems are described as follows:

Foundations: Concrete grade beams on drilled piers.

Floors: Wood floor sheathing on wood chord / steel web joists. All floors are structural floors, with a shallow crawlspace at the lower level.

Roofs: Wood framed.

Walls: Load bearing walls consist of central reinforced masonry bearing walls forming a three story high mechanical chase. (Photo-3). Exterior walls consist of reinforced masonry at the north and south ends of the building with loadbearing steel post and beam and wood framed infill at the east and west walls.

I am aware of two retrofit projects that our office completed on the building in the past. In 1999 we replaced the existing steel framed exit stair towers on the north end of the building. The new towers are performing well. In 2000 we replaced the walkway handrails of the second and third floors. The new handrails are performing well. (Photo-1).

The walkways at the second and third floors are formed by the cantilevered wood chord / steel web floor joists. The wood framed walkways are very vulnerable to deterioration and require constant maintenance. The walkways are in serviceable condition at this time. (Photo-2).

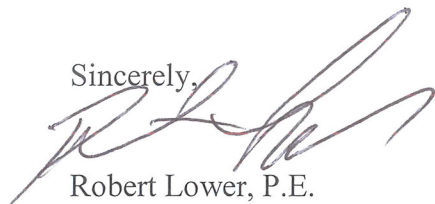
The lower level and the south ends of both the second and third floors have a shallow crawlspace under them. Access to the crawlspace is limited, but I was able to observe the condition of the joists and plywood sheathing. At this time the floors are in good condition.

Ms. Brit Morgan, A.I.A.

Page-2

At present the buildings structural systems are in good condition. With continued regular maintenance there is not a need for any significant structural repair in the near future (5 years). If you have any questions or comments, please give me a call.

Sincerely,



Robert Lower, P.E.

PHOTOS

24-011



Photo-1: Walkway Handrails.



Photo-2: Exterior walkways at second and third floors.

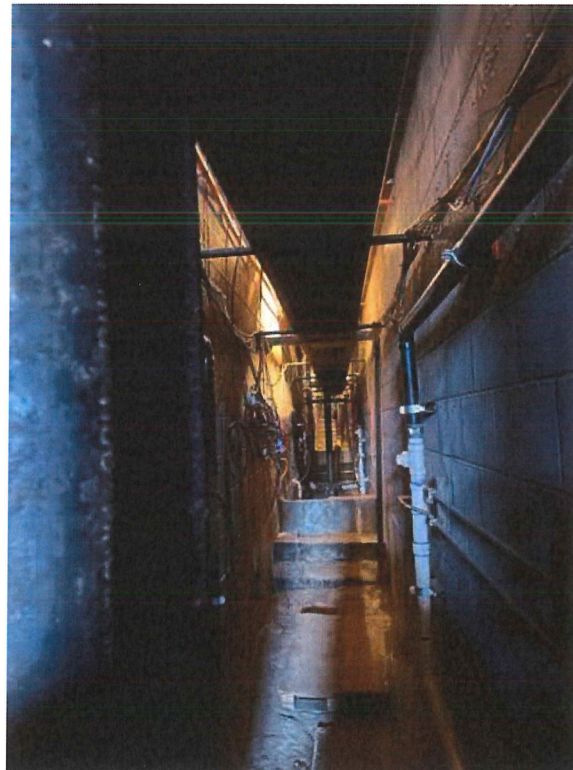
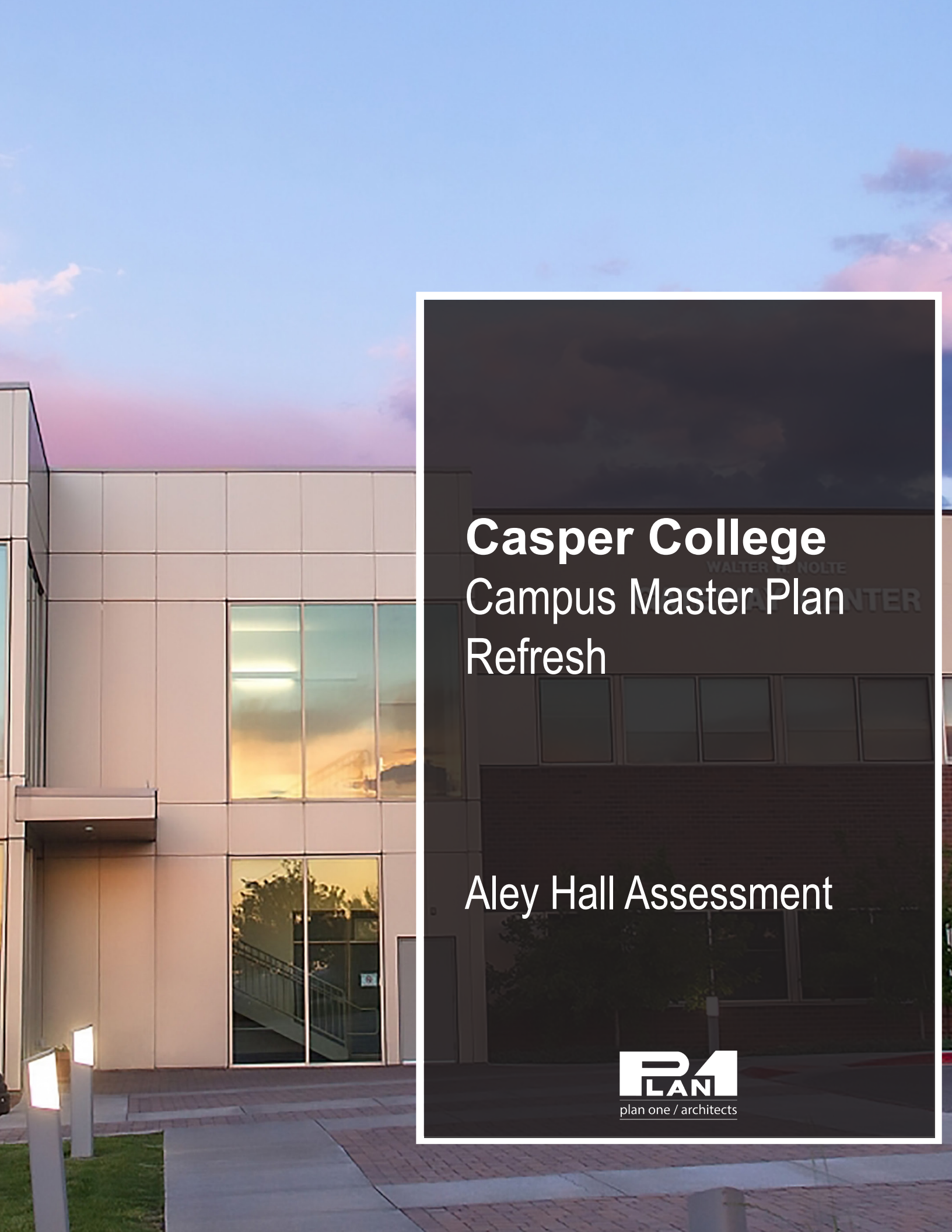


Photo-3: Three story high pipe chase.



Photo-4: Damaged CMU at south-west corner.
This damage should be repaired with an epoxy
Mortar patch.



Casper College Campus Master Plan Refresh

Aley Hall Assessment

ALEY HALL BUILDING ASSESSMENT

Aley Hall was constructed in 1968. The approximately 22,395 square foot building is three-stories and houses a mixture of classrooms/labs and faculty offices and an auditorium. It is a cast concrete structure with stucco and brick exterior. Some of the windows are still single pane and leak. The doors are in good condition. The north side of the building stucco, brick, and stairs are deteriorating. The building has asbestos in the floors, walls, and ceiling which will need to be encapsulated or removed for any renovation project or demolition.

Aley Hall used to be Aley Fine Arts but was converted to Aley Hall once the Fine Arts program was relocated to the new Music facility. It has had several renovations over the years with the latest in 2021 which replaced the lighting. The facility is constructed into the side of a mountain but the placement of program spaces were arranged so the spaces do not need natural daylight. The interior of the building is generally in good condition with a large building renovation completed in 2015, however the electrical system has never been upgraded except for the new lighting in 2021. The old choral and instrument rehearsal rooms were renovated into labs and offices. Maintenance on the facility has included the roofing assembly which has a warranty through 2025 and the HVAC was upgraded in 2014. The building has some existing structural issues that are discussed further in the structural narrative. The following programs are currently in the building:

- Phlebotomy
- Microbiology
- Medical Lab Technician
- University of North Dakota Distance Education and MOT Program
- Durham Hall

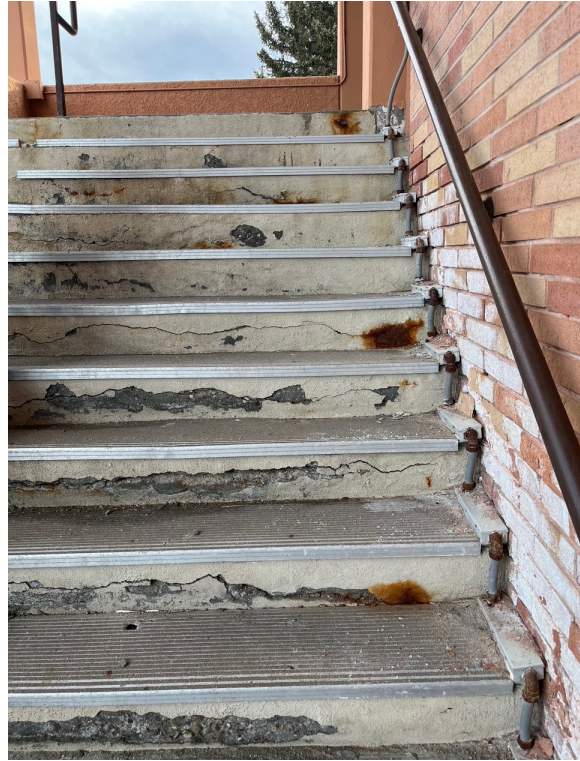
Since the labs are newly renovated, and due to their specialized requirements, the labs are not being co-located with the other Health Science programs in the proposed new building. The labs are in excellent condition and function well, but do not allow any growth for the program. The Microbiology lab can be used for 30 students, the Med Tech Lab can be used for 20 students, and Phlebotomy can be used for 15 students. The Phlebotomy program will be relocated to the new building so that there is better community access, and more space for the program.

The Durham Hall was the main choral and band auditorium until the Music Building was constructed. It continues to host other events and needs to be renovated and systems upgraded.



FACILITY DEFICIENCIES

EXTERIOR ENTRY: The exterior stairs on the northside are deteriorating and are a tripping hazard. They are exposed to the exterior elements and become extremely icy in the winter. They need to be replaced. The stairs provide the primary emergency egress from the first floor of the building. Damaged brick by the stairs needs to be removed, replaced and repointed as well. One option to prevent further deterioration after they are replaced is to enclose the entire entry. This would also eliminate the maintenance during the winter and prevent slipping hazards on the stairs. This does not address the issue of a lack of accessible entry on the northside of the building. Handicap students or faculty would still have to enter at the southside entry and park above.



EXTERIOR WINDOWS: Replace exterior windows that leak with new thermally broken aluminum storefront insulated windows for energy efficiency and to prevent further damage to the walls.



EXTERIOR AESTHETICS: The stucco is peeling from the main stairway area. The walls and columns need to be refinished. The current entry is not very inviting from Lisco Drive. If the north side is enclosed, a clear entry point can be created.

DURHAM HALL (CAPACITY 304)

The Durham Hall is mostly used for musical performances. It is a flexible space that could be used for instruction as well as small performances. The room is heavily used by academic departments for lecture as well as being a popular venue for visiting guest speakers. In addition, the auditorium is used by the community for public meetings needing to accommodate large audiences. The level of renovation will depend on the future of Aley Hall. The existing acoustics in the space are excellent for musical performances, but the space could use a painting refresh.

SEATING: The seating in the auditorium has outlived its useful life. It is dated and uncomfortable and some seats are broken. Recommend replacing the seating to expand the use of the auditorium.

A/V: Access to the sound/projection booth is a ladder and is not very safe for students if they need to transport anything with them. A new projector was added recently, and it is adequate for their needs. A/V needs should be reviewed if a major renovation is proposed.

THEATRE LIGHTING: The existing lighting system for adequate for now. It is recommended that the theatre lighting be upgraded to industry-standard equipment so it can be used for both curriculum and performances if more events are proposed in the future.



MECHANICAL, ELECTRICAL, AND PLUMBING: Mechanical has identified several items to be replaced in the next 3-5 years for the HVAC system. See MEP narrative section. The electrical service for the building is from 1968, and should be reviewed for code compliance. Only the lighting has been upgraded, which was completed in 2021.

FUTURE ITEMS: With the amount of structural repairs, age of the infrastructure and building, it is recommended that this building be replaced within the next 10-20 years especially since it is in the heart of campus.

PRIORITY MATRIX:

The following priority matrix outlines potential projects based on timing, primary impetus behind the project, and estimated project costs.

Priority Matrix - Aley Hall**							
	Life Safety/ Code Deficiencies	Accessibility	Educational Suitability	Security/ Program Need	Updated Aesthetics/ Past Useful Life	Project Grouping***	Conceptual Cost Estimate*
Project Timeframe (1-3 Years)							
Structural Repair	•						\$ 100,000.00
Window Replacement - For Leaking and Single Pane Windows					•		\$ 47,500.00
Stucco Repair					•	□	\$ 99,000.00
Project Timeframe (3-5 Years)							
Enclose Northside Entry & Repair Stairs & Brick	•				•	□	\$ 675,000.00
Durham Hall - Seating, Finishes, and House Lighting			•		•	◇	\$ 872,500.00
Durham Hall - Performance Lighting & Controls			•		•	◇	\$ 50,000.00
Durham Hall - A/V Upgrade			•		•	◇	\$ 35,000.00
RTU Replacement					•		\$100,000-\$500.000
Durham Hall AHU Replacement					•	◇	\$100,000-\$500.000
Project Timeframe (5-10 Years)							
HVAC Upgrade					•		\$1-\$3 Million
Aley Hall Demolition					•		Unknown

* Does not include contractor mark-up or inflation - see Conceptual Cost Estimate Provided in Appendix

** Arranged based on perceived priority and funding timeframe

*** Projects can also be grouped based on similar subcontractor usage, ie. Upgrading finishes



February 16, 2024

Ms. Brit Morgan, A.I.A.
Plan 1 Architects
325 West 18th Street
Cheyenne, WY 82001

REF: Aley Building Structural Assessment,
Casper College, Casper, Wyo.

Dear Brit:

At your request I observed the Aley Building on February 7, 2024. The purpose of my observations was to assess the condition of the Building's Structural Systems. I toured the building with you, Damon Saunders and Mitchel Masters of the Casper College Physical Plant. I have made assessments of the Aley Buildings's Structural Systems in 2014, and 2023. These reports are attached.

The Aley Building was constructed in 1966. It is now 58 years old.

It is apparent that the north exterior wall of the building has experienced significant lateral deflection at one time. This wall is 3" +/- out of plumb to the north between the bottom of the wall and the first floor level. In our 2014 assessment, measurements of this wall and interior bearing walls indicated that this displacement had taken place during construction. It is apparent that the wall was backfilled without any shoring in place, and without the supporting floor systems in place. I do not believe that any significant movement has taken place since then.

The only indication of post-construction movement of the building is the damaged beam bearing at the second floor elevation that I detailed a repair for in May of 2023. I had previously detailed a repair for this beam bearing in November of 2014. The repair was not completed in 2014, and by 2023 the damage was much more extensive. It is important that this repair is completed as soon as possible. Photo-1. A second beam bearing was damaged in 2018 and repaired. This repaired bearing is located at the northeast corner of the building at the second floor level. The same repair was made preemptively at the northwest corner of the second floor. These repairs are performing well.

There is some severe damage to the outside exit stairs on the north side of the building. The concrete stairs cast on grade have experienced severe damage due to freeze-thaw action and also due to the application of large amounts of de-icing salts. Photos-2,3. The brick veneer at these stairways is also severely damaged. Photo-4. It is necessary to replace the stairs and the damaged brick veneer.

Ms. Brit Morgan, A.I.A.

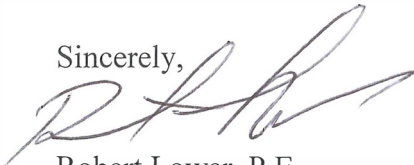
Page-2

The damage to the stairs and brick veneer are likely to be a constant maintenance issue due to the severe exposure. The idea of enclosing the north side of the building has been brought forth. This is possible from a structural standpoint provided that the existing columns are sufficiently braced laterally to each of the floor levels.

I do not believe that there is any cause for concern regarding the stability of the building at this time. If cracking of masonry or drywall surfaces are observed in the future please contact me and I can look at the building. With proper maintenance the buildings structure can be expected to continue to perform for another 20 years at a minimum.

If you have any questions or comments, please give me a call.

Sincerely,



Robert Lower, P.E.

PHOTOS

24-011



Photo-1: Damaged beam bearing at second floor level.



Photo-2: Damaged exterior stairway at north-east.

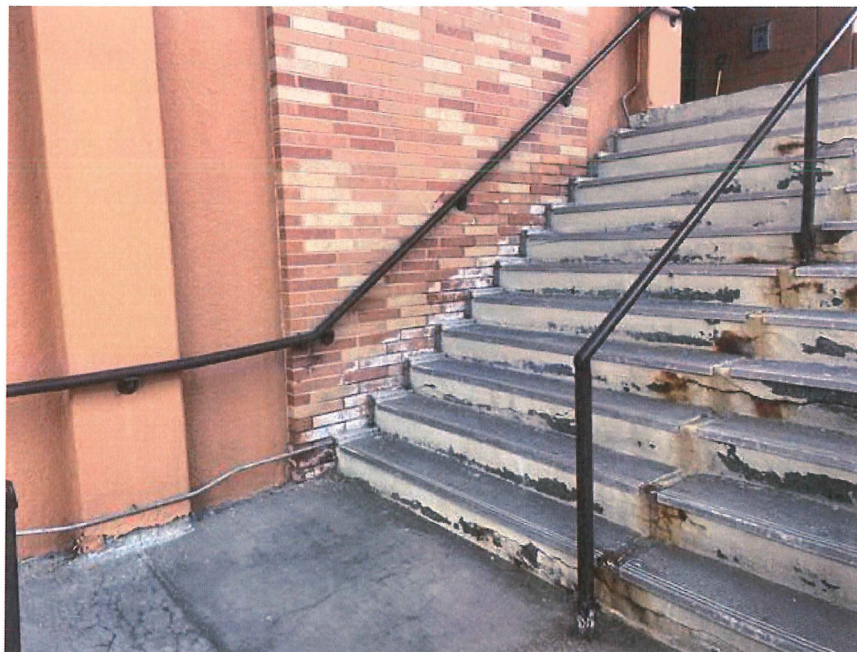


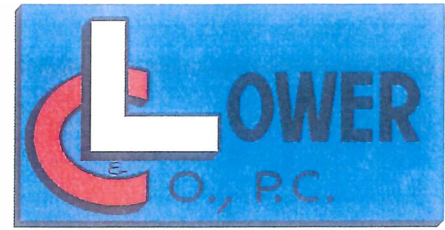
Photo-3: Damaged exterior stairway and brick at north-west.



Photo-4: Damaged exterior brick at north-east.

January 8, 2014

Mr. Mike Sawyer, Director
Casper College Physical Plant
Casper College
125 College Drive
Casper, WY 82601



REF: Aley Fine Arts Building Remodel Project,
Casper College, Casper, Wyo.

Dear Mike:

At your request I have investigated the feasibility of remodeling the above referenced building. The proposed remodeling project includes removing the existing tiered floor slabs in the lower level and replacing them with new slabs at Elevation 5283'. The plan also includes removal of the existing non-structural walls that currently separate the two large rooms in the lower level.

As you know I have expressed some concern regarding the history of the building's performance in resisting the lateral earth pressures applied to the south wall. Significant lateral deflection is evident at the north wall of the building, and also at the south wall in the lower level. I have determined that the south wall was apparently pushed as much as 3" to the north at the top (Elev. 5301'-9"), and that the north wall was pushed approximately 3" to the north at the lower floor elevation (Elev. 5283.0'). I measured the interior masonry bearing wall that spans the east/west width of the building, and found that it is plumb. This result indicates with certainty that the movement of the north and south walls took place during construction of the building, before the building's floor and roof systems were constructed. The contractor apparently backfilled these walls without bracing them laterally. Consequently it is apparent that the building has not undergone any further movement since that time.

In light of the above observations I recommend that the remodeling project may take place without the need to construct any further reinforcing of the building. I do however offer the following advice on sequence of construction that will help to limit the possibility of any lateral movement of the lower level walls during construction.

- The existing non-structural masonry walls that separate the two music rooms do in fact provide for some lateral support of the south wall. I recommend that these walls not be demolished until after the tiered floors are removed and replaced with the new slab.
- The contractor must carefully monitor the south wall for any lateral movement when the tiered slabs are being removed, and provide lateral shoring if any movement is detected.

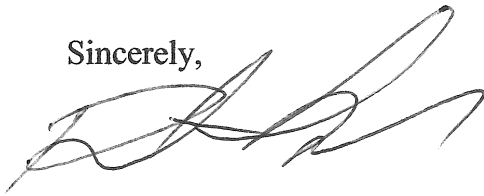
Mr. Mike Sawyer

Page-2

Other non-structural walls at all building levels may be removed without necessary precaution. Only the primary east/west bearing wall in the lower level is a structural interior wall and must remain. Steel columns at all levels must remain.

If you have any questions or comments, please give me a call.

Sincerely,

A handwritten signature in black ink, appearing to read 'R. Lower', with a stylized, flowing script.

Robert Lower, P.E.

14-003

Project Observation Report

JOB: Casper College Aley Fine Arts Building Remodel

JOB NO.: 14-003

LOCATION: Casper, Wyoming

DATE: 11/3/14

ARCHITECT: Amundsen Associates

WEATHER: Breezy, cloudy, approx 40 degrees F.

OBSERVATION PURPOSE: General

PRESENT: Bob Lower, Ron Shosh.

REMARKS:

Arrived at jobsite approx. 10:00AM.

Observed installation of hanger rods for fire sprinklers and pipe racks. The hangers are installed into the bottom of the Twin-T stems contrary to the drawings directive. This condition does not provide adequate edge distance for the anchors, and may damage the stems.

The anchors that support the fire sprinkler laterals are very lightly loaded, and these may be left in place as is. The anchors that support the pipe rack will be much more heavily loaded and must be replaced with hangers that are mounted to the side of the stems per the drawings. Any hangers that have cracked the precast must also be abandoned and replaced per above.

It is not necessary to remove the “drop-in” hangers that are currently installed from the precast, only to unload them and replace them as specified above.

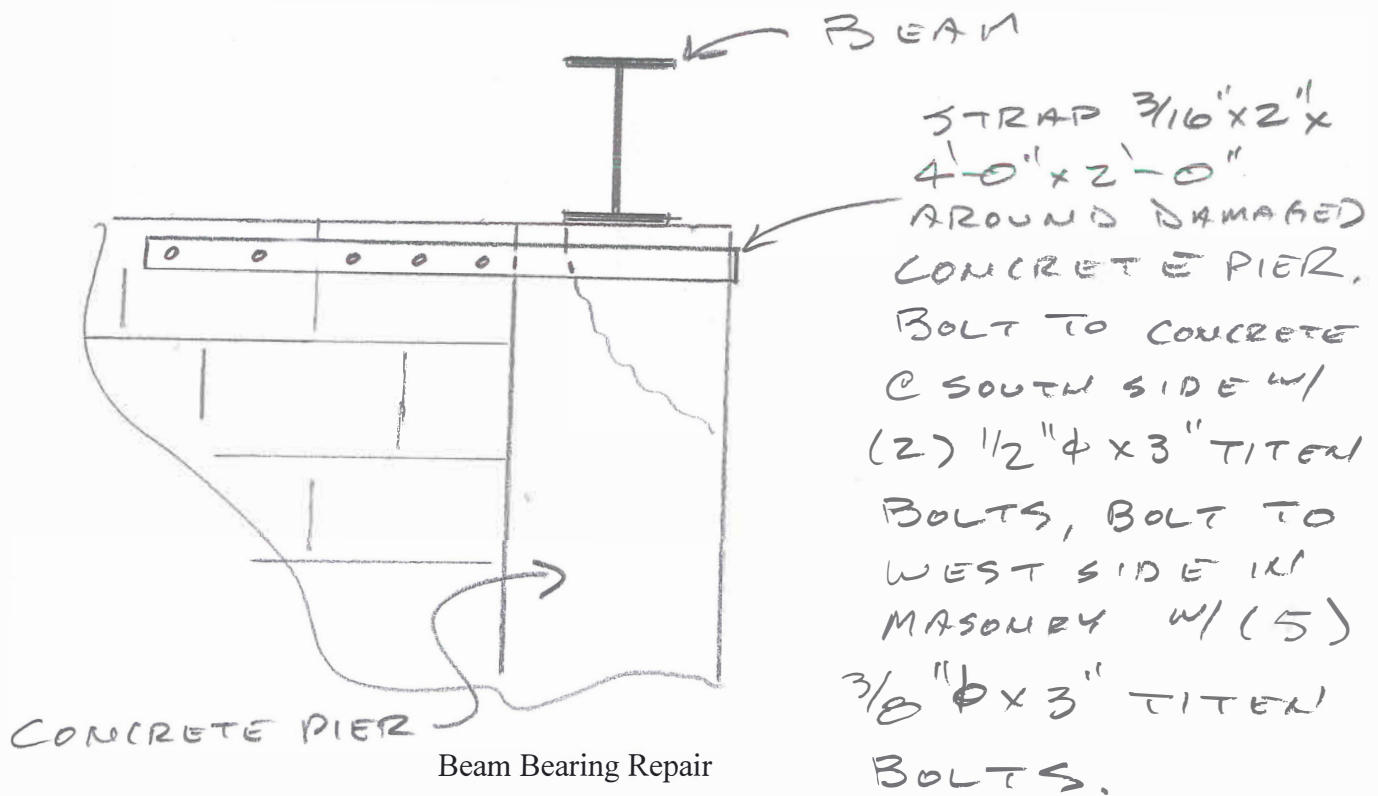
Observed a damaged beam bearing at the east stairway (see photo). This bearing should be repaired as shown in the attached drawing.

Left jobsite approx. 11:00PM.

BY: Robert Lower, P.E.
Lower & Co., P.C.
Structural Engineers



Damaged beam bearing





Structural Engineers

May 3, 2023

Mr. Damon Saunders, Supervisor
Building Maintenance and Operations
Casper College
125 College Drive
Casper, WY 82601

REF: Aley Building,
Casper College, Casper, Wyo.

Dear Damon:

At your request I observed the Aley Building on May 3, 2023. The purpose of my observations was to determine if the building has experienced any distress to the structure since my last assessment of 1/8/2014 (this report is attached). I measured the lateral displacement of the south and north walls, and found them to be essentially unchanged since 2014. I also measured the vertical alignment of the center bearing wall at the first floor level, and found it to be unchanged since 2014. Observation of the masonry and drywall surfaces throughout the building also indicate that the building is not undergoing any distress.

The only indication of post-construction movement of the building is the damaged beam bearing at the second floor elevation that I detailed a repair for recently. This beam bearing will be repaired after class is out for the summer. Please note that I had noted this bearing as being damaged in a 2014 construction observation report (attached). The repair was not completed at that time. More damage has occurred since then, thus the repair is more extensive now.

I do not believe that there is any cause for concern regarding the stability of the building at this time. If cracking of masonry or drywall surfaces are observed in the future please contact me and I can look at the building.

If you have any questions or comments, please give me a call.

Sincerely,

Robert Lower, P.E.

23-011

REMOVE LOOSE
CONCRETE, PATCH
W/ NON-SHRINK
GROUT

NEW C10X15.3
X 8'-0" (FIELD VERIFY)
BRACKET BOLTED TO
WALL UNDER BEAM

EXISTING WB
BEAM @ ELEV.
5291'-9"

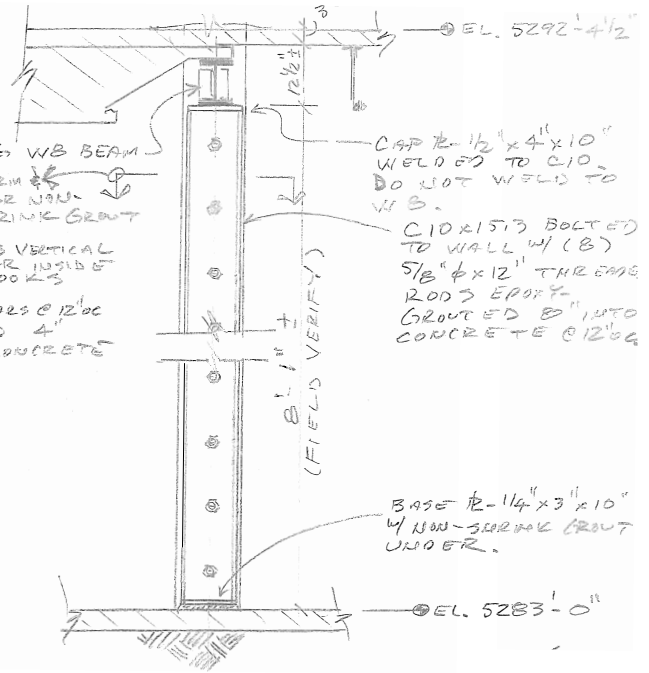
EXISTING
12" CONCRETE
WALL

SHORE BEAM
W/ G66 TIMBER
POST TO (2)
11 7/8" X 2'-0" LVL
PAD ON FIRST
FLOOR SLAB.
WEDGE TIGHT.

PLAN

1/2" = 1'-0"

EXISTING WB BEAM
FORM
POUR NON-
SHRINK GROUT
#3 VERTICAL
BAR INSIDE
HOOKS
(2) #3 HOOKED BARS @ 12" OC
EPOXY-GROUTED 4"
INTO SOUND CONCRETE



CAP 12-1/2" X 4" X 10"
WELDED TO C10
DO NOT WELD TO
WB.

C10X15.3 BOLTED
TO WALL W/ (B)
5/8" X 12" THROUGH
RODS EPOXY
GROUTED 8" INTO
CONCRETE @ 12" OC

BASE 12-1/4" X 3" X 10"
W/ NON-SHRINK GROUT
UNDER.

SECTION A-A

3/4" = 1'-0"



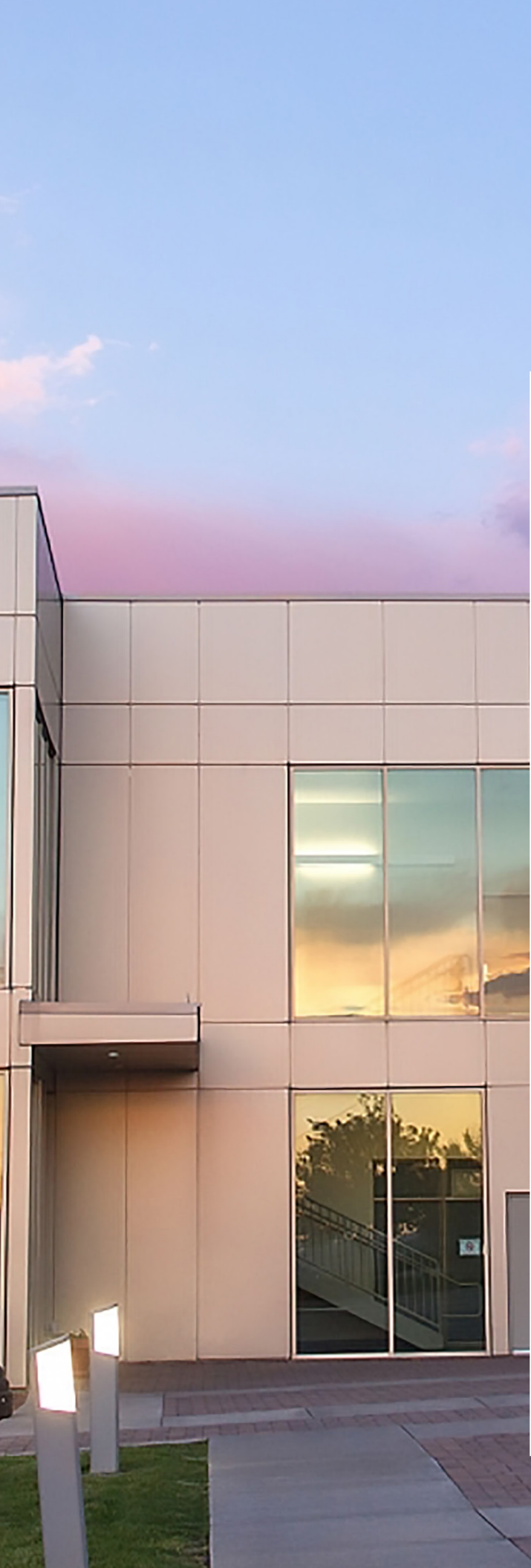
CASPER COLLEGE
ALEY BUILDING REPAIR
CASPER, WY 3/2023



LOWER & CO., P.C.
STRUCTURAL ENGINEERS
1607 CY AVE, SUITE 201
CASPER, WYOMING 82404

SHEET
1
OF 1

23-011



Casper College Campus Master Plan Refresh

Monument Signage

EXTERIOR ENTRY SIGNAGE

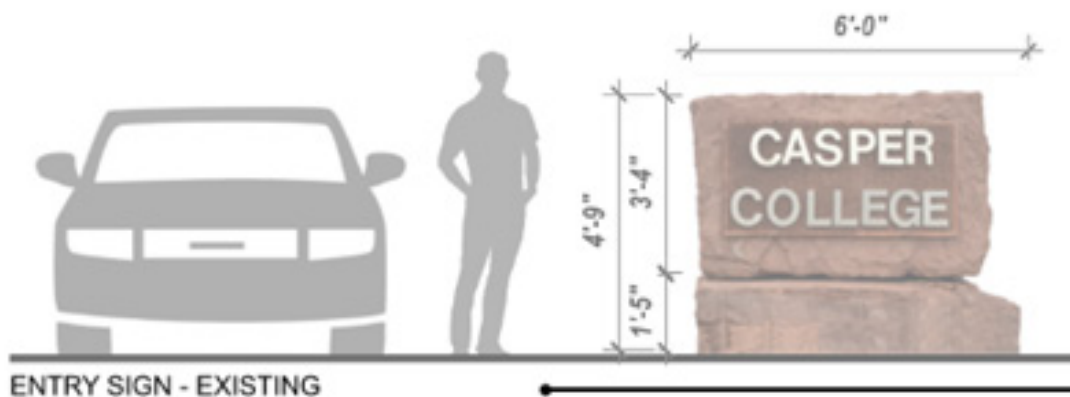
The Master Plan Committee has tasked us with designing options for entry signage. Entrance signage not only helps convey the Casper College brand and lets visitors know they have arrived, it can also be a fantastic means for directing visitors around the property and grounds and providing information for upcoming events.

The current signage fits within the overall aesthetic for the campus, but several of the signs are difficult to see from the road because of the topography of the campus as well as the scale of the signs. The existing entry signs are also in need of repair and are inconsistent with the new campus color palette, font, and logo.



We would recommend replacing the existing entry signage with a sign that is larger and has a taller vertical component to increase visibility and massing at the main entries. These signs could have a digital display component conveying upcoming events, and other pertinent information. The signs would have more public outreach as the College would be able to advertise events on campus to those that do not find themselves at Casper College for other reasons. The new signage would also be lit up at night to help with visibility at the entry points. The signs could have different logos to differentiate the area of campus like the Thunderbird for the entry that goes towards the gymnasium. A sign base with dry stacked flagstone or CMU would maintain the overall campus aesthetic. Using the campus color and logos from the Casper College brand standards would also help support a cohesive message for the campus starting from the entry.

The graphic below taken from the 2018 Casper College Master Plan Refresh provides a sense of scale for the existing monument signs. At under five feet tall and roughly 6 feet across the signs are difficult to see especially with the tall grass in spring and summer.



Potential monument sign options.

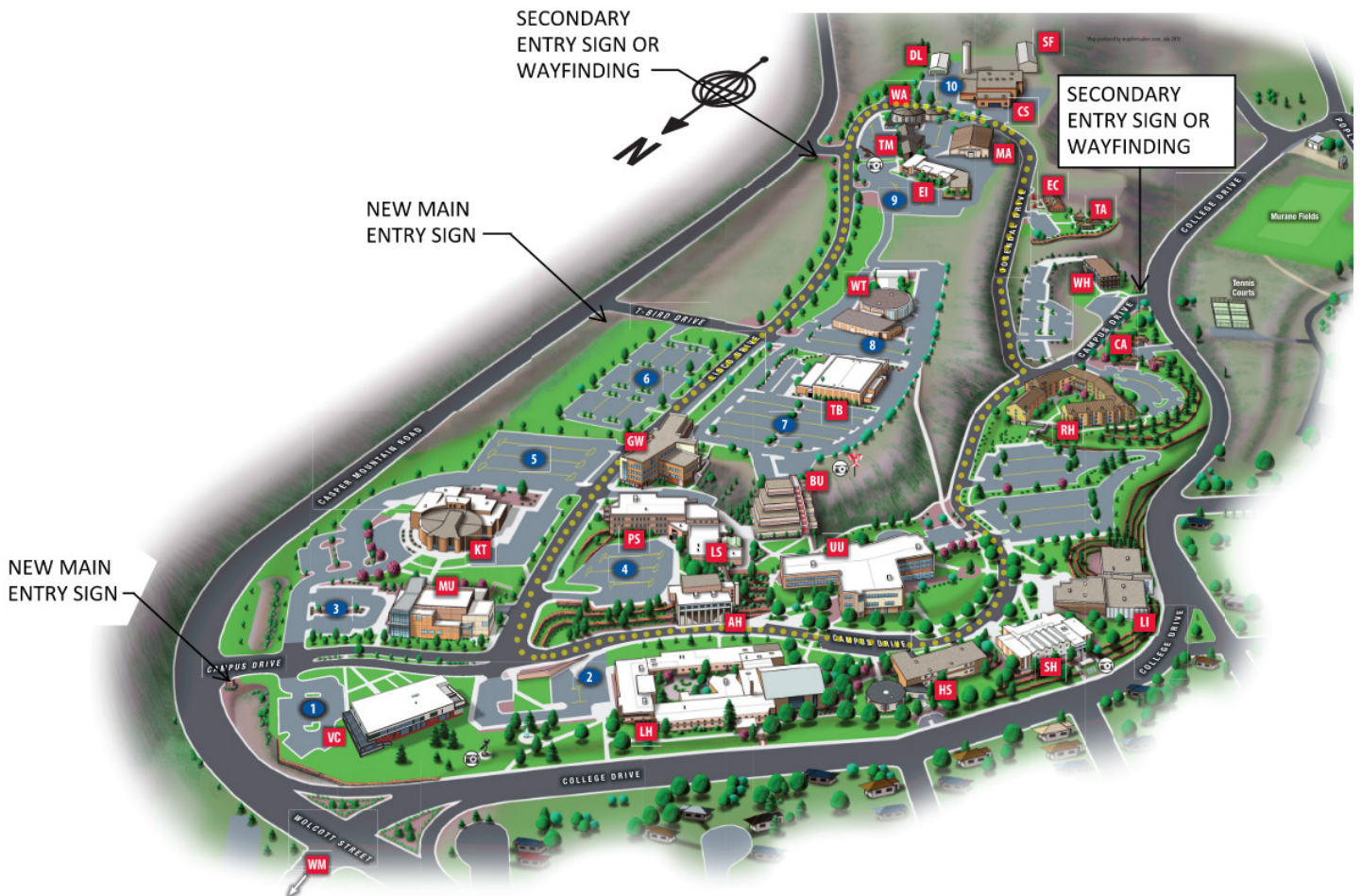






Casper College Master Plan Refresh

We would suggest a scaled down version at the other entry points on campus that maintain the brand. These could also have digital displays if desired. Establishing a hierarchy of entry points is important for directing traffic and will support better circulation. It is proposed that the signs with the LED digital displays be installed at the main campus entrances on Casper Mountain Road. This will also alleviate any light pollution from the signs disturbing neighbors or students living in the residence hall and apartments. Any lights used on the secondary entries will be designed to light the sign and not the surrounding areas.



Estimated costs for each primary entry sign is between \$225,000 and \$250,000, with small signage anticipated at \$100,000 per sign.



Casper College Campus Master Plan Refresh

Mechanical | Electrical Assessment



ASSOCIATED • CONSTRUCTION • ENGINEERING

MECHANICAL – PLUMBING - ELECTRICAL

Casper College is comprised of approximately thirty (30) buildings totaling approximately 1,000,000 square feet of floor area spread over 200 acres. Presently there are five (5) technicians and a facility manager to maintain and service the HVAC, Plumbing, Electrical, and Grounds. The technicians include a HVAC tech, a Temperature Control tech, a Master Plumber, and two (2) Electrical techs. All buildings are operated via their independent building systems. The campus does not contain a central plant for heating or cooling production. Each building has its independent HVAC, plumbing, and electrical systems with no consistent commonality of system type across buildings other than general application of air handling equipment manufactured by AAON and boilers by Lochinvar. All buildings are individually utility metered with the following utility service providers:

- Natural Gas: Black Hills Energy
- Electrical: Rocky Mountain Power
- Water: City of Casper

Fiber optics communication transmission has been distributed throughout the campus with secondary distribution to each of the buildings in process.

The primary contracted building services are provided as follows:

- Fire Alarm: Rapid Fire Protection, Inc.
- Heating Hot and Chilled water chemical treatment: Summit Lab (Denver based company)
- Building Temperature Control Services: Dynamic Controls, Inc. (Schneider Electric component basis)

The facilities maintenance staff is challenged to provide proper periodic and seasonal preventative maintenance and service given the number of systems, equipment, and devices, the age of some of the equipment and infrastructure, and the number of staff.

The campus has been in the process of upgrading all building lighting to LED type where deemed feasible.

It is our recommendation consideration be given to establishing a global Preventative Maintenance Program, whether developed in-house or through assistance with a qualified contracted company, to promote stable system and equipment operation, potentially improve efficiencies, minimize downtimes, extend service life, and allow facility personnel a proactive service and maintenance approach. Initial plan would be to develop a comprehensive listing of systems/equipment/devices per building: ID, Description, Mfg Date, Condition, etc. Thereafter work towards listing service and maintenance time periods & needs, whether internal or external sources are needed for service and maintenance, and the estimated remaining service life.

An additional recommendation would be to perform Retro-Commissioning of the respective building's essential mechanical system and potentially the lighting control system. Retro-Commissioning applies commissioning to an existing facility that may or may not have been previously commissioned. It consists of systematically investigating, analyzing, and adjusting operation of existing building equipment, systems, and assemblies, as well as training and documentation for operators to ensure that required performance (energy, comfort, and indoor air quality) is achieved to original or modified design

specifications. This process is managed by a qualified Commissioning Agent and should be done in collaboration with a qualified mechanical and electrical consulting firm.

Finally, during any planned building renovation or upgrade evaluate existing mechanical, plumbing, and electrical systems serving the subject area and consider system upgrades to improve thermal control and indoor environment, reduce energy consumption, simplify maintenance and serviceability, and contemporary building code compliance.

As mentioned above, there are approximately thirty (30) campus buildings. This Master Plan evaluation was limited to seven (7) of those buildings:

Aley Hall (AH)

Thorson Institute of Business (BU)

Saunders Health Science (HS)

Loftin Life Science (LS)

Wheeler Terrace (WH)

Getrude Krampert Theatre (KT)

Werner Tech Center (WT)

The following “5-YEAR MASTER PLAN – MECHANICAL/ELECTRICAL/PLUMBING – POTENTIAL PROJECT LISTING” provides probable projects to consider within the next five (5) years to address current aged equipment, system, and devices. These projects were identified through interviews with facility’s staff, input from some building users, on-site observations, and industry practice based on age of equipment and systems. Along with the 5-YEAR Listing are some further notes and information taken during facility interviews and tour of each of the subject buildings.

The items highlighted in “yellow” in the following “5-YEAR MASTER PLAN – MECHANICAL/ELECTRICAL/PLUMBING – POTENTIAL PROJECT LISTING” are our recommendations for priority items.

PROJECT: CASPER COLLEGE - 5-Yr MASTER PLAN ASSESSMENT SUMMARY
 ACE Project #:23SH5897
 Date: 3/4/2024



5-YEAR MASTER PLAN - MECHANICAL/ELECTRICAL/PLUMBING - POTENTIAL PROJECT LISTING							
ITEM #	AREA: CAMPUS \ BUILDING	SYSTEM	ITEM DESCRIPTION	TIME PRIORITY (Years)	CONCEPTUAL ESTIMATE BUDGET ALLOWANCE (\$)	COMPLICATION FACTOR: 1 TO 3 (1 IS LOW)	NOTES
MEP-001	CAMPUS	UTILITIES	Develop digital utility maps of the campus: water, sewer, gas, electrical, communication	3 - 5 yrs	\$50K to \$100K	2	College does not have campus wide digital utility file; electrical, communication, gas, water, and sewer.
MEP-002	PER BUILDING	MEP	Comprehensive Equipment / Device Listing per Building	1 - 3 yrs	\$5K to \$10K per Building	1	ID, Description, Mfg Date, Condition, Etc.
MEP-003	PER BUILDING	MEP	Establish Preventative Maintenance Program per Building	1 - 3 yrs	\$10K to \$20K per Building	1	Inhouse or Contracted Service to develop program
MEP-004	PER BUILDING	MECH	Retro-Commissioning	1 - 7 yrs	\$20K to \$40K per Building	2	Contracted Service with qualified Commissioning Agent and MEP Consultant
MEP-005	ALEY HALL (22,395 sq.ft.)	MECH	RTU Replacement	3 - 5 yrs	\$100K - \$500K	2	
MEP-006			Durham Hall AHU Replacement	3 - 5 yrs	\$100K - \$500K	3	
MEP-007			HVAC Upgrade	3 - 5 yrs	\$1M - \$3M	3	
MEP-008	THORSON INSTITUTE OF BUSINESS (30,039 sq.ft.)	MECH	Add boiler for heating system redundancy	3 - 5 yrs	\$100K - \$500K	2	
MEP-009			Replace air handler / chiller	3 - 5 yrs	\$500K - \$1M	2	
MEP-010		PLBG	Existing Cast Iron DWV rotting: further investigate and address	1 - 3 yrs	\$0 - \$100K	3	
MEP-011		CIVIL / ARCH	Ground water issues: further investigate and address	1 - 3 yrs	\$0 - \$100K	3	This item requires research by a Civil Engineer and Building Architect

PROJECT: CASPER COLLEGE - 5-Yr MASTER PLAN ASSESSMENT SUMMARY

ACE Project #:23SH5897

Date: 3/4/2024



5-YEAR MASTER PLAN - MECHANICAL/ELECTRICAL/PLUMBING - POTENTIAL PROJECT LISTING

ITEM #	AREA: CAMPUS \ BUILDING	SYSTEM	ITEM DESCRIPTION	TIME PRIORITY (Years)	CONCEPTUAL ESTIMATE BUDGET ALLOWANCE (\$)	COMPLICATION FACTOR: 1 TO 3 (1 IS LOW)	NOTES
MEP-012	SAUNDERS HEALTH SCIENCE (27,955 sq.ft.)	MECH	Heat Pump Upgrade including controls	1 - 3 yrs	\$1M - \$3M	2	
MEP-013		MECH	Air Compressor Plant Upgrade to commercial grade with filter and dryer	1 - 3 yrs	\$0 - \$100K	1	
MEP-014		PLBG	Restroom Plumbing Upgrade	3 - 5 yrs	\$0 - \$100K	2	Estimate based on the plumbing cost only. No general construction included in the estimate.
MEP-015		PLBG	Existing domestic water backflow preventer located in crawlspace - very difficult to inspect/service. Relocate or improve access.	1 - 3 yrs	\$0 - \$100K	3	
MEP-016	LOFTIN LIFE SCIENCE (19,450 sq.ft.)	MECH	HVAC Upgrade	1 - 3 yrs	\$100K - \$500K	3	
MEP-017		MECH	Heating Hot Water Plant Upgrade	1 - 3 yrs	\$100K - \$500K	2	
MEP-018		MECH	Temperature Control System Upgrade: Pneumatic to Direct Digital Control	1 - 3 yrs	\$0 - \$100K	2	
MEP-019		ELEC	Lighting System Upgrade	1 - 3 yrs	\$0 - \$100K	1	
MEP-020	WHEELER TERRACE (15,120 sq.ft.)	MEP	Pending if existing building being replaced with new	1 - 3 yrs	\$1M - \$3M	3	This building has infrastructure service & maintenance access safety issues. Age and current conditions suggest total building replacement. Estimate based on MEP Upgrade not new building.
MEP-021	WERNER TECH CENTER (37,904 sq.ft.)	MECH	HVAC Upgrades throughout tech areas. Existing systems are original vintage (28,000 sq.ft.)	1 - 3 yrs	\$1M - \$3M	2	
MEP-022		ELEC	Electrical Power System Upgrades throughout tech areas. Electrical system upgrade design completed in March of 2021 - no funding available at that time for construction. (ACE Project #20SH5143)	1 - 3 yrs	\$100K - \$500K	2	

PROJECT: CASPER COLLEGE - 5-Yr MASTER PLAN ASSESSMENT SUMMARY

ACE Project #:23SH5897

Date: 3/4/2024



5-YEAR MASTER PLAN - MECHANICAL/ELECTRICAL/PLUMBING - POTENTIAL PROJECT LISTING

ITEM #	AREA: CAMPUS \ BUILDING	SYSTEM	ITEM DESCRIPTION	TIME PRIORITY (Years)	CONCEPTUAL ESTIMATE BUDGET ALLOWANCE (\$)	COMPLICATION FACTOR: 1 TO 3 (1 IS LOW)	NOTES
MEP-023	GERTRUDE KRAMPERT THEATRE (48,414 sq.ft.)	MECH	Costume and Scene Shop: upgrade/renovate ventilation system inclusive of dust collection system, paint/dye area exhaust, etc.	1 - 3 yrs	\$100K - \$500K	2	
MEP-024		MECH	Facility: inconsistent heating and cooling - evaluate / repair / commission	1 - 3 yrs	\$0 - \$100K	2	
MEP-025		MECH	Facility: air handlers located in crawl space making access & service difficult. Review and address.	1 - 3 yrs	\$100K - \$500K	3	
MEP-026		PLBG	Scene Shop: Upgrade utility sink and add plaster trap	1 - 3 yrs	\$0 - \$100K	1	
MEP-027		ELEC	McMurry Main Stage Houselight: Upgrade houselight system	1 - 3 yrs	\$0 - \$100K	1	
MEP-028		ELEC	Review/Evaluate existing electrical service - upgrade at deficiencies	1 - 3 yrs	\$100K - \$500K	1	

TIME PRIORITY

1-3 yrs - system issues impact the facility operation

3-5 yrs - system works for now but needs to be addressed

CONCEPTUAL ESTIMATE BUDGET ALLOWANCE

Estimate Budget is conceptual range. More refined budget would be established upon further refinement and details of the specific project scope, when & timeline for the work, and economic conditions when the work would potentially occur.

Casper College Master Plan Refresh

PROJECT: CASPER COLLEGE - 5-Yr MASTER PLAN ASSESSMENT
SUMMARY
ACE Project #:23SH5897
Date: 3/4/2024

BUILDING DESCRIPTION	
ORIGINAL BUILD:	1968
REMODEL YEAR:	2015
ADDITION YEAR:	
# OF STORIES:	3
OVERALL FLOOR AREA:	22,395



AH - Aley Hall					
SYSTEM	DESCRIPTION	YEAR BUILT	YEAR UPGRADED	CONDITION	RECOMMENDATIONS / NOTES / OTHER
MECHANICAL					
DRY-SIDE EQUIPMENT	3rd Floor RTU Upgrade (Aeon Units)	1968	2011		Facility personnel suggests RTU Replacement
DUCT DISTRIBUTION	3rd Floor RTU Upgrade	1968	2011		Facility personnel suggests Theatre AHU Replacement
WET-SIDE EQUIPMENT	N/A				Facility personnel suggests HVAC Upgrade
PIPING DISTRIBUTION	N/A				
TEMPERATURE CONTROLS	DDC				
OTHER					
PLUMBING					
DWV SYSTEM	1st Floor Remodel	1968	2015		
DOMESTIC WATER SYSTEM	1st Floor Remodel	1968	2015		
STORM DRAINAGE SYSTEM	1st Floor Remodel	1968	2015		
PLUMBING FIXTURES	1st Floor Remodel	1968	2015		
DHW Plant	OK per CC				
OTHER					
FIRE PROTECTION					
PIPING SYSTEMS	N/A				
FIRE SPRINKLERS	N/A				
OTHER					
ELECTRICAL					
POWER DISTRIBUTION	OK per CC	1968			
BRANCH PANELS	OK per CC	1968			
LIGHTING	LED		2021		
OTHER					
SYSTEM SYSTEMS					
FIRE ALARM	OK per CC				
TELE/DATA	OK per CC				
OTHER					

Casper College Master Plan Refresh

PROJECT: CASPER COLLEGE - 5-Yr MASTER PLAN ASSESSMENT SUMMARY
 ACE Project #:23SH5897
 Date: 3/4/2024

BUILDING DESCRIPTION	
ORIGINAL BUILD:	1983
REMODEL YEAR:	2015
ADDITION YEAR:	
# OF STORIES:	4
OVERALL FLOOR AREA:	30,039



BB - Harry T. Thorson Institute of Business

SYSTEM	DESCRIPTION	YEAR BUILT	YEAR UPGRADED	CONDITION	RECOMMENDATIONS / NOTES / OTHER
MECHANICAL					
DRY-SIDE EQUIPMENT		1983			Facility personnel suggests adding another boiler for system redundancy
DUCT DISTRIBUTION		1983			Facility personnel suggests replacing the existing air handler and chiller
WET-SIDE EQUIPMENT	New Boiler		2022		
PIPING DISTRIBUTION					
TEMPERATURE CONTROLS	DDC				
OTHER					
PLUMBING					
DWV SYSTEM		1983			
DOMESTIC WATER SYSTEM		1983			
STORM DRAINAGE SYSTEM					
PLUMBING FIXTURES					
DHW Plant	OK per CC				
OTHER					
FIRE PROTECTION					
PIPING SYSTEMS	OK per CC	1983			
FIRE SPRINKLERS	OK per CC	1983			
OTHER					
ELECTRICAL					
POWER DISTRIBUTION	OK per CC				
BRANCH PANELS	OK per CC				
LIGHTING	LED		2021		
OTHER					
SYSTEM SYSTEMS					
FIRE ALARM	OK per CC		2010		
TELE/DATA	OK per CC				
OTHER					

Casper College Master Plan Refresh

PROJECT: CASPER COLLEGE - 5-Yr MASTER PLAN ASSESSMENT SUMMARY
 ACE Project #:23SH5897
 Date: 3/4/2024

BUILDING DESCRIPTION	
ORIGINAL BUILD:	1959
REMODEL YEAR:	2013
ADDITION YEAR:	
# OF STORIES:	2
OVERALL FLOOR AREA:	27,955



HS - Saunders Health Science Center					
SYSTEM	DESCRIPTION	YEAR BUILT	YEAR UPGRADED	CONDITION	RECOMMENDATIONS / NOTES / OTHER
MECHANICAL					
DRY-SIDE EQUIPMENT		1959			Facility personnel suggests Heat Pump Upgrade
DUCT DISTRIBUTION					
WET-SIDE EQUIPMENT	New Boilers		2018		
PIPING DISTRIBUTION	New Cooling Tower		2015		
TEMPERATURE CONTROLS	Combo Pneumatic + DDC. Baseboard heating uses pneumatic		2021		
OTHER					
PLUMBING					
DWV SYSTEM					
DOMESTIC WATER SYSTEM					No cold water to gang restroom lavatories. RPBFP access issues - located in crawl space.
STORM DRAINAGE SYSTEM					
PLUMBING FIXTURES					Facility personnel suggests Restroom Plumbing Upgrade
DHW Plant			2022		
OTHER					Facility personnel suggests compressed air plant upgrade
FIRE PROTECTION					
PIPING SYSTEMS	N/A				
FIRE SPRINKLERS	N/A				
OTHER					
ELECTRICAL					
POWER DISTRIBUTION	OK per CC				
BRANCH PANELS	OK per CC		1994		
LIGHTING	LED		2019		
OTHER					
SYSTEM SYSTEMS					
FIRE ALARM	OK per CC				
TELE/DATA	OK per CC				
OTHER					

Casper College Master Plan Refresh

PROJECT: CASPER COLLEGE - 5-Yr MASTER PLAN ASSESSMENT SUMMARY
ACE Project #:23SH5897
Date: 3/4/2024

BUILDING DESCRIPTION	
ORIGINAL BUILD:	1984
REMODEL YEAR:	
ADDITION YEAR:	
# OF STORIES:	2
OVERALL FLOOR AREA:	19,450



LS - Loftin Life Science Center					
SYSTEM	DESCRIPTION	YEAR BUILT	YEAR UPGRADED	CONDITION	RECOMMENDATIONS / NOTES / OTHER
MECHANICAL					
DRY-SIDE EQUIPMENT		1984			Facility personnel suggests HVAC Upgrade
DUCT DISTRIBUTION			2014		
WET-SIDE EQUIPMENT	PK Boilers currently in place.		1994		Facility personnel suggests Boiler Plant Upgrade. Have Lochinvar on-hand for
PIPING DISTRIBUTION					
TEMPERATURE CONTROLS	Pneumatic		2010		Facility personnel suggests convert to DDC system
OTHER					
PLUMBING					
DWV SYSTEM	OK per CC				
DOMESTIC WATER SYSTEM	OK per CC				
STORM DRAINAGE SYSTEM	OK per CC				
PLUMBING FIXTURES	OK per CC				
DHW Plant	Electric Water Heater		2021		
OTHER					
FIRE PROTECTION					
PIPING SYSTEMS					
FIRE SPRINKLERS	Partial Sprinkler System - Labs				
OTHER					
ELECTRICAL					
POWER DISTRIBUTION	OK per CC	1984			
BRANCH PANELS	OK per CC				
LIGHTING					Facility personnel suggests lighting upgrade to LED
OTHER					
SYSTEM SYSTEMS					
FIRE ALARM	OK per CC		2010		
TELE/DATA	OK per CC				
OTHER					

Casper College Master Plan Refresh

PROJECT: CASPER COLLEGE - 5-Yr MASTER PLAN ASSESSMENT SUMMARY
ACE Project #:23SH5897
Date: 3/4/2024

BUILDING DESCRIPTION	
ORIGINAL BUILD:	1970
REMODEL YEAR:	2010
ADDITION YEAR:	
# OF STORIES:	3
OVERALL FLOOR AREA:	15,120



WH - Wheeler Terrace Apartments					
SYSTEM	DESCRIPTION	YEAR BUILT	YEAR UPGRADED	CONDITION	RECOMMENDATIONS / NOTES / OTHER
MECHANICAL					
DRY-SIDE EQUIPMENT	PTAC units for rooms				
DUCT DISTRIBUTION					
WET-SIDE EQUIPMENT	New Boiler: Lochinvar. Rooms HHW perimeter baseboard heat		2022		Infrastructure maintenance/service access issues: safety
PIPING DISTRIBUTION					
TEMPERATURE CONTROLS	New Pneumatic controls		2023		
OTHER					
PLUMBING					
DWV SYSTEM					Infrastructure maintenance/service access issues: safety
DOMESTIC WATER SYSTEM					Infrastructure maintenance/service access issues: safety
STORM DRAINAGE SYSTEM					
PLUMBING FIXTURES					Facility personnel suggest fixture upgrade
DHW Plant					
OTHER					
FIRE PROTECTION					
PIPING SYSTEMS					
FIRE SPRINKLERS			2019		
OTHER					
ELECTRICAL					
POWER DISTRIBUTION					
BRANCH PANELS					
LIGHTING	New LED		2019		
OTHER					
SYSTEM SYSTEMS					
FIRE ALARM			2010		
TELE/DATA					
OTHER					

Casper College Master Plan Refresh

PROJECT: CASPER COLLEGE - 5-Yr MASTER PLAN ASSESSMENT SUMMARY
ACE Project #:23SH5897
Date: 3/4/2024

BUILDING DESCRIPTION	
ORIGINAL BUILD:	1985
REMODEL YEAR:	1995, 2003
ADDITION YEAR:	
# OF STORIES:	2
OVERALL FLOOR AREA:	48,414



KT - Gertrude Krampert Center for Theatre and Dance (Theatre Only)					
SYSTEM	DESCRIPTION	YEAR BUILT	YEAR UPGRADED	CONDITION	RECOMMENDATIONS / NOTES / OTHER
MECHANICAL					
DRY-SIDE EQUIPMENT					Scene/Stage Area: upgrade / improve dust collection system, ventilation/exhaust system.
DUCT DISTRIBUTION					
WET-SIDE EQUIPMENT			2018		
PIPING DISTRIBUTION					
TEMPERATURE CONTROLS	DDC		2010		Building controls upgraded
OTHER	DDC		2022		Boiler room controls upgraded
PLUMBING					
DWV SYSTEM					
DOMESTIC WATER SYSTEM					
STORM DRAINAGE SYSTEM					
PLUMBING FIXTURES					Scene Shop: upgrade utility sink and add plaster trap
DHW Plant					
OTHER					
FIRE PROTECTION					
PIPING SYSTEMS	OK per CC		2003		
FIRE SPRINKLERS	OK per CC				
OTHER					
ELECTRICAL					
POWER DISTRIBUTION			2002		Requires additional technical review and evaluation
BRANCH PANELS					
LIGHTING	LED		2019		McMurry Main Stage: upgrade houselighting system
OTHER					
SYSTEM SYSTEMS					
FIRE ALARM	OK per CC		2010		
TELE/DATA	OK per CC				
OTHER					

Casper College Master Plan Refresh

PROJECT: CASPER COLLEGE - 5-Yr MASTER PLAN ASSESSMENT SUMMARY

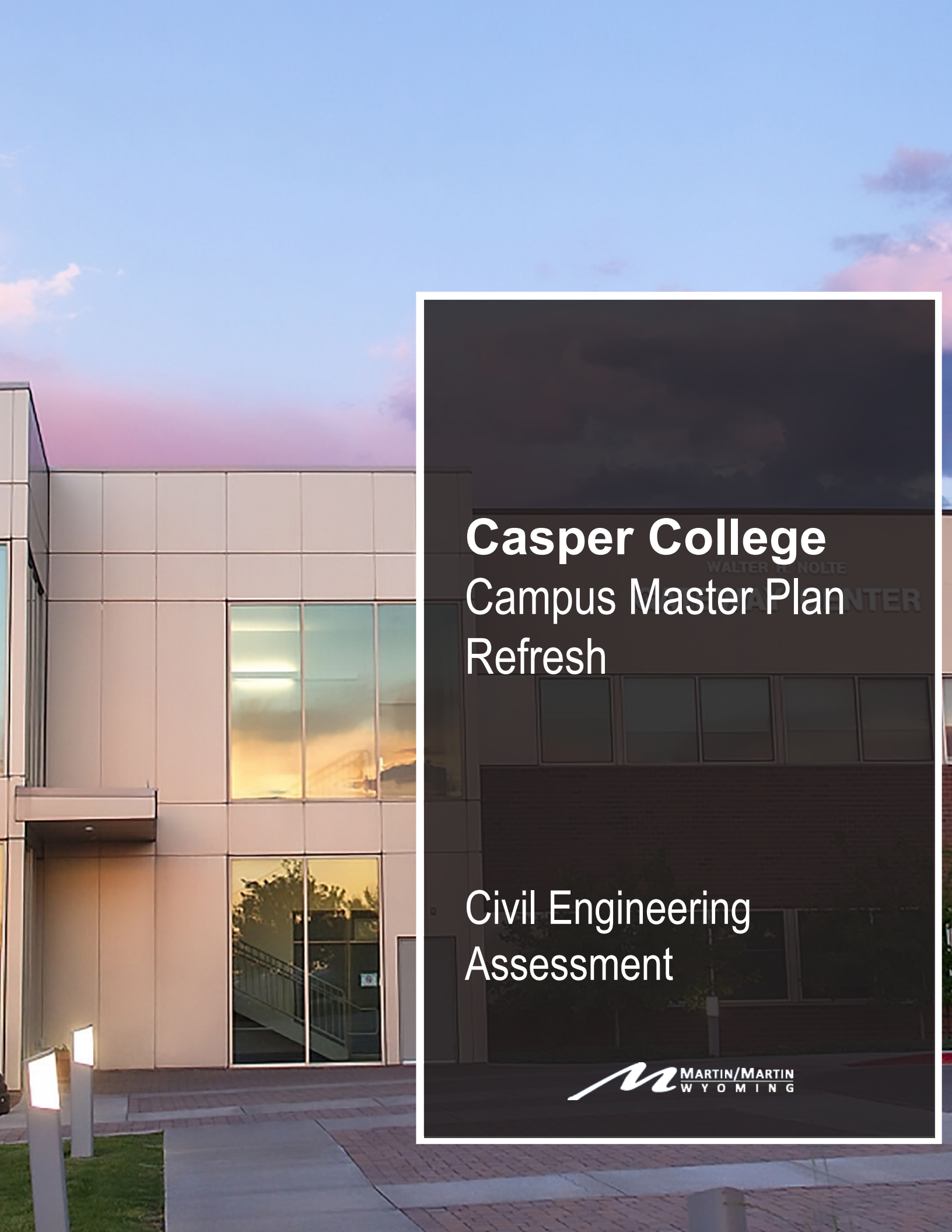
ACE Project #:23SH5897

Date: 3/4/2024

BUILDING DESCRIPTION	
ORIGINAL BUILD:	1967
REMODEL YEAR (Adult Ed):	2016
ADDITION YEAR:	
# OF STORIES:	1
OVERALL FLOOR AREA:	37,904



WT - Werner Technical Center					
SYSTEM	DESCRIPTION	YEAR BUILT	YEAR UPGRADED	CONDITION	RECOMMENDATIONS / NOTES / OTHER
MECHANICAL					
DRY-SIDE EQUIPMENT			2006		Facility personnel suggests HVAC Upgrade throughout the Tech Area
DUCT DISTRIBUTION					
WET-SIDE EQUIPMENT					
PIPING DISTRIBUTION					
TEMPERATURE CONTROLS	DDC		2010		
OTHER					
PLUMBING					
DWV SYSTEM	Continuing Ed Remodel		2017		
DOMESTIC WATER SYSTEM	Bathroom Remodel		2017		
STORM DRAINAGE SYSTEM					
PLUMBING FIXTURES					
DHW Plant					
OTHER					
FIRE PROTECTION					
PIPING SYSTEMS	N/A				
FIRE SPRINKLERS	N/A				
OTHER					
ELECTRICAL					
POWER DISTRIBUTION	Tech Area: Outdated and under performing. Upgrade required.				3/25/2021 99% CDs completed by ACE (project #5143) for Electrical Distribution Upgrade. Project did not get funded for construction
BRANCH PANELS					
LIGHTING	LED		2020		
OTHER					
SYSTEM SYSTEMS					
FIRE ALARM	OK per CC		2010		
TELE/DATA	OK per CC				
OTHER					



Casper College Campus Master Plan Refresh

Civil Engineering Assessment

 **MARTIN/MARTIN**
WYOMING



Master Plan Narrative – Casper College, Master Plan Update

General: Casper College is located south of Casper, Wyoming in Natrona County and consists of approximately 196 acres of developed and undeveloped land. It is bounded to the north, west and south by multiple residential developments and to the east by Casper Mountain Road and the Casper Municipal Golf Course. The existing site consists of roughly 30 multi-use and education buildings. These buildings range in age from one to 57 years old.

Domestic Water: The City of Casper is the domestic water service provider for the College. Each building on the campus has its own meter and shutoff with no master(s) meter for the campus. Internal to the campus, the system is private and is maintained by the College.

The existing water distribution system consists of water mains, laterals, service lines, and fire hydrants for the entire site. The water mains located throughout the site are either 8-inch or 12-inch and service connections vary in size. Although most of the buildings on the campus are equipped with a fire sprinkler system, there are a few that are not equipped with these systems.

Since the college was founded in 1945, it could be assumed that the older portions of the water distribution system consist of cast iron pipes. Since the college's opening, there have been significant modifications to the existing system. Portions of the system have been replaced with more modern lines and new lines have been installed during the construction of several new buildings. Most of the improvements have occurred on the northern half of the campus, where the majority of the buildings are located.

The distribution lines within the southern portion of the campus are believed to still be mostly the original piping due to a lack of expansion and newer buildings in that area. As per discussions with Casper College Facility Staff, this older portion of the system has deteriorated over time and lines break easily, and maintenance efforts have increased significantly. This is the area of primary concern for the facility staff. Staff has reported that failures observed include corrosion and damage to the lines due to severe tree root growth, with the service line going to the Werner Tech Building being in the worst condition.

It is assumed that the newer constructed buildings, those that have been built within the last 10 years, have backflow preventers per the Wyoming Department of Environmental Quality Rules and Regulations. It has been determined, during discussions with the facility staff, that buildings older than 10 years do not have backflow preventers. It is recommended that all facilities be assessed for backflow protection.

The City of Casper requires that the site plan be reviewed and signed by the City of Casper Fire Department, verifying the required fire flows and the locations of fire hydrants, building fire line, and fire department connection. Construction plans for water mains, domestic taps, fire lines, water meters, and fire hydrants are to be submitted to the City of Casper Engineering Department and Utility Department for review and approval. A DEQ Permit to Construct will be required for new fire line needed for the building sprinkler system, relocation of a water main, or any new fire hydrants needed around the site.

Sanitary Sewer: The City of Casper is the agency that accepts sanitary sewage from the College. The sanitary sewer system within the campus is private and maintained by the college and has multiple connections to the public sanitary sewer system. The existing sanitary sewer system consists of gravity laterals and mains that collect wastewater and carry it north towards College Drive. There are two separate sanitary sewer collection systems that serve the Casper College campus that consist of the west collection system and the east collection system. Both systems are connected to a main located along the northern boundary of the College's property in College Drive. From conversations with Casper College Facilities Staff, these sanitary sewer systems have been operating without any major issues and maintenance on the sanitary sewer has been minimal. One exception is on the southern end of the campus, which has multiple issues with aging pipes every year.

Per discussions with Casper College Facilities Staff, the sanitary sewer located on the east side of the Werner Tech building is believed to be an older clay pipe and is in an area where there is a lot of tree root growth. There has been severe damage to the clay pipe in this area and frequent root treatments have been needed to clear the pipes, along with patching or replacement of the pipe needed each year.

The east system serves Career Studies, Maintenance Building, Mrya Fox Skelton Energy Institute, Werner Tech, Swede Erickson Thunderbird Gym, Gateway, Business, Krampert Theater, Physical Science, Music, Tobin Visual Arts, Liesinger Hall, and the Loftin Life Science buildings. Existing drawings indicate that this system mainly consists of an 8-inch sewer main with either 4-inch or 6-inch laterals and services lines. There have been several modifications to this system over the years.

While portions of the east system consist of modern PVC pipe, the majority of the system consists of vitrified clay or unknown material. The east system has one connection to the City of Casper sewer system in College Drive in front of Liesinger Hall.

The west system serves all the Residence Halls, Civic Apartments, Goodstein Foundation Library, Strausner Hall, and Saunders Health Science buildings. Past design reports indicate that this system is also an 8-inch PVC main with laterals and services lines being 4-inch or 6-inch PVC. There have been several modifications to this system. Portions of the system consist of modern PVC pipe; however, the material of the rest of the system is vitrified clay or unknown material. The west system has multiple points of connection to the City of Casper sewer system in College Drive.

Storm Sewer: The storm sewer system within the campus is a private system, maintained by the College and feeds into the North Platte River. The storm sewer system generally conveys the flows from the entire campus to four locations: the east side of the campus, the north side of campus, the southwest side, and the west side of campus. Observations around the site and discussions with College Staff revealed there were only a handful of spots where the storm sewer infrastructure needs improvement, which to better help facilitate the movement of storm water during larger storm events. A detailed drainage study should be performed on the entire campus in order to develop a long-term plan to mitigate current and future drainage issues.

The three major locations that need improvement include the area around the Werner Tech Building, the central upper corridor, and the area around the Business Building.

Per discussion with Casper College Facility Staff, the Werner Tech Building issues included water flowing back into the building and ice forming on the walkways. These problems were believed to be due to the flat slope from the building to parking lot making it hard to get the water away from the building and keeping from ponding. This building was not walked during the site visit.

Around the central upper corridor on the west side of the Loftin Life Sciences and World Physical Science Building, there were two issues observed during the site walk.

- The first problem area was in the alley between the Business Building and the World Physical Science Building. Storm water appears to bypass the inlets located here and cause damage to the concrete through freeze/thaw action. It appears that this issue may be caused by the inlets being clogged and undefined flow paths, resulting in the majority of water bypassing the inlets and causing damage to the surfacing further downstream.



Photo 1: Poor drainage between Physical Science and Business Building

- Per discussion with Casper College Facility Staff, the Business Building drainage issues were noted as a stream of water flowing through the crawlspace in heavy storms. They have not been able to find the source of water or how it is going into the building. Currently, they are having to use sump pumps to help get the water out until after the storm subsides.



Photo 2: Damage downstream of Physical Science and Business Building

- The second location is along the west side of the Loftin Life Science Building where there appears to be standing water along the landscape and walking path and near the main west entrance to the building.



Photo 3: Evidence of sediment accumulation and ponding water



Photo 4: Poor drainage near west entrance to Loftin Life Science Building and Aley Hall

Site Grading and Drainage: Casper College is built on the side of a mountain, included in the Laramie Mountains, and consists of approximately 160 feet of grade change from the northernmost part of the property to the southernmost part of the property. The campus generally drains from south to north following the topography.

According to the utility maps, there is a storm drainage system that helps convey flows away from buildings and low spots. It appears that this system has been modified and expanded over the years as the campus grew and buildings filled in the open spaces. One item of interest is the lack of storm drainage and inlets at the low spots or collection spots. In some cases, this is due to structures obstructing existing flow paths, without flow paths being re-established around the structure. Buildings located in the central corridor are known to have the most issues, such as the Business Building and Gateway Building.



Photo 5: End of parking lot in front of Business Building



Photo 6: Drainage challenges at Business Building

A significant number of buildings utilize concrete surfacing and landscaping adjacent to the building. There are several locations where the landscaping or concrete has settled and has caused a low area against the building. This is particularly a problem near roof downspouts, where water exits the downspout, ponds against the building and then infiltrates into the expansion joint, where it causes heaving of the sidewalk and, in some cases, enters the building.



Photo 7: Inadequate landscaping and cover around the Krampert Theater



Photo 8: Concrete settlement along north face of Krampert Theater

A drainage study was not conducted as a part of this Master Plan update. Discussions with staff and on-site observations suggest that this system may not be adequately sized to convey flows or may not be extensive enough to capture the site runoff, especially from roof drainage and downspouts. Further detailed studies of the drainage system along the southern and central part of campus are recommended.

All future construction on Casper College Campus, and as part of the site approval process, the City of Casper will require an approved Site Plan, Grading Plan, Erosion and Sediment Control (GESC) permit, and a Storm Water Pollution Prevention Plan (SWPPP). Construction plans for the proposed storm sewer and detention/stormwater quality systems will also require review and approval from the City.

- **Wetlands:** Based on a review of the US Fish and Wildlife National Wetlands Inventory, there are no identified wetland areas on or near the campus.
- **Flood Plain:** The site is located on FEMA Firm Maps 56025C2004E dated May 18, 2015. Based on a review of these maps, the entire Casper College Campus is located within Zone X, an area outside the 500-year floodplain. Refer to the enclosed FEMA FIRM Map.
- **Site Layout and Circulation:** Per the last master plan update in 2018, and in discussions with College Staff, it is the desire to have a “connected campus” with pedestrian access to all facilities. Currently, there are three main pedestrian corridors that provide access to various buildings:
 - One corridor runs from the Residence Halls to the Visual Arts Building along the north side of Campus Drive. This provides access to six different buildings, but leaves students exposed to the elements.
 - Another corridor is located in the plaza between the Union, Business Building, and Life Science Building.
 - The third corridor connects the Residence Halls to the Union Building.

The parking lots provide direct access to most of the other buildings on campus. Vehicles are the preferred and main mode of transportation on campus due to weather, terrain, and the size of the campus.

There are several locations on campus where the routes from the parking lots to the buildings do not appear to meet ADA Requirements. This is due to the change in elevation between sidewalk panels and vertical transitions due to the concrete pavement or asphalt pavement moving and/or settling.



Photo 9: Pavement movement at the Saunder's Health Science west entrance



Photo 10: Pavement movement at the north side of Krampert Theater



Photo 11: Non complaint ADA Parking and routes at the Krampert Theater



Photo 12: Pavement movement at the Business Building south door

Throughout the campus, there are several connections from sidewalks to existing buildings or parking lots that consist of only stairs which don't meet ADA requirements. There are several buildings that lack sufficient direct ADA access to distinguished walking paths.

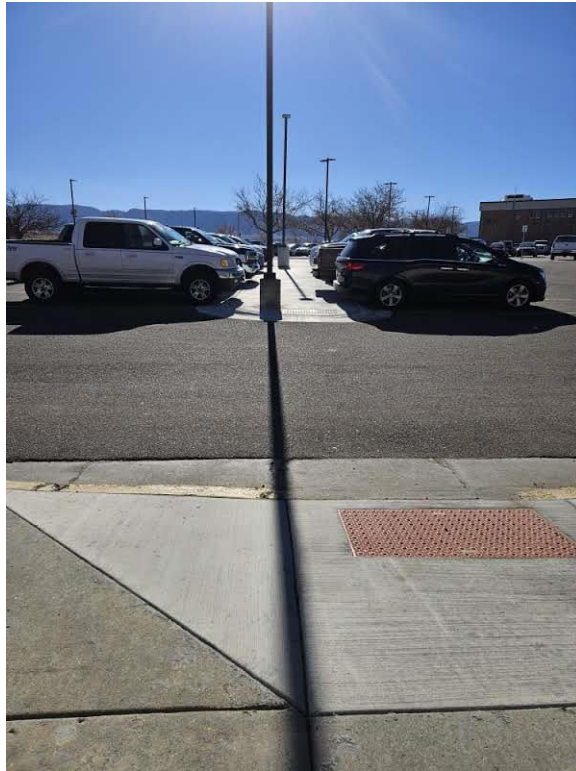


Photo 13 No ADA route from parking lot on north side of Business Building

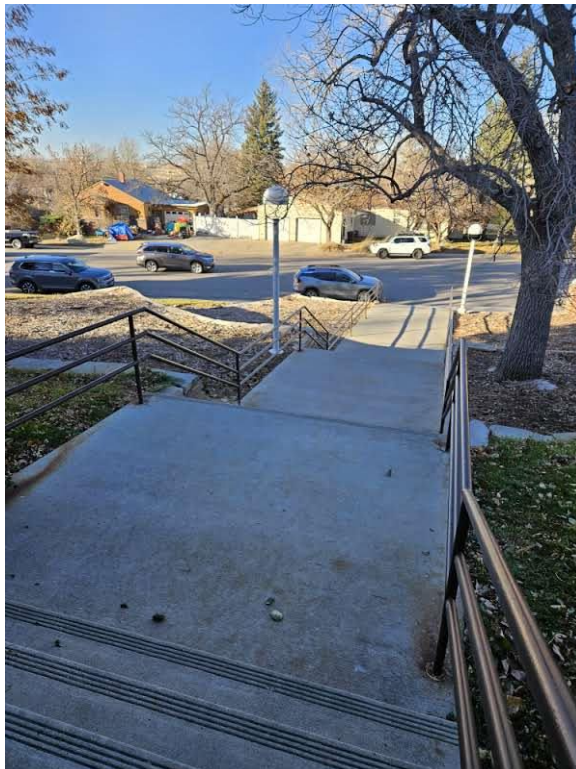


Photo 14: No ADA route from north entrance of Saunders Health Science Building



Photo 15: No direct ADA entrance to Loftin Life Science Building

Roadways, Pavement Markings, and Sidewalks:

- **Roadways:** Internal to Casper College, Campus Drive runs along the north side of the campus. It connects the west side of the campus to the east side. Josendal Road intersects Campus Drive on the west side of the campus and connects the south side to the north side of the campus and loops around to the east. Josendal Road turns into Lisco Drive on the east side of the campus and intersects Campus Drive in the southeast corner. Campus Drive serves as the primary access to all facilities on the north half of the campus. Staff has observed occasions of traffic backing up at the intersection of Campus Drive and Lisco Drive primarily due to intersection layout and proximity to parking lots, buildings, and one of four main exits/entrances on the campus.

Lisco Drive, Campus Drive, and Josendal Road surfacing appear to be in fair condition. All roadways are exhibiting visual weathering and degradation of the pavement. The roadways may be experiencing traffic beyond the original design limits due to additional growth of the college. Pavement maintenance plans should be developed based on general industry recommendations and then implemented to preserve the life of the existing pavement.

The primary vehicle entrances to the campus are located at the northwest and northeast corner of the campus (Campus Drive). There are two secondary entrances located south of the two main entrances that provide access to Josendal Road and Lisco Drive. The two primary entrances are clearly defined from College Drive and Casper Mountain Road with some signage. The two secondary entrances are still easily visible from Casper Mountain Road but are less prominent if not a person is not familiar with the campus. If Casper College were to expand and add onto the southern part of the campus, the secondary

northeast entrance could become a primary entrance. Any future access adjustments should be coordinated with the City of Casper and Wyoming Department of Transportation.

The campus does not have sufficient central wayfinding or a building identification system and does not have a parking lot wayfinding system. Building identification on the campus would consist of building names in white lettering on only one entrance to the building. Future traffic studies should also investigate the need for additional cautionary and advisory signs for pedestrian crossings including signaled crossings at locations of high pedestrian traffic.



Photo 16: Entrance signage at the Saunders Health Science Building east entrance



Photo 17: Entrance signage at the Loftin Life Science Center east entrance

- **Pavement Markings:** Pavement markings condition vary from good to very poor. Refer to the pavement conditions summary table in the enclosures for parking lot specific pavement marking conditions.
- **Sidewalks:** Overall, the sidewalk paving's are in good to poor condition. Although it was observed that sidewalk sections have been repaired and replaced over the years, there are still many locations where sidewalks need to be replaced concurrent with drainage improvements. It also appears that ADA standards may not be met in many locations due to sidewalk movement, settling, or cracking/chipping. A site-wide improvement plan has been developed and implemented by the college which identifies, and repairs ADA compliance issues related to site pedestrian paving and poor drainage every year.

Proposed Improvements:

Part of the Master Plan Updates include finding areas for additional expansion on the campus. There are currently four options for possible building expansions. Preliminary sketches are shown in the Appendix and briefly described below.

- **Option 1A - Health Sciences Stand Alone Option:**
This new building would be located at the corner of Lisco Drive and Thunderbird Drive on the east side of Campus. Currently, the area consists of a large existing parking lot providing close access to the Gateway Building, Physical Sciences Building, T-Bird Gym, Krampert Theater, Loftin Life Sciences Building, Business Building, and the Student Union Building. Utility connections to this proposed building would be pulled from the main located between the T-Bird Gym and Lisco Drive. There would be no

utility relocations associated with this project. However, it would displace a large number of parking spaces that would need to be relocated to a different place on campus, see the PARKING section below for further information on the number of stalls lost and the additional stalls needed.

- Option 1B- Health Sciences Stand Alone Option:

This new building would be located in between the Thunderbird Gym and Business Building on the west side of the existing parking lot. Utility connections to this proposed building would be pulled from the main located on the east side of this parking lot. There would be minor utility relocations associated with this project. This proposed building option would also displace a larger number of parking spaces for student and visitor parking due to the proximity to the Thunderbird Gym, see the PARKING section below for further information on the number of stalls lost and the additional stalls needed.

- Option 2A – Industry Stand Alone Option

This new building would be located on the South side of the Werner Tech Center. The building footprint would sit over the north parking lot adjacent to the Werner Tech Center and the road that connects the Werner Tech Center to the Energy Institute, Tate Geological Museum, Maintenance Building, and Grace Werner Agriculture Center. A portion of a 12-inch PVC water main, 8-inch VC sanitary sewer main, and fire hydrant would need to be relocated around the proposed building footprint. Additional service lines and fire hydrants for this building would need to be added. After this building finishes construction, the old Werner Tech Building could be demolished, and an additional large parking lot could be created to serve the new industry building as well as additional parking for the Thunderbird Gym. Parking spaces that are lost due to construction of the building will have to be relocated to a different place, see the PARKING section below for further information on the number of stalls lost and the additional stalls needed. The flow of traffic on this northern part of Campus will also be affected and will affect traffic at surrounding locations.

- Option 2B – Industry Stand Alone Option

This new building will be located across from the Career Studies building on the south side of Josendal Drive. The building will sit in an empty lot next to a parking lot and Casper Mountain Road. An 8-inch PVC water main runs west to east, just north of the proposed building, and a 16-inch DIP water main lies to the east of the proposed building parallel to Casper Mountain Road. WYDOT right-of-way may present an issue with the building setbacks and size of building that will be allowed. The parking lot and main entrance to the Career Studies building limit the expansion and size of this building as well. See the PARKING section below for further information on the number of stalls lost and the additional stalls needed. Additional parking will need to be evaluated near this building to provide adequate parking for the new facility, as well as existing facilities.

- Option 3A- Health Sciences and Industry – Combined CTE Center

This new building would be located at the corner of Lisco Drive and Thunderbird Drive on the east side of Campus. Currently, the area consists of a large existing parking lot providing close access to the Gateway Building, Physical Sciences Building, T-Bird Gym, Krampert Theater, Loftin Life Sciences Building, Business Building, and the Student Union Building. Utility connections to this proposed building would be pulled from the main located between the T-Bird Gym and Lisco Drive. There would be no utility relocations associated with this project. However, it would displace a large number of parking

spaces that would need to be relocated to a different place on campus, see the PARKING section below for further information on the number of stalls lost and the additional stalls needed.

- **Option 3B - Health Sciences and Industry - Combined CTE Center**
This new building would be located on the South side of the Werner Tech Center. The building footprint would sit over the north parking lot adjacent to the Werner Tech Center and the road that connects the Werner Tech Center to the Energy Institute, Tate Geological Museum, Maintenance Building, and Grace Werner Agriculture Center. A portion of a 12-inch PVC water main, 8-inch VC sanitary sewer main, and fire hydrant would need to be relocated around the proposed building footprint. Additional service lines and fire hydrants for this building would need to be added. Parking spaces that are lost due to construction of the building will have to be relocated to a different place, see the PARKING section below for further information on the number of stalls lost and the additional stalls needed. The flow of traffic on this northern part of Campus will also be affected and will affect traffic at surrounding locations.
- **Option 4A – Soccer Field with Proposed Parking Lot and Field House**
These new Soccer Fields and parking lot would be located in the same location as the old soccer fields. This new addition would allow more parking, larger fields, more spectators, and nicer facilities. A full-size collegiate field and a second smaller practice field could fit in this location. Challenges with these proposed improvements consist of staying within the college's property lines due to adjacent topographic features, College Drive, and on the edge of the college's property. The existing soccer fields in this location sit adjacent and below College Drive and back up to a steep slope on all sides. Careful planning and layout of this area for the proposed use and intention would be required. There is a large 18-inch sewer main that runs diagonally under the existing soccer fields from south to north and there is an 8-inch PVC water main that runs through the middle of the existing fields from west to east. There is also an 8-inch water main that runs under College Drive.
- **Option 4B – Soccer Field and Field House**
These new Soccer Fields and field house would be located in the south of the existing Thunderbird Gym where the existing Werner Tech Center is at now. This new addition would provide close access to the existing Thunderbird Gym and locker rooms for the student athletes. There would only be enough room for a full-size collegiate field, the practice field would have to remain in its existing location in Murane Field. This option would displace a large number of parking spaces that would need to be relocated to a different place on campus, see the PARKING section below for further information on the number of stalls lost and the additional stalls needed.

Parking: The potential eight (8) options mentioned above come with additional parking and removal of existing parking lots to accommodate for the new proposed buildings and additional students. Below is a summary of the number of parking stalls that would be removed and added with each option. The total number of students is expected to increase to 5,000 students provided by the architectural engineer. Per discussions with the architect the required number of parking stalls for the campus must follow City of Casper Municipal Code section 17.12.080 which requires Colleges or Universities to have 0.37 parking spaces per 1 student or 1,850 total stalls based on the total number of students being 5,000.

Table 1: Parking Summary

Options	1A	1B	2A	2B	3A	3B	4A	AB
# of Stalls on Campus	3,022	3,022	3,022	3,022	3,022	3,022	3,022	3,022
# of Stalls Removed	-78	-64	-17	0	-116	-87	0	-140
# of Stall Added	0	0	+150	0	0	+150	+100	0
Total # of Stalls	2,944	2,958	3,155	3,022	2,906	3,085	3,122	2,882

Permitting: The following is a list of potential permits or reviews that may need to happen based on a cursory review of local codes. This is not an all-inclusive list, and it may change as design progresses.

- Sanitary Sewer:
 - City of Casper Engineering Department
 - Wyoming Department of Environmental Quality (WYDEQ)
- Domestic Water:
 - City of Casper Engineering Department
 - Wyoming Department of Environmental Quality (WYDEQ) review and permit
- Storm Water:
 - City of Casper Stormwater Division
- Erosion Control:
 - City of Casper Engineer-Grading, Erosion and Sediment Control (GESC) permit
- Conditional Use Permit/Variance:
 - May be required based on City of Casper requirements
- Wetlands:
 - Appropriate consultation, Section 404 permitting
- Irrigation:
 - City of Casper

Reports Reviewed/References:

- Casper College Campus Facilities Master Plan Refresh 2018

Additional Recommended Studies/Plans:

- Traffic Study
- Parking Count Study
- Drainage Study
- Water Distribution Assessment and Study
- Site-wide assessment of pedestrian paths for ADA Compliance and repair
- Pavement Inspection and Maintenance Plan

Casper College Master Plan Refresh

Please do not hesitate to contact me with any questions.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Ben M. Nemec", with a long horizontal flourish extending to the right.

Benjamin M. Nemec, PE, Assoc. DBIA
Senior Project Engineer



DRAWING LOCATION: i:\2023\23-058 casper college master plan update\PLANS\CDS\CT100 - OPTION 1.dwg

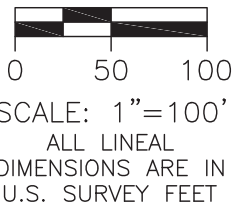
0 50 100
SCALE: 1"=100'
ALL LINEAL
DIMENSIONS ARE IN
U.S. SURVEY FEET

Health Sciences: Stand Alone Option (Option 1A)
Location: Parking Lot 6, T-Bird Drive and Lisco Dr

2024.04.12

 **MARTIN/MARTIN**
W Y O M I N G

6523 YELLOWSTONE ROAD, SUITE 200, CHEYENNE, WY 82009
307.637.8422 MMWYO.COM 119

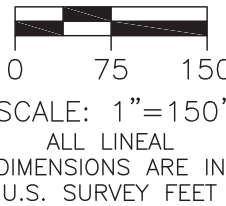
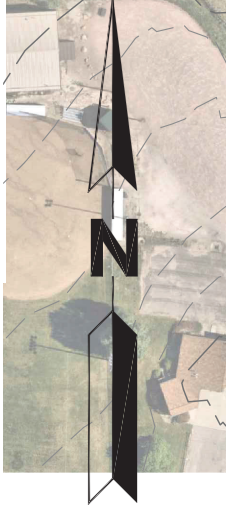
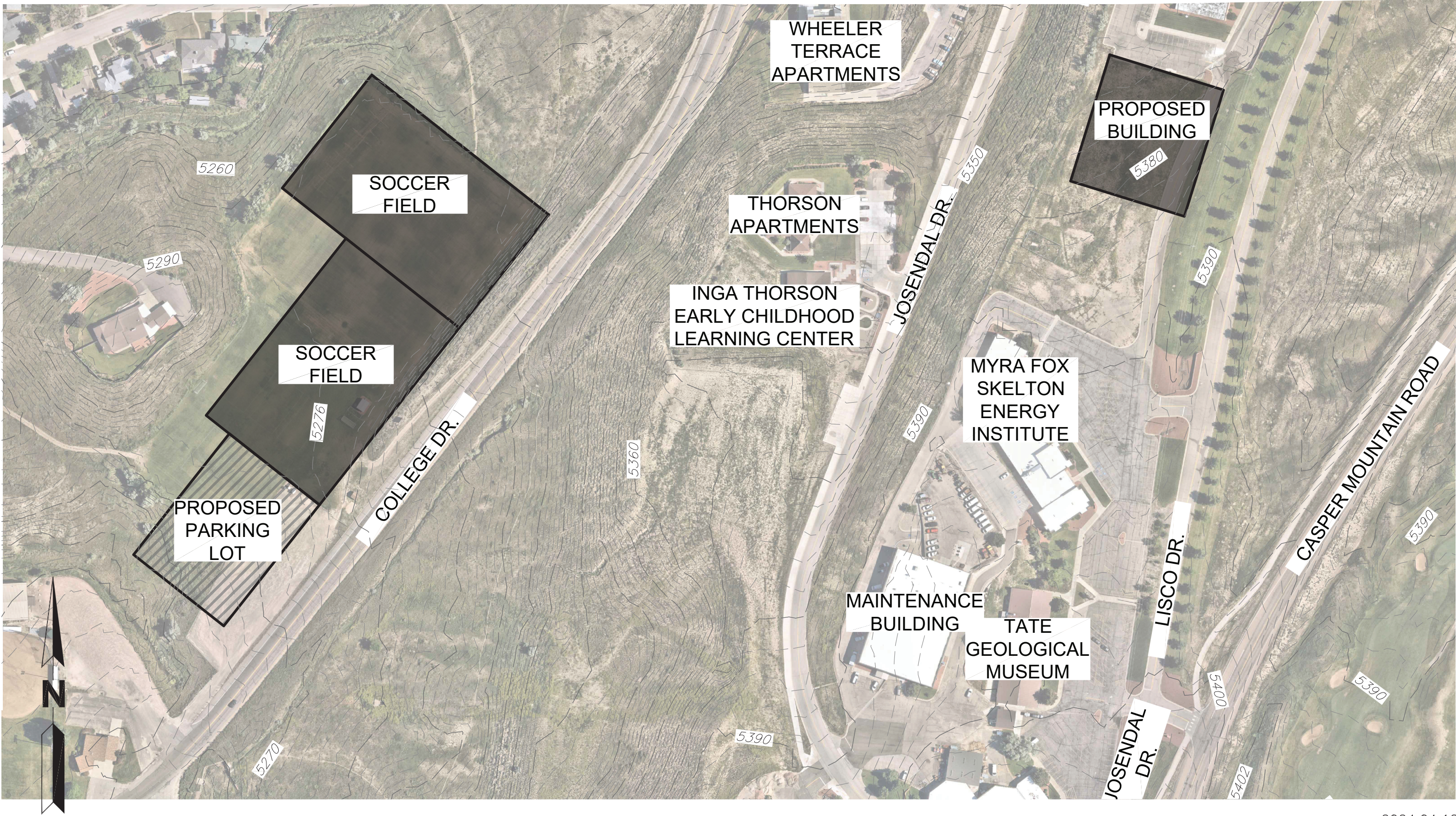


Industry Tech: Stand Alone Option (Option 2A)
Location: South of Werner Tech Building

2024.04.12



6523 YELLOWSTONE ROAD, SUITE 200, CHEYENNE, WY 82009
307.637.8422 MMWYO.COM 120



Collegiate Soccer Field + Practice Field W/ Field House (Option 4A)
Location: Murane Field

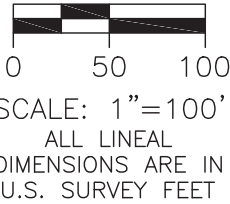
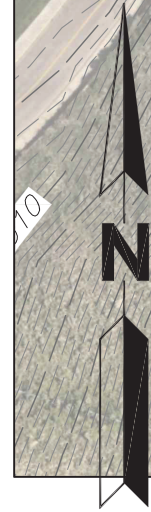
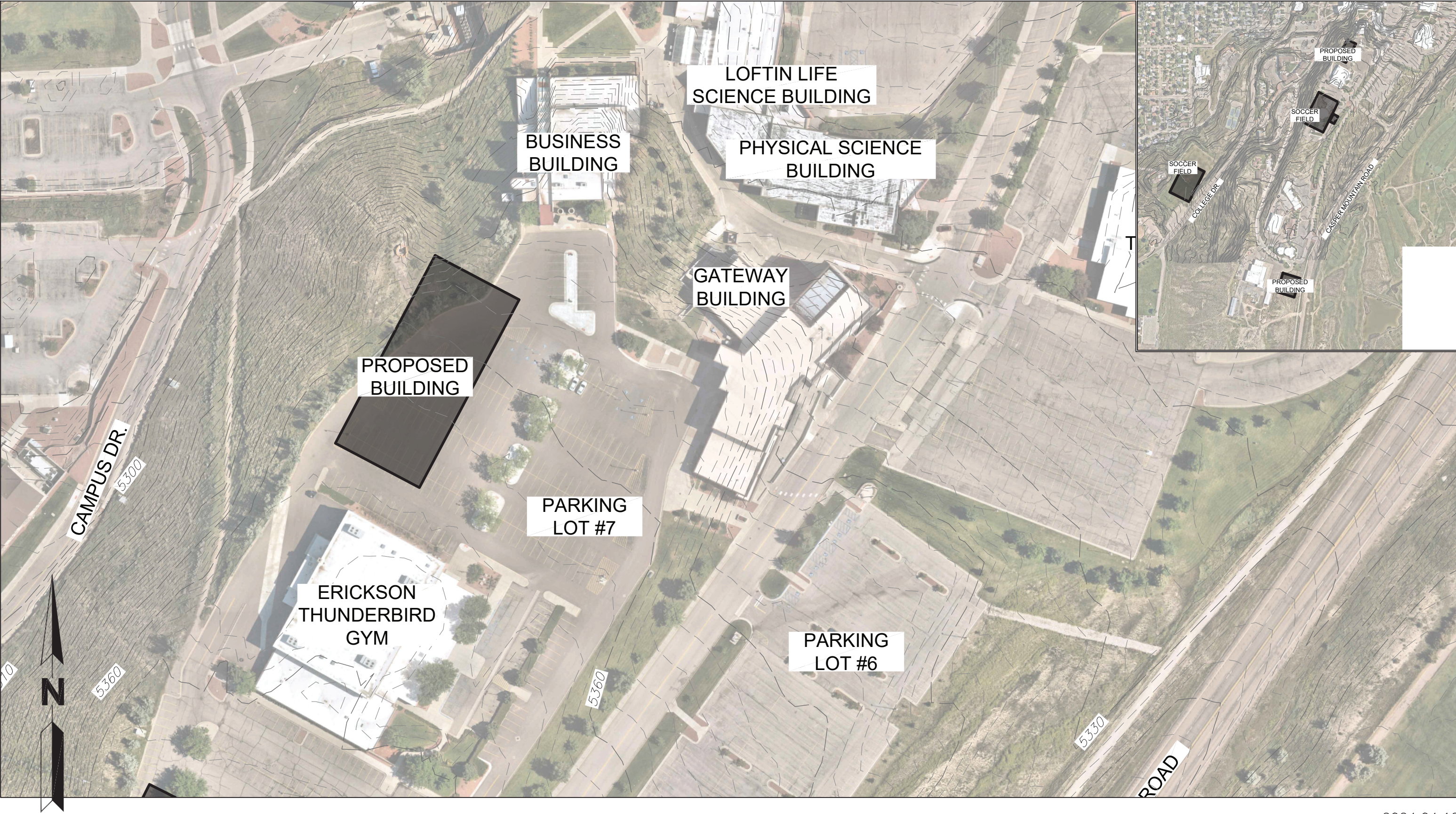
2024.04.12



MARTIN/MARTIN
W Y O M I N G

6523 YELLOWSTONE ROAD, SUITE 200, CHEYENNE, WY 82009
307.637.8422 MMWYO.COM 121

DRAWING LOCATION: i:\2023\23-058 casper college master plan update\PLANS\CDS\C100 - OPTION 1.dwg



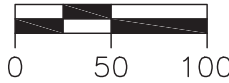
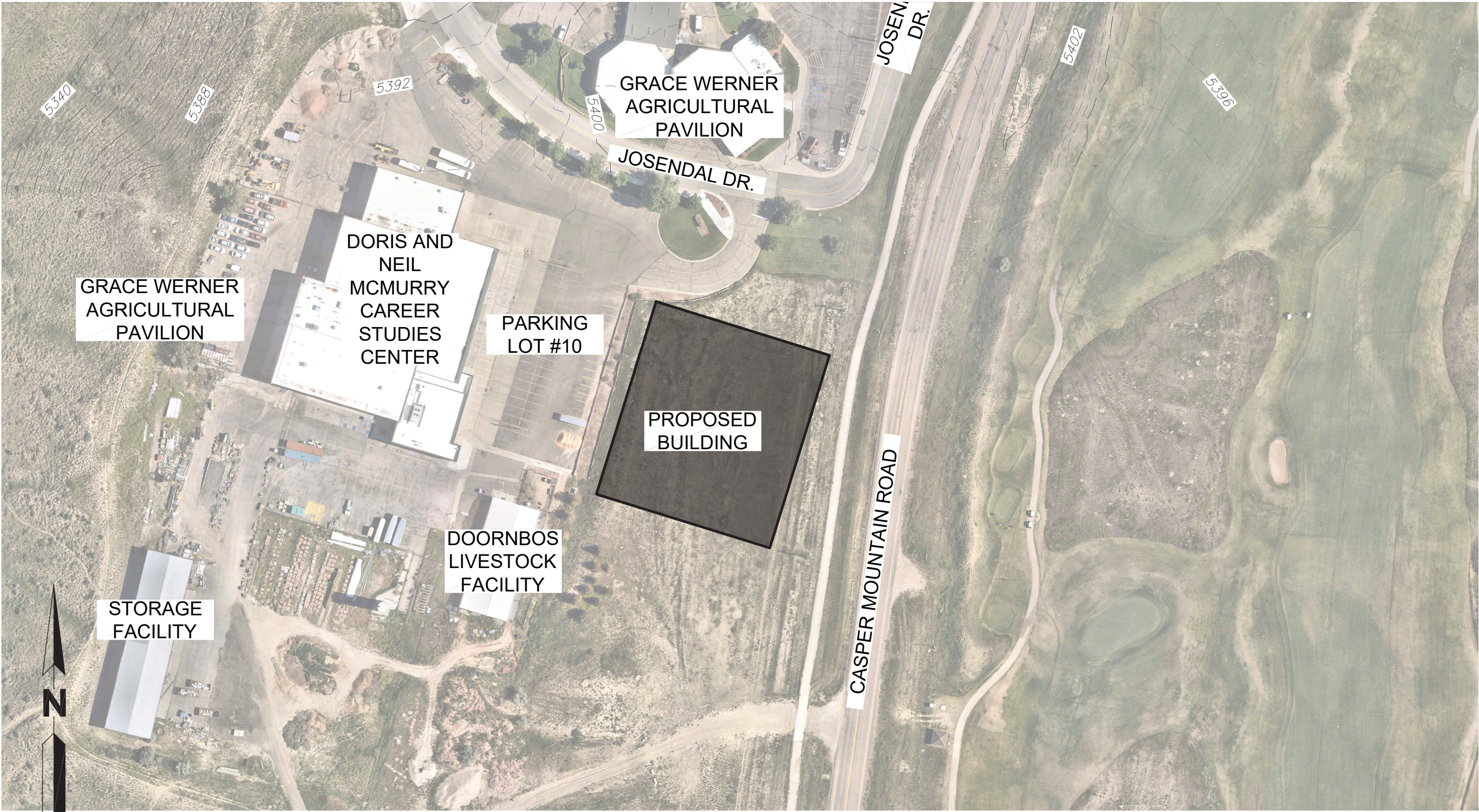
Health Sciences: Stand Alone Option (Option 1B)
Location: Parking Lot 7, North of T-Bird Gym

2024.04.12



6523 YELLOWSTONE ROAD, SUITE 200, CHEYENNE, WY 82009
307.637.8422 MMWYO.COM 122

DRAWING LOCATION: i:\2023\23-058 casper college master plan update\PLANS\CDs\C200 - OPTION 2.dwg



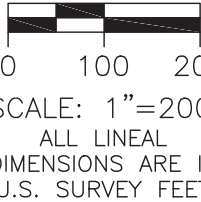
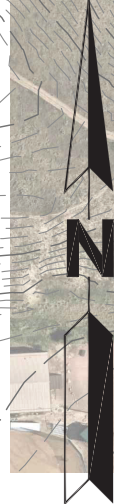
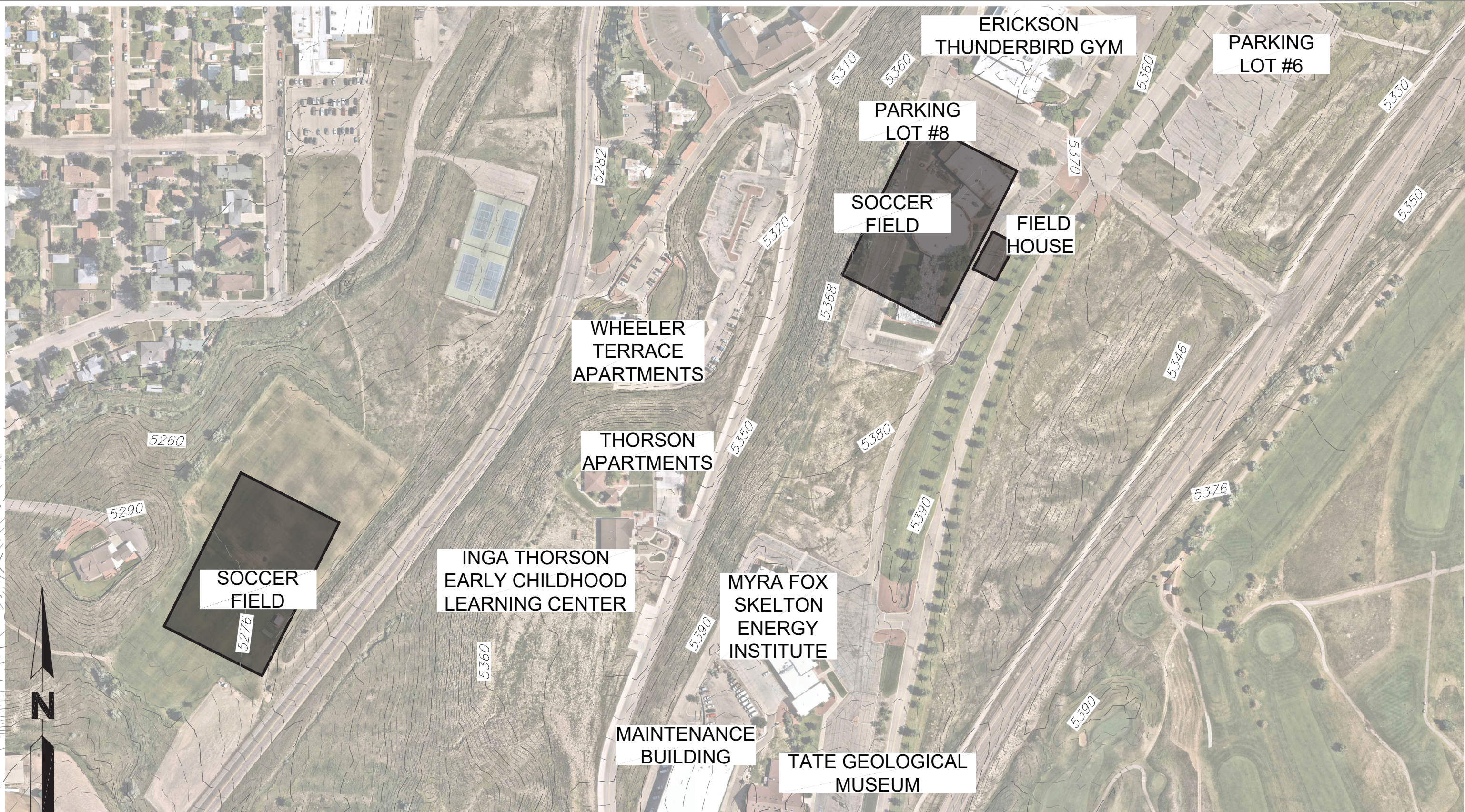
SCALE: 1"=100'
ALL LINEAL
DIMENSIONS ARE IN
U.S. SURVEY FEET

Industry: Stand Alone Option (Option 2B)
Location: Career Studies

2024.04.12



6523 YELLOWSTONE ROAD, SUITE 200, CHEYENNE, WY 82009
307.637.8422 MMWYO.COM 123

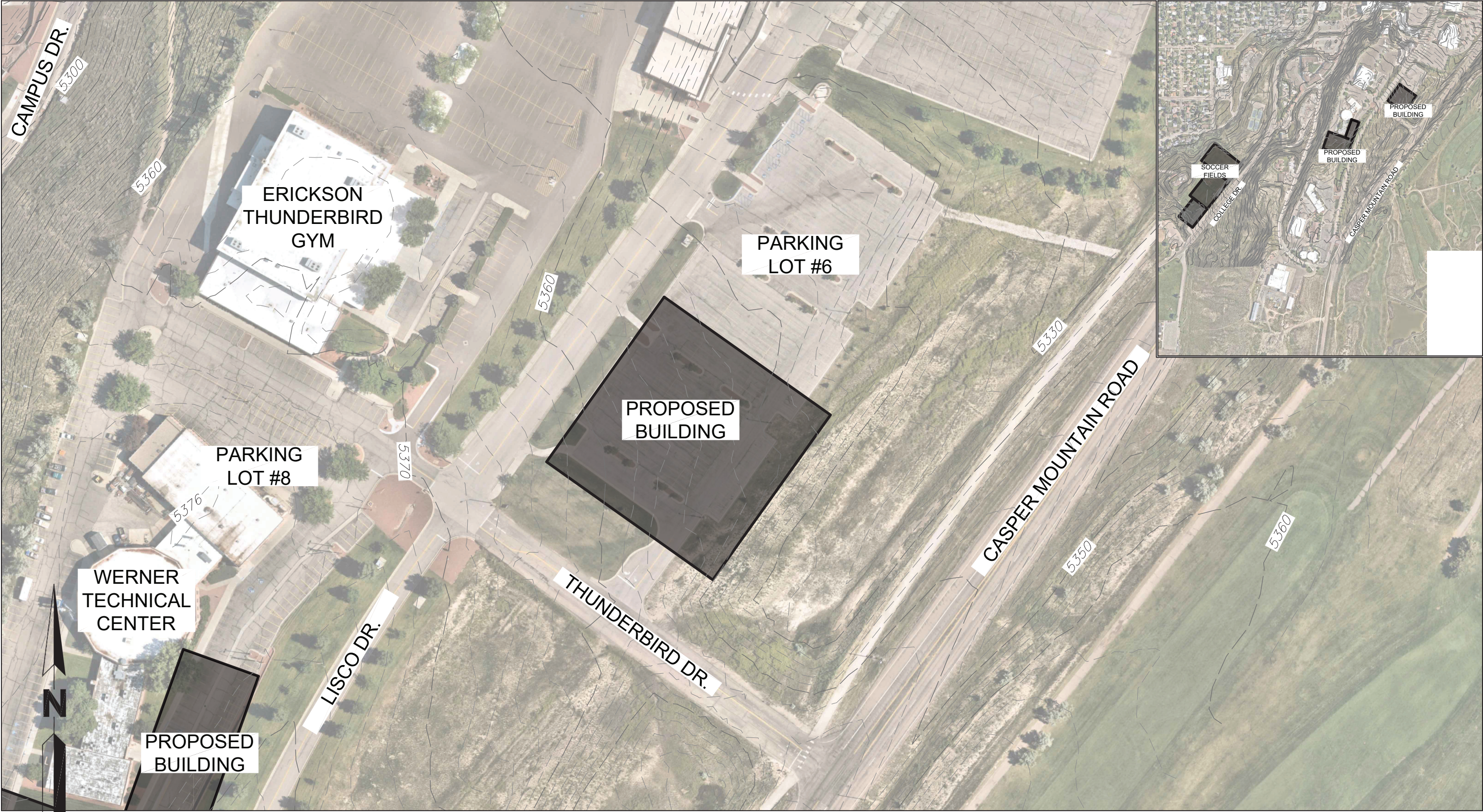


Collegiate Soccer Field w/ Field House & Practice Field at Murane Field (Option 4B)
Location: South of T-BIRD Gym & Murane Field

2024.04.12



6523 YELLOWSTONE ROAD, SUITE 200, CHEYENNE, WY 82009
307.637.8422 MMWYO.COM



DRAWING LOCATION: i:\2023\23-058 casper college master plan update\PLANS\CDS\C300 - OPTION 3 A & B.dwg



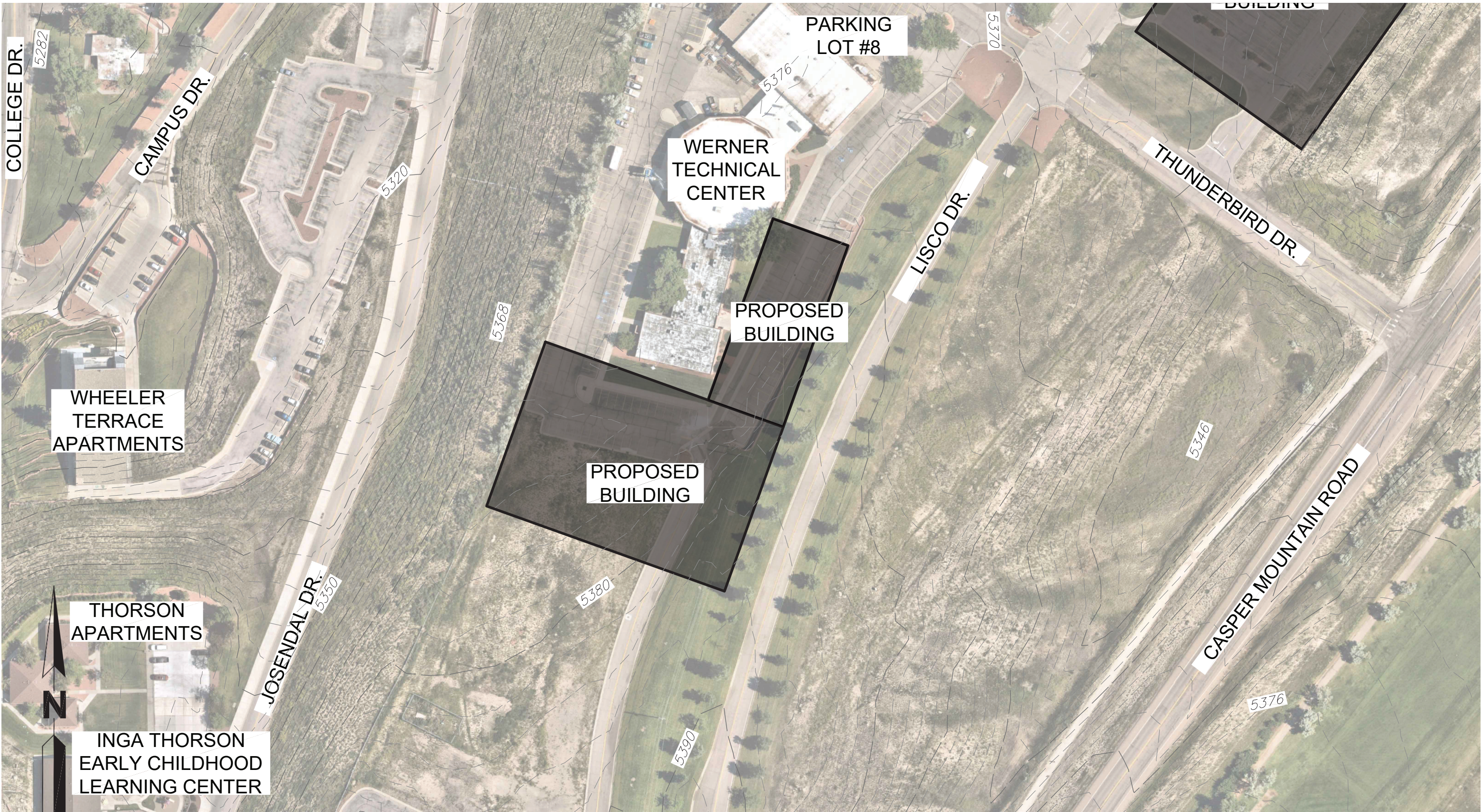
0 50 100
SCALE: 1"=100'
ALL LINEAL
DIMENSIONS ARE IN
U.S. SURVEY FEET

Health Sciences: Stand Alone Option (Option 3A)
Location: Parking Lot 6, T-Bird Drive and Lisco Dr

2024.04.12



6523 YELLOWSTONE ROAD, SUITE 200, CHEYENNE, WY 82009
307.637.8422 MMWYO.COM 125



DRAWING LOCATION: I:\2023\23-058 casper college master plan update\PLANS\CDS\C300 - OPTION 3 A & B.dwg



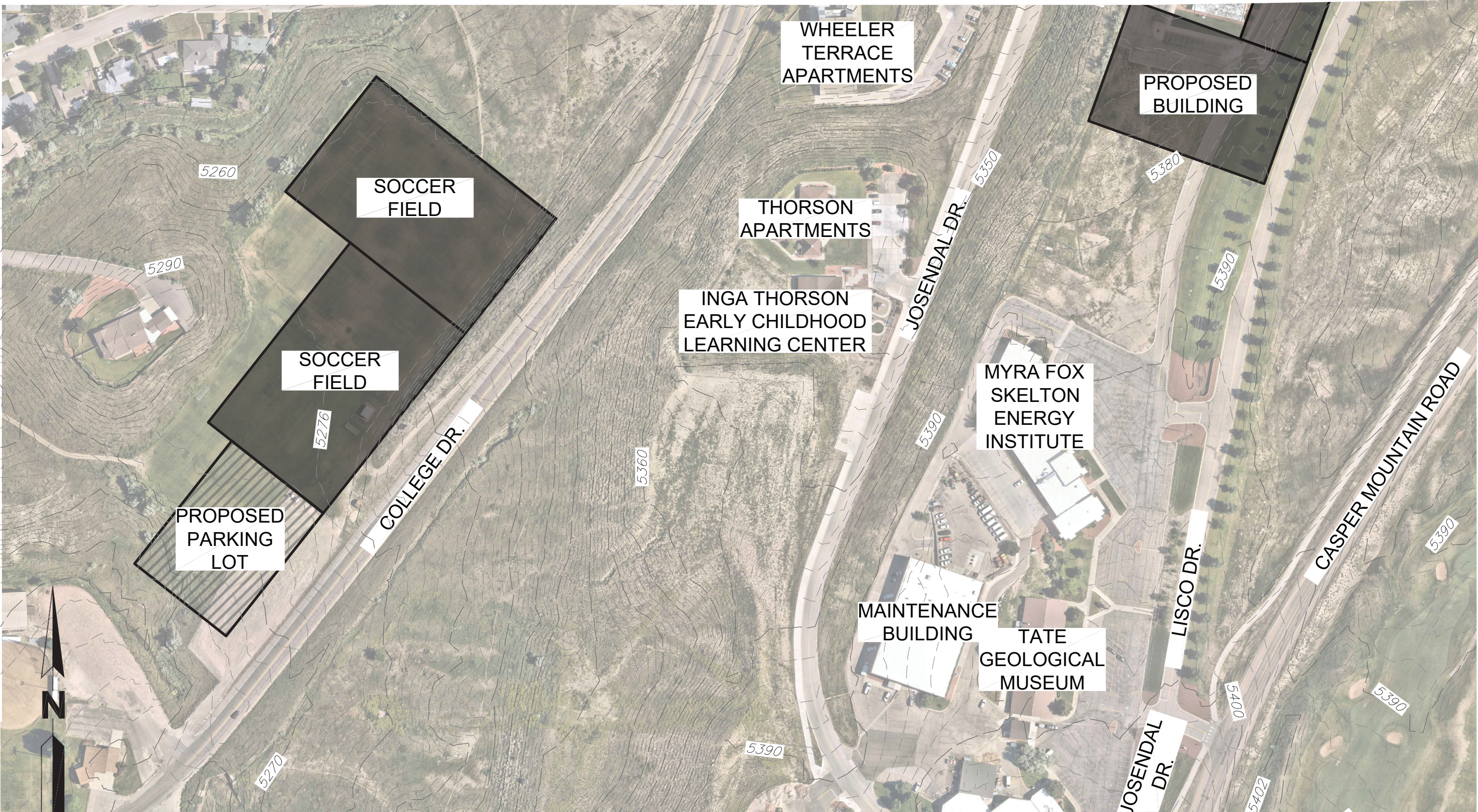
0 50 100
SCALE: 1"=100'
ALL LINEAL
DIMENSIONS ARE IN
U.S. SURVEY FEET

Health Sciences and Industry: Combined CTE Center (Option 3B)
Location: South of Werner Tech Building

2024.04.12



6523 YELLOWSTONE ROAD, SUITE 200, CHEYENNE, WY 82009
307.637.8422 MMWYO.COM 126



0 75 150
SCALE: 1"=150'
ALL LINEAL
DIMENSIONS ARE IN
U.S. SURVEY FEET

Soccer Field (Option 4A)
Location: Murane Field

2023.12.19



MARTIN/MARTIN
WYOMING

6523 YELLOWSTONE ROAD, SUITE 200, CHEYENNE, WY 82009
307.637.8422 MMWYO.COM
127



DRAWING LOCATION: I:\2023\23-058 Casper College Master Plan Update\PLANS\CDs\PROPOSED IMPROVEMENTS.dwg



SCALE: 1"=400'
ALL LINEAL
DIMENSIONS ARE IN
U.S. SURVEY FEET

2023.12.20



6523 YELLOWSTONE ROAD, SUITE 200, CHEYENNE, WY 82009
307.637.8422 MMWYO.COM 128



DRAWING LOCATION: I:\2023\23-058 Casper College Master Plan Update\PLANS\CDS\PROPOSED IMPROVEMENTS.dwg

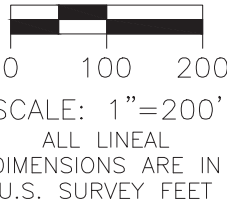


SCALE: 1"=200'
ALL LINEAL
DIMENSIONS ARE IN
U.S. SURVEY FEET

2023.12.20



6523 YELLOWSTONE ROAD, SUITE 200, CHEYENNE, WY 82009
307.637.8422 MMWYO.COM



2023.12.20



6523 YELLOWSTONE ROAD, SUITE 200, CHEYENNE, WY 82009
307.637.8422 MMWYO.COM 130



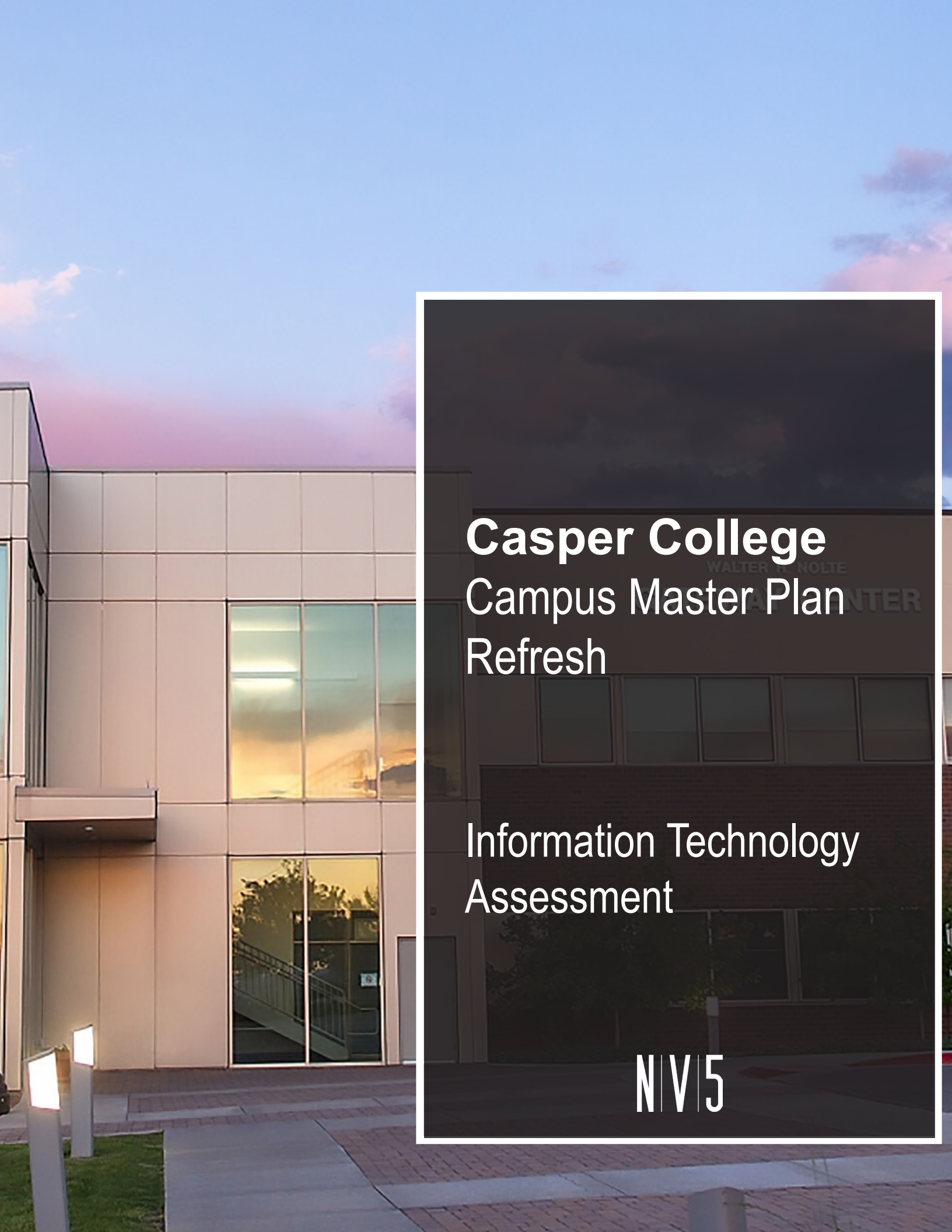
0 100 200

SCALE: 1"=200'
ALL LINEAL
DIMENSIONS ARE IN
U.S. SURVEY FEET

2023.12.20



6523 YELLOWSTONE ROAD, SUITE 200, CHEYENNE, WY 82009
307.637.8422 MMWYO.COM

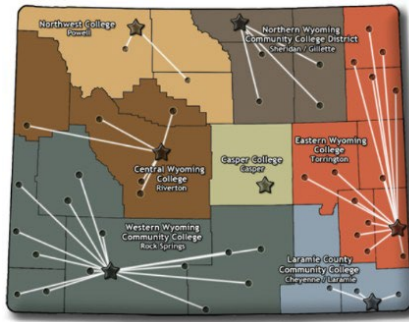
A photograph of a modern, multi-story building with a light-colored, grid-like facade and large glass windows. The building is illuminated from within, and the sky above is a mix of blue and purple hues, suggesting dusk or dawn. The building's name, "WALTER W. NOLTE CENTER", is visible on the upper right side of the facade.

Casper College Campus Master Plan Refresh

Information Technology Assessment

NIV|5

INTRODUCTION



Wyoming Community College Commission

Casper College is a public, tax supported, two-year, medium-sized, comprehensive community college accredited by the North Central Association of Colleges & Schools and a part of the Wyoming Community College Commission. The main campus is located in Casper, Wyoming with approximately 30 buildings situated on 200+/- acres.

Casper College is updating its current Master Plan last completed in 2018. Using the 2018 plan as a starting point including recent findings from a Mission Critical Facilities Analysis, current technology initiatives this update will focus largely on the existing buildings on the main campus.

The College has requested an examination of current facilities and programs, assessment of future needs and expectations of stakeholders, and preparation of reports to guide in the development of the updated Master Plan including long-term facilities plans. NV5 has been engaged to prepare an assessment of technology to contribute toward these efforts with a review of AV, IT, and Physical Security across living and learning spaces. The College would like to identify current trends in classroom utilization, furnishings and technology, to recommend modifications of the existing plan, and to determine if spaces and their related infrastructure and conditions meet program goals, user requirements, and alignment with the College's strategic plan. The assessment will also look at future growth opportunities as they pertain to technology. The report is intended to be a decision-making tool for planning purposes.

The Master Plan should facilitate long term flexibility and adaptability for buildings and technologies to accommodate both the College's current needs and also future demands and changes.

ABOUT THIS PROGRAM

This Technology Program is organized by technology discipline assessing Educational Technology and Audiovisual Systems, Information Technology, and Physical Security. The program begins by highlighting global trends in Educational Technology including a review of program goals and user expectations. A review of Casper College's technology equipped spaces follows. This section provides descriptions of the audiovisual functionality for each space type that are being planned for in the new buildings included in the Master Plan so that appropriate funding can be allocated in the planning process. Overall recommendations and comments are also provided based on industry best practices and our experience. It is also important at this stage of planning to envision emerging technologies and their potential impact on future design, renovation and construction, in addition to how the programs might evolve.

Following the Audiovisual sections, the program includes sections on Information Technology and Physical/Electronic Security for a campus wide standpoint as well as new buildings planned on campus. Recommendations and comments are based on the standards information provided by Casper College as well as discussions with the Office of Information Technology (OIT) and recent campus initiatives regarding outside plant and security standards.

A set of planning principles is listed to establish a foundation for decision-making. This program is meant to serve as a basis for planning and further discussion. This approach informs the planning team as specific project-based priorities are developed.

PROGRAM STRATEGY

From a technology systems perspective, it is important at this stage of the project to envision the entire campus, how the buildings interconnect, planned new building construction and how the programs' curriculum might evolve in the next five to ten years. This approach informs the design team in a way that causes the technology systems infrastructure to be developed to allow for evolution and growth.

DESIGN PRINCIPLES

Technology systems for all new building projects on higher education campuses should adhere to basic principles of prudent planning: flexibility, adaptability, scalability, supportability and so forth. In addition, these more unique principles should guide any future planning and design of the systems:

Aligned with Campus Plans	Technology solutions should be informed by relevant plans for the campus, such as the recent Technology Strategic Master Plan as well as this Master Plan Document.
Enterprise Architecture	Technology solutions should be designed from the perspective of an enterprise-wide architecture.
Appropriate Technology Quotient	All institutions have a unique level of technology that is optimal for their curriculum and campus at a particular time. The technology solutions for this project will be designed with a distinct level of technology, as directed by the stakeholders.
Supportable	The technology systems must be sustainable and supportable with a minimal investment in support personnel and services. "Help Desk" functionality is critical to both short- and long-term success.
Scalability	The solutions must meet the long-term needs of the campus. Since technology integration is integral to the teaching and learning process, the long-term needs of both faculty and students will be increasingly reliant on scalable solutions.

EDUCATIONAL SPACE EVALUATION

SPACES THAT TRANSFORM TEACHING AND LEARNING

A critical portion of our conversation for this project has been the possible increased role of active learning and the resulting impact on curriculum, faculty, students, architecture and technology environment. The implications of this discussion are far ranging and can be long-lasting; thus, the topic requires very deliberate consideration.

By not having a clear consensus and plan for moving forward with respect to this topic, future deployment of technology in educational spaces can be a rocky road with a significant amount of technology underutilized. Therefore, we encourage additional internal discussion on campus and consideration of a

The discussion below is presented as a brief synopsis of this complex and multi-faceted topic, as an aid for that discussion.

The Post-PowerPoint Era

The traditional lecture-style instruction approach is increasingly viewed as an outdated pedagogical model. Many colleges and universities are rethinking and restructuring the learning environment, challenging leaders of higher education to position their institutions to meet the demands of growing expectations and higher quality learning experiences. Trends show many institutions are moving away from the instructor lecturing from the front of the room and placing greater emphasis on the student collaboration, small work groups, and interactive learning. The Post-PowerPoint era has arrived on many campuses.

Many colleges are investing in the latest technologies, design concepts and flexible classroom configurations to reinvent the teaching and learning spaces. “Flipping the Classroom” has become a popular description of the approach: use out-of-class time for on-line dissemination of information, freeing in-class time for collaborative work, Problem-Based Learning and application of the material.

In the past, educators have had the luxury of determining the Space, the Schedule, and the Style of formal educational activities. Today’s students are increasingly unwilling to accept this approach; for them personalized learning takes place 24/7/365. Given the increasing evidence that Internet information and communication technologies are transforming much of society, there is little reason to believe that it will not be the defining transformative innovation for higher education in meeting the needs of students. There are demands on higher education to provide for a larger and more diverse cross-section of the population, to cater to emerging patterns on educational involvement which facilitates lifelong learning and to include technology-based best practices in the curriculum.

Today’s students expect a personalized education in the Space, Style, and Schedule of their choosing.

Teaching and learning improve when learning spaces are student-centered

Of course, on-line options allow students to learn while gathered together or while working apart - and to be connected to a community of learners anytime and anywhere, without being time, place, or situation bound. The increasingly prevalent practice of combining asynchronous Internet-based learning with face-to-face approaches can have a significant impact on traditional campus-based institutions. This blended learning approach deserves serious consideration while planning the learning spaces and technology infrastructure design.

Active Learning Results

The research on active learning is out and the message is clear. Teaching and learning improve when learning spaces are student-centered with collaborative-based instructional methods used in a technology rich environment embedded in the pedagogical approach.

Below are two success stories of how higher education institutions have embraced these pedagogical styles and adapted their learning space to meet the needs of today's students and instructors.

The SCALE-UP (Student Centered Active Learning Environments for Undergraduates) project at North Carolina State University has adopted this pedagogical strategy and has been highly successful with over 100 other facilities across the US following their lead. They redesigned classrooms of 100 students or more into active, engaged learning environments, radically changing the way classes are taught. NCSU has conducted extensive research in partnership with U.S. Department of Education on over 16,000 traditional and SCALE-UP students and summarize their findings as follows:

- ♦ Ability to solve problems is improved
- ♦ Conceptual understanding is increased
- ♦ Attitudes are improved
- ♦ Failure rates are drastically reduced
- ♦ "At Risk" students demonstrate improved outcomes

Research findings of The University of Minnesota's pilot evaluation of its high-tech, state of the art Active Learning Classroom suggest the following implications and recommendations:

- ♦ Students exceeded final grade expectations relative to their ACT scores.
- ♦ Students rated the new learning spaces significantly higher in terms of engagement, enrichment, effectiveness, and flexibility than traditional classrooms.
- ♦ Instructors adapted teaching strategies to new environment and found themselves in the role of learning coach or facilitator.

As with all new concepts, there may be some resistance to these design principles and a desire to do it the way it has always been done. This desire must be weighed against the realization that the digital natives of tomorrow will have a very different set of expectations for their learning experiences. They will require a blended approach that may include some traditional lecture, collaborative activities that engage them, and customized content delivered online that they can review in a Space, Schedule, and Style of their choosing.

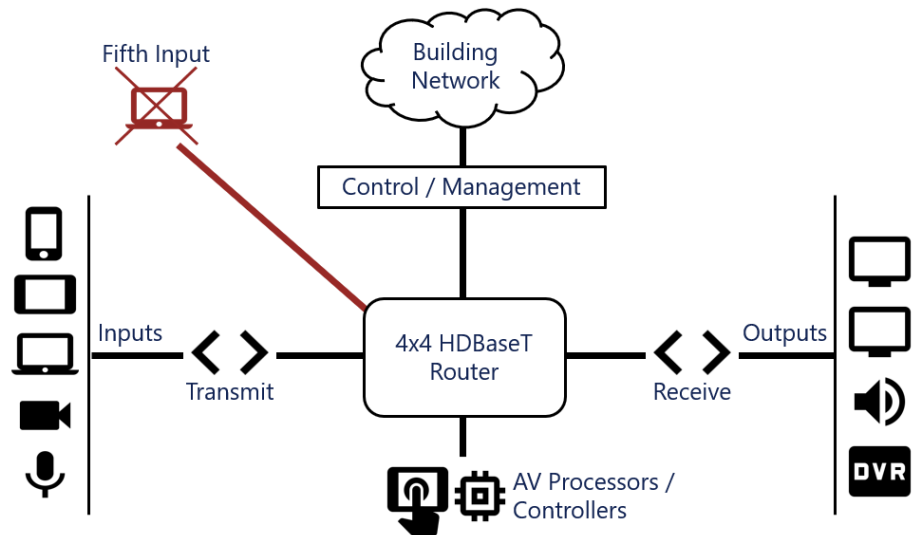
We strongly recommend that all project stakeholders examine new pedagogical concepts, emerging technologies, changing employer requirements and the evolving habits and expectations of both students and faculty as part of this Master Plan refresh. The Audiovisual requirements before include technology to modify classrooms into active learning environments. There is a cost associated with this additional technology and should be considered when planning cost for future renovations and new buildings.

OWNER CONSIDERATIONS

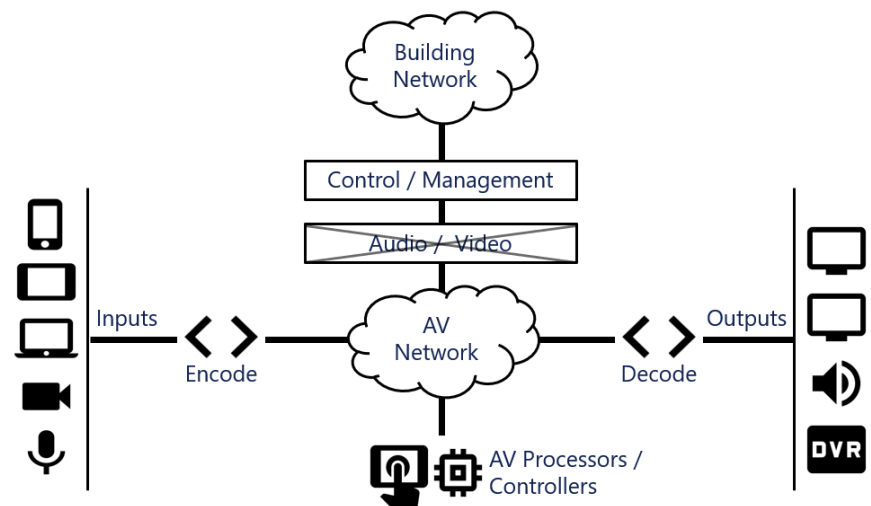
Master Planning efforts can be a good time to consider the future of technology in education and implications to the overall campus standards, student experiences and desired outcomes. A few areas are discussed briefly below, intending to encourage additional discussion by the campus.

AUDIOVISUAL SIGNAL TRANSPORT

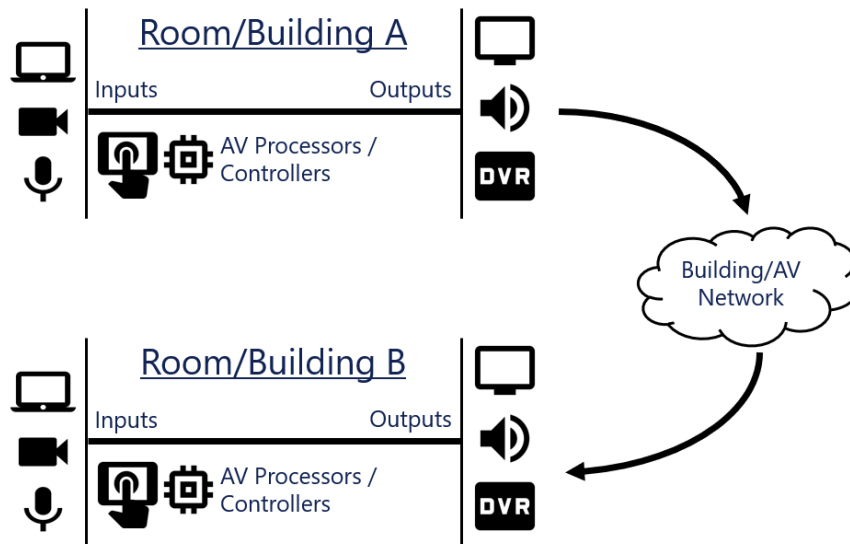
Conventional audiovisual distribution/switching systems rely on a frame-based architecture and transport system called HDBaseT. Where all inputs/outputs connect to transmitters/receivers, which are connected to a router. The major challenge with HDBaseT systems is that they are not very scalable. For example, if you have four sources and four displays, a 4 in x 4 out frame will suffice. However, if you need to add a fifth source, you will then need to remove the 4 x 4 frame and use an 8 x 8.



A progressive approach to the scalability issues of traditional audiovisual routing is often referred to as IP-Based transport. This method replaces the transmitters/receivers with network encoders/decoders and the router with a standard network switch. A central controller switches the sources audio/video signals to displays by routing the desired encoder's IP address to the display's decoder IP address. A major benefit to IP-based transport is its scalability and flexibility. We have coined the term "Software Defined AV" to describe these systems, as you are able to redefine the systems operation via software as opposed to hardware. All processing and switching equipment are centralized and only the encoders and decoders are in the rooms. If an extra source is needed, you simply add another encoder and connect it to a switch on the network. If you need to route a single in a way the was not originally intended, you simply reconfigure the system.

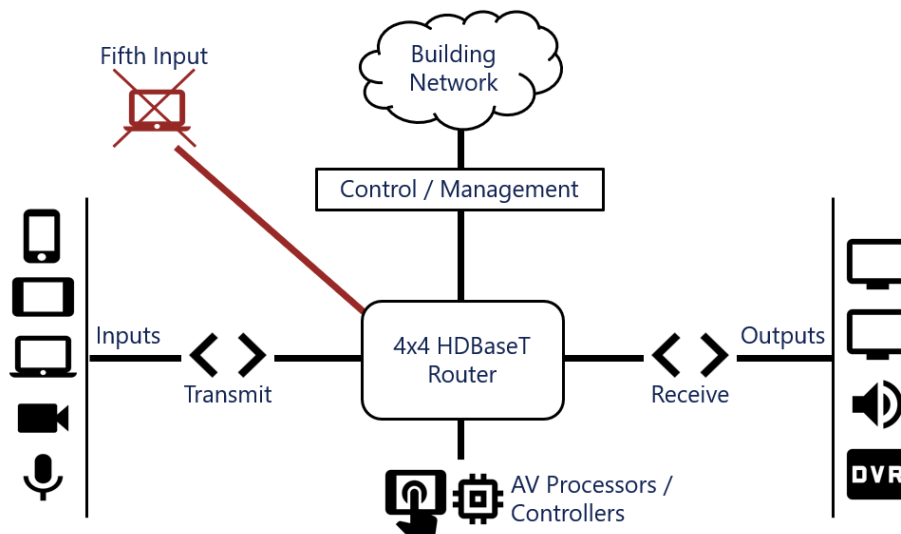


Another significant benefit to an IP-Based system is it natively allows routing of any source to any display on the entire network – not just routing of the sources and displays to which the individual switch is connected. This is a key component for the audiovisual systems described in the program within the active learning classrooms.



IP-BASED AUDIOVISUAL TRANSPORT

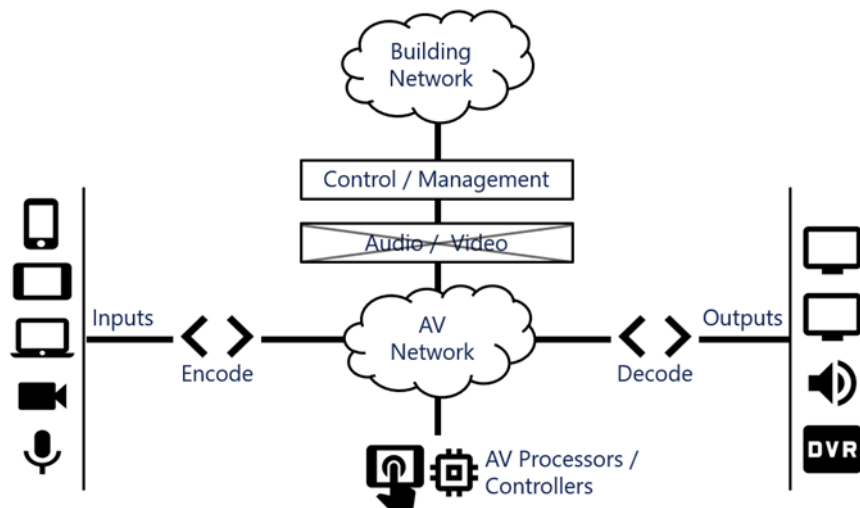
Conventional audiovisual distribution/switching systems rely on a frame-based architecture and transport system called HDBaseT. Where all inputs/outputs connect to transmitters/receivers, which are connected to a router. The major challenge with HDBaseT systems is that they are not very scalable. For example, if you have four sources and four displays, a 4 x 4 out frame will suffice. However, if you need to add a fifth source, you will then need to remove the 4 x 4 frame and use an 8 x 8.



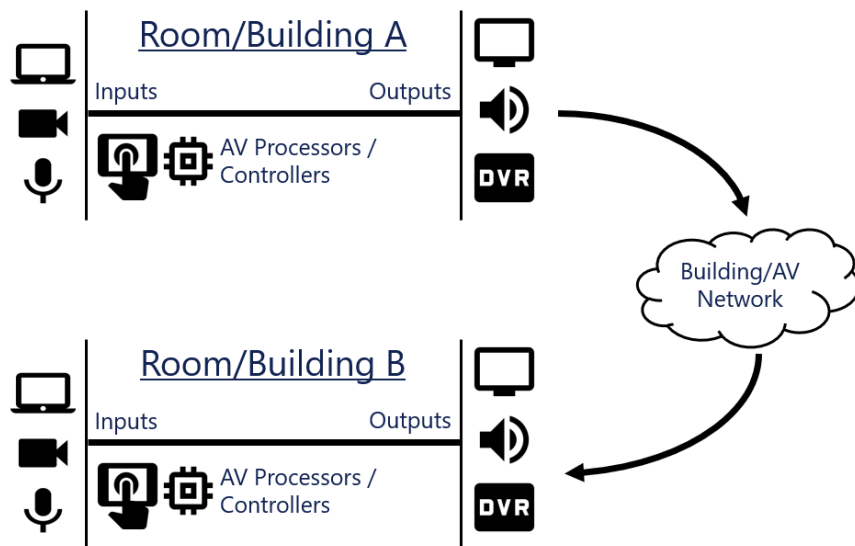
A progressive approach to the scalability issues of traditional audiovisual routing is often referred to as IP-Based transport. This method replaces the transmitters/receivers with network encoders/decoders and the router with a standard network switch. A central controller switches the sources audio/video signals to displays by routing the desired encoder's IP address to the display's decoder IP address.

A major benefit to IP-based transport is its scalability and flexibility. We have coined the term "Software Defined AV" to describe these systems, as you are able to redefine the systems operation via software as opposed to hardware. All processing and switching equipment are centralized and only the encoders and

decoders are in the rooms. If an extra source is needed, you simply add another encoder and connect it to a switch on the network. If you need to route a single in a way the was not originally intended, you simply reconfigure the system.



Another significant benefit to an IP-Based system is it natively allows routing of any source to any display on the entire network – not just routing of the sources and displays to which the individual switch is connected. This is a key component for the audiovisual systems described in the program within the active learning classrooms.



MEDICAL SIMULATION CAPTURE HARDWARE AND SOFTWARE

PLANNED HEALTH SCIENCES BUILDING

The Medical Simulation system addresses the acquisition, storage, playback and management of audio and video from multiple microphones and cameras as well as data from clinical instruments such as full-body manikins and task trainers.

The systems are compatible with a number of devices from various manufacturers and extend to assessment, grading, research, remote access for faculty and students (with proper credentials), scheduling and other administrative tasks associated with managing a medical simulation environment.

A small portion of these tasks can be handled by inexpensive packages that are available through some manufacturers of manikins. Options that are more powerful are available through third-party hardware/software developers, albeit at significantly higher costs.

Higher cost options have more advanced capabilities to capture more high resolution inputs, are generally easier to navigate, offer built-in or readily available scenarios, and contain more sophisticated options for administrative functions such as scheduling, self-evaluation, informal evaluation and formal assessment.

Other variables to consider include web-based vs. hosted, the extent of the information captured, ability to output to industry standard programs such as Microsoft Excel, calendaring, scalability, customization, capture in real-time vs. near real-time, and location of technical support resources. Of course, there are a huge number of more subtle differences such as batch-loading vs. loading an individual file that may be critical to intended workflow.

The selection of such a medical simulation capture provider is a critical decision and should not be overlooked. The University of Minnesota currently utilizes medical simulation capture systems from B-Line. NV5 can help facilitate on-campus demonstrations from other simulation capture hardware and software systems if desired.

DIGITAL SIGNAGE

In order to assure that the digital signage located throughout the facility does not become irrelevant or out of date; Casper College should identify individuals who will contribute and provide content to the digital signage system. The digital signage system will be configured to allow access by multiple users to the system through the network. Further, the system can be configured so that a single person or person(s) has authorization to publish content to the system supplied by the contributors

AUDIOVISUAL REQUIREMENTS – SPACE AND CAMPUS WIDE

CLASSROOM UPGRADES AND BUILDING INDUSTRY BUILDING

General Classrooms – Active Learning



Active Learning Classrooms should support two modes: Presentation Mode and Breakout Mode. Presentation mode will present content on the main display as well as mirroring content on all the table displays. Breakout mode will allow the students at each station to share content with the local display and collaborate. The local displays can be wall mounted or on mobile carts that allow additional furniture flexibility.

The instructor will have a touch down location or small lectern which will include a resident computer, auxiliary input connections, and document camera. The system supports local and remote collaboration via web-conferencing software loaded on the local computer (e.g., Zoom, Teams, etc.) and camera/ceiling microphones.

A touch-panel control system will allow simplified control from the lectern position. Program source audio as well as speech reinforcement will use an overhead, distributed speaker system. Additionally, the room will accommodate a hearing-assist system, in line with the 2010 ADA standards for accessible design.

The following audiovisual components are planned:

Planned Audiovisual Components	
Display	- Two (2) Large Flat Panel Displays appropriately sized for the space. - Flat Panel Displays at each table (wall mounted or on mobile carts) with HDMI inputs for student collaboration.
Input Sources	- Local PC with wireless keyboard and mouse. - Laptop connection for Bring Your Own Device (BYOD) Connectivity at Lectern (Centered Location)
Capture/Collaborate	- One wall-mounted pan/tilt/zoom cameras to support rich media capture streaming and recording. - USB Web Conferencing/Capture Computer Interface - Tabletop microphone or ceiling microphone – One for each group table.
Sound	- Wireless microphone system for speech reinforcement. - Inputs for additional microphones if needed for multiple presenters. - Distributed ceiling loudspeakers for speech reinforcement and content audio. - Speakers integrated into displays at each group station for collaboration. - ADA hearing assist system
Control	- IP-Based AV Processing/Control Equipment: Audio DSP, Network Switch, Controller - Color, wired touch panel at the lectern for simplified control of audio, display and lighting systems
Furnishings	- Lectern to house all source devices and user interfaces. - Slim Credenza for Audiovisual Equipment located in room

General Classrooms – Standard

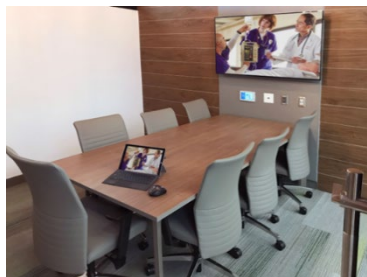
Standard Classrooms will present content on the main display. The instructor will have a touch down location or small lectern which will include a resident computer, auxiliary input connections, and document camera. The system supports local and remote collaboration via web-conferencing software loaded on the local computer (e.g., Zoom, Teams, etc.) and camera/ceiling microphones.

A touch-panel control system will allow simplified control from the lectern position. Program source audio as well as speech reinforcement will use an overhead, distributed speaker system. Additionally, the room will accommodate a hearing-assist system, in line with the 2010 ADA standards for accessible design.

The following audiovisual components are planned:

Planned Audiovisual Components	
Display	Two (2) Large Flat Panel Displays appropriately sized for the space.
Input Sources	- Local PC with wireless keyboard and mouse. - Laptop connection for Bring Your Own Device (BYOD) Connectivity at Lectern (Centered Location)
Capture/Collaborate	One wall-mounted pan/tilt/zoom cameras to support rich media capture streaming and recording.
Sound	- Wireless microphone system for speech reinforcement, if required. - Distributed ceiling loudspeakers for speech reinforcement and content audio. - ADA hearing assist system
Control	Color, wired touch panel at the lectern for simplified control of audio, display and lighting systems
Furnishings	- Lectern to house all source devices and user interfaces. - Slim Credenza for Audiovisual Equipment located in room

Meeting/Conference Rooms – New Buildings and Renovations



The display system will consist of one large flat panel display mounted to the wall with a sound bar/camera/microphone below the display or overhead, depending on the size of the space. Users will be able to connect the video output of their laptop/tablet to the flat panel display through multiple auxiliary audiovisual connections.

The following audiovisual components are planned:

Planned Audiovisual Components	
Display	• Wall-mounted flat panel display
Input Sources	• Laptop Connection • Auxiliary input for portable devices
Video Conference/Sound	• Soundbar/Microphone/Camera Combination or Overhead Speakers and Ceiling Microphones (Dependent on room size)
Control	• Wall-mounted Button Panel
Furnishings	• Equipment located behind display (10 person and below). • Crendeza for larger spaces (12 person and above).

Group Study Rooms – New Buildings and Renovations



The display system will consist of one large flat panel display mounted to the wall. Users will be able to connect the video output of their laptop/tablet to the flat panel display through multiple auxiliary audiovisual connections.

The following audiovisual components are planned:

Planned Audiovisual Components	
Display	• Wall-mounted flat panel display
Input Sources	• Laptop Connection • Auxiliary input for portable devices
Control	• Wall-mounted Button Panel
Furnishings	• Equipment located behind display

PLANNED PROJECTS- NEW HEALTH SCIENCES BUILDING

PATIENT ROOMS – HIGH FIDELITY



The simulation suite consists of a number of different room types used for specific purposes. Despite the different sizes and shapes, the basic audiovisual provisions will be quite similar for all of the rooms. The systems address the acquisition, storage, playback and management of audio and video from multiple microphones and video cameras as well as data from clinical instruments such as full-body manikins.

The Simulation Operating Room, Standard Simulation Room and Simulated Apartment and associated control rooms are included within the following audiovisual functionality descriptions.

Simulation Rooms



The Simulation Rooms will be able to support actors / confederates as well as high-fidelity medical manikins. Multiple video cameras and wired/wireless microphones will be used for recording in these spaces as well as the associated medication area. Input panels will enable alternate video source and manikin physiological data capture. The video and audio signals will be fed to the medical simulation capture system for viewing and archiving.

A two-way wireless communication system will be provided for conversations between an in-room

confederate and the Control Room. Listen-only receivers with ear buds will be provided for actors in the room to allow them to receive direction from the control room operator.

A loudspeaker will enable in situation feedback into the simulation room from a control room microphone. A loudspeaker position by the head of the manikin will be included to improve the audibility of the manikin.

A display will be provided to view the manikin's physiological data and patient medical records.

Control of the display will be through an audiovisual control system.

Control Rooms

The Control Rooms will contain observation and operator stations to view and control the simulation exercise. Control of medical manikins, the simulation capture system, and all oversight of the simulation sessions occurs from the control room.

The individual operating positions for the simulation controller, observer and manikin operator will include computer workstations with video monitors. The controller will be able to select, view, and control each camera in the associated room as well as view a feed of the recorded stream.

Loudspeakers and or headphones will enable the control room personnel to hear the audio from the associated simulation room. A two zone paging system will allow paging into the associated room, in-ear audio monitoring system or activate the loudspeaker in the manikin.

The simulation capture and audiovisual system equipment will reside within the control for ease of adjustment with space for an equipment rack, and appropriate network, power, and cooling provisions.

Planned Audiovisual Components	
In-Lab Capture/Source Devices	• PTZ IP Cameras (2) • Digital Pan/Zoom Cameras (1) • Fixed Camera (undercabinet, etc.) (2) • Ceiling Microphones for in-lab capture (1) • HDMI Wall Plate Transmitted (1)
Input Sources	• Vitals Monitor – HDMI Extended • EMR Station with Telehealth Support • In-Lab Ceiling and Manikin Speakers Systems • In-Lab Display and Collaboration System
Control Station Audio/Video Devices	• Simulation Control PC with Dual Monitors • Manikin Control Laptop and Vitals PC • Control Room Audio Monitoring (Speakers/Headphones) • Control Room Audio Talkback System with Voice Processor (Manikin + Lab) • 4 Channel wireless microphone systems with in-ear audio talkback. • HDMI Wall Plate Transmitter
Simulation Capture Control and Processing	• Control System Touch Panel • Joystick Camer Controller • Simulation Control Station Processing/Control Equipment • Network Video Recorder Allowance
Audiovisual Furniture	• Control Room Power Distribution and Racking

SKILLS LABS



One (1) of the bed stations will be designated as a demonstration station will allow for the capture of instructors or students performing training via a ceiling microphone, camera, and speaker connected to the medical simulation system. Each of the beds will include a monitor/computer for Health Records and Web based learning. The demonstration station as well as the lecture content can be pushed to these bed side displays.

The Practice Skills Lab will also include a presentation mode as part of the AV systems. The instructor will have

a touch down location which will include a resident computer, auxiliary input connections, document camera and an annotation tablet. They may draw (digitally) over top computer content via the annotation monitor. The system supports local and remote collaboration via web-conferencing software loaded on the local computer (e.g., Zoom, Teams, etc.) and camera/ceiling microphones.

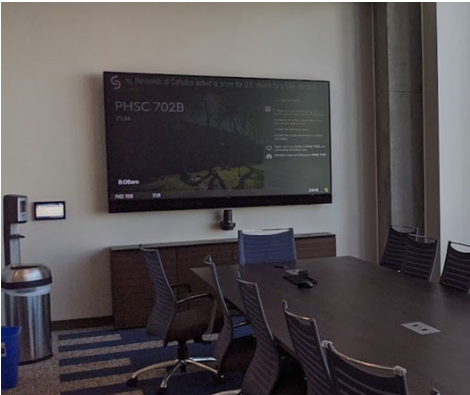
A touch-panel control system will allow simplified control from the lectern position. Program source audio as well as speech reinforcement will use an overhead, distributed speaker system.

The following audiovisual components are planned:

Planned Audiovisual Components	
Display	• One ceiling-mounted, motorized, projection screen. • One fixed, ceiling-mounted video projector
Input Sources	• Micro PC and Monitor at each bed location – Coordinated with headwall. • Local PC with wireless keyboard and mouse. • Laptop connection for Bring Your Own Device (BYOD) Connectivity at Touch Down Station
Sound	• Wireless microphone system for speech reinforcement. • Distributed ceiling loudspeakers for speech reinforcement
Simulation Capture	• Demonstration Capture Station (PTZ Cameras/Audio) • Network Video Recorder Allowance
Capture, Streaming, Conferencing	• PTZ Camera for Lecture Capture
Control	• IP-Based AV Processing/Control Equipment: Audio DSP, Network Switch, Controller • Color, wired touch panel at the lectern for simplified control of audio, display and lighting systems
Furnishings	• Lectern to house all source devices and user interfaces. • Slim Credenza for Audiovisual Equipment located in room

DEBRIEF

Each Debrief Room will function as a meeting and collaboration space for mid-size groups with the ability to capture the debrief of simulation activities. Although the size and shape of each room may differ, the audiovisual technologies should be common among them.



The display system will consist of one large flat panel display mounted to the wall with a dedicated PC and connectivity to connect a laptop or other BYOD to the system. The connectivity will be hard wired versus a wireless connection. The Conference rooms will include a sound bar with built in microphone and camera for videoconferencing capability. A small touch panel on the table or wall will control the overall AV system.

The following audiovisual components are planned:

Planned Audiovisual Components	
Display	• Wall-mounted interactive flat panel display
Input Sources	• HDMI Input for portable BYOD devices • Local PC located behind the display with wireless keyboard and mouse.
Sound/Capture/Collaborate	• Sound bar with integrated camera and microphone for video conferencing
Medical Simulation Capture	• PTZ Camera • Ceiling Microphones for Audio Capture • Network Video Recorder Allowance (Base on UCCS Standard NDI/SharePoint)
Control	• Wall-mounted button panel
Furnishings	• Slim Credenza for Audiovisual Equipment

SOCCKER FIELDS

To accommodate the quickly growing soccer program, there is a plan to add a collegiate-sized soccer field with lighting, scoreboards, spectator seating and a field house. The soccer field will be equipped with technology and infrastructure to support live production broadcast of soccer games and other activities. The soccer field is anticipated to include the following technology:

1. The field will feature a large format HD video scoreboard including a game clock and area for displaying statistics.
2. Numerous camera locations are planned with cabling infrastructure that will feed back to the remote in-house video production room. The planned locations will support all seating configurations and camera types, including robotic.
3. Additionally, specific camera locations are planned to support the sports video and replay needs. Fiber and multiple network ports at these locations are needed to support video cameras with access to the campus network.

- 4. The sound system at the field is planned to be a distributed loudspeaker configuration, which will support speech intelligibility for announcements and music playback during games or other events. A wireless hearing assist system will be incorporated to meet the needs of the hearing impaired and comply with ADA regulations.
- 5. Numerous input plates are planned to support connections for audio, video and scoreboard systems. Conduit and cabling pathways are planned to support the scorer’s table and Press Box areas.

FIELD HOUSE LOCKER ROOMS (TEAM, HOME COACH, AND OFFICIALS)

In addition to the soccer fields, a field house with locker rooms, coaches office and storage will also be included. The field house is anticipated to include the following technology:

- 1. All Locker Rooms are planned to provide infrastructure for TV viewing, presentation, and background and high-energy music. The flat panel displays will also have the ability to show an event’s live broadcast feed, and the building’s digital signage content and/or team specific information such as practice and game schedules.
- 2. A separate input panel, positioned in a convenient location to the display(s), will allow for hard-wired connectivity such as a laptop or other video sources. Connection of BYOD devices will be provided from a wireless appliance, connected to the building’s local network infrastructure.
- 3. Either recessed ceiling or wall-mounted loudspeakers will provide for program sound and reinforcement of audio services applications.
- 4. Control of the AV system will be governed from a wall-mounted touch panel that will allow management of key functions such as power (on/off) TV channel selection, source options and audio volume.
- 5. Lastly, all locker rooms are planned to include game clocks tide into the master clocking system for the soccer field.



The following key audiovisual components are planned:

Planned Audiovisual Components	
Display	• 2 high-resolution flat panel displays • Game Clocks
Input Sources	• Local Cable TV and Campus TV • Broadcast feed from field’s live • Campus or team specific digital signage content • Hard-wired laptop connection • Wireless appliance to support BYOD devices
Sound/Capture/Collaborate	• Complement of distributed loudspeakers
Control	• AV system functions such as power (on/off), source selection and volume will be managed from a wall-mounted touch screen.

INFORMATION TECHNOLOGY

Today's college campuses must support a technology landscape that is constantly evolving and expanding in terms of the demand for higher data system bandwidth, voice, and video communications technology.



For Casper College, it also must support the anticipated growth in student population, diverse programs, and their demands and expectations for access. In order to dynamically provision such communications, the infrastructure must be planned to be as flexible, expandable, and resilient as possible.

Casper College is anticipating the requirement for IP convergence, the need to migrate multiple diverse building systems to a converged network, such as building automation, audiovisual systems, mobile connectivity, etc. These known and anticipated technologies must be accounted for in future growth and Master Plan projects, to ensure the proper infrastructure is set in place.

PAST, CURRENT AND FUTURE INITIATIVES

The primary IT challenges identified by Casper College include:

The following challenges were identified by Casper College (Kent Brooks) as well as information provide by a recent campus study completed by EYP Mission Critical Facilities.

1. Completion of existing campus fiber ring to each building individually
 - a. The fiber connectivity to some buildings on campus are from other buildings rather than direct connections based to the campus fiber ring. For instance, according to the Fiber Loop map provided below, a disconnect at Liesinger Hall (LH) would take Saunders Health Science Center (HS) and Strausner Hall (SH) offline. Same for Career Studies (CS) being offline with disconnection at Tate Geological Museum TM.
2. Redundant Campus Entrance: Currently there is only one fiber connection to the Internet for the entire campus at Liesinger Hall (LH), which create a point of vulnerability for the campus.
3. Secondary Data HUB for back-up – Avoid risk and downtime with flooding potential in Liesinger Hall (LH) basement data center.

Past Initiatives - Completed

1. Detailed outside plant survey by EYP Mission Critical Facilities: Major Findings
 - a. No ISP or firewall services in disaster recovery location.
 - b. The fiber ring which connects campus buildings is not complete, leaving the DR site at CS159 with only a single path to the rest of the campus.
2. Security System Standards Documents Development – Completed by Lane and Associates

Current Initiatives - Funded

1. Casper College is current working to co-locate in a commercial data center. This initiative will continue to provide redundancy as an operational cost versus relocating and creating a complete secondary data center on campus.
2. Installation of Mesh Network – This effort is underway and will continue to expand campus wide wireless coverage.

Future Initiative – Projects Identified but not Funded

1. Career Studies Building (CS) Fiber Spur
2. Career Studies Building (CS) Secondary HUB Building for Casper College
3. Secondary Campus Entry – Fiber Entrance near Residence Hall (RH)
4. Upgrade to College Admin Computing System (CACS) – RFP is estimated in 2025 and is a project with the State of Wyoming.

OUTSIDE PLANT RECOMMENDATIONS

1. **Fiber Loop Upgrades and Connectivity:**

Prioritization of Building to determine connectivity and functionality of buildings. The Casper College campus currently has a campus fiber loop (LH1 to TM 107) but there are several buildings that are slaves to other buildings for fiber and copper connectivity. Ideally, each building should have two, diverse entrances for each building for network redundancy. However, each building does not necessarily require that amount of connectivity so prioritizing the building in tiers can identify a plan for each current and new building type related to outside plant connection. For business continuity purposes, single points of failure should be avoided if possible.

- a. Tier 1 – Core Network Buildings – 99.999% uptime – only scheduled outages acceptable
 - i. Liesinger Hall (LH)
 - ii. Career Studies Building (CS) – Add fiber spur to campus fiber loop.
- b. Tier 2 – Core Educational Buildings and Administration Buildings - college can function through potential 4-hour outage.
 - i. Example – Strausner Hall (SH)
- c. Tier 3 – Support/Minor Buildings – college can function through potential 24-hour outage
 - i. Example – Early Childhood Center (EC)

2. **Second ISP path for the Campus:**

The Casper College OIT team has been evaluating options to incorporate a second fiber optic point of entry to the campus for alternative connection to the Internet. At the time of this planning documents, the OIT team is planning on locating the fiber path along College Drive and would connect to the campus fiber ring north of the Residence Hall (RH). It is noted that all fiber comes in from I-25 so even with a redundant pathway on campus, an off-campus fiber cut could impact both pathways.

3. **Fiber type:**

Single mode fiber is now the only type of optical fibers recommended for the OSP. In the past, multimode was considered as it was more economical due to the cost of the cable and the electronics. Today, that cost difference has diminished and single-mode fiber cable is now less expensive than multi-mode. With an ever-increasing need for bandwidth, single mode fiber is the best option able to meet this demand. The current Campus Fiber and Telecom map does not include the fiber type. Evaluation and clarity on the fiber type could vastly improve functionality. Eventually, existing multi-mode fiber links between buildings might require replacement with single mode depending on the bandwidth requirements of the building.

4. **Continued Co-location in Commercial Data Center**

Casper College is current working to co-locate in a commercial data center. This initiative will continue to provide redundancy as an operational cost versus relocating and creating a complete secondary data center on campus. When any campus utilizes co-location facilities, it is paramount to have dual, diverse fiber from the co-lo data center to campus; thus item #2 above.

IT DEVICES RECOMMENDATIONS

Network Electronics Refresh Cycle

Casper College currently uses an aging schedule for network electronics refresh. A recommended 5-to-7-year refresh schedule for network electronics is recommended campus wide.

Workstations

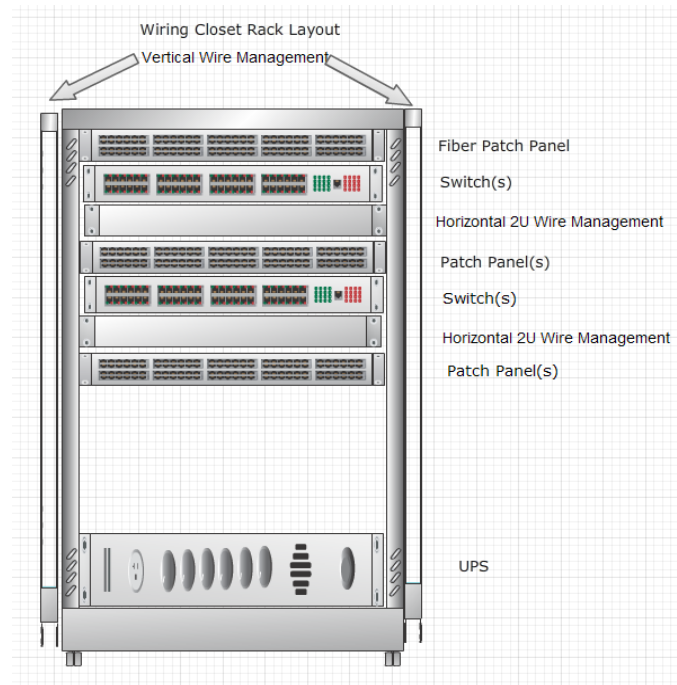
Casper College currently uses an aging schedule for workstations refresh. A recommended 4-to-5-year refresh schedule for workstation is recommended campus wide.

PATHWAYS AND SPACES – NEW CONSTRUCTION AND MAJOR RENOVATIONS PROJECTS

Information technologies require dedicated rooms on each floor to house equipment racks, network switches, optical fiber terminations, copper cabling patch panels, and so on. These spaces are known as Equipment Room (ER) and Telecommunications Rooms (TR). ERs & TRs provide for the organized and logical distribution of low voltage communications signals within a building and are specifically designed to be flexible and scalable. TRs provide value over an extended period of time as a distinct asset to the building and have an anticipated life cycle of up to 25 years. All TRs should be designed following ANSI/TIA and BICSI standards along with recommendations and standards from Casper College.

Primary Components

- ◆ Fiber and copper connections between Telecom Rooms
- ◆ Connection to the current campus network
- ◆ Floor mounted equipment racks equipped with both vertical and horizontal wire management.
- ◆ Four Post Racks
- ◆ Overhead racking system for management of flexible connection cabling and providing additional structural support for the racks, cabinets, and systems.
- ◆ Patch panels for all horizontal cabling
- ◆ Adequate floor space and growth potential
- ◆ Independent telecommunications grounding system
- ◆ Dedicated power circuits supported by building generator and UPS
- ◆ Wall or rack mounted power – 30 amp – 208 Volt
- ◆ UPS in each rack
- ◆ Dedicated HVAC systems – 24/7/365
- ◆ A minimum of one TR per floor are recommended



TELECOM ROOMS (IDF/MDF)

At least one Telecommunications Room (IDF) is recommended on each floor of new building construction. Depending on floor plate size, additional rooms may be required to meet cabling distance limitations. The minimum IDF room size is 10' x 12' and it will include three equipment racks (one for station cabling, one for backbone cabling and one for Owner-provided equipment).

The following requirements apply to each TR:

Location

- ◆ At least one TR is required per floor.
- ◆ Locate TRs so that the total length of the horizontal cabling does not exceed 250 feet.
- ◆ TRs should be stacked vertically.
- ◆ The TR shall not be shared for other purposes including, but not limited to, custodial, access pathways, electrical, mechanical, storage, etc.
- ◆ Other utilities should not be routed through the TR unless serving the room itself. Examples include HVAC duct, electrical conduits, sprinkler system piping, drainpipes, clean outs, steam pipes, and chilled water pipes.
- ◆ The TR shall not house any electrical equipment, i.e., transformers, breaker panels, etc., due to the potential for electromagnetic interference. The ER shall be in a location where the potential for EMI is minimal.
- ◆ The TR shall not be adjacent to an electrical room or room containing a transformer or motors.
- ◆ The TR shall not be located beneath or adjacent to wet locations or spaces with water piping such as roof drains, pump rooms, restrooms, janitorial sinks, etc.
- ◆ Locate the TRs so that access is directly from an open, unassignable space, such as a corridor. Accessing the TR through another space restricts access to the TR itself and impedes usage of the room.

Equipment/Pathways

- ◆ Space for 2 to 3 floor mounted equipment racks equipped with both vertical and horizontal wire management with adequate floor space and growth potential.
- ◆ Overhead tray system for flexible management of cabling within TRs.
- ◆ Pathways entering/existing the TR for horizontal cabling.
- ◆ Vertical pathways (floor sleeves) for backbone/vertical cabling.
- ◆ Pathways will be sized to accommodate 20 feet of service loop on each cable.

Entry

- ◆ Personnel entry should be through a locked door at least 36 inches wide by 80 inches high.
- ◆ The door should open outward unless building codes prohibit it, and the threshold should include a sealed door bottom sweep.
- ◆ Door hardware should afford a 180 degree swing so the door can stack against the outer wall.
- ◆ The door shall be secured either by electronic keycard system or standard key lock.

Lighting

- ◆ Locate light fixtures a minimum of 8 ft. 6 in. above the finished floor.
- ◆ Provide a light intensity level of 70-foot candles minimum as measured at 3.3 feet from the finished floor.
- ◆ Provide lighting at both the front and rear of the racks.
- ◆ Locate above the working space rather above the racks. This illuminates the equipment without casting shadows or interfering with overhead cable pathways.

HVAC

- ◆ Provide heating, ventilation and air conditioning that will maintain continuous and dedicated environmental control 24 hours per day, 365 days per year.
- ◆ Room set point should be 70 to 75 degrees with 30% to 55% relative humidity to protect equipment and minimize static electricity.
- ◆ Maintain a positive air pressure to reduce dust infiltrating the room.

Finishes/Construction

- ◆ All walls should be finished, i.e., sheetrock/painted, and lined with 3/4 inch thick, A/C Grade plywood backboard, 8 feet high by 4 feet wide (plywood locations will be shown on the Technology Drawings).
- ◆ The floor should be finished with VCT or sealed concrete.
- ◆ Ceiling should be open to deck above.
- ◆ Seal any coatings or materials which may become friable to minimize dust.
- ◆ Provide over-head clearances of at least 9 feet (i.e., HVAC duct work, sprinkler heads, etc.).
- ◆ The rated distributed floor loading shall be greater than 250 lb/ft².
- ◆ The rated concentrated floor loading shall be greater than 1,000 lb/ft².

Electrical

- ◆ Provide two dedicated 208 VAC 30-amp (L6-30R) receptacles at each rack; one receptacle should be on normal (street) power and one on building emergency power. Provide at least one dedicated 120 VAC 20-amp (non-switchable) quad receptacle on each wall.
- ◆ Feed power receptacles located in the TR dedicated panels located within the TR.
- ◆ If a building-wide UPS is not planned, a local UPS should be installed within the equipment rack and sized to provide adequate runtime for emergency situations.
- ◆ Provide an independent telecommunications grounding system.
- ◆ The TR will have a bus bar tied to the grounding system to facilitate bonding of the telco equipment to the building ground and to provide an equipotential reference for all communications equipment.



Wired building network systems are known as structured cabling systems. Structured cabling systems originate in the Telecom Rooms and extend throughout the building from ER to TR (backbone) and from TR to the end user locations (horizontal). The backbone cabling system between Telecom Rooms consists of fiber and copper cables and connects each TR via home-run cables to a Main TR within the building. The horizontal cabling system consists of twisted pair cables such as CAT 6 or CAT 6A and is visible to the end user in the form of wall faceplates. All horizontal cabling routes to the Telecom Rooms should be through cable baskets located in corridors and other approved support systems as required.

The wired building network system uses a common cable that supports all communications needs for various independent systems such as computer networks, voice system, surveillance, video, and building automation system. These diverse systems run on the same cable infrastructure, which offers ultimate flexibility; the same cabling supports all network requirements indifferent of the system..

Pathways

A cable tray system is recommended to serve all spaces in the new construction buildings as well as any major renovation projects. Each floor should utilize a cable tray system to provide a pathway for cables to the IDFs (the cable tray system preferred by Casper College is Snake tray.) The stacked IDFs should have a minimum of four 4-inch sleeves connecting them for voice/data and future cabling. EZ-Path devices are recommended to provide a reenterable, code compliant path through fire rated walls from hallways into IDFs, while EMT conduit sleeves may be installed through fire rated walls from hallways into rooms with outlets. The cable pathway serving the outlets within the facility should consist primarily of 1-inch (minimum) conduit from the device box to above the ceiling, with J-hooks continuing the pathway from the end of the conduit to the cable tray. The use of floor boxes should be avoided if possible.

Backbone Cable

All new buildings should be configured with the Main Telecom Room being connected to all other TRs via fiber and copper cables. All fiber cabling should terminate in rack mounted housings in order to provide complete flexibility for cross-connecting of various networks and equipment and to provide redundancy. All copper cabling should terminate at the rack on patch panels. This methodology permits cross-connection for devices requiring analog phone lines (like fax machines) by using simple patch cords instead of specialized tools.



The backbone at any new construction includes the following:

- ♦ 24-strands of single mode (SM) fiber capable of supporting 100 Gbps
- ♦ 25-pair copper cable – dependent on building requirements

The final backbone cables required from the Main TR to the respective floor TR's require review and coordination with Casper College OIT during the design phases of each new construction projects. Casper College cabling standard manufacturer is Panduit.

Horizontal Cable

All horizontal cabling is recommended to be a minimum of CAT 6A and consistent with current Casper College standards. All areas of new buildings should follow similar design standards regarding the number of cables per workspace as established by Casper College standards along with industry codes, standards, and best practices. This aspect of the horizontal cabling design should be reviewed later in the building design phase.

Horizontal cabling is planned to:

- ♦ Utilize CAT6A cabling at a minimum including all cabling, patch panels, patch cables, termination modules, and wiring blocks.
- ♦ Utilize CAT6A cabling for all wireless access points following Casper College standards.
- ♦ Terminate on rack-mounted patch panels regardless of the application using the cable – email, phone call, fax, video, etc.
- ♦ Utilize the same cable regardless of the device using the cable – computer, telephone, surveillance camera, etc.

Patch Cable Assemblies

Effective patch “flow” is an integral part of the Structured Cabling System design to be planned according to the specific rack and wire management layouts.

- ♦ Patch cable assemblies should be provided and warranted as a part of the Structured Cabling System based upon a quantity twice that of the installed and available horizontal cabling channels plus an additional 5% to provide for varying needs at both cable ends.
- ♦ Patch cables should be color-coded according to Casper College standards.
- ♦ Patch cables should be provided as part of the base building build-out.



WIRELESS NETWORK

Wireless technologies have been embedded into modern society. Some wireless technologies are used every day such as radios, cellular phones, smart phones, tablet PCs and laptop computers.

Today’s campus buildings must accommodate a wide range of user needs and expectations in order to foster free flowing access to various formats of information. Many campuses struggle with a desire to support the ever-evolving BYOD (Bring Your Own Device) environment that is now expected by students, faculty, and staff.

A building-wide wireless network should be designed into the each new construction building and building renovations to augment the traditional wired network. Access points should be located below finished ceilings and be activated as needed to provide full building-wide coverage. The wireless infrastructure design should be based on the latest IEEE-802.11 standard (802.11ax) known as Wi-Fi 6 Wave-2 and is capable of adapting to and supporting recent standards such as 802.11be WiFi 7 and future standards.



Power over Ethernet (PoE) technology should be deployed to simplify installation and increase system flexibility by centrally locating all power requirements for wireless access points. This design methodology greatly increases the availability of network bandwidth by adding the capability of connecting to the network via multiple frequencies and channels. The ultimate goal of the wireless system design is to allow for wireless coverage for the entire facility, including adjacent exterior areas, utilizing high density and dynamic load balancing wireless network standards. It is anticipated that high density spaces such as lecture halls and classrooms may require multiple, dedicated access points.

All new and renovated building must evaluate the needs of the BYOD environment; this requirement is particularly important in Health Sciences and Classroom buildings as faculty and students desire to view captured high-bandwidth content from both the lecture capture and medical simulation capture systems for self-evaluation and review from anywhere in the building or on campus.

DISTRIBUTED ANTENNA SYSTEM (DAS)

The technical definition of a Distributed Antenna System, or DAS, is a network of spatially separated antenna nodes connected to a common source via a transport medium that provides wireless service within a geographic area or structure. In more general terms, a DAS is a system used to distribute various RF signals throughout an area or building.

Though often overlooked, adequate cellular phone service is now vital for many buildings. Delivery of course content and other information to cell phones is a logical extension to podcasting and webcasting and is sure to be utilized by students. DAS systems are most commonly deployed to support cellular services within a building that may otherwise not have sufficient coverage. These Cellular DAS systems do not require a user to connect their cellular device to the system similar to a tower that is part of a cellular network.

In addition to cellular networks, a DAS can support diverse radio systems such as 400 MHz, 700 MHz, 800 MHz, UHF, and VHF radios, etc. all at the same time.

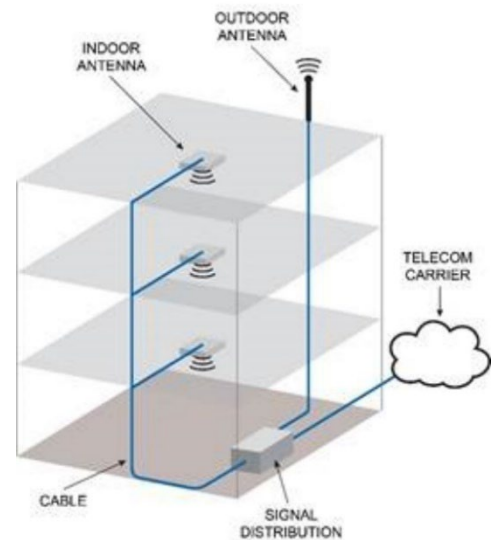
It should be noted that NFPA 72: National Fire Alarm and Signaling Code requires the use of a Public Safety DAS where first responder radio coverage is not sufficient to enable first responders within the building to communicate during an emergency. Critical areas as defined by the NFPA and the Authority Having Jurisdiction require 99% floor area coverage. General areas of the building must be provided with 90% floor area coverage. Depending on building construction and final site conditions, these levels may not be achievable without the installation of a Public Safety DAS.

DAS System Primary Components

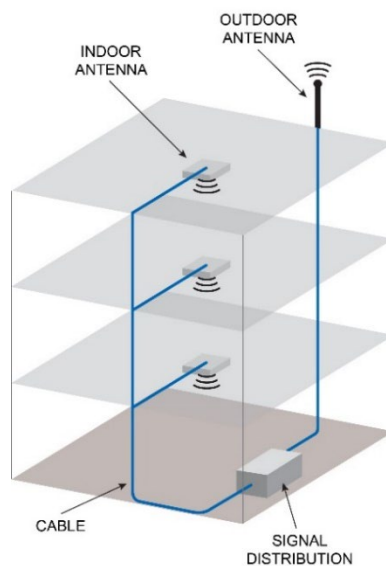
- Tuned antennas on the roof of the building
- Cabling from the uplink antennae to the DAS system Head-End
- Head-End equipment – usually housed in the Main TR
- Cabling from the Head-End equipment to antennas distributed throughout the building

The need for Public Safety and Cellular DAS systems needs to be considered for all new building projects.

Cellular Distributed Antenna System



Public Safety Distributed Antenna System



PHYSICAL + ELECTRONIC SECURITY

There is a growing awareness of the unique security challenges faced by colleges and universities today. Like no other institutions, higher education campuses must balance an open environment inviting collaborative academic inquiry with real-life safety and security threats. The security issues which all colleges face can be more difficult at Casper College, due to the potentially conflicting desires to simultaneously enhance the feeling

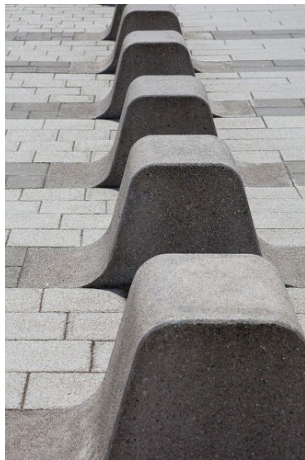
of engagement with the surrounding community as well as provide a higher level of security on campus. The security requirements also need to be balanced with the aim of providing an aesthetically pleasing and comfortable environment.

CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN (CPTED)

CPTED is defined as a multidisciplinary approach to deterring criminal behavior through environmental design. CPTED strategies rely on the ability to influence offender decisions that precede criminal acts by affecting the built, social, and administrative environment. The basic CPTED strategies are Natural Surveillance, Natural Access Control, and Natural Territorial Enforcement.

Natural Surveillance

Natural Surveillance is the design principle, which calls for creating an environment where the occupant has an enhanced ability to observe the surrounding environment and the potential offender will have a heightened perception of their increased risk of being observed. The design principles involved include creating good sight lines and minimizing visual obstacles so that from a given location the occupant has a high degree of visual control. People will always feel safer when they can easily see and be seen.



From the perspective of Natural Surveillance, these items are ideal in that they offer no real hiding places. They provide a level of deterrence but little to no visual obstruction, which raises the probability of detection for the potential intruder.

Proper lighting will also create an effective deterrent to crime, because good lighting (no areas of glare from lights and no dark areas) discourages criminal activity, improves visibility, and reduces fear. Visibility in design can also be enhanced by including windows that look directly out on public sidewalks and parking.

Sufficient lighting levels will enhance the capture and storage of evidentiary quality video, enabling recognition of perpetrators in covered areas. Steadily increasing lighting levels as one approaches the building will improve the sense of safety and the video quality at the appropriate locations.

Natural Access Control

Natural Access Control limits the opportunity for crime by clearly differentiating between public and private spaces. Location and design of entrances and exits, which tend to guide people in the appropriate direction, will provide Natural Access Control. Natural Access Control recommends that the facility have only one primary, clearly identifiable entry point, or at a minimum utilize the architectural design to route people to a central security location before they have access to stairwells and elevators.

Natural Territorial Reinforcement

Natural Territorial Reinforcement utilizes architectural design to increase the sense of ownership, which increases the likelihood that intruders will be challenged and reported. It creates an environment where strangers or intruders stand out and are more easily identified.

PAST, CURRENT AND FUTURE INITIATIVES

The primary IT challenges identified by Casper College include:

1. Past Failure of Surveillance Server
2. Upgrade or install of card readers on campus.

Past Initiatives - Completed

1. Security System Standards Documents Development – Completed by Lane and Associates in November 2020 and revised/updated in November 2023.
 - a. Access Control Standard
 - b. Video Surveillance Standard

Current Initiatives - Funded

1. Casper College is current upgrading or installing new card readers throughout the campus. As of this planning document 1,200 of 3,000 doors are complete including all external doors and priority secure rooms. Efforts to continue upgrade and installation of card readers and supplemental door hardware will continue.

ACCESS CONTROL SYSTEM

All new building construction and building renovations will require an access control system that meets the Casper College standards. Casper College standards for access control is Mercury Security including the EAC intelligent controller. Basic door requirements are as follows. Specialty doors beyond this list will require coordination with Casper College OIT during the project design.

1. Main Exterior doors:
 - a. Magnetic Contacts
 - b. Electrified hinge(Hager BB1279-ETW-8 4.5x4.5)/ power transfer (Von Duprin EPT10)
 - c. QEL latch retraction devices installed with rex switch
 - d. HID Signo Readers
2. Interior Doors:
 - a. Magnetic Contacts
 - b. Electrified Hinge
 - c. Electric Mortise Lockset
 - d. HID Signo Reader
3. Interior Double Doors:
 - a. Magnetic Contacts
 - b. Manual/Automatic Fluch Bolts
 - c. Electrified Hinge
 - d. Electric Mortise Lockset
 - e. HID Signo Reader

4. ADA doors:
 - a. Nabco GT710 operators
 - b. If doors are equipped with wireless receivers two receivers will be required one for the outside button and one for the interior button. These doors should be interfaced with the EAC allowing for the unlock of the door when the button is pressed from the inside.
 - c. From the outside of the building the button should be disabled unless the door is unlocked or there is a card read.
5. Sliding glass doors:
 - a. REX device(Bosch DS160)
 - b. Magnetic contacts
 - c. HID Signo Reader.
6. Mechanical exterior doors:
 - a. Magnetic contacts
 - b. Keyed alarms (ES4200-K3-T1)
7. Overhead doors:
 - a. Magnetic contacts
 - b. Overhead doors need to be interfaced to shutdown doors during lockdown. They also need to be interfaced so the open button is disabled during a lockdown.

ACCESS CONTROL RECOMMENDATIONS

1. Priority of access control on All exterior doors have already upgraded to include access control throughout the campus. The remaining doors are interior and appear to have been identified as part of the campus project. Priority doors to consider would be the following:
 - a. IDF/MDF – Create an audit trail of who accesses the space.
 - b. Mechanical/Electrical Rooms
 - c. Office Suite Entrance
 - d. Health Care Simulation Spaces (High Value Technology)
 - e. Classrooms (Heavy Technology)
2. Centralized Lockdown – Casper College currently has the ability to have a campus wide lockdown via a manual push button. Evaluation of its centralized location and ease of initiation is recommended. Enhancement of the lockdown system would be to evaluate a software initiation option in lieu of a manual push.

DURESS ALARM RECOMMENDATIONS

1. Duress alarms, sometimes called Panic Buttons, are an important safety requirement on all college campus. Casper College has duress alarms included in some areas around campus. The duress alarms typically tie directly into the Access Control system so don't require a new, dedicated system. Priority locations to consider as part of the campus Master Plan would be the following:
 - a. Administration/reception desks
 - b. President/Dean's offices
 - c. Student Counseling offices
 - d. Admissions offices
 - e. Human Resources offices
 - f. All Point of Sale locations

VIDEO SURVEILLANCE SYSTEM

Casper College has standardized on Exacq Vision. The video surveillance system for all new building construction or renovation must be designed per this standard and include 45 days of recording capability.

Casper College has standardized on Axis cameras including the following:

1. External camera approved list.
 - a. P3738-PLE
 - b. P3735-PLE
 - c. P3265-LVE
 - d. P4705-PLVE
 - e. Door Station Camera (Entry request)
 - i. A8004-VE
2. Internal Camera Approved List
 - a. P4705-PLVE - Mid hallway camera dual lens to point both ways
 - b. P3265-LV
 - c. M4318-PLVE
 - d. P3737-PLE -- Hallway intersections where you need more than 1 direction of view.

INTRUSION DETECTION

Devices such as glass break detectors, panic buttons, tamper switches, and motion sensors may be employed in certain situations. These devices notify the security detail of an intrusion into a space, based on criteria established by the overall system logic. This system may be stand alone and integrated into the Access Control System.

MASS NOTIFICATION SYSTEM

1. As part of a campus safety and security policies and procedures, there should be a plan for notifying student, faculty, and staff of any and all emergencies. Casper College currently sends alerts via text, email and voice utilizing the Rave Alert platform. Continued coordination and integration with this campus wide system is essential. Evaluation of enhancing the current mass notification system to include alerts on all digital signage and PCs is recommended.

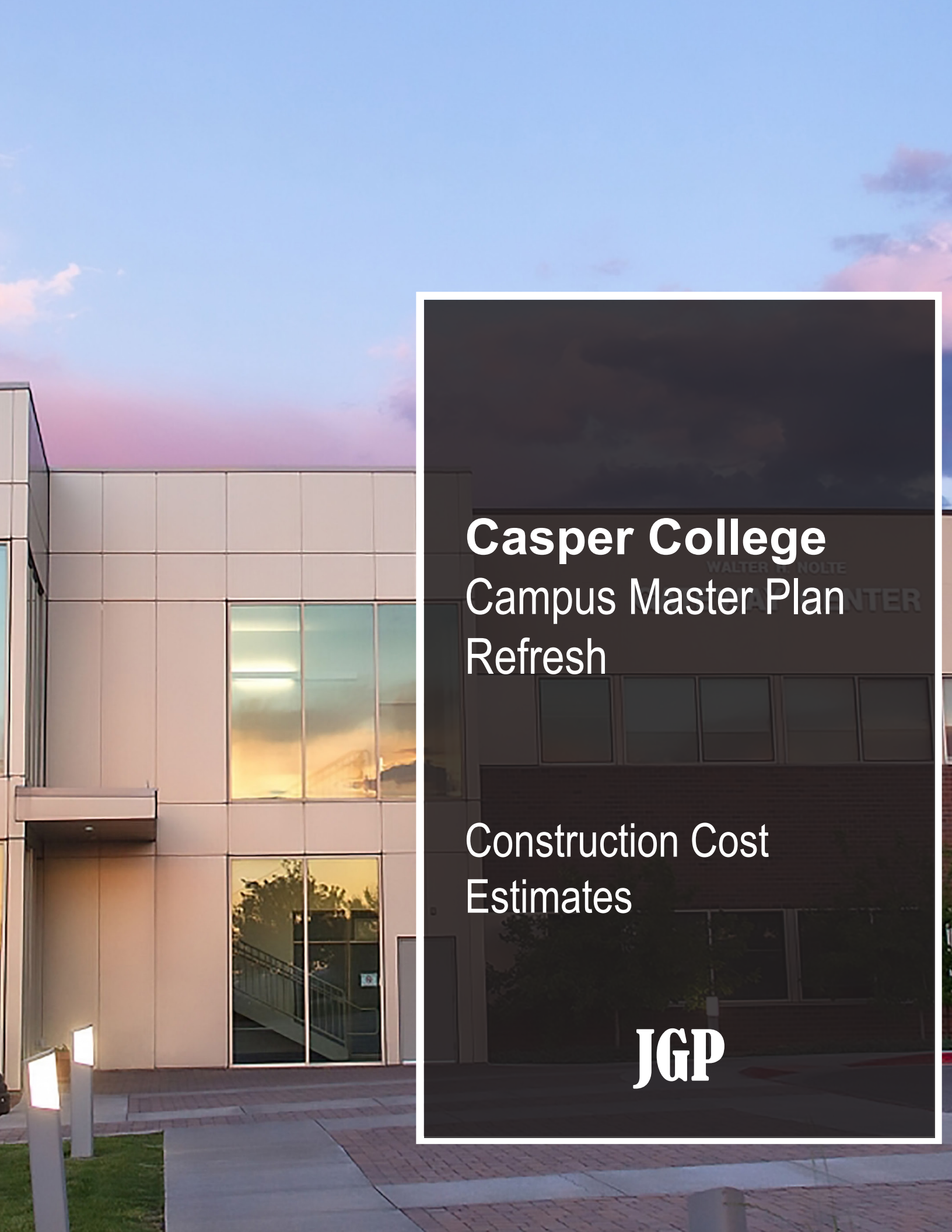
This Technology Program prepared for: **Casper College/Hord Coplan Macht/Plan One Architects**

Prepared by: **NV5**

877.684.2311

www.NV5.com/tech



The background image shows a modern building with a grid-like facade of light-colored panels and large glass windows. The windows reflect a sunset or sunrise sky with orange and pink hues. In the foreground, there is a paved walkway and some low-lying plants. A dark, semi-transparent rectangular box is overlaid on the right side of the image, containing white text.

Casper College Campus Master Plan Refresh

**Construction Cost
Estimates**

JGP

WYOMING COMMUNITY COLLEGES

PRINT DATE: 4/11/2024
 PRINT TIME: 9:21 AM
 PAGE 1 OF 10
 FINAL SPELL CHECKED.xls

PROJECT: **CASPER COLLEGE**PHASE: **MASTERPLAN FEASIBILITY ASSESSMENT - OPTION 1 (STAND-ALONE HEALTH SCIENCE FACILITY)**ESTIMATE DATE: **APRIL 8, 2024**BID DATE: **JANUARY 12, 2026**PROGRAM DATE: **MARCH 10, 2024**

REVISED DATE:

PREPARED BY: PLAN ONE & HORD / COPLAND / MACHT

S U M M A R Y

ITEM	ARCH PROGRAM 3/10/2024	UNIT	COST/UNIT	TOTAL COST
SITework				
SITE DEMOLITION	1	ALLOW	\$25,000.00	\$25,000
EARTHWORK				
DEMO (E)	28,863	SF	\$4.50	\$129,881
CLEAR & GRUB	28,863	SF	\$1.50	\$43,294
ROUGH GRADE (ASSUME BALANCED SITE)	28,863	SF	\$3.00	\$86,588
FINE GRADE	28,863	SF	\$1.50	\$43,294
PAVING				
CONCRETE	2,500	SF	\$13.50	\$33,750
ASPHALT	2,000	SF	\$9.00	\$18,000
SIDEWALK (ALLOWANCE)	4,452	SF	\$10.50	\$46,746
SITE UTILITIES (ALLOWANCE)				
STORM - RETENTION BASIN	2,500	SF	\$15.00	\$37,500
SEWER	75	LF	\$180.00	\$13,500
WATER	75	LF	\$120.00	\$9,000
FIRE	500	LF	\$150.00	\$75,000
FIRE HYDRANTS	6	EA	\$3,500.00	\$21,000
SITE ELECTRICAL (ALLOWANCE)				
POWER	1,100	LF	\$250.00	\$275,000
POWER FOR LIGHTING	2,500	LF	\$75.00	\$187,500
LIGHTING	15	EA	\$4,500.00	\$67,500
SPECIAL SYSTEMS	110,000	SF	\$0.50	\$55,000
GENSET, ATS & ELECTRICAL	1	LS	\$100,000.00	\$100,000
MISCELLANEOUS SITE				
SIGNAGE	1	LS	\$45,000.00	\$45,000
LANDSCAPING & IRRIGATION	17,500	SF	\$2.50	\$43,750
DUMPSTER ENCLOSURE	1	EA	\$25,000.00	\$25,000
MISC.	1	LS	\$200,000.00	\$200,000
SUBTOTAL SITEWORK	110,000	SITESF	\$14.38	\$1,581,302
NEW BUILDING STRUCTURES				
OPTION 1 HEALTH SCIENCE FACILITY (STAND-ALONE)				
DEPARTMENTS				
SCHOOL OF HEALTH SCIENCES	14,943	SF	\$850.00	\$12,701,550
RADIOGRAPHY	2,931	SF	\$800.00	\$2,344,800
NURSING	6,146	SF	\$750.00	\$4,609,500
EMS / EMT	2,016	SF	\$810.00	\$1,632,960
RESPIRATORY THERAPY	1,851	SF	\$915.00	\$1,693,665
OCCUPATIONAL THERAPY	1,836	SF	\$850.00	\$1,560,600
KINESIOLOGY	2,357	SF	\$650.00	\$1,532,050
PHARMACY TECHNOLOGY	2,256	SF	\$700.00	\$1,579,200
MEDICAL LAB TECH / PHLEBOTOMY	1,056	SF	\$850.00	\$897,600
SUPPORT SPACE / COMMON AREA	2,729	SF	\$425.00	\$1,159,825
SUBTOTAL NET - PROGRAM SPACES	38,121	SF	\$779.41	\$29,711,750
GROSSING FACTOR (53.847%)	20,527	SF	\$450.00	\$9,237,157
TOTAL GROSS AREA - PROGRAM SPACES	58,648	SF	\$664.11	\$38,948,907
SUBTOTAL SITEWORK + BUILDINGS	58,648	SF	\$691.08	\$40,530,209
ESTIMATING CONTINGENCY 5.00%				2,026,510
CONSTRUCTION CONTINGENCY (CHANGE ORDERS) 5.00%				2,026,510
SUBTOTAL SITEWORK + BUILDINGS+ CONTINGENCIES	58,648	SF	\$760.18	\$44,583,230
ESCALATION TO BID (2 YEARS AT 7% ANNUAL) 14.00%				\$5,674,229
TOTAL CONSTRUCTION COSTS	58,648	BLDG SF	\$856.93	\$50,257,459
NON-CONSTRUCTION COSTS				
A/E FEES (9%) 9.00%				\$4,523,171
CONSTRUCTION MANAGEMENT (4%) 5.00%				\$2,512,873
TESTING / INSPECTION (1%) 1.00%				\$502,575
UTILITY CONNECTION FEE ALLOWANCE				\$200,000
MOVEABLE FURNISHINGS (F.F.E.) 3.50%				\$1,759,011
IT EQUIPMENT (TELEPHONE AND COMPUTERS) 0.30%				\$150,772
SECURITY SYSTEM 0.40%				\$201,030
CEQA				EXCLUDED
AUDIT				EXCLUDED

WYOMING COMMUNITY COLLEGES

PRINT DATE: 4/11/2024
PRINT TIME: 9:21 AM
PAGE 2 OF 10
FINAL SPELL CHECKED.xls

PROJECT: CASPER COLLEGE
PHASE: MASTERPLAN FEASIBILITY ASSESSMENT - OPTION 1 (STAND-ALONE HEALTH SCIENCE FACILITY)
ESTIMATE DATE: APRIL 8, 2024
BID DATE: JANUARY 12, 2026
PROGRAM DATE: MARCH 10, 2024
REVISED DATE:
PREPARED BY: PLAN ONE & HORD / COPLAND / MACHT

S U M M A R Y

ITEM		ARCH PROGRAM 3/10/2024	UNIT	COST/UNIT	TOTAL COST
SITE ACQUISITION NEEDS ASSESSMENT CLIENT INTERNAL ADMINISTRATION TRANSITION PLANNING REAL ESTATE DUE DILIGENCE UTILITY CONNECTION FEE ALLOWANCE PROCUREMENT STIPENDS PROCUREMENT ADVERTISING, PRINTING, ETC. CONSTRUCTION & START-UP MANAGEMENT LEGAL / ADMINISTRATION ADMINISTRATION / INSPECTION PRINTING, ADV. & TRAVEL GEOTECHNICAL TESTING SITE SURVEY CONSTRUCTION TESTING MISC. TESTING TRAFFIC STUDY MOVING / RELOCATION COSTS ALLOWANCE PERMITS PLAN REVIEW UTILITY COMPANY CHARGES ALLOWANCE MISC. COSTS					EXCLUDED
					EXCLUDED
					\$150,000
					EXCLUDED
					EXCLUDED
					\$100,000
					EXCLUDED
					\$15,000
	0.50%				\$251,287
					\$50,000
					\$20,000
					\$15,000
					\$15,000
					\$25,000
					\$25,000
					\$5,000
					EXCLUDED
					\$250,000
					\$100,000
	0.25%				\$125,644
					\$50,000
					\$25,000
SUBTOTAL NON-CONSTRUCTION COSTS		58,648	BLDGSF	\$188.78	\$11,071,363
GRAND TOTAL PROJECT COSTS		58,648	BLDGSF	\$1,045.71	61,328,822

WYOMING COMMUNITY COLLEGES

PRINT DATE: 4/11/2024
 PRINT TIME: 9:21 AM
 PAGE 3 OF 10
 FINAL SPELL CHECKED.xls

PROJECT: **CASPER COLLEGE**
 PHASE: **MASTERPLAN FEASIBILITY ASSESSMENT - OPTION 2 (STAND ALONE HEALTH SCIENCE FACILITY)**
 ESTIMATE DATE: **APRIL 8, 2024**
 BID DATE: **JANUARY 12, 2026**
 PROGRAM DATE: **MARCH 10, 2024**
 REVISED DATE:
 PREPARED BY: PLAN ONE & HORD / COPLAND / MACHT

S U M M A R Y

ITEM	ARCH PROGRAM 3/10/2024	UNIT	COST/UNIT	TOTAL COST
SITWORK				
SITE DEMOLITION	1	ALLOW	\$50,000.00	\$50,000
EARTHWORK				
DEMO (E)	28,863	SF	\$4.50	\$129,881
CLEAR & GRUB	28,863	SF	\$1.50	\$43,294
ADDITIONAL FILL	1,260	CY	\$50.00	\$63,000
ROUGH GRADE	28,863	SF	\$3.00	\$86,588
FINE GRADE	28,863	SF	\$1.50	\$43,294
PAVING				
CONCRETE	2,500	SF	\$13.50	\$33,750
ASPHALT	2,000	SF	\$9.00	\$18,000
SIDEWALK (ALLOWANCE)	4,452	SF	\$10.50	\$46,746
SITE UTILITIES (ALLOWANCE)				
STORM - RETENTION BASIN	2,500	SF	\$15.00	\$37,500
SEWER	350	LF	\$180.00	\$63,000
WATER	350	LF	\$120.00	\$42,000
FIRE	700	LF	\$150.00	\$105,000
FIRE HYDRANTS	6	EA	\$3,500.00	\$21,000
SITE ELECTRICAL (ALLOWANCE)				
POWER	1,100	LF	\$250.00	\$275,000
POWER FOR LIGHTING	2,500	LF	\$75.00	\$187,500
LIGHTING	8	EA	\$4,500.00	\$36,000
SPECIAL SYSTEMS	110,000	SF	\$0.50	\$55,000
GENSET, ATS & ELECTRICAL	1	LS	\$100,000.00	\$100,000
MISCELLANEOUS SITE				
SIGNAGE	1	LS	\$45,000.00	\$45,000
LANDSCAPING & IRRIGATION	17,500	SF	\$2.50	\$43,750
DUMPSTER ENCLOSURE	1	EA	\$25,000.00	\$25,000
MISC.	1	LS	\$200,000.00	\$200,000
SUBTOTAL SITWORK	110,000	SITESF	\$15.91	\$1,750,302
NEW BUILDING STRUCTURES				
OPTION 2 HEALTH SCIENCE FACILITY (STAND-ALONE)				
DEPARTMENTS				
SCHOOL OF HEALTH SCIENCES	14,943	SF	\$850.00	\$12,701,550
RADIOGRAPHY	2,931	SF	\$800.00	\$2,344,800
NURSING	6,146	SF	\$750.00	\$4,609,500
EMS / EMT	2,016	SF	\$810.00	\$1,632,960
RESPIRATORY THERAPY	1,851	SF	\$915.00	\$1,693,665
OCCUPATIONAL THERAPY	1,836	SF	\$850.00	\$1,560,600
KINESIOLOGY	2,357	SF	\$650.00	\$1,532,050
PHARMACY TECHNOLOGY	2,256	SF	\$700.00	\$1,579,200
MEDICAL LAB TECH / PHLEBOTOMY	1,056	SF	\$850.00	\$897,600
SUPPORT SPACE / COMMON AREA	2,729	SF	\$425.00	\$1,159,825
SUBTOTAL NET - PROGRAM SPACES	38,121	SF	\$779.41	\$29,711,750
GROSSING FACTOR (53.847%)	20,527	SF	\$450.00	\$9,237,157
TOTAL GROSS AREA - PROGRAM SPACES	58,648	SF	\$664.11	\$38,948,907
SUBTOTAL SITWORK + BUILDINGS	58,648	SF	\$693.96	\$40,699,209
ESTIMATING CONTINGENCY 5.00%				2,034,960
CONSTRUCTION CONTINGENCY (CHANGE ORDERS) 5.00%				2,034,960
SUBTOTAL SITWORK + BUILDINGS+ CONTINGENCIES	58,648	SF	\$763.35	\$44,769,130
ESCALATION TO BID (2 YEARS AT 7% ANNUAL) 14.00%				\$5,697,889
TOTAL CONSTRUCTION COSTS	58,648	BLDGSF	\$860.51	\$50,467,019
NON-CONSTRUCTION COSTS				
A/E FEES (9%) 9.00%				\$4,542,032
CONSTRUCTION MANAGEMENT (4%) 5.00%				\$2,523,351
TESTING / INSPECTION (1%) 1.00%				\$504,670
UTILITY CONNECTION FEE ALLOWANCE				\$200,000
MOVEABLE FURNISHINGS (F.F.E.) 3.50%				\$1,766,346
IT EQUIPMENT (TELEPHONE AND COMPUTERS) 0.30%				\$151,401
SECURITY SYSTEM 0.40%				\$201,868
CEQA				EXCLUDED

WYOMING COMMUNITY COLLEGES

PRINT DATE: 4/11/2024
PRINT TIME: 9:21 AM
PAGE 4 OF 10
FINAL SPELL CHECKED.xls

PROJECT: CASPER COLLEGE
PHASE: MASTERPLAN FEASIBILITY ASSESSMENT - OPTION 2 (STAND ALONE HEALTH SCIENCE FACILITY)
ESTIMATE DATE: APRIL 8, 2024
BID DATE: JANUARY 12, 2026
PROGRAM DATE: MARCH 10, 2024
REVISED DATE:
PREPARED BY: PLAN ONE & HORD / COPLAND / MACHT

S U M M A R Y

ITEM		ARCH PROGRAM 3/10/2024	UNIT	COST/UNIT	TOTAL COST
AUDIT SITE ACQUISITION NEEDS ASSESSMENT CLIENT INTERNAL ADMINISTRATION TRANSITION PLANNING REAL ESTATE DUE DILIGENCE UTILITY CONNECTION FEE ALLOWANCE PROCUREMENT STIPENDS PROCUREMENT ADVERTISING, PRINTING, ETC. CONSTRUCTION & START-UP MANAGEMENT LEGAL / ADMINISTRATION ADMINISTRATION / INSPECTION PRINTING, ADV. & TRAVEL GEOTECHNICAL TESTING SITE SURVEY CONSTRUCTION TESTING MISC. TESTING TRAFFIC STUDY MOVING / RELOCATION COSTS ALLOWANCE PERMITS PLAN REVIEW UTILITY COMPANY CHARGES ALLOWANCE MISC. COSTS					EXCLUDED
					EXCLUDED
					EXCLUDED
					\$150,000
					EXCLUDED
					EXCLUDED
					\$100,000
					EXCLUDED
					\$15,000
	0.50%				\$252,335
					\$50,000
					\$20,000
					\$15,000
					\$15,000
					\$25,000
					\$25,000
					\$5,000
					EXCLUDED
					\$250,000
					\$100,000
	0.25%				\$126,168
					\$50,000
					\$25,000
SUBTOTAL NON-CONSTRUCTION COSTS		58,648	BLDGSF	\$189.49	\$11,113,170
GRAND TOTAL PROJECT COSTS		58,648	BLDGSF	\$1,050.00	61,580,189

WYOMING COMMUNITY COLLEGES

PRINT DATE: 4/12/2024
 PRINT TIME: 12:45 PM
 PAGE 1 OF 2
 FINAL SPELL CHECKED.xls

PROJECT: **CASPER COLLEGE**
 PHASE: **MASTERPLAN FEASIBILITY ASSESSMENT - OPTION 1 (STAND-ALONE INDUSTRY TECH FACILITY)**
 ESTIMATE DATE: **APRIL 8, 2024**
 BID DATE: **JANUARY 12, 2026**
 PROGRAM DATE: **MARCH 10, 2024**
 REVISED DATE:
 PREPARED BY: PLAN ONE & HORD / COPLAND / MACHT

S U M M A R Y

ITEM	ARCH PROGRAM 3/10/2024	UNIT	COST/UNIT	TOTAL COST
SITEWORK				
SITE DEMOLITION	1	ALLOW	\$25,000.00	\$25,000
EARTHWORK				
DEMO (E)	40,289	SF	\$4.50	\$181,301
DEMO OF (E) BUILDING FOR PARKING	44,000	SF	\$20.00	\$880,000
CLEAR & GRUB	40,289	SF	\$1.50	\$60,434
ROUGH GRADE (ASSUME BALANCED SITE)	40,289	SF	\$3.00	\$120,867
FINE GRADE	40,289	SF	\$1.50	\$60,434
PAVING				
CONCRETE	2,500	SF	\$13.50	\$33,750
ASPHALT	2,000	SF	\$9.00	\$18,000
NEW PARKING AT DEMOLISHED BUILDING	44,000	SF	\$6.00	\$264,000
SIDEWALK (ALLOWANCE)	4,500	SF	\$10.50	\$47,250
SITE UTILITIES (ALLOWANCE)				
STORM - RETENTION BASIN	2,500	SF	\$15.00	\$37,500
SEWER	200	LF	\$180.00	\$36,000
WATER	200	LF	\$120.00	\$24,000
FIRE	1,000	LF	\$150.00	\$150,000
FIRE HYDRANTS	6	EA	\$3,500.00	\$21,000
SITE ELECTRICAL (ALLOWANCE)				
POWER	350	LF	\$250.00	\$87,500
POWER FOR LIGHTING	1,000	LF	\$75.00	\$75,000
LIGHTING	15	EA	\$4,500.00	\$67,500
SPECIAL SYSTEMS	39,366	SF	\$0.50	\$19,683
GENSET, ATS & ELECTRICAL	1	LS	\$100,000.00	\$100,000
MISCELLANEOUS SITE				
SIGNAGE	1	LS	\$45,000.00	\$45,000
LANDSCAPING & IRRIGATION	17,500	SF	\$2.50	\$43,750
DUMPSTER ENCLOSURE	1	EA	\$25,000.00	\$25,000
MISC.	1	LS	\$100,000.00	\$100,000
SUBTOTAL SITEWORK	110,000	SITESF	\$22.94	\$2,522,968
NEW BUILDING STRUCTURES				
OPTION 1 INDUSTRY TECH FACILITY (STAND-ALONE)				
DEPARTMENTS				
SCHOOL OF BUSINESS & INDUSTRY	3,750	SF	\$325.00	\$1,218,750
CONSTRUCTION MANAGEMENT / TECH	5,806	SF	\$375.00	\$2,177,250
WELDING	6,706	SF	\$400.00	\$2,682,400
AUTO BODY	6,256	SF	\$400.00	\$2,502,400
MACHINE TOOLING	5,456	SF	\$450.00	\$2,455,200
SUPPORT SPACE / COMMON AREAS	1,214	SF	\$285.00	\$345,990
SUBTOTAL NET - PROGRAM SPACES	29,188	SF	\$389.95	\$11,381,990
GROSSING FACTOR	15,749	SF	\$250.00	\$3,937,250
TOTAL GROSS AREA - PROGRAM SPACES	44,937	SF	\$340.90	\$15,319,240
SUBTOTAL SITEWORK + BUILDINGS	44,937	SF	\$397.05	\$17,842,208
ESTIMATING CONTINGENCY 5.00%				892,110
CONSTRUCTION CONTINGENCY (CHANGE ORDERS) 5.00%				892,110
SUBTOTAL SITEWORK + BUILDINGS+ CONTINGENCIES	44,937	SF	\$436.75	\$19,626,428
ESCALATION TO BID (2 YEARS AT 7% ANNUAL) 14.00%				\$2,497,909
TOTAL CONSTRUCTION COSTS	44,937	BLDGSF	\$492.34	\$22,124,337

WYOMING COMMUNITY COLLEGES

PRINT DATE: 4/12/2024
 PRINT TIME: 12:45 PM
 PAGE 2 OF 2
 FINAL SPELL CHECKED.xls

PROJECT: **CASPER COLLEGE**
 PHASE: **MASTERPLAN FEASIBILITY ASSESSMENT - OPTION 1 (STAND-ALONE INDUSTRY TECH FACILITY)**
 ESTIMATE DATE: **APRIL 8, 2024**
 BID DATE: **JANUARY 12, 2026**
 PROGRAM DATE: **MARCH 10, 2024**
 REVISED DATE:
 PREPARED BY: PLAN ONE & HORD / COPLAND / MACHT

S U M M A R Y

ITEM	ARCH PROGRAM 3/10/2024	UNIT	COST/UNIT	TOTAL COST
NON-CONSTRUCTION COSTS				
A/E FEES (9%) 9.00%				\$1,991,190
CONSTRUCTION MANAGEMENT (4%) 5.00%				\$1,106,217
TESTING / INSPECTION (1%) 1.00%				\$221,243
UTILITY CONNECTION FEE ALLOWANCE				\$200,000
MOVEABLE FURNISHINGS (F.F.E.) 3.50%				\$774,352
IT EQUIPMENT (TELEPHONE AND COMPUTERS) 0.30%				\$66,373
SECURITY SYSTEM 0.40%				\$88,497
CEQA				EXCLUDED
AUDIT				EXCLUDED
SITE ACQUISITION				EXCLUDED
NEEDS ASSESSMENT				EXCLUDED
CLIENT INTERNAL ADMINISTRATION				\$150,000
TRANSITION PLANNING				EXCLUDED
REAL ESTATE DUE DILIGENCE				EXCLUDED
UTILITY CONNECTION FEE ALLOWANCE				\$100,000
PROCUREMENT STIPENDS				EXCLUDED
PROCUREMENT ADVERTISING, PRINTING, ETC.				\$15,000
CONSTRUCTION & START-UP MANAGEMENT 0.50%				\$110,622
LEGAL / ADMINISTRATION				\$50,000
ADMINISTRATION / INSPECTION				\$20,000
PRINTING, ADV. & TRAVEL				\$15,000
GEOTECHNICAL TESTING				\$15,000
SITE SURVEY				\$25,000
CONSTRUCTION TESTING				\$25,000
MISC. TESTING				\$5,000
TRAFFIC STUDY				EXCLUDED
MOVING / RELOCATION COSTS ALLOWANCE				\$250,000
PERMITS				\$100,000
PLAN REVIEW				\$55,311
UTILITY COMPANY CHARGES ALLOWANCE				\$50,000
MISC. COSTS				\$25,000
SUBTOTAL NON-CONSTRUCTION COSTS	44,937	BLDGSF	\$121.48	\$5,458,805
GRAND TOTAL PROJECT COSTS	44,937	BLDGSF	\$613.82	27,583,143

WYOMING COMMUNITY COLLEGES

PRINT DATE: 4/12/2024
 PRINT TIME: 1:08 PM
 PAGE 1 OF 2
 FINAL SPELL CHECKED.xls

PROJECT: **CASPER COLLEGE**
 PHASE: **MASTERPLAN FEASIBILITY ASSESSMENT - OPTION 2 (STAND-ALONE INDUSTRY TECH FACILITY)**
 ESTIMATE DATE: **APRIL 8, 2024**
 BID DATE: **JANUARY 12, 2026**
 PROGRAM DATE: **MARCH 10, 2024**
 REVISED DATE:
 PREPARED BY: PLAN ONE & HORD / COPLAND / MACHT

S U M M A R Y

ITEM	ARCH PROGRAM 3/10/2024	UNIT	COST/UNIT	TOTAL COST
SITEWORK				
SITE DEMOLITION	1	ALLOW	\$25,000.00	\$25,000
EARTHWORK				
DEMO (E)	40,289	SF	\$4.50	\$181,301
CLEAR & GRUB	40,289	SF	\$1.50	\$60,434
ROUGH GRADE (ASSUME BALANCED SITE)	40,289	SF	\$3.00	\$120,867
FINE GRADE	40,289	SF	\$1.50	\$60,434
PAVING				
CONCRETE	2,500	SF	\$13.50	\$33,750
ASPHALT	2,000	SF	\$9.00	\$18,000
SIDEWALK (ALLOWANCE)	4,500	SF	\$10.50	\$47,250
SITE UTILITIES (ALLOWANCE)				
STORM - RETENTION BASIN	2,500	SF	\$15.00	\$37,500
SEWER	200	LF	\$180.00	\$36,000
WATER	200	LF	\$120.00	\$24,000
FIRE	1,000	LF	\$150.00	\$150,000
FIRE HYDRANTS	6	EA	\$3,500.00	\$21,000
SITE ELECTRICAL (ALLOWANCE)				
POWER	350	LF	\$250.00	\$87,500
POWER FOR LIGHTING	1,000	LF	\$75.00	\$75,000
LIGHTING	15	EA	\$4,500.00	\$67,500
SPECIAL SYSTEMS	40,289	SF	\$0.50	\$20,145
GENSET, ATS & ELECTRICAL	1	LS	\$100,000.00	\$100,000
MISCELLANEOUS SITE				
SIGNAGE	1	LS	\$45,000.00	\$45,000
LANDSCAPING & IRRIGATION	17,500	SF	\$2.50	\$43,750
DUMPSTER ENCLOSURE	1	EA	\$25,000.00	\$25,000
MISC.	1	LS	\$100,000.00	\$100,000
SUBTOTAL SITEWORK	110,000	SITESF	\$12.54	\$1,379,429
NEW BUILDING STRUCTURES				
OPTION 2 INDUSTRY TECH FACILITY (STAND-ALONE)				
DEPARTMENTS				
SCHOOL OF BUSINESS & INDUSTRY	3,750	SF	\$325.00	\$1,218,750
CONSTRUCTION MANAGEMENT / TECH	5,806	SF	\$375.00	\$2,177,250
WELDING	6,706	SF	\$400.00	\$2,682,400
AUTO BODY	6,256	SF	\$400.00	\$2,502,400
MACHINE TOOLING	5,456	SF	\$450.00	\$2,455,200
SUPPORT SPACE / COMMON AREAS	1,214	SF	\$285.00	\$345,990
SUBTOTAL NET - PROGRAM SPACES	29,188	SF	\$389.95	\$11,381,990
GROSSING FACTOR	15,749	SF	\$250.00	\$3,937,250
TOTAL GROSS AREA - PROGRAM SPACES	44,937	SF	\$340.90	\$15,319,240
SUBTOTAL SITEWORK + BUILDINGS	44,937	SF	\$371.60	\$16,698,669
ESTIMATING CONTINGENCY 5.00%				834,933
CONSTRUCTION CONTINGENCY (CHANGE ORDERS) 5.00%				834,933
SUBTOTAL SITEWORK + BUILDINGS+ CONTINGENCIES	44,937	SF	\$408.76	\$18,368,536
ESCALATION TO BID (2 YEARS AT 7% ANNUAL) 14.00%				\$2,337,814
TOTAL CONSTRUCTION COSTS	44,937	BLDGSF	\$460.79	\$20,706,350

WYOMING COMMUNITY COLLEGES

PROJECT: CASPER COLLEGE
PHASE: MASTERPLAN FEASIBILITY ASSESSMENT - OPTION 2 (STAND-ALONE INDUSTRY TECH FACILITY)
ESTIMATE DATE: APRIL 8, 2024
BID DATE: JANUARY 12, 2026
PROGRAM DATE: MARCH 10, 2024
REVISED DATE:
PREPARED BY: PLAN ONE & HORD / COPLAND / MACHT

S U M M A R Y

ITEM	ARCH PROGRAM 3/10/2024	UNIT	COST/UNIT	TOTAL COST
NON-CONSTRUCTION COSTS				
A/E FEES (9%) 9.00%				\$1,863,571
CONSTRUCTION MANAGEMENT (4%) 5.00%				\$1,035,317
TESTING / INSPECTION (1%) 1.00%				\$207,063
UTILITY CONNECTION FEE ALLOWANCE				\$200,000
MOVEABLE FURNISHINGS (F.F.E.) 3.50%				\$724,722
IT EQUIPMENT (TELEPHONE AND COMPUTERS) 0.30%				\$62,119
SECURITY SYSTEM 0.40%				\$82,825
CEQA				EXCLUDED
AUDIT				EXCLUDED
SITE ACQUISITION				EXCLUDED
NEEDS ASSESSMENT				EXCLUDED
CLIENT INTERNAL ADMINISTRATION				\$150,000
TRANSITION PLANNING				EXCLUDED
REAL ESTATE DUE DILIGENCE				EXCLUDED
UTILITY CONNECTION FEE ALLOWANCE				\$100,000
PROCUREMENT STIPENDS				EXCLUDED
PROCUREMENT ADVERTISING, PRINTING, ETC.				\$15,000
CONSTRUCTION & START-UP MANAGEMENT 0.50%				\$103,532
LEGAL / ADMINISTRATION				\$50,000
ADMINISTRATION / INSPECTION				\$20,000
PRINTING, ADV. & TRAVEL				\$15,000
GEOTECHNICAL TESTING				\$15,000
SITE SURVEY				\$25,000
CONSTRUCTION TESTING				\$25,000
MISC. TESTING				\$5,000
TRAFFIC STUDY				EXCLUDED
MOVING / RELOCATION COSTS ALLOWANCE				\$250,000
PERMITS				\$100,000
PLAN REVIEW 0.25%				\$51,766
UTILITY COMPANY CHARGES ALLOWANCE				\$50,000
MISC. COSTS				\$25,000
SUBTOTAL NON-CONSTRUCTION COSTS	44,937	BLDGSF	\$115.18	\$5,175,917
GRAND TOTAL PROJECT COSTS	44,937	BLDGSF	\$575.97	25,882,266

WYOMING COMMUNITY COLLEGES

PRINT DATE: 4/11/2024
 PRINT TIME: 9:21 AM
 PAGE 9 OF 10
 FINAL SPELL CHECKED.xls

PROJECT: **CASPER COLLEGE**PHASE: **MASTERPLAN FEASIBILITY ASSESSMENT - OPTION 1 (SOCCER FIELD + PRACTICE + FIELD HOUSE)**ESTIMATE DATE: **APRIL 8, 2024**BID DATE: **JANUARY 12, 2026**PROGRAM DATE: **MARCH 10, 2024**

REVISED DATE:

PREPARED BY: PLAN ONE & HORD / COPLAND / MACHT

S U M M A R Y

ITEM	ARCH PROGRAM 3/10/2024	UNIT	COST/UNIT	TOTAL COST
SITework				
SITE DEMOLITION				
EARTHWORK				
DEMO (E)	0	SF	\$0.00	\$0
CLEAR & GRUB	162,000	SF	\$0.30	\$48,600
ROUGH GRADE (ASSUME BALANCED SITE)	162,000	SF	\$1.00	\$162,000
FINE GRADE	162,000	SF	\$0.50	\$81,000
PAVING				
CONCRETE	2,500	SF	\$13.50	\$33,750
ASPHALT	2,000	SF	\$9.00	\$18,000
SIDEWALK (ALLOWANCE)	4,452	SF	\$10.50	\$46,746
NEW PARKING LOT	26,000	SF	\$6.00	\$156,000
SITE UTILITIES (ALLOWANCE)				
STORM - RETENTION BASIN	2,500	SF	\$15.00	\$37,500
SEWER	75	LF	\$180.00	\$13,500
WATER	75	LF	\$120.00	\$9,000
FIRE	500	LF	\$150.00	\$75,000
FIRE HYDRANTS	1	EA	\$3,500.00	\$3,500
SITE ELECTRICAL (ALLOWANCE)				
POWER	1,100	LF	\$250.00	\$275,000
POWER FOR LIGHTING	2,500	LF	\$75.00	\$187,500
LIGHTING	15	EA	\$4,500.00	\$67,500
FIELD LIGHTING	2	FIELDS	\$200,000.00	\$400,000
SPECIAL SYSTEMS	0	SF	\$0.00	\$0
GENSET, ATS & ELECTRICAL	0	LS	\$0.00	\$0
MISCELLANEOUS SITE				
SIGNAGE	1	LS	\$15,000.00	\$15,000
LANDSCAPING & IRRIGATION	1,500	SF	\$2.50	\$3,750
DUMPSTER ENCLOSURE	1	EA	\$0.00	\$0
MISC.	1	LS	\$50,000.00	\$50,000
SOCCER FIELD GRASS / IRRIGATION	162,000	SF	\$1.50	\$243,000
SUBTOTAL SITEWORK	110,000	SITESF	\$17.51	\$1,926,346
NEW BUILDING STRUCTURES				
OPTION 1 SOCCER FIELDS				
DEPARTMENTS				
FIELD HOUSE	6,000	SF	\$300.00	\$1,800,000
SUBTOTAL NET - PROGRAM SPACES	6,000	SF	\$300.00	\$1,800,000
GROSSING FACTOR (0%)	0	SF	\$0.00	\$0
TOTAL GROSS AREA - PROGRAM SPACES	6,000	SF	\$300.00	\$1,800,000
SUBTOTAL SITEWORK + BUILDINGS	6,000	SF	\$621.06	\$3,726,346
ESTIMATING CONTINGENCY 5.00%				186,317
CONSTRUCTION CONTINGENCY (CHANGE ORDERS) 5.00%				186,317
SUBTOTAL SITEWORK + BUILDINGS+ CONTINGENCIES	6,000	SF	\$683.16	\$4,098,981
ESCALATION TO BID (2 YEARS AT 7% ANNUAL) 14.00%				\$521,688
TOTAL CONSTRUCTION COSTS	6,000	BLDG SF	\$770.11	\$4,620,669
NON-CONSTRUCTION COSTS				
A/E FEES (9%) 9.00%				\$415,860
CONSTRUCTION MANAGEMENT (4%) 5.00%				\$231,033
TESTING / INSPECTION (1%) 1.00%				\$46,207
UTILITY CONNECTION FEE ALLOWANCE				\$200,000
MOVEABLE FURNISHINGS (F.F.E.) 3.50%				\$161,723
IT EQUIPMENT (TELEPHONE AND COMPUTERS) 0.30%				\$13,862
SECURITY SYSTEM 0.40%				\$18,483
CEQA				EXCLUDED
AUDIT				EXCLUDED
SITE ACQUISITION				EXCLUDED
NEEDS ASSESSMENT				EXCLUDED
CLIENT INTERNAL ADMINISTRATION				\$150,000
TRANSITION PLANNING				EXCLUDED
REAL ESTATE DUE DILIGENCE				EXCLUDED

WYOMING COMMUNITY COLLEGES

PRINT DATE: 4/11/2024
PRINT TIME: 9:21 AM
PAGE 10 OF 10
FINAL SPELL CHECKED.xls

PROJECT: CASPER COLLEGE
PHASE: MASTERPLAN FEASIBILITY ASSESSMENT - OPTION 1 (SOCCER FIELD + PRACTICE + FIELD HOUSE)
ESTIMATE DATE: APRIL 8, 2024
BID DATE: JANUARY 12, 2026
PROGRAM DATE: MARCH 10, 2024
REVISED DATE:
PREPARED BY: PLAN ONE & HORD / COPLAND / MACHT

S U M M A R Y

ITEM	ARCH PROGRAM 3/10/2024	UNIT	COST/UNIT	TOTAL COST
UTILITY CONNECTION FEE ALLOWANCE				\$100,000
PROCUREMENT STIPENDS				EXCLUDED
PROCUREMENT ADVERTISING, PRINTING, ETC.				\$15,000
CONSTRUCTION & START-UP MANAGEMENT0.50%				\$23,103
LEGAL / ADMINISTRATION				\$50,000
ADMINISTRATION / INSPECTION				\$20,000
PRINTING, ADV. & TRAVEL				\$15,000
GEOTECHNICAL TESTING				\$15,000
SITE SURVEY				\$25,000
CONSTRUCTION TESTING				\$25,000
MISC. TESTING				\$5,000
TRAFFIC STUDY				EXCLUDED
MOVING / RELOCATION COSTS ALLOWANCE				\$250,000
PERMITS				\$100,000
PLAN REVIEW0.25%				\$11,552
UTILITY COMPANY CHARGES ALLOWANCE				\$50,000
MISC. COSTS				\$25,000
SUBTOTAL NON-CONSTRUCTION COSTS	6,000	BLDGSF	\$327.80	\$1,966,823
GRAND TOTAL PROJECT COSTS	6,000	BLDGSF	\$1,097.92	6,587,493



Project: Krampert Theater Renovation
Project No: 2337
Project Phase: Conceptual
Documents Dated: 04.11.2024

CONCEPTUAL COST ESTIMATE

	Quantity	Pricing Unit	Unit Price	Total Cost
Construction Costs - Minor Renovation				
Costume Shop - New Dumbwaiter	1	ls	\$ 40,000	\$ 40,000
McMurry Backstage Access - ADA Lift	1	ls	\$ 30,000	\$ 30,000
Make-Up Room Flooring	860	sf	\$ 15	\$ 12,900
Carpeting	2,780	sy	\$ 35	\$ 97,300
Black Box Theatre - House Lighting	2,816	sf	\$ 20	\$ 56,320
South Lobby Ticketing	1	ls	\$ 25,000	\$ 25,000
Scene Shop Plaster Trap	1	ls	\$ 3,500	\$ 3,500
SD - Moisture Intrusion Study	1	ls	\$ 20,000	\$ 20,000
				\$ -
General Contractor OH&P	285,020	%	10%	\$ 28,502
Subtotal Construction Costs - Minor Renovation				\$ 313,522

Construction Costs - Major Renovation				
Scifers Dance Studio - Moisture Issue, Flooring, House Lighting	3,005	sf	250	\$ 751,250
SD - Performance Lighting & Controls	1	ls	185,000	\$ 185,000
McMurry Theatre - Seating, Finishes, House Lighting	4,965	sf	300	\$ 1,489,500
MM - Performance Drapery and Track	1	ls	95,000	\$ 95,000
MM - Performance Lighting & Controls & Motorized Rigging	1	ls	500,000	\$ 500,000
MM - Auditorium Sound Reinforcement and Video Present.	1	ls	320,000	\$ 320,000
Ken Uhry Theatre - Seating, Finishes, House Lighting	710	sf	300	\$ 213,000
KU - Performance Lighting & Controls	1	ls	50,000	\$ 50,000
KU - A/V Upgrade	1	ls	35,000	\$ 35,000
Sound System Dressing Room /Make Up Room	1	ls	100,000	\$ 100,000
				\$ -
General Contractor OH&P	3,738,750	%	10%	\$ 373,875
Subtotal Construction Costs - Major Renovation				\$ 4,112,625

Construction Costs - MEP				
Scene Shop - Dust Collection System	1	ls	\$ 175,000	\$ 175,000
Scene Shop - Paint Enclosure	1	ls	\$ 15,000	\$ 15,000
Costume Storage Closet - No Returns	1	ls	\$ 10,000	\$ 10,000
Overall HVAC Review	49,236	sf	\$ 15	\$ 738,540
				\$ -
General Contractor OH&P	938,540	%	10%	\$ 93,854
Subtotal Construction Costs - MEP				\$ 1,032,394

Subtotal Construction Costs				\$ 5,458,541
------------------------------------	--	--	--	---------------------

Project Factors				
Estimating Contingency	5,458,541	%	5%	\$ 272,927
Construction Contingency	5,731,468	%	5%	\$ 286,573
Subtotal Construction Costs + Contingencies				\$ 6,018,041
Escalation to Bid (2 Years at 7% Annual)	6,018,041	%	14%	\$ 842,526
Total Construction Costs				\$ 6,860,567

Project Soft Costs				
Architectural / Engineering Fees	6,860,567	%	9%	\$ 617,451
Construction Management	6,860,567	%	5%	\$ 343,028
Other Soft Costs	6,860,567	%	15%	\$ 1,029,085
Subtotal Project Soft Costs				\$ 1,989,565

Total Project Cost - Hard & Soft Costs Combined				\$ 8,850,132
--	--	--	--	---------------------



Project: Thorson Business Renovation
Project No: 2337
Project Phase: Conceptual
Documents Dated: 04.11.2024

CONCEPTUAL COST ESTIMATE

	Quantity	Pricing Unit	Unit Price	Total Cost
Construction Costs - Minor Renovation				
Corridor Renovation - Finishes and Transoms	2,100	sf	\$ 250	\$ 525,000
Student Spaces - Finishes & Technology	1,415	ls	\$ 150	\$ 212,250
New Stair Guardrail/Railing	180	lf	\$ 175	\$ 31,500
Other Shared Space - Finishes	2,300	sf	\$ 100	\$ 230,000
Stairs	450	sf	\$ 150	\$ 67,500
Wall Repair	100	sf	\$ 30	\$ 3,000
Secure Roof Access & Panic Hardware at Gates	120	lf	\$ 200	\$ 24,000
				\$ -
General Contractor OH&P	1,093,250	%	10%	\$ 109,325
Subtotal Construction Costs - Minor Renovation				\$ 1,202,575

Construction Costs - Major Renovation				
BU-216 Renovation	655	sf	300	\$ 196,500
Furniture Fixtures & Equipment	1	ls	200,000	\$ 200,000
Raising Office Walls & Adding Sound Batts	670	lf	150	\$ 100,500
				\$ -
General Contractor OH&P		%	10%	\$ 29,700
Subtotal Construction Costs - Major Renovation				\$ 526,700

Construction Costs - MEP				
Included in Above				\$ -
				\$ -
				\$ -
				\$ -
General Contractor OH&P		%	10%	\$ -
Subtotal Construction Costs - MEP				\$ -

Subtotal Construction Costs				\$ 1,729,275
------------------------------------	--	--	--	---------------------

Project Factors				
Estimating Contingency	1,729,275	%	5%	\$ 86,464
Construction Contingency	1,815,739	%	5%	\$ 90,787
Subtotal Construction Costs + Contingencies				\$ 1,906,526
Escalation to Bid (2 Years at 7% Annual)	1,906,526	%	14%	\$ 266,914
Total Construction Costs				\$ 2,173,439

Project Soft Costs				
Architectural / Engineering Fees	2,173,439	%	9%	\$ 195,610
Construction Management	2,173,439	%	5%	\$ 108,672
Other Soft Costs	2,173,439	%	15%	\$ 326,016
Subtotal Project Soft Costs				\$ 630,297

Total Project Cost - Hard & Soft Costs Combined				\$ 2,803,737
--	--	--	--	---------------------



Project: Wheeler Terrace
Project No: 2403
Project Phase: Conceptual
Documents Dated: 04.11.2024

CONCEPTUAL COST ESTIMATE

	Quantity	Pricing Unit	Unit Price	Total Cost
Construction Costs - Minor Renovation				
Destructive Testing	1	ls	\$ 20,000	\$ 20,000
Balcony Repair				Unknown
				\$ -
General Contractor OH&P	265,020	%	10%	\$ 26,502
Subtotal Construction Costs - Minor Renovation				\$ 46,502

Construction Costs - Major Renovation				
Building Demolition	193,255	cf	1	\$ 96,628
Dump Fees	1	ls	20,000	\$ 20,000
Asbestos Removal	19,985	sf	2	\$ 39,970
New 20,000 SF Stick Frame Apartment	20,000	sf	325	\$ 6,500,000
Site Work	1	ls	500,000	\$ 500,000
				\$ -
General Contractor OH&P		%	10%	\$ 715,660
Subtotal Construction Costs - Major Renovation				\$ 7,872,257

Construction Costs - MEP				
MEP Upgrade	1	ls	\$ 2,000,000	\$ 2,000,000
Plumbing Fixture Replacement	72	ea	\$ 2,000	\$ 144,000
General Contractor OH&P		%	10%	\$ 214,400
Subtotal Construction Costs - MEP				\$ 2,358,400

Subtotal Construction Costs				\$ 10,277,159
------------------------------------	--	--	--	----------------------

Project Factors				
Estimating Contingency	10,277,159	%	5%	\$ 513,858
Construction Contingency	10,277,159	%	5%	\$ 513,858
Subtotal Construction Costs + Contingencies				\$ 11,304,875
Escalation to Bid (2 Years at 7% Annual)	11,304,875	%	14%	\$ 1,582,683
Total Construction Costs				\$ 12,887,558

Project Soft Costs				
Architectural / Engineering Fees	12,887,558	%	9%	\$ 1,159,880
Construction Management	12,887,558	%	5%	\$ 644,378
Other Soft Costs	12,887,558	%	15%	\$ 1,933,134
Subtotal Project Soft Costs				\$ 3,737,392

Total Project Cost - Hard & Soft Costs Combined				\$ 16,624,949
--	--	--	--	----------------------



Project: Aley Hall
Project No: 2403
Project Phase: Conceptual
Documents Dated: 04.11.2024

CONCEPTUAL COST ESTIMATE

	Quantity	Pricing Unit	Unit Price	Total Cost
Construction Costs - Minor Renovation				
Window Replacement - Leaking and Single Pane Windows	95	ea	\$ 500	\$ 47,500
Stucco Repair	3,000	sf	\$ 33	\$ 99,000
				\$ -
General Contractor OH&P	265,020	%	10%	\$ 26,502
Subtotal Construction Costs - Minor Renovation				\$ 173,002

Construction Costs - Major Renovation				
Durham Hall - Seating, Finishes, House Lighting	3,490	sf	250	\$ 872,500
DH - Performance Lighting & Controls	1	ls	50,000	\$ 50,000
DH - A/V Upgrade	1	ls	35,000	\$ 35,000
Structural Repair	1	ls	100,000	\$ 100,000
Enclose Northside Entry and Repair Stairs & Brick	1,500	sf	450	\$ 675,000
				\$ -
General Contractor OH&P		%	10%	\$ 173,250
Subtotal Construction Costs - Major Renovation				\$ 1,905,750

Construction Costs - MEP				
RTU Replacement	1	ls	\$ 175,000	\$ 400,000
Durham Hall AHU Replacement	1	ls	\$ 15,000	\$ 400,000
HVAC Upgrade	1	ls	\$ 10,000	\$ 2,000,000
General Contractor OH&P		%	10%	\$ 280,000
Subtotal Construction Costs - MEP				\$ 3,080,000

Subtotal Construction Costs				\$ 5,158,752
------------------------------------	--	--	--	---------------------

Project Factors				
Estimating Contingency	5,158,752	%	5%	\$ 257,938
Construction Contingency	5,158,752	%	5%	\$ 257,938
Subtotal Construction Costs + Contingencies				\$ 5,674,627
Escalation to Bid (2 Years at 7% Annual)	5,674,627	%	14%	\$ 794,448
Total Construction Costs				\$ 6,469,075

Project Soft Costs				
Architectural / Engineering Fees	6,469,075	%	9%	\$ 582,217
Construction Management	6,469,075	%	5%	\$ 323,454
Other Soft Costs	6,469,075	%	15%	\$ 970,361
Subtotal Project Soft Costs				\$ 1,876,032

ROM ESTIMATE WORKSHEET					
CASPER COLLEGE					
PROJECT: MONUMENT ENTRY SIGN					
PHASE: CONCEPTUAL					
ESTIMATE DATE: MARCH 12, 2024					
BID DATE:					
PREPARED BY: J.PRECHEL FOR PLAN ONE					
1 of 1 3/12/2024 10:21 AM Casper Entry Sign Conceptual Estimate 3_12_2024					
ITEM	DESCRIPTION	QTY	UNIT	UNIT PRICE	TOTAL COST
1	ROUGH GRADING	1,500	SF	\$7.00	\$10,500
	FINE GRADING	1,500	SF	\$5.00	\$7,500
	CONCRETE WALL FOOTINGS	26	CY	\$500.00	\$13,111
	STACKED STONE WALL -5'	120	SF	\$45.00	\$5,400
	MASONRY WALL -2.5'	116	SF	\$35.00	\$4,060
	SIGN				
	FOUNDATIONS	2	SF	\$500.00	\$1,000
	VERTICAL PANELS	323	SF	\$40.00	\$12,938
	METAL PANELS	731	SF	\$30.00	\$21,927
	ONE-SIDED DIGITAL SIGN 8X12	96	SF	\$400.00	\$38,400
	POWER				
	UNDERGROUND FEEDER ALLOWANCE	1,000	LF	\$50.00	\$50,000
	LIGHTING	8	EA	\$500.00	\$4,000
	MISC	1	LS	\$10,000	\$10,000
SUBTOTAL HARD COSTS					\$178,836
CONTINGENCY					
ESTIMATING CONTINGENCY 15.00%					\$26,825
SUBTOTAL CONSTRUCTION COSTS					\$205,662
MARK-UPS					
GENERAL CONDITIONS 10.00%					\$20,566
OVERHEAD & PROFIT 5.00%					\$11,311
INSURANCE & BONDS 1.50%					\$3,563
SUBTOTAL MARK-UPS					\$35,441
SUBTOTAL CONSTRUCTION COSTS & MARK-UPS					\$241,102
ESCALATION					
ESCALATION 0.00%					\$0
TOTAL ROM ESTIMATE:					\$241,102