# salt lake community college jordan campus
## 2021 master plan


november 2021

Salt Lake Community College

ajc architects

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## preface

The masterplan is an overall plan for build out which will only occur as growth and demand requires.

01

# executive summary

### introduction

The objective of this Master Plan for Jordan Campus is to update the original SLCC Jordan Campus Master Plan that was completed in 1997. The original vision for the campus was to be a full-service high-tech Health Science campus. The current vision still aligns with the original with the addition of a General Education focus and resources. This Master Plan is an overall plan for build out that will only occur as growth and demand requires.

This updated SLCC Jordan Master Plan commenced in the beginning of 2021 to provide a detailed analysis of SLCC Jordan Campus newly defined campus boundary from the result of having sold 40 acres on the south end. The new southern border ends at the division of West Jordan and South Jordan. As a result of this sale, Jordan Campus property is only in West Jordan and the new campus is 76.62 acres.

The Master Plan addresses the complex needs and demands required to accommodate growth of the college. A range of ideas and options were explored, establishing uses and activities, as well as future uses and functions that should be added, and how they should be configured and coordinated to create a complete campus that represents SLCC visions and goals.

The Master Plan addresses current and future needs, utilizing an outreach process for input and direction. The plan identifies priorities for future development, improves efficiency and clarity of land use and zones, and includes strategies to enhance the experience and character of SLCC Jordan Campus.

School of Applied Technology provides the following academic programs at SLCC Jordan campus:

**Allied Health**

- Dental Hygiene
- Pharmacy Tech
- Respiratory Therapy
- Surgical Technology

**Health Professions**

- Mortuary Science
- Occupational Therapy Assistant
- Physical Therapy Assistant

**Nursing**

- Certified Nursing Assistant
- Medical Office Administration
- Clinical Medical Lab Assistant

## general education

This Master Plan provides a guideline for phased development of the site, with a potential capacity of an additional 440,000 square feet of construction plus associated landscaping and infrastructure. This plan assumes that the campus will grow naturally to the south from the existing built campus to meet future demand for educational services.

This Master Plan calls for a campus that will foster innovation in learning. Existing development is based on a system of three superimposed grids that allow architects to take advantage of solar orientation, views, and the historical orthogonal organization of the city to create a campus of clustered buildings with a village character. At the heart of the campus, a series of pedestrian courts will link all of the facilities at a single grade to provide convenient access. Building height and mass will be reduced so that the campus remains in harmony with the rhythm and scale of the site and the neighborhood. Landscaping will include the creation of outdoor learning-resource areas and the selection of climate tolerant plants to reduce water use. A material palette and an architectural vocabulary have been identified to be compatible with the scale and character of the surrounding region and create an identity appropriate to





the college context. A central utility system, designed with the flexibility to accommodate change, will support the technology of the present and the future efficiently. While ample parking has been allowed, the plan will also provide convenient access to encourage the use of mass transit and pathways to accommodate pedestrians and bicycles.

With the development of this Master Plan, Salt Lake Community College will continue its tradition of excellence in community focused education. The plan also supports SLCC to be a good neighbor to the residents of South Jordan and West Jordan by providing innovative facilities that will meet the instructional needs in the future in an efficient and responsible manner.

The final result is a Master Plan that is forward thinking yet realistic. The plan concludes with specific strategies for meeting short and long term needs in three phases, and illustrations that encapsulate the visual characteristics of the area.

## overview

Founded in 1948, Salt Lake Community College (SLCC) is Utah's largest college with the most diverse student body. It serves more than 60,000 students on 12 campuses/ centers, along with online classes and student enrollment which continues to grow steadily. The college is accredited by the Northwest Commission on Colleges and Universities (NWCCU).

The growth in enrollment has required the institution to consider several options for serving areas of the Salt Lake Valley where population growth is exponential, as well as maintain and expand quality facilities for education, student enrichment, research partnerships, and other institutional initiatives and activities.

Salt Lake Community College has positioned itself to establish the necessary physical environment to meet its academic mission in the southwestern corner of Salt Lake County. SLCC Jordan Campus allows the institution to address challenges due to rapid community population growth, landlocked existing campuses, emerging academic markets and sustainability strategies, advancing technological requirements, and limited funding streams.

This Master Plan is intended to assess and quantify the site's ability to accommodate physical development and provide a flexible "blueprint" to guide growth in a consistent and harmonious manner with the institutional mission while crafting a campus with unique character. The plan is a framework for sustainability within which the College has flexibility to strategically manage physical growth, incentive sustainable development, and optimize opportunities for institutional and business partnerships on campus.

Currently the SLCC Jordan Campus allows the institution to address challenges due to growth and support general education needs plus focusing on Health Science academic programs.

## history of Jordan Campus *

Established in 2001, the Jordan Campus is SLCC's third full-service campus. It houses a library, student service building, financial aid, a dental clinic for the dental hygienist program, academic advising offices and Cate Field (where the SLCC baseball team plays its home games).

The Nursing program opened at the campus in 2007. Other non-college buildings on the campus include the Jordan School District Applied Technology Center, Itineris Charter School, and an LDS Institute of Religion.

## SLCC vision/mission/values **

### vision

SLCC will be a model for inclusive and transformative education, strengthening the communities we serve through the success of our students.

### mission

SLCC is your community college. We engage and support students in educational pathways leading to successful transfer and meaningful employment.

* Wikipedia
** Salt Lake Community College Website





### values

**Collaboration** we believe we're better when we work together.

**Community**
We partner with our community in the transformative, public good of education students.

**Inclusivity**
We seek to cultivate an environment of respect and empathy, advanced by diverse cultures and perspectives.

**Integrity**
We do the right things for the right reasons.

**Innovation**
We value fresh thinking and encourage the energy of new ideas and initiatives.

**Learning**
We learn as a college by building outstanding educational experiences for students and by supporting faculty and staff in their professional development.

**Trust**
We build trust by working together in good faith and goodwill to fulfill the College's mission.

**New Building Summary Chart**

| Phase | Building Type | Size | Parking |
|---|---|---|---|
| Phase 1 | *General Education | 40,000-60,000 Sq. Ft. | 150 stalls |
| Phase 1 | *Health Science | 40,000-60,000 Sq. Ft. | 150 stalls |
| Phase 1 | Baseball Facilities | 7,000-10,000 Sq. Ft. | TBD |
| Phase 2 | *Health Science | 40,000-60,000 Sq. Ft. | 125 stalls |
| Phase 2 | *General Education | 40,000-60,000 Sq. Ft. | 125 stalls |
| Phase 3 | *General Education | 40,000-60,000 Sq. Ft. | 116 stalls |
| Phase 3 | *Health Science | 40,000-60,000 Sq. Ft. | 116 stalls |
| Phase 3 | *Recreation Center | 80,000 Sq. Ft. | 118 stalls |
| Phase 3 | *Student Housing | TBD | TBD |
| Full Build | - | 320,000-440,000 Sq. Ft. | 900 stalls |

***All future labeled building type are potential, names may change in the future due to market growth and demands.**

## optimize sustainability

- Maximize land utilization by master planning for the new south end of campus development capacity of approximately 440,000 gsf.
- Utilize incentives for the development of renewable energy forms, such as wind, photovoltaic, ground source heating, and solar thermal and their incorporation into the campus's central utility system.
- Optimize each proposed building's development capacity utilizing building heights, orientation, and envelope. Consider locating multiple programmatic uses into combined facilities of appropriate size.
- Develop a consolidated utility distribution system along primary and secondary loops.
- Implement building guidelines for defined energy reduction that becomes stricter over the life of the development.

## sustainability guidelines*

Salt Lake Community College is visionary among higher education establishments by setting sustainability as a primary goal at the SLCC Jordan Campus. All planning efforts have been guided by the specific site, as well as the future goals of the campus and curriculum. Some sustainability measures will be highly visible and evident to the public, while others may not be seen but are planned for environmental responsibility. Below are a few sustainible strategies that should be considered during future construction.

- Land contours
- Short-term and long-range views
- Prevailing winds
- Solar orientation
- Walkability
- Site utilization for energy systems and efficiencies
- Stormwater infiltration and management
- Pedestrian priority
- Building daylighting
- View corridors

* 2012 Herriman Master Plan

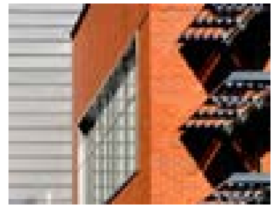




Succesful sustainable projects utilize a holistic and fully integrated design approach where sustainability is interconnected with all design decisions. Building alignment, formation, height, phasing, and development will be sensitive to these guidelines and include strategies notes in this master plan. Strategies should include stepping down with the contours of land, positioning glazing, building staggering and orientation to block winter winds while embracing cooler summer breezes.

**eco-efficiency***
Enhance the environment by minimizing resource use, pollution, environmental impact and generating less waste; maximize goods and services created in the pursuit to self-sustain.

**community***
Be a consistent partner for sustainable community development; enhancing and supporting the region with integrated planning, cooperation, and investment that is beneficial to the community.



**economic stewardship***
Execute practical and enduring spending practices showing wise stewardship over capital improvements and life-cycle costs for lasting benefits.

**education***
Understand and implement practices to support the National Energy Institute and the growth of sustainability education as a leader of innovative education.

02

# existing campus

# 02 existing campus | overview

The existing Jordan campus is comprised of 7 buildings. Two of these, the HTC and Health Science building, function as mainly classroom space for Health Science and general education courses. The 3rd being the Huval Student Center, houses many student related services & resources such as admissions, cashiering, academic advising, Center for Health and Counseling, fitness center, and many spaces for student study and tutoring rooms. The fourth building is an LDS institute building along with two school district buildings for high school students. The last is the central plant build for the campus. The campus also has adequate parking for these buildings. Also the campus has a baseball field for the SLCC team.

NORTH



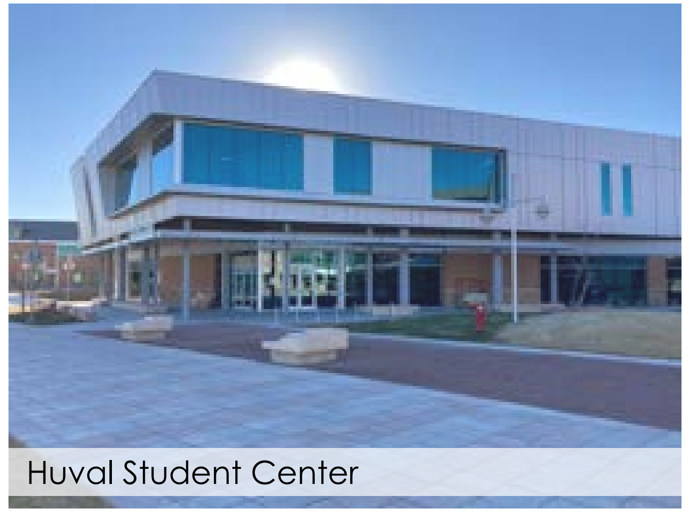
# existing buildings | existing campus 02


NORTH

# 02 existing campus | existing buildings


High Tech Center


Health Science Building


Huval Student Center


School District Building



# building summary | existing campus 02

## High Tech Center

**Square Footage:** 90,000 Sq. Ft.

**Function:** The High Tech Center functions mainly as one of the main classroom and lab buildings on campus.

## Health Science Building

**Square Footage:** 105,000 Sq. Ft.

**Function:** The Health Science Building functions as the main hub for Health Science related courses on campus. The building also houses a large auditorium space and student study spaces.

## Huval Student Center

**Square Footage:** 41,000 Sq. Ft.

**Function:** The Huval Student Center functions as the heart of campus. It houses many student related spaces as well as office spaces such as cashiering, career services and admissions. The Huval Student Center also houses a 300 person event space for the campus.


## Jordan Education Building

**Square Footage:** 45,500 Sq. Ft.

**Function:** This building is currently used by Jordan School district and functions mainly for high school students and faculty.





## JATC Building

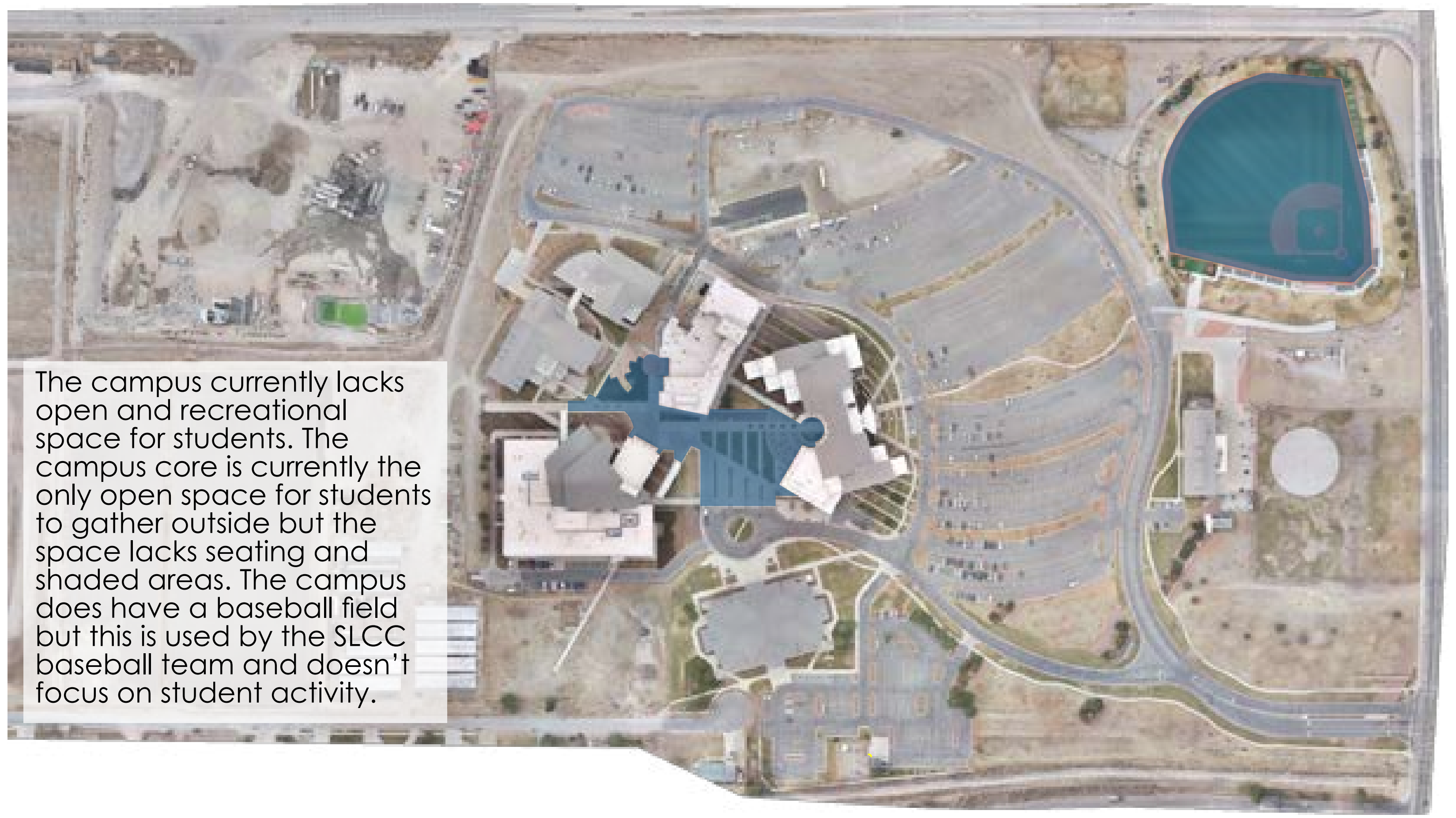
**Square Footage:** 58,000 Sq. Ft.

**Function:** This building is currently used by Jordan School district and functions mainly for high school students and faculty.

## Central Plant

The Central Plant has been sized to handle the expansion needed for the new 40 acre development.

# 02 existing campus | recreational and open spaces



The campus currently lacks open and recreational space for students. The campus core is currently the only open space for students to gather outside but the space lacks seating and shaded areas. The campus does have a baseball field but this is used by the SLCC baseball team and doesn't focus on student activity.

NORTH



# existing parking | existing campus 02

The campus currently has an adequate amount of parking for the current build out of campus.

NORTH

# existing campus | transit


Currently there is one bus drop-off location on campus.



# surrounding context | existing campus



neighborhood to the east

55+ community to the south

bangerter highway to the west

9000 S to the north

# 03

# Master Plan

# 03 Master Plan | overview


*All future labeled building type are potential, names may change in the future due to market growth and demands.





# overview of campus | Master Plan 03


*All future labeled building type are potential, names may change in the future due to market growth and demands.

## 03 Master Plan | vignette - campus quad




## vignette - south end of campus | Master Plan 03

## 03 Master Plan | vignette - drop-off and pick up



## vignette - multi-use field | Master Plan 03

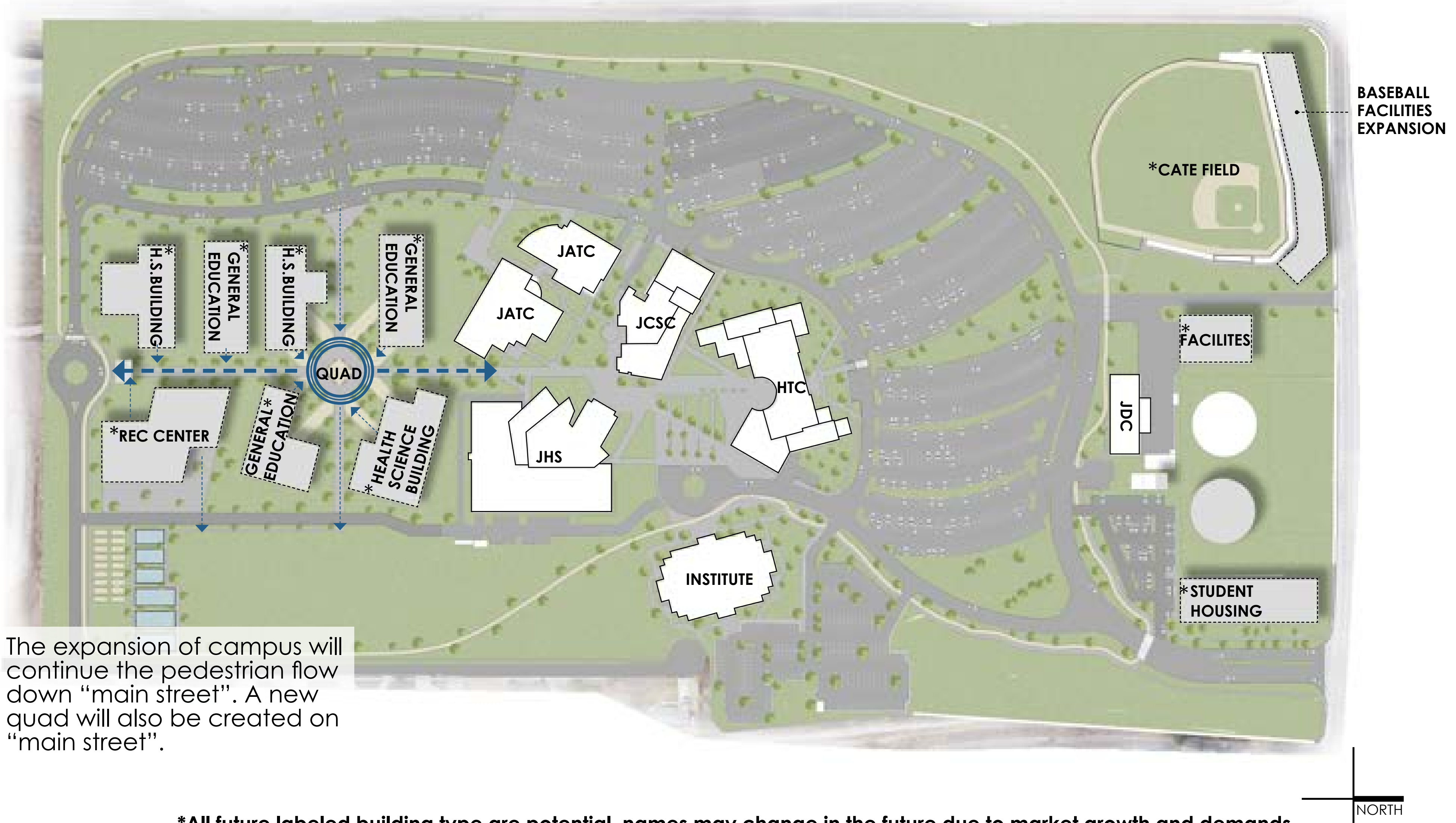
## 03 Master Plan | parking addition


Parking will be expanded by 900 new stalls and will follow the pattern created by the existing campus.

***All future labeled building type are potential, names may change in the future due to market growth and demands.**



## pedestrian flow | Master Plan 03

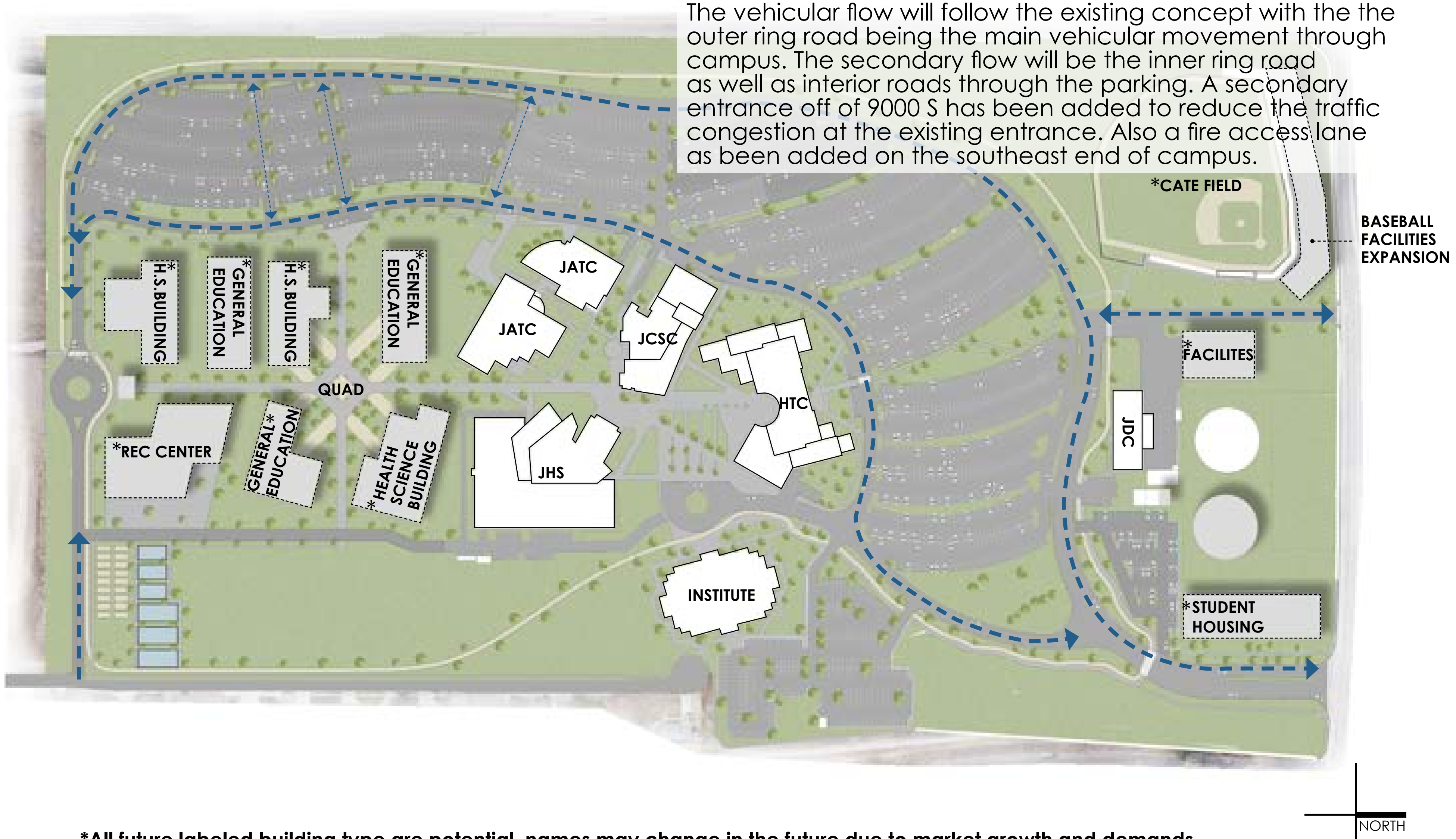



The expansion of campus will continue the pedestrian flow down “main street”. A new quad will also be created on “main street”.

***All future labeled building type are potential, names may change in the future due to market growth and demands.**

## 03 Master Plan | vehicular flow

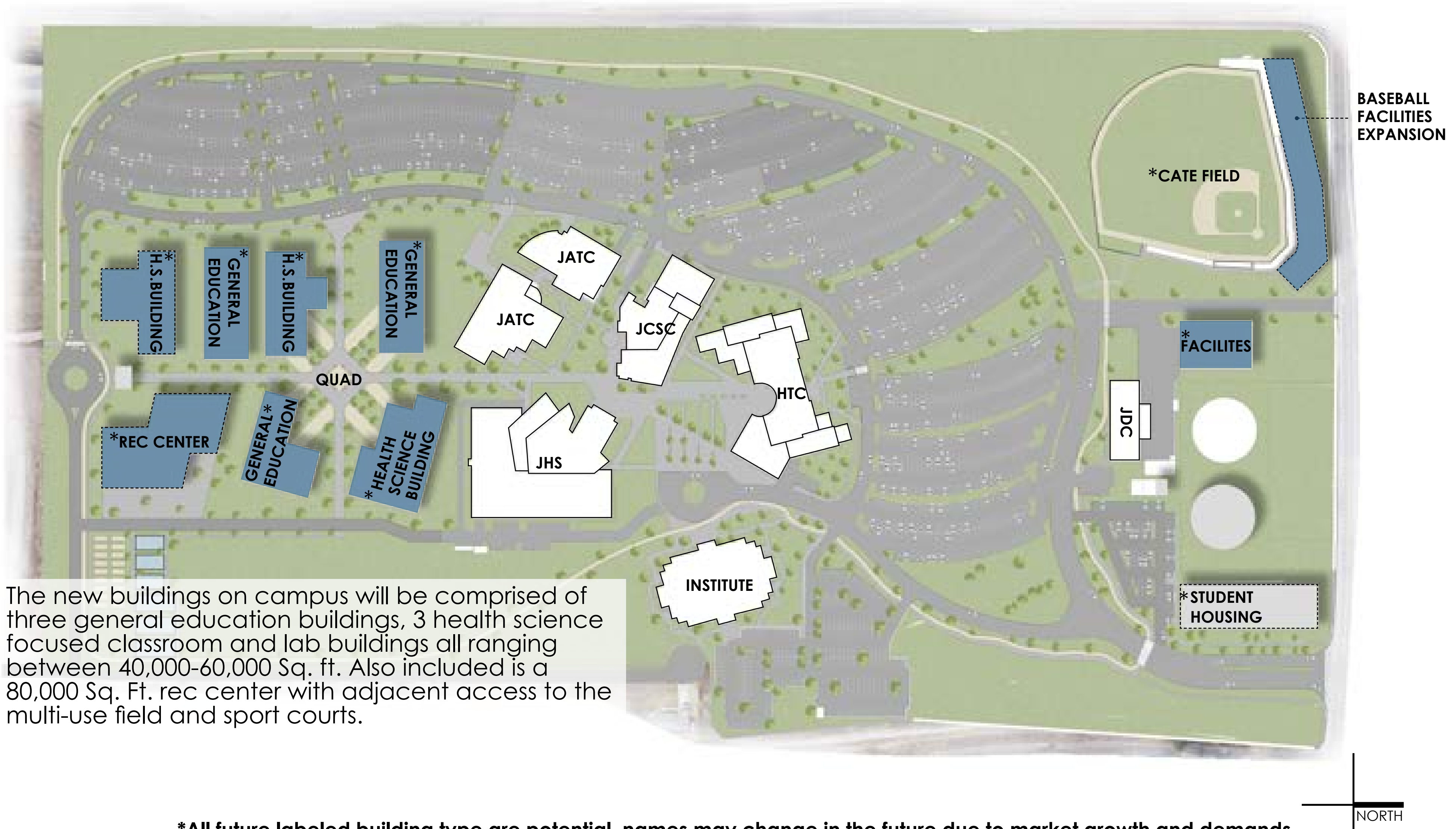
The vehicular flow will follow the existing concept with the the outer ring road being the main vehicular movement through campus. The secondary flow will be the inner ring road as well as interior roads through the parking. A secondary entrance off of 9000 S has been added to reduce the traffic congestion at the existing entrance. Also a fire access lane as been added on the southeast end of campus.




*All future labeled building type are potential, names may change in the future due to market growth and demands.



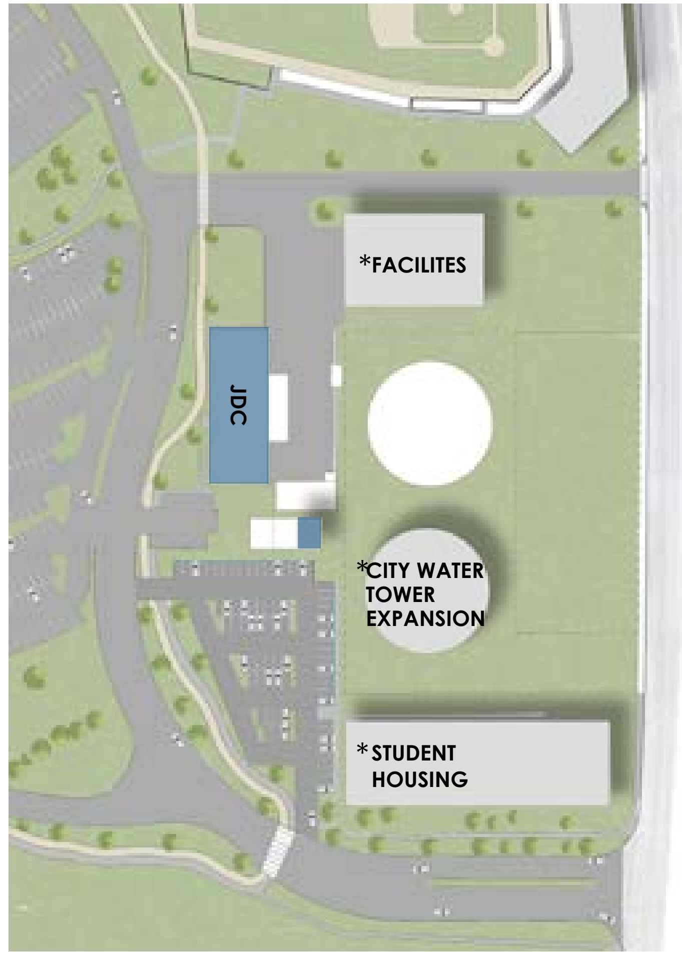
## new building summary | Master Plan 03




The new buildings on campus will be comprised of three general education buildings, 3 health science focused classroom and lab buildings all ranging between 40,000-60,000 Sq. ft. Also included is a 80,000 Sq. Ft. rec center with adjacent access to the multi-use field and sport courts.

*All future labeled building type are potential, names may change in the future due to market growth and demands.

# 03 Master Plan | central plant impacts




There will be no need to expand the central plant building. The building was originally planned to handle this level of expansion. Heating, ventilation, cold and hot water, etc. will need to be expanded within the central plant. The cooling towers will need to be expanded as highlighted in the diagram.

NORTH

***All future labeled building type are potential, names may change in the future due to market growth and demands.**



# recreation and open space | Master Plan 03

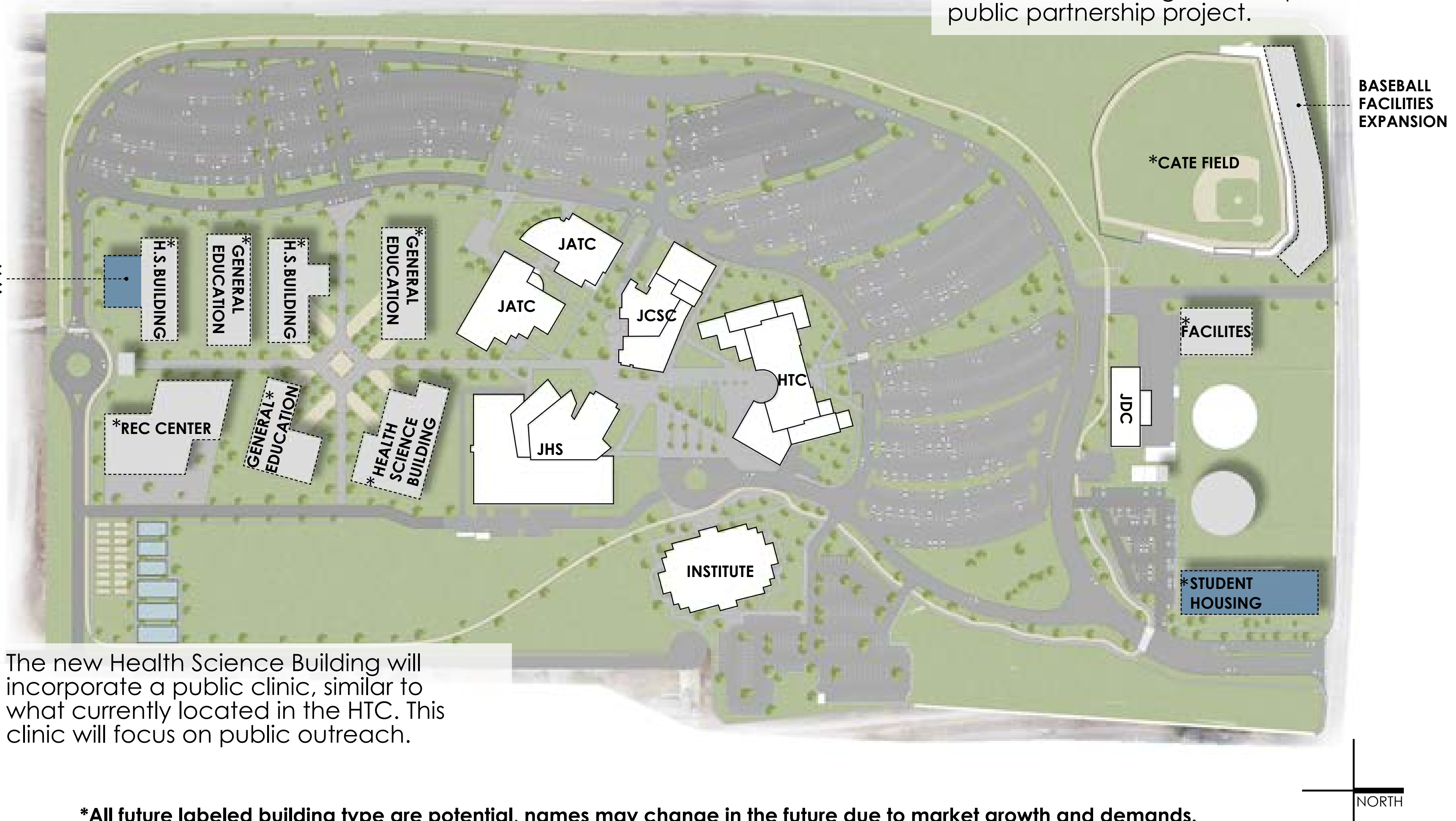
The masterplan focuses on expanding access to green open space as well as recreation space. The campus will incorporate a running trail that weaves its way around campus. It also adds 6 sports courts and also a multi functional open field. It also provides an expansion of the sports facilities adjacent to the Cate Baseball Field and an 80,000 Sq. Ft. Rec Center.


NORTH

***All future labeled building type are potential, names may change in the future due to market growth and demands.**

# 03 Master Plan | cooperative partnerships

The student housing will be a private public partnership project.

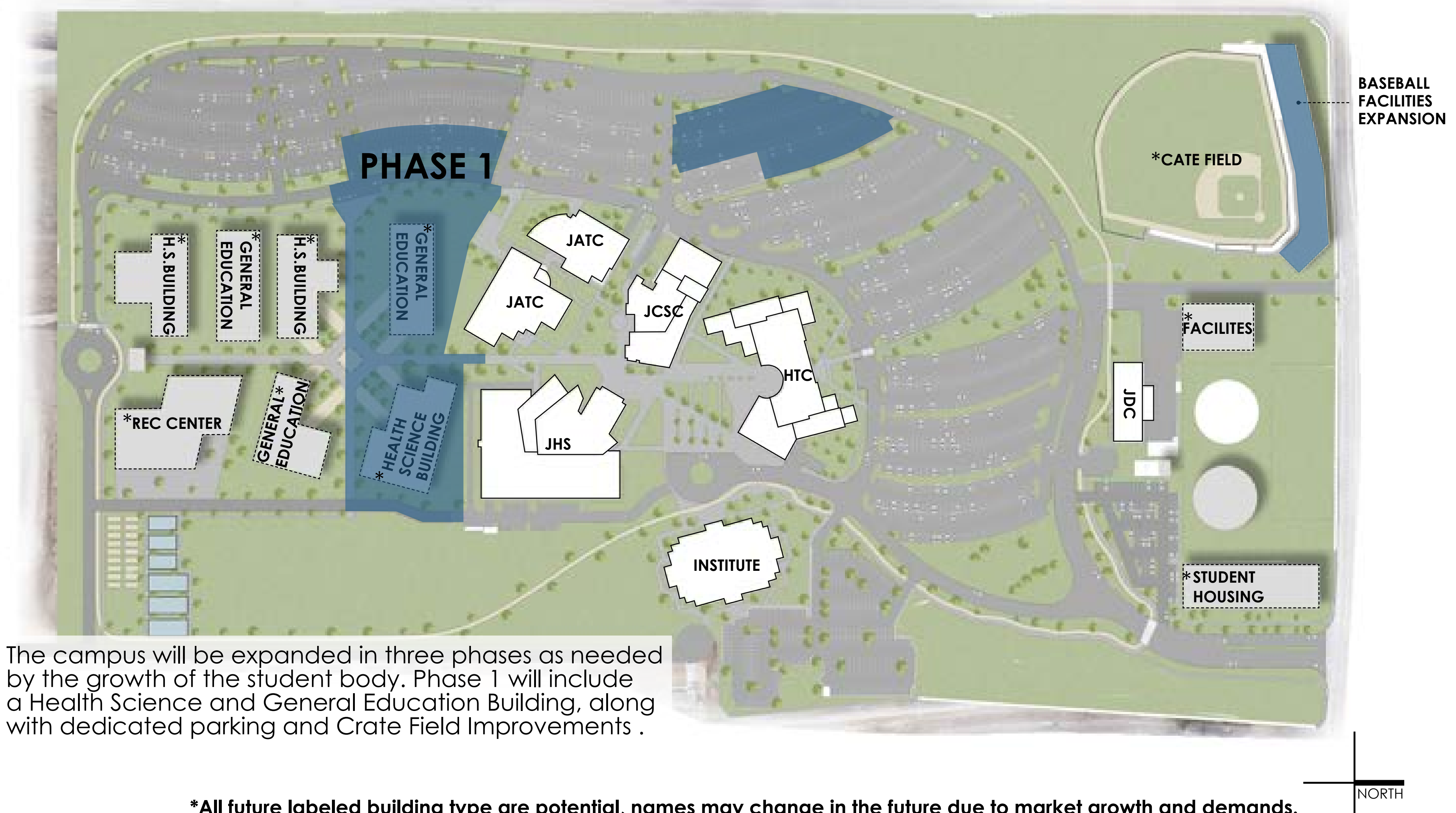



The new Health Science Building will incorporate a public clinic, similar to what currently located in the HTC. This clinic will focus on public outreach.

***All future labeled building type are potential, names may change in the future due to market growth and demands.**

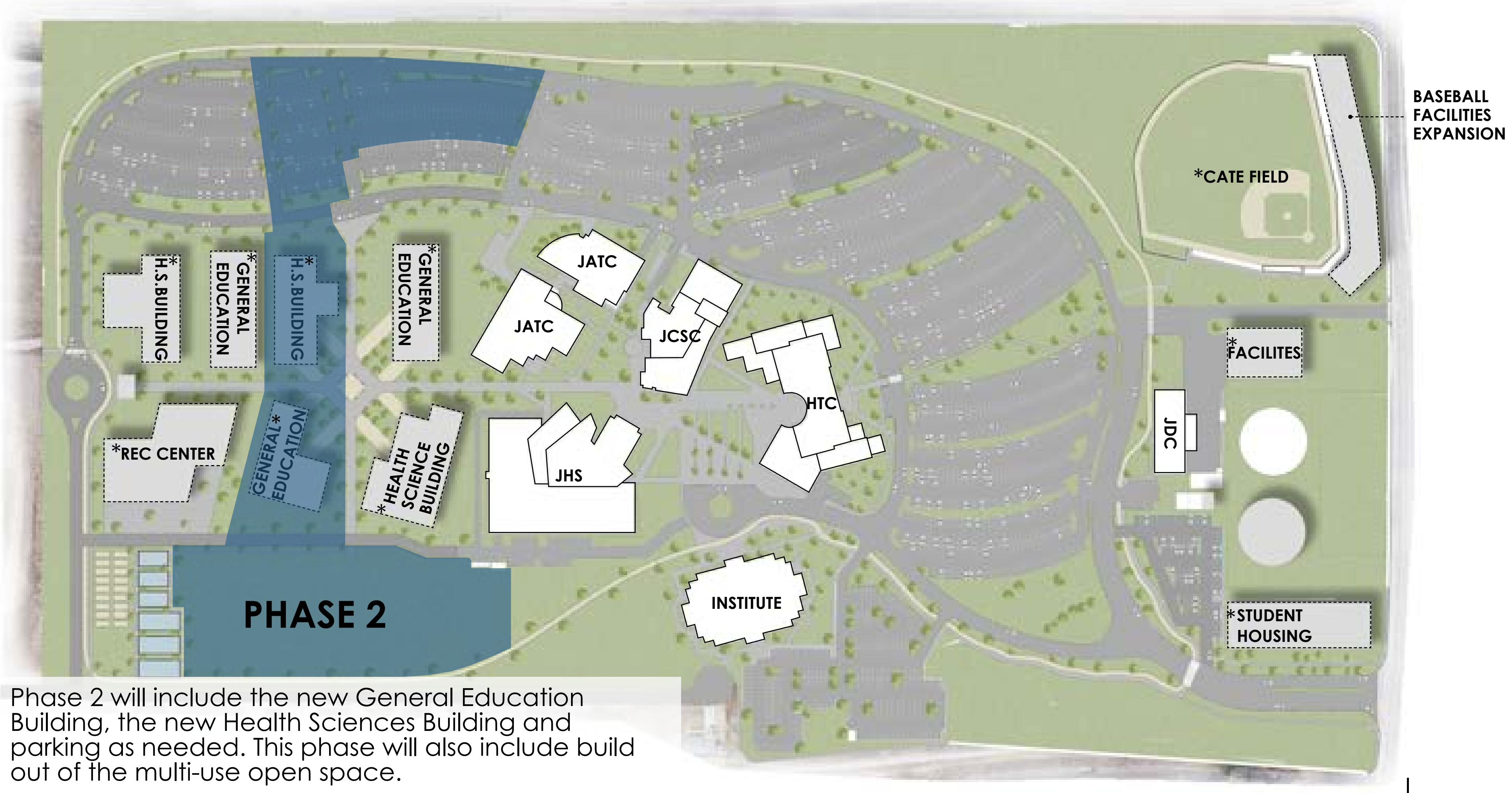


# phasing | Master Plan 03




The campus will be expanded in three phases as needed by the growth of the student body. Phase 1 will include a Health Science and General Education Building, along with dedicated parking and Crate Field Improvements .

***All future labeled building type are potential, names may change in the future due to market growth and demands.**

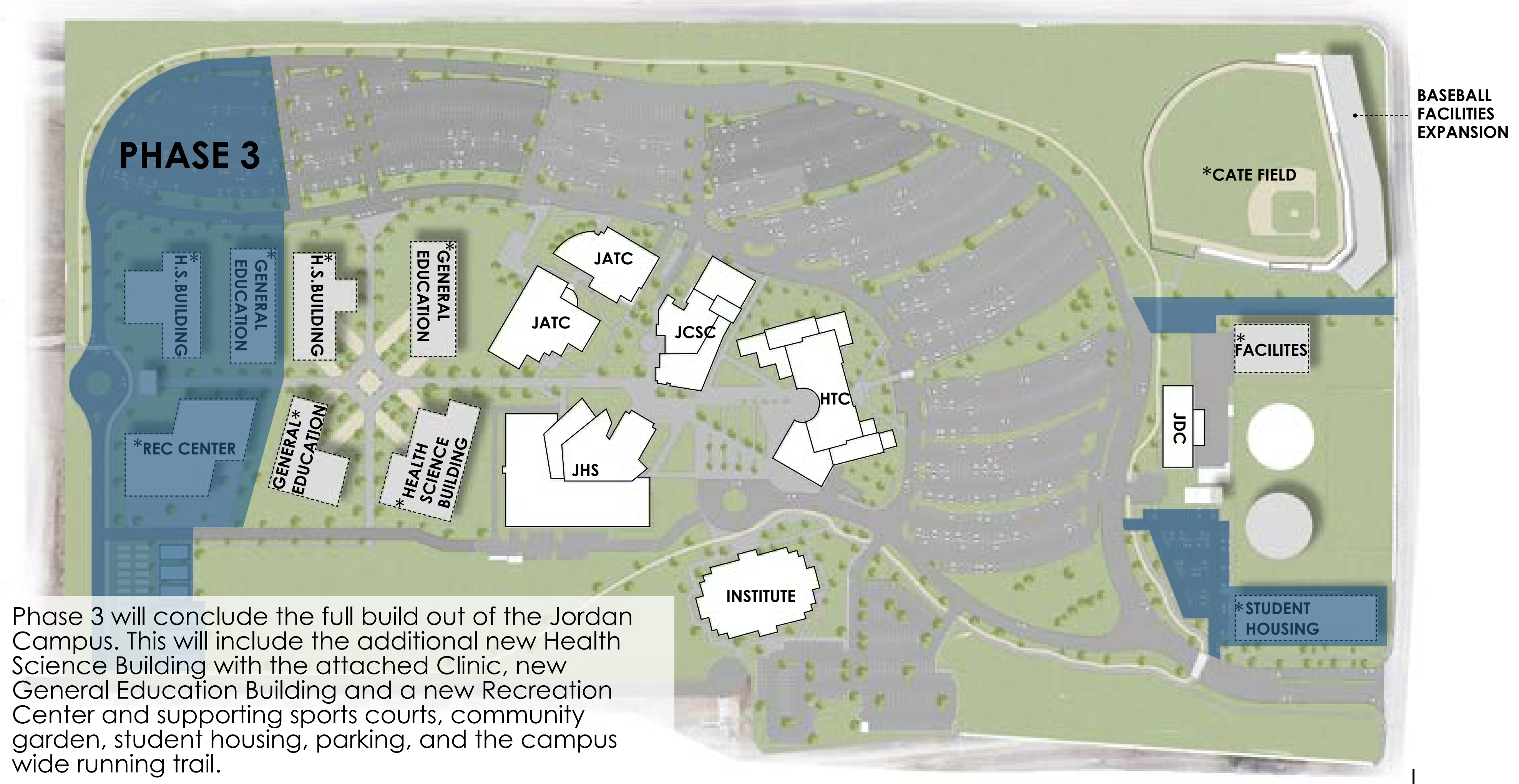



Phase 2 will include the new General Education Building, the new Health Sciences Building and parking as needed. This phase will also include build out of the multi-use open space.

*All future labeled building type are potential, names may change in the future due to market growth and demands.



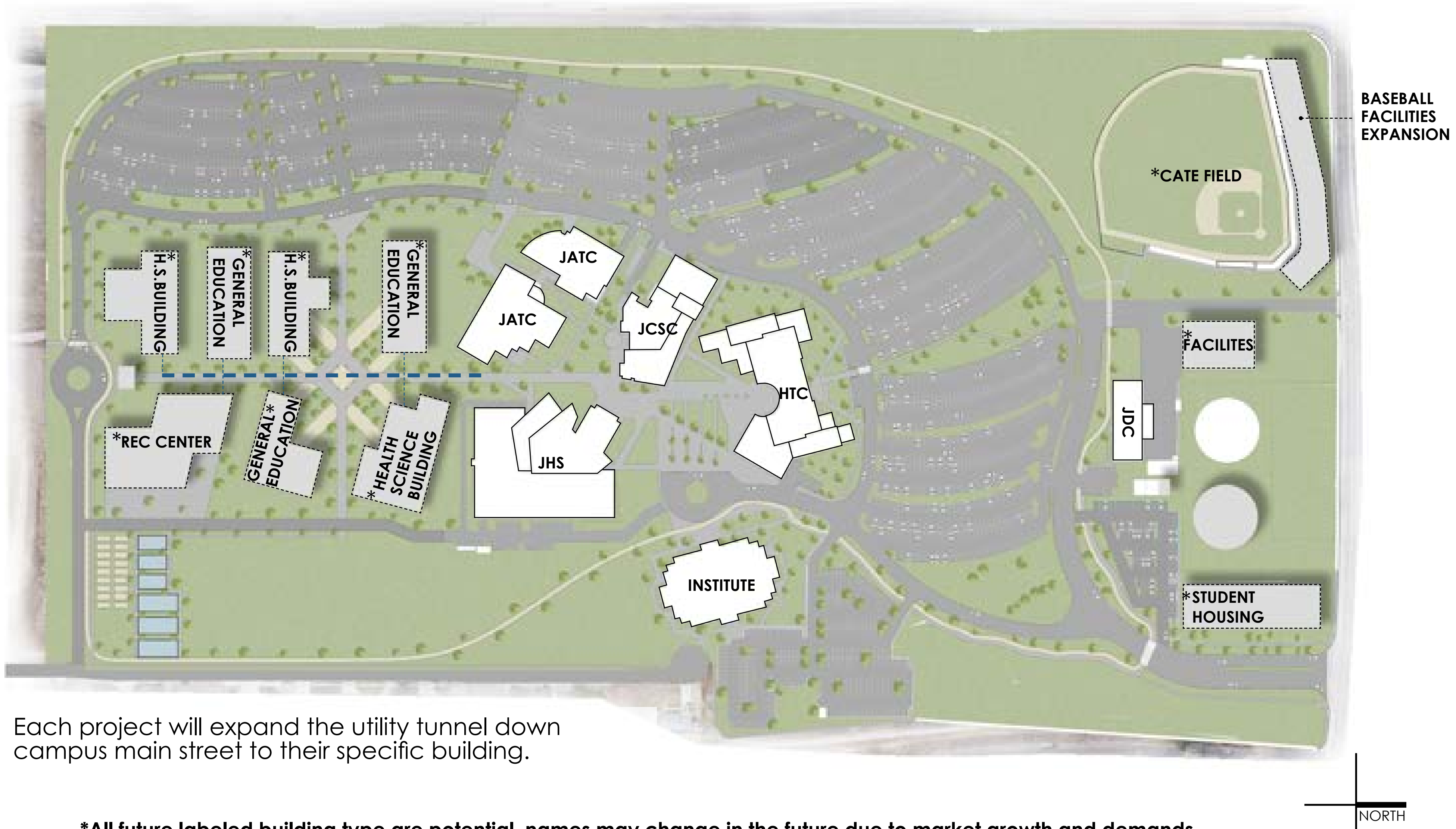





Phase 3 will conclude the full build out of the Jordan Campus. This will include the additional new Health Science Building with the attached Clinic, new General Education Building and a new Recreation Center and supporting sports courts, community garden, student housing, parking, and the campus wide running trail.

*All future labeled building type are potential, names may change in the future due to market growth and demands.

# 03 Master Plan | utility tunnel expansion




Each project will expand the utility tunnel down campus main street to their specific building.

***All future labeled building type are potential, names may change in the future due to market growth and demands.**



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04

# narratives

# mechanical

## general description

The SLCC Jordan campus central plant was originally built in 2001 with original and first portion of building construction. Capacity and operational upgrades to the central plant occurred in 2007 and 2011. The original central plant building was designed to house major heating and cooling equipment for the then current campus and a full future buildout. The Intent was to then add heating and cooling equipment as the campus expanded. In 2018, (2) Micro-Turbines were added to supplement the Central Utility Plant with Co-Generation.

The existing building(s) heating, ventilation and air conditioning utilizes a Variable-Air-Volume (VAV) reheat system consisting of heating hot water and chilled water systems. Heating water and chilled water Is extending to the Individual buildings from the campus utility tunnels. The heating water system consists of primary and secondary distribution pumps, hydronic piping and water-to-glycol heat exchangers at the air handlers. The chilled water system consists of primary distribution pumps and a distribution piping system. Custom-built air handler(s) serve the different areas throughout the building(s).

## existing mechanical systems

Existing Central Plant Incorporates a heating water system and a chilled water system to serve the entire heating and cooling of the campus. The current existing chilled water system consist of (5) chillers and associated pumps for a total cooling capacity of 1710 tons of cooling. There are (2) cells of cooling tower(s) to match the chilled water capacity with space for a third cell for the future. The current existing heating water systems consist of (2) heating hot water boilers and associated pumps for a total heating capacity of 31,500 MBH Input (25,200 MBH Output) with space to house future boilers.

In 2018, (2) Micro-Turbines were added to supplement the central plant with power and heating. Utilizing natural gas, the micro-turbines produce power and heating (via heat-exchange from the generators waste heat). The heating hot water produced Is pumped directly into the campus heating water system.

### existing tunnel system

The current existing tunnels extend from the central plant, south throughout the center of campus, extending to each Individual building. The tunnels house chilled water, heating water, domestic water and natural gas piping, extending from the central plant. All piping systems are currently sized for a full campus buildout.

### existing building systems

Chilled water Is extended, through the tunnels, to each building. Building chilled water pumps are located in each building to distribute chilled water throughout the building.

Heating water Is extended, through the tunnels, to each building. Building heating water pumps are located in each building to distribute heating water throughout the building. Mixing valves in each building reduce the temperature from 240 degrees (central plant and tunnels) to 180 degrees and lower to serve terminal units throughout the building.

The building(s) HVAC systems are a Variable-Air-Volume (VAV) reheat systems consisting of heating hot water and chilled water systems. Heating water and chilled water is extending to the building from the campus utility tunnels. The heating water system consists of primary and secondary distribution pumps, hydronic piping and water-to-glycol heat exchangers at the air handler(s). The chilled water system consists of primary distribution pumps and a distribution piping system. Custom-built air handler(s) serve the different areas throughout the building(s).

Domestic water Is extended through the tunnels to each building to serve the domestic water needs of the building(s).





### capacity of existing systems

The current chilled water system has 4 main chillers (and one auxiliary chiller) with a total 1600 tons cooling capacity. This currently provides 100% cooling capacity redundancy. The current heating water system has two boilers with a total of 31,500 MBH Input capacity providing 100% redundant capacity.

### future expansion of mechanical systems

The Central Plant was designed to provide space for all future boilers and chillers and associated equipment. The cooling tower has space allocated for a future third cell. This Includes space for an additional 2 chillers and 3 boilers. See attached floor plan of central plant. All piping within the central plant and extending Into and throughout the tunnels has been sized for future buildout.

With the existing chillers (1600 tons) and space for an additional 2 chillers, there Is excess capacity for future buildout. It Is recommended to add a chiller, providing 800 tons of redundant capacity, at the addition of approximately 120,000 square feet of future buildout. It Is also recommended to add another 800 tons of capacity at the addition of approximately 360,000 square feet of future buildout. With the addition of (2) 800 tons chillers, and the campus at full buildout, the chilled water plant will provide 100% capacity with an additional 800 tons for redundancy.

With the existing boilers (31,500 MBH Input/25,200 MBH Output) and space for an additional 3 boilers, there Is excess capacity for future buildout. It Is recommended to add a boiler, providing approximately 16,800 MBH of redundant capacity, at the addition of approximately 120,000 square feet of future buildout. It Is also recommended to add another 16,800 MBH boiler at the addition of approximately 360,000 square feet or full buildout. A third boiler may never be required. With the addition of (2) 16,800 MBH boilers, and the campus at full buildout, the chilled water plant will provide 100% capacity with an additional 16,800 MBH redundancy.

Space for a third Micro-Turbine was provided to allow for future expansion of Co-Generation.

## mechanical design criteria and standards

### general

This Design Guide is a supplement to the DFCM Design Criteria. The purpose of the SLCC Jordan Campus Mechanical Design Guide is to define issues that are not covered in the DFCM Design Criteria or that are unique to the SLCC Jordan Campus. Refer to the most current DFCM Design Criteria.

### design conditions

- The winter heating hot water supply temperature to the building form the Central Plant will be 220°F; the hot water return temperature back to the Central Plant will be 150°F.
- Provide mixing valves at the building to mix the building supply temperature down to 180°F. The summer hot water heating supply temperature will be 150°F. The summer return temperature will be 120°F.
- The heating hot water system pressure is 200 PSIG.
- The chilled water supply temperature to the building from the Central Plant will be 42°F; the chilled water return temperature back to the Central Plant is 58°F.
- The chilled water system design pressure is 200 PSIG.
- The main tunnel piping extensions will be sized at a pressure drop of 3 feet water column per 100 lineal feet of pipe.

### tunnel

- The tunnel houses the heating hot water pipes, chilled water pipes, a 10 PSI natural gas main and a 4" domestic water line (for incidental use in the tunnel).
- Provide floor drains/sump pumps spaced at 200 feet in tunnel for potential ground water leakage into tunnel and minor pipe leaks.
- Provide Nodes where branch tunnels connect into the main tunnels. Nodes shall allow space for piping take-offs and valves to each building, without obstructing the access way in the main tunnel and the branch tunnel.
- The main tunnel and branch tunnels are ventail ted. There is a makeup air unit located in the Central Plant to provide ventilation air into the Main Tunnel. Provide an exhaust fan where each branch tunnel enters the building. Provide 40 feet per minute face velocity in branch tunnel.
- Provide a fire rated separation with door at the branch tunnel entry into the building.
- The Mechanical Room in each building shall be accessible through the tunnel.
- Pipe expansion joints shall be slip-type, lubricated. Provide guides per manufacturers recommendations
- The Unistrut pipe supports shall be hot dip galvanized.
- The natural gas piping shall be painted, color per identification specification.

### central plant

- The Central Plant is Master planned for a total Campus of 1,300,000 gross square feet.
- The Central Plant is large enough to house future boilers and future chillers to serve the built-out Campus. Refer to the Distribution Building Mechanical Drawings for proposed layout of future boilers, chillers, pumps, cooling towers and piping. Prepared by Hart, Fisher, Smith Architects, Bennion Associates, Engineers in 1998.
- The build-out Central Plant heating capacity is 75,600.000 BTUH.
- The built-out Central Plant cooling capacity is 3,150 tons.
- A design parameter for the Central Plant heating and cooling equipment is to have redundant capacity of "N+I". In other words, if one boiler or one chiller fails, there will still be adequate capacity to heat and cool the Campus.
- A small summer boiler was not originally planned for the Central Plant, but needs to be provided. This should be a condensing type-high efficiency boiler to handle the small summer heating loads and limited spring and fall heating loads.
- The system hot water and chilled water expansion tanks are located in the Central Plant.
- A small (50 tons) off-hours and winter use chiller is located in the Central Plant. The chiller serves the four-pipe fan coil units in the buildings. The fan coil units serve spaces with 24 hour per day, 7 day per week usage, such as Communication Rooms. The building controls need to close all other chilled water coil valves during off hours to prevent the chiller from overloading. The chiller Is currently not being used.
- Hot and Chilled Water Distribution Systems:
- The hot water system is a distributed pumping system Each boiler has a constant flow primary pump to maintain constant flow through the boiler. Each

building has loop pumps. The variable flow loop pumps have head to pump the hot water from the building to the Central Plant and variable flow back to the building. The secondary pumps at each building have head to pump the 180°F hot water through the building. Refer to the Campus Heating Water Piping Diagram in this Design Guide.

- Provide a glycol preheat system for preheat coils with an entering air temperature lower than 40°F. Provide water-to-glycol heat exchanger.
- The chilled water system is a distributed pumping system. Each chiller has a constant flow primary pump to maintain a constant flow through the chiller. Each building has a variable flow loop pump. The loop pumps have head to pump the chilled water through the building, to the Central Plant and back to the building. Provide freeze-protection coil pumps at each air handler. Refer to the Camp Chilled Water Piping Diagram in this Design Guide.
- Bypass Valves: Provide manually (remote) operated automatic bypass valves in the hot water and chilled water lines in each building and at the end of the tunnel.

## operation and maintenance manuals

- Provide a hard copy and an electronic (digital) O&M Manual.
- Intuitive CD-ROM instructional manual for information to care, adjust, maintain and operate equipment Include all information specified for the Operation and Ma1ntenance Manuals, contract documents shop drawings, and project data
- Software: Adobe Acrobat
- Format PDF.
- Index: Hypertext alphabetical index.
- Auto Starting: Windows 9X with any directions to continue observable on the screen.

## basic mechanical materials and methods

### mechanical identification

- Pipe system identification colors shall comply with ASME A13.1.
- Insulated piping shall have PVC jackets. Piping in the tunnels shall have a white jacket with full band pipe identification colors. Piping in Mechanical Rooms shall have colored PVC jackets, color per pipe identification colors.





### vibration isolators

- Flexible connectors on heating hot water pumps at above 180°F shall be stainless steel braided hose type rated for 200 PSIG at 250"F.

### motors

- Provide factory-installed shrink-wrap plastic cover on all motors for weather and contamination protection.
- On motors used with variable frequency drives, provide insulated bearings and shaft grounding devices to protect against bearing current damage.

### building services piping

### pipes and tubes

- All healing hot water, chilled water and gas piping fittings in main and branch tunnels shall be welded. The heating hot water piping up to the building mixing valves shall be welded. Heating hot water and chilled water piping within the buildings may have mechanical couplings.
- The domestic water piping shall be copper.

### valves

- Heating hot water valves from the Central Plant to the mixing valves at the buildings shall be rated for 300°F and 200 PSIG water.
- Healing hot water valves on the building (180°F) side of the mixing valves shall be rated at 200 PSIG and 230°F.
- Chilled water valves shall be rated at 200 PSIG at 60°F.

### piping specialties

- Heating hot water system piping specialties (meter, gages, pump suction diffusers, pump discharge valves, balancing valves, expansion tanks, etc.) sha be rated at 200 PSIG at 250°F.
- Chilled water system piping specialties (meter, gages, pump suction diffusers,
- pump discharge valves, balancing valves expansion tanks, etc.), shall be rated at
- 200 PSIG at 60°F.

## pumps

- Heating hot water pumps shall be rated at 250 PSIG at 250°F.
- Approved pump manufacturers shall be Bell and Gossett, Aurora or Taco.
- Healing hot water pumps shall have stuffing box with internally flushed flushing seals with EPR bellows carbon ceramic faces and stainless-steel parts. On water systems above 180°F, provide closed loop heat exchanger loop for cooling.
- Motors shall be basic mounted type. Mount on Unistrut channels to facilitate motor replacement.

## heating and cooling piping

- Heating water-piping systems shall be rated for 200 PSIG at 250°F, unless noted otherwise in this Design Guide. This includes equipment, tanks, coils, heat exchangers, etc.
- The chilled water piping systems shall be rated at 200 PSIG at 60°F unless noted otherwise in this Design Guide. This includes equipment, tanks, coils, heat exchanger, etc.

## water treatment

- Approved water treatment companies shall be Power Engineering and WEST.

## buried waste and rainwater pipe

- At completion of construction, run a camera down the buried waste and rainwater lines to verify there are no obstructions. Do all trunk mains. Do branch lines longer than 50 feel. Supply owner with camera observations.

## plumbing fixtures and equipment
## plumbing fixtures

- Wa1er closet flush valves shall be the manual type.
- Urinal flush valves shall be the manual type.
- Lavatory faucets shall be sensor-actuated type, hard wired (no batteries}. Provide individual transformer for each lavatory. Provide manual over-ride button Appro11ed manufacturers are Sloan and Zum.
- Waterless urinals are not allowed.





## water heaters

- Provide electric water heater for summer use (when boilers may be oft) and standby capability (when boilers may be down).
- Provide water-to-water heat exchanger for normal use.

## heat generation equipment
## boilers

- Boilers must be able to accommodate a 70°F Delta T, 150°F entering water temperature, 220°F leaving water temperature. Flexible tube boilers are installed in the Central Plan. Boilers shall have Low-Nox burners. Burners shall be dual fuel, natural gas and No.2 fuel oil. Boilers shall be rated at 200 PSIG at 300°F.
- Boilers shall comply with ASME Boiler and Pressure Vessel Code Section 1 "Power Boilers".
- Burners shall be the swing-out type.

## refrigeration equipment
## packaged water chillers

- Chillers shall be centrifugal water-cooled with R134a refrigerant.
- Approved manufacturers are Trane, Carrier or York.

## cooling towers

- Cooling towers shall be field-built cast in place concrete shell with ceramic fill, to match existing. Provide VFD on fan. Design at 90°F entering water, 80°F leaving water,68°F wet bulb temperature.
- Provide VFD on condenser water pumps.

## heating, ventilating and air conditioning equipment

- Air Handlers
- Air handlers shall be located indoors.
- Allow space for coil replacement.

### fan coil units

- Provide four-pipe fen coil units in the Communications Rooms and other spaces requiring cooling 24 hours per day seven days per week.

### air distribution
### ductwork

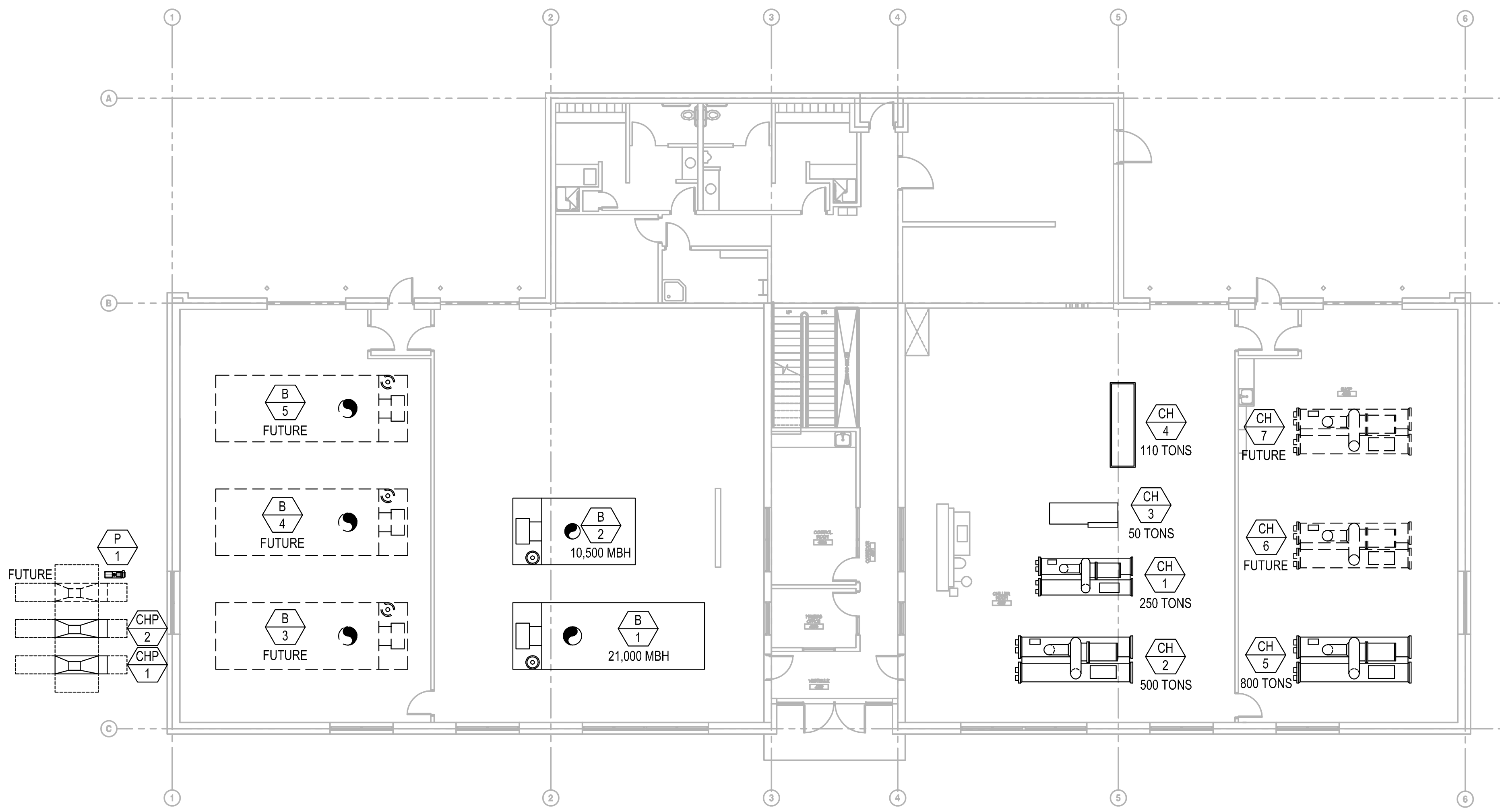
- Chemical fume hood exhaust ducts shall be 18-gage type 316 stainless steel with welded joints.

### HVAC instrumentation and controls

- Approved Manufacturers: Control system shall be an extension to the Campus Johnson Metasys System. The system shall be Johnson Metasys supplied, engineered and installed by Johnson Centro's of Saft Lake City branch office
- Control manufacturer shall provide training for SLCC personnel on any new control systems or components.
- Provide exterior and interior lighting control. Monitor emergency generator fuel level. Provide emergency generator start/stop control, alarm, and emergency power indication. Provide electrical power metering at each building.
- Provide BTU metering on the chilled water and hot water usage at each building
- Provide occupancy sensors to control lighting and VAV box occupied mode.
- Provide color graphics displays to match the current Campus System.








1 SLCC JORDAN CAMPUS – CENTRAL PLANT
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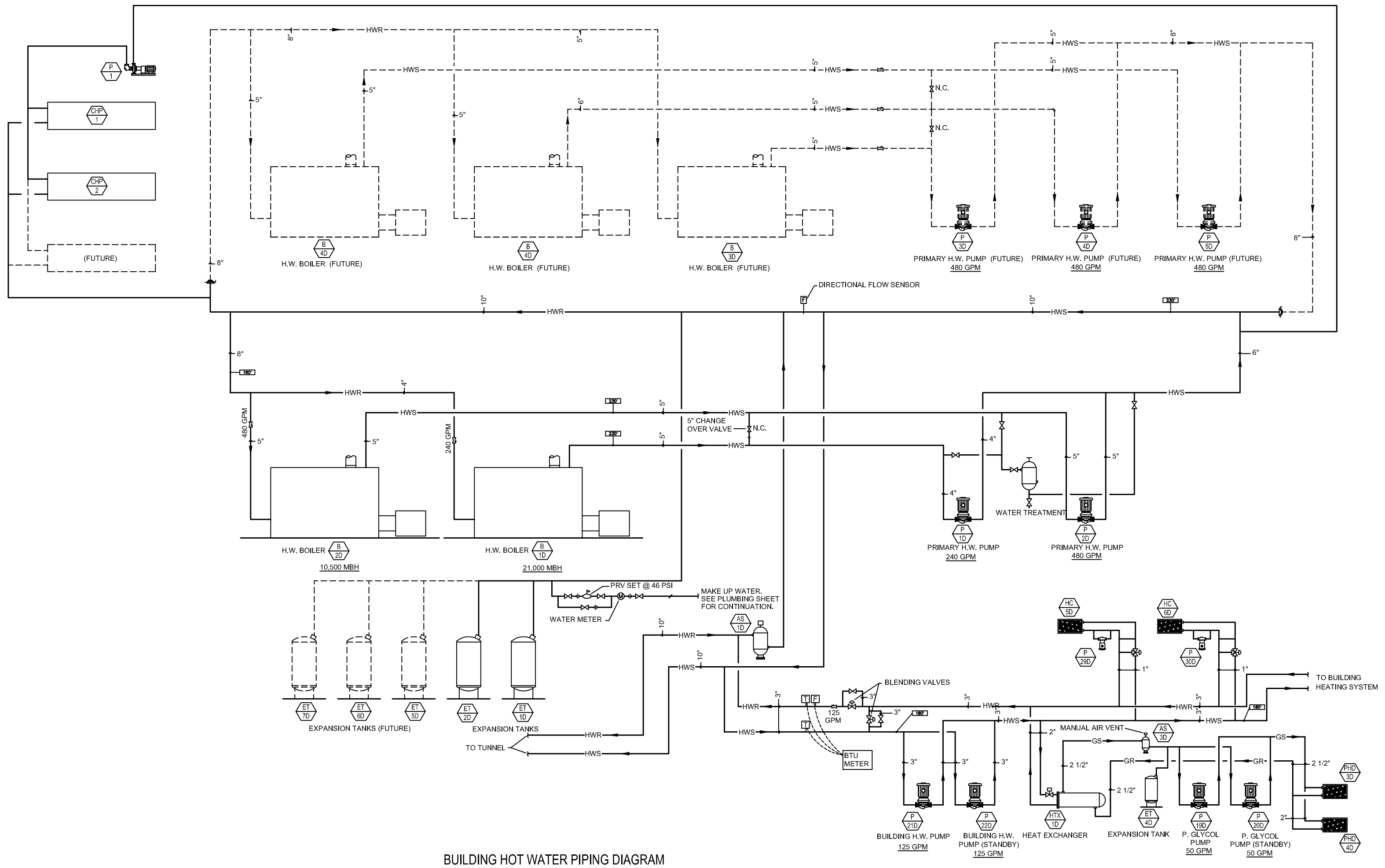

BUILDING HOT WATER PIPING DIAGRAM

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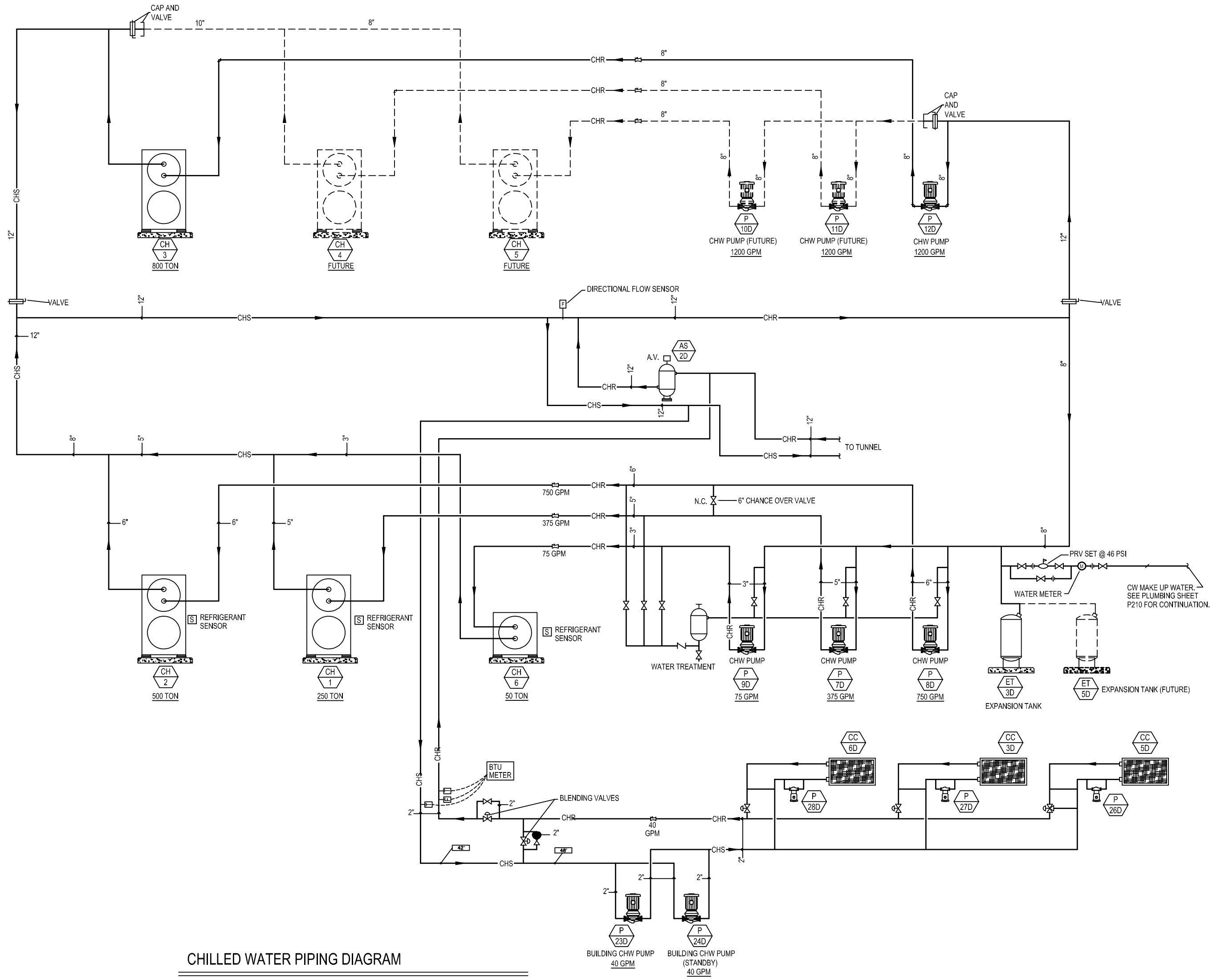

CHILLED WATER PIPING DIAGRAM

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04

# narratives

## electrical

### site power distribution & building service

Jordan Campus is served electrically from Rocky Mountain Power (RMP) underground from the north side of the campus. RMP's service ends at the first pad-mounted switchgear located at the campus central plant. The voltage and phase fed from RMP and distributed through the site is 12470/7200V grounded wye, 3 phase. The campus power is distributed in a loop configuration to create redundancy and shall be maintained for all future extensions of the system. All main trunk lines shall be routed through the utility tunnel system. As distribution is extended to new buildings/loads the engineer shall be required to confirm distribution capacity is sufficient to add new electrical loads. It is anticipated that the current feed to the campus has capacity for the full campus buildout, but must be verified.

There shall be two types of power distribution cabling depending on location. Each type shall be of 15kV, EPR, shielded, copper, MV-105 and 133% insulation level. When located in utility tunnels MC type cabling shall be utilized. When located outside of tunnels the feeders shall be in PVC conduit and protected in concrete encasement.

The distribution to buildings shall utilize medium voltage switchgear and medium voltage transformers. The switchgear shall be pad-mounted gear and utilize edible-seed-oil-based dielectric insulation. The switchgear shall utilize 600 amp deadbreak for the backbone distribution and 200 amp loadbreak termination with vacuum fault interrupter protection to all transformers. All building transformer shall be pad-mounted and utilize edible-seed-oil-based dielectric insulation and copper windings. All terminations shall utilize rubber goods.

Rocky Mountain Power has overhead lines located on 3400 West along with overhead telecom cabling. These lines shall be relocated to underground. This work will be coordinated with associated utility owner and addressed in a phase that is appropriate for the campus buildout.

The existing campus central plant has two micro-turbines that generate electricity from the waste heat and tie into the building's electrical distribution. The existing system shall be maintained and expanded when additional micro-turbines are added. The intent of the micro-turbines is to maintain a peak demand lower than 1,000 kW for the entire campus. As the campus demand increase with new buildings this threshold will need to be reevaluated with SLCC.

### building/structure power distribution

Building or structures with power distribution shall be provided with building main overcurrent protection and revenue grade power meter and sub metering when required by the state's High Performance Building Standards. Building shall utilize copper cabling for all feeders and branch circuits unless written permission from SLCC and DFCM. Building electrical gear shall be located in a dedicated electrical room.

All electrical systems shall comply with the current DFCM and SLCC standards.

### emergency/life safety power

Each building or structure shall be served by an emergency generator and an associated distribution panel, meter and overcurrent protection. Generator shall utilize diesel fuel and shall have a minimum of a 24-hour fuel tank. At minimum there will be two transfer switches: one for life safety loads and another for optional standby loads. All life safety distribution shall be fully coordinated per NEC.

Telecom rooms shall be powered with optional standby for the HVAC load and all rack power.





example of campus light fixture

### exterior lighting and power

TThe campus standard for lighting streets, parking, and pedestrian walkways shall be followed with consideration for long-term maintenance, efficiency, competitive fixture selection and aesthetics. All fixtures shall utilize high grade LEDs and drivers.

Street lighting and parking lot lighting shall utilize concrete bases that are 3ft above finish grade. Poles shall be 32ft tall with round tapered aluminum pole rated for the local wind requirements. Fixture head and pole shall have clear anodized aluminum finish or equal finish. Parking lot lighting shall be provided with receptacle.

Walkway lighting shall utilize concrete bases and the height shall be coordinated with the locations to mitigate damage to pole. Poles shall be aluminum and match existing campus installations, refer to image below. Fixture head and pole shall have clear anodized aluminum finish or equal finish.

Interior fixtures shall be 4000 kelvin color temperature and lighting controls shall comply with IECC/ASHRAE. Lighting distribution shall be considered in each space and utilize optimal distribution patterns and comply with industry standards. Emergency lighting shall utilize generator back up power when available and battery packs elsewhere.

Lighting levels shall conform to levels established by IES for exterior and interior lighting

## telecomm

Provide a minimum of 24" wide cable tray located in utility tunnels for routing of structured cabling from demark to each building demark. Optical fiber and/or copper backbone cables shall be provided to each building/structure and shall be coordinated with SLCC IT department for quantity, type and where it is sourced from. Cable tray shall be continued to building demark location or a minimum of four 4" conduits to the main distribution frame room (MDF). Buildings shall have dedicated telecom closets throughout the building and positioned such so that no horizontal cabling run is longer than 250ft. Telecom closets shall be stacked vertically where possible and a minimum of 24" wide cable tray or two 4" conduits routed between the MDF and all intermediate distribution frame room (IDFs). The MDF/IDF shall be sized to meet industry standards and walls shall be lined with fire rated plywood.

All structured cabling shall be routed in hard pipe, minimum size of 1" with a double gang junction box and single gang mud ring.

Structured cabling shall follow the SLCC's standards and BICSI standards.

## fire alarm, intrusion detection, access controls & security cameras

Fire alarm, access controls and security camera system shall be tied into SLCC's networked systems. The fire alarm and access controls shall meet SLCC's most current standards and be compatible with the campuses most current manufacturer and model for each system. At minimum all entrances and exits to buildings shall be electrified and tied to the access controls system. Locations of electrified hardware shall be reviewed with SLCC key-shop and additional locations shall be added upon request.

Buildings shall have security camera coverage of all building entrances and building perimeter. Camera locations shall be reviewed with campus police and additional cameras added upon request.





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04

# narratives

## landscape

As we move forward with an update to the original master plan we will focus on the following:

- Circulation (pedestrian, vehicular, service, emergency, utility)
- Maintenance
- Campus Security
- Phasing
- Site furnishing and materials
- Plant material standards
- Irrigation standards

### Circulation

Circulation patterns will follow the existing "Hillside" concept established in the original master plan. Vehicular circulation, including buses, will remain on the perimeter of the campus, allowing for pedestrian oriented open spaces throughout the campus core. A central pedestrian axis running from the north to the south will be continued into the next phase and incorporate a campus quad near the center of the site. This central axis will also serve as a utility tunnel and provide service and emergency access to the interior of the campus. Pedestrian traffic should flow from the parking areas into the campus without the needs for ramps or stairs. Additionally, a fitness loop trail will be created around the perimeter of the site connecting the athletic fields across the site and aiding in the transition between the college and the adjacent neighborhoods.





### Maintenance

Maintenance facilities will be provided for the storage of landscape equipment such as mowers, plows, shovels, salt, fertilizers, etc. These facilities will be located in screened locations near parking lots and building loading zones. Screening will be provided by trees, shrubs and fencing as necessary. Areas for parking lot snow removal with be identified and incorporate plant materials that will not be affected by it such as perennials and ornamental grasses.

### Campus Security

Campus security can be provided through landscape design by creating pedestrian routes, plazas and parking areas that are well lit and provide clear site lines. Landscaping in these areas will consist of low growing ground covers, small shrubs and deciduous trees. Earth forms, sculpture, walls and signage will not block views across pedestrian spaces.

### Phasing

The phasing plan established in the original master plan will continue to be followed, with the first phase of northern development complete and moving into the second phase which consists of the southern portion of the site. Phase two will include a connection to 3400 West and thus create a second entrance to the campus. It will expand parking, create a campus quad, provide student housing and parking as well multiple academic buildings, recreational areas and open spaces. Phased development provides greater efficiency, reduces the cost of development and minimizes neighborhood disruption. Phase two may be broken up into additional phases.

## Site Furnishings and Materials

The site furnishings and materials used in the site design will work to create a cohesive campus across all phases of development. Consideration will be given to the selection of the materials and construction detailing, to contribute to the overall sustainability of the project and to minimize extensive long term maintenance. Site furnishings will follow a campus standard which will provide guidelines for bike racks, trash receptacles and benches providing an overall sense of campus entity. Specified materials will also include mulch type/size/color, concrete, brick and paver options.





### Benches

Variety of Backed and backless, materials to be of aluminum and powder coated

### Trash Receptacles

Provide trash and recycle, aluminum and powder coated

### Tree Grates

Meet ADA requirements

### Bike Racks

Provide in stainless steel

### Sculpture

Provide variety of mediums througout desigeated areas on campus

### Site Lighting

To be complimentary to the site furnishings in color and style and LEED compliant

### Walkways

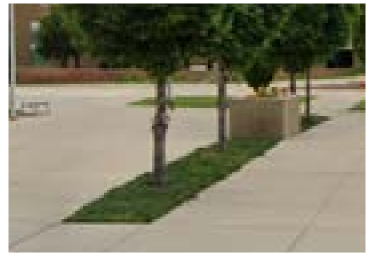
Primary and secondary walks are to be primarily natural grey concrete or grey varying tone color added to the concrete, acid etch, exposed aggregate or a stone paver to emphasis where desire, i.e. building entries, nooks, drop offs, gateways, etc.

### Rock Mulch

1"-3" tan angular/fractured mulch in planting beds and larger 4"-6" in drainage beds or "islands" of smaller rock mulch to break up larger planting beds.

### Turf and Groundcover

Water efficient groundcovers should be utilized as an alternative to turf where appropriate.



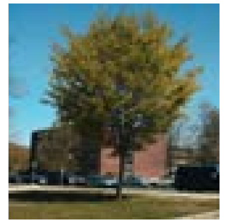




### Plant Material Standards

Plant material standards will consist of native and adapted plant materials with low water and maintenance requirements at the edges of the site and parking areas, moving toward more ornamental materials near building entrances and plazas. Ornamental landscape areas will still strive to be water efficient through the minimization of turf grass, plant choice and hydrozoning. Plant selection will reinforce circulation patterns and entrances through the repetition of materials and framing of views.

# 04 narratives | landscape



## Conifer Trees (tolerant of high alkalinity Soils and secondary water)

Fir * Abies concolor, White Fir
Cedar * Cedrus atlantica Aurea, Pendula, Fastigiata, Horstmann
Cedar * Cedrus deodara Electra, Karl Fuchs, Miles High, Kashmir, Shalimar
Cedar * Cedrus libani Beacon Hill, Blue Angel, Glauca, Stenocoma
Cypress * Chamaecyparis Pendula, Van den Aker

## Large Trees (tolerant of high alkalinity Soils and secondary water)

Maple, State Street Acer miyabei State Street, Rugged Ridge, 30-45’ 30-35’ oval to rounded
Catalpa * Catalpa speciose, 50-70’ 20-50’ irregular open
Ash * Fraxinus pennsylvanica Marshall Seedless, Patmore, Cimmaron, 40-50’ 30-40’ oval upright
Ginkgo * Ginkgo biloba Fairmont, Spring Grove 30-50’ 30-50’ pyramidal
Honeylocust * Gleditsia triacanthos inermis Street Keeper, Skyline, Shademaster, 40-45’ 20-35’ pyramidal to round
Mulberry, Fruitless Morus alba Fruitless Mulberry, 30-50’ 30-50’ wide spreading
London Plane * Platanus × acerifolia Bloodgood, Exclamation, Ovation, 60-70’ 30-60’ spreading rounded
English * Quercus robur, 50-70’ 50-70’ broad rounded
Oak, Bur * Quercus macrocarpa Bullet Proof, Cobblestone 60-80’ 60-80’ broad rounded
Linden, Silver * Tilia tomentosa Sterling Silver, Green Mountain, Satin Shadow 50-70’ 25-40’ pyramidal
Elm, Ulmus Commendation * Commendation 50-70’ 40-50’ pyramidal
Elm, Ulmus Green stone * Greenstone 50-60’ 40-50’ upright vase
Elm, Ulmus New Horizon * Ulmus japonica × pumila New Horizon 50-55’ 30-40’ upright oval
Elm, Ulmus Accolade * Ulmus japonica × Accolade 50-60’ 30-40’ arching vase i
Elm, Ulmus Triumph * Ulmus wilsoniana, U. japonica, and U. pumila Triumph 50-60’ 40-45’ upright oval to vase
Zelkova * Zelkova serrata Village Green, Green Vase 40-55’ 30-50’ vase



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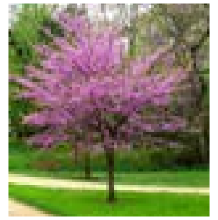
## Medium Trees (tolerant of high alkalinity Soils and secondary water)

Maple, State Street Acer miyabei State Street, Rugged Ridge 30-45’ 30-35’oval
Catalpa * Catalpa speciosa Heartland 45-50 20-25 narrow
Turkish Filbert Corylus colurna 40-50’ 15-35’ pyramidal
Ginkgo * Ginkgo biloba Autumn Gold, Princeton Sentry, Magyar, Colonade 40-45’ 15-30’ pyramidal
Honeylocust * Gleditsia triacanthosinermis Shademaster, 35-50’ 20-40’ round
Goldenrain * Koelreuteria paniculata Gocanzam, Golden Candle 30-40’ 30-40’ round
Mulberry, Fruitless Morus alba Fruitless Mulberry 30-50’ 30-50’
Amur Corktree *Phellodendron amurense Macho, Eye Stopper, 30-45’ 30-60’ rounded broad
Flowering Pear Pyrus calleryana Aristocrat, Autumn Blaze, Capital,Chanticleer, 30-40’ 12-28’ upright
Linden, Crimean Tilia x euchlora 40-50 20-30’ rounded
Elm, Emerald Flair Ulmus parvifolia Emerald Flair 40-45’ 30-35’ vase
Elm, Emerald Sunshine Ulmus propinqua Emerald Sunshine 30-35’ 20-25 vase
Elm, Frontier *Ulmus. carpinifolia and U. parvifolia. Frontier 30-40’ 20-30’ upright, vase
Zelkova * Zelkova serrata Village Green, Green Vase 40-55’ 30-50’ vase




## Small Trees (tolerant of high alkalinity Soils and secondary water)

Birch, Betula occidentalis, Western Red Birch
Maple, Tatarian* Acer tataricum Hot Wings, 20-25’ 15-20’ oval to round
Maple, Shantung Acer truncatum
Maple, Acer ginnala, Amur Maple
Pacific Sunset, Norweigan Sunset, 20-30’ 20-30’ rounded to oval, heat tolerant
Maple, Shantung Acer truncatum Ruby Sunset, 20-25’ 18-20’ broad oval to round
Serviceberry * Amelanchier laevis Spring Flurry, Snow Cloud, 20-28’ 15-20’ upright oval
Serviceberry * Amelanchier x grandiflora Robin Hill, 20-25’ 15-18’ upright oval
Chinese Catalpa Catalpa ovata, 20-30’ 20-30’ spreading
Eastern Redbud * Cercis canadensis Various, 15-25’ 20-30’ irregular
Hawthorn, Thornless Cockspur *Thornless Cockspu, 20-30’ 20-35’rounded spreading
Hawthorn * Crataegus laevigata Pauls Scarlet, Crimson Cloud, 20-25’’ 15-20’ broad round
Hawthorn, Winter King * Crataegus viridis Winter King, 20-30’ 20-30’ wide vase
Hawthorn, Lavalle * Crataegus x lavalleli Lavelle, 20-30’ 15-20’ dense oval
Maackia Maackia amurensis, 20-30’ 15-20’ rounded vase
Flowering Crabapple * Malus spp. Various Spring Snow, Snow Drift,
Sargent, Zumi, 15-25’ 15-25’ rounded to oval
Flowering Cherry, Kwanzan Prunus serrulata Kwanzan, 20-25’ 15-20’ vase shaped
Chokecherry Prunus x virginiana Sucker Punch, 20-30’ 18-20’ rounded
Flowering Cherry, Akebono* Prunus x yedoensis Akebono, 20-25’ 20-25’ spreading
Flowering Pear, Korean Sun Pyrus auriei Korean Sun, 10-15’ 15-Oct compact rounded
Flowering Pear, Jack Pyrus calleryana Jack Pear, 15-20’ 10-12’ compact oval
Flowering Pear, Prairie Gem Pyrus ussuriensi Prairie Gem, MorDak ,20-25’ 20-25 oval to rounded
Oak, Gambel Quercus gambelii, 20-25’ 20-30’ round, clump
Lilac, Peking Lilac * Syringa pekinensis China Snow, Summer Charm, 20-25’ 15-20’ rounded
Lilac, Japanese Tree Lilac * Syringa reticulata Ivory Silk, 20-25’ 15-20’upright oval/rounded
Linden, Summer Sprite Tilia cordata Summer Sprite Linden, 18-20’ 12-15’ dense pyramidal
Zelkova, City Sprite * Zelkova serrata City Sprite, 20-24’ 15-18’ compact oval to vase
Zelkova, Wireless * Zelkova serrata Wireless, 20-24’ 30-35’ flat topped broad spreading

## Native Trees
(tolerant of high alkalinity soils and secondary water)

Serviceberry, Amelanchier utahensis
Mountain Mahogany, Cercocarpus ledifolius
Douglas Hawthorn, Crataegus douglasii
Utah Juniper, Juniperus osteosperma
Rocky Mountain Juniper, Juniperus scopulorum
Narrowleaf Cottonwood, Populus angustifolia
Fremont Cottonwood, Populus fremontii
Aspen, Populus tremuloides
Chokecherry, Prunus virginiana
Oak Gambel, Quercus gambelii
Peachleaf Willow, Salix amygdaloides.
Box Elder, Acer negundo 'Sensation'

## Native Shrubs
(tolerant of high alkalinity soils and secondary water)

Utah Serviceberry, Amelanchier utahensis
Silver Sagebrush, Artemisia cana
Fringed Sage, Artemisia frigida
Big Sagebrush, Artemisia tridentata
Sand Sage, Artemisia filifolia
Four-wing Saltbush, Atriplex canescens
Snowbrush Ceanothus, Ceanothus velutinus
Winterfat, Ceratoides lanata
Curl-leaf Mtn Mohogany, Cercocarpus ledifolius
Birchleaf Mtn Mohogany, Cercocarpus montanus
Fernbrush, Chamaebatiaria millefol.
Indigo Bush, Dalea fremontii
Mormon Tea, Ephedra nevadensis
Apache Plume, Fallugia paradoxa
Creosotebush, Larrea tridentata
Utah Honeysuckle, Lonicera utahensis
Purple Sage, Poliomintha incana
Chokecherry, Prunus virginiana
Cliffrose, Purshia mexiciana
Bitterbrush, Purshia tridentata
Shrub Live Oak, Quercus turbinella
Wavyleaf Oak, Quercus undulata
Squawbush Sumac, Rhus trilobata
Golden Currant, Ribes aureum
Woods Rose, Rosa woodsii
Sandbar Willow, Salix exigua
Blue Elderberry, Sambucus caerulea
Roundleaf Buffaloberry, Shepherdia rotundifolia
Snowberry, Symphoricarpas species
Soap Tree Yucca, Yucca elata
Yucca, Yucca filamentosa
Mock Orange, Philadelphus coronarius
Creeping Oregon Grape, Mahonia repens

## Native Perennials
(tolerant of high alkalinity soils and secondary water)

Catmint, Nepta
Lupine, Lupinus sepecies
Columbine, Aquilegia species
Yarrow, Achillea millefolium
Butterfly Weed, Asclepias tuberosa
Desert Marigold, Baileya multiradiata
Arrowleaf Balsamroot, Balsamorhiza sagittate
Indian Paintbrush, Castilleja linariaefolia
Skyrocket Gilia, Cilia aggregate
Rock Mountain Beeplant, Cleome serrulata
Aspen Daisy, Erigeron speciosus
Sulpher Buckwheat, Eriogonum umbellatum
Wild Geranium, Geranium viscosissimum
Blue Flax, Linum lewisii
Prairie Aster, Machaeranth tanacetifo.
Four O'Clock, Mirabilis multipflora
Bee Balm, Monarda species
Evening Primrose, Oenothera caespitose
Wasatch Penstemon, Penstemon cyanathus
Firecracker Penstemon, Penstemon eatoni
Palmer Penstemon, Penstemon palmeri
Rocky Mt. Penstemon, Penstemon strictus
Scarlet Globemallow, Sphaeralcea coccinea
Globemallow, Sphaeralcea grossulariaefolia





## Grasses

Species selection and landscaping techniques should be carefully considered to require minimal maintenance. In Utah's northern areas where climates can be cooler, a cool grass blend is most appropriate. Kentucky Bluegrass is best suited to lawns that will have a lot of traffic and full sun to partial shade. Kentucky bluegrass recovers well from frequent use. Tall Fescue is a good general purpose turfgrass for Utah. It often has greater heat tolerance and can tolerate more shade than Kentucky bluegrass. It may also get by on somewhat less irrigation due to its deep rooting. The best time to plant a cool-season grass is between September 5th and October 10th. Grasses are actively growing and green during the main academic period.

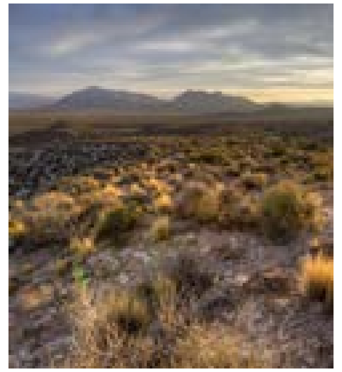
- **Utilize improved varieties of turf-type tall fescue for irrigated, high visibility areas where performance or extended fall color and early spring green-up are required and where slopes are less than 25%.**
- **Utilize native grasses for low maintenance areas or severely sloped areas (>25%) where turfgrass maintenance is difficult.**

## Native Grasses (tolerant of high alkalinity Soils and secondary water)

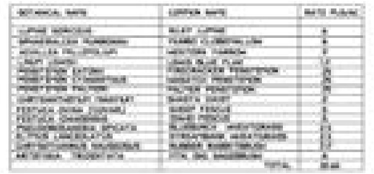
Calamagrostis species
Carex species
Deschampsia species
Festuca species
Hakonechola species
Miscanthus species
Panicum species
Pennisetum species
Schizachyrium species

## Native Grasses (tolerant of high alkalinity Soils and secondary water)

Side-oats Grama, Bouteloua curtipendula
Blue Grama, Bouteloua gracilis
Saltgrass, Distichlis spicata
Great Basin Wildrye, Elymus cinereus
Western Wheatgrass, Elymus smithii
Bluebunch Wheatgrass, Elymus spicatus
Slender Wheatgrass, Elymus trachycaulus
Sheep , Festuca ovina
Galleta, Hilaria jamesii
Prairie Junegrass, Koeleria macrantha
Sandberg Bluegrass, Poa secunda
Alakali Sacaton, Sporobolus airoides
Sand Dropseed, Sporobolus cryptandrus
Needle and Thread, Stipa comate
Indian Ricegrass, Stipa hymenoides
Desert Needlegrass, Stipa speciosa



## Native Seedmix



## Irrigation standards

Irrigation standards will be consistent with other SLCC campuses for ease of maintenance. These standards include smart irrigation controllers, water efficient rotors and spray heads and drip irrigation.






# civil

## general site data

The general site topography is shown on the attached survey in Figure C1. The existing utilities are also shown on the attached survey and sketch. The undeveloped portion of the site is approximately 27 acres and has a general slope in a northeasterly direction of about 30 vertical feet. The City Street along the east side of the undeveloped portion of the site is 3400 West. The street is not developed on the west side of the Street and will likely need to be upgraded to the City standards as development of the open area is completed for the site. A new driveway connection to 3400 West is planned to be constructed on the SE corner of the Campus property. The main access to the site will remain the connection to 9000 South and parking will connect to the existing parking on the west side of the Campus. Figure C2 shows the proposed access to 3400 West and the connection to existing parking and access loop roadway on the West side of the site. Figure C1 shows the existing utilities on the site from the record plans that we currently have been provided. The new utility connections for the new development areas are shown on Figure C2. In general, the detention storage is held in landscaped or other open areas on the site. The new system will also need to detain storm drain from all new pavement and roof areas before releasing to an existing storm drain in 3400 West.

## site utilities

Outlined below is a summary table of the existing site utilities that are adjacent to the site and the utilities that will need be extended and routed through the undeveloped site. A sketch of the planned water, secondary water, storm drain, sewer lines, and new tunnel that route through the site are shown on Figure C2.

### fire distribution expansion

A new 10- or 12-inch fire loop (depends on the amount of SF) will extend around the new undeveloped portion of the Campus. We would design the new fire water system to flow about 3,000 to 3,500 gpm. There is an 8" water line located on the eastern roadway stub to the south side of the existing campus. An existing 12" line is also located on the western side of the site, but the extent of this size is not known. A new 10" and 12" water loop will be extended around the site and 8" connection to hydrants will also extend in between buildings to provide both hydrant flows and fire sprinkler supply. Fire hydrants will be spaced at 500' maximum intervals and will be at 300-foot intervals adjacent to new or future building sites.

### domestic distribution expansion

The domestic water system will be distributed through the existing and new tunnel system. We are designing the domestic the peak daily flow for the Campus build-out of approximately 12,000 students and staff. The peak daily flow demand would be approximately 415 gpm. We have assumed that the current meters service in the site are sufficient for Domestic and Fire use. This will be verified with West Jordan City to determine if upgrades may be necessary to the metering system. The size of the domestic line will also be determined in the tunnel to determine if additional capacity is required to supply the tunnel piping system.

### proposed housing building

The new Housing building proposed new the entrance from 9000 South will require new connections. New Connections will be from the City Water line east of the site. A new meter would be required for the Domestic water connection. The size will be based on the population of the proposed Housing unit of 200 Persons.

### sewer
### undeveloped campus area

A new 8" sewer will be extended from an existing West Jordan sewer line pipe that is located on the SE corner of the developed portion of the Campus. The 8" line will be extended into the site and routed to the new buildings as outlined on Figure C2. We will need to verify the capacity of the 8" City line to ensure the added population of the new





Buildings can be handled by the existing 8" line routing through the site. The sewer collection system is based on 12,000 persons for site buildout. Using 20 gpd/person (schools with food services), this would be approximately 240,000 gpd average flow. Assuming 16 hours of operation per day and a peak factor of 4 as outlined for collections system guidelines from the State, a peak build-out flow would be approximately 665 gpm. The capacity of the line will need to be verified with West Jordan Cities Model. Upgrades may be necessary.

### proposed housing building

The new Housing building proposed new the entrance from 9000 South will require a new sewer lateral connection to the City Sewer line east of the site. The size will be based on the population of the proposed Housing unit of 200 Persons.

### secondary water

Not Applicable for this site.

### gas

Dominion Energy has a 4' Gas line that is routed through the site from the end of 3400 West to 9000 South. In addition, Dominion has a 6" and 4" main line in 9000 south. Demands will need to be shared with Dominion Energy for them to size or upgrade the service line to campus, if necessary, by the Mechanical section of this document.

### proposed housing building

The new Housing building proposed new the entrance from 9000 South will require a gas connection and meter. We assume the connection will need to be completed from 9000 South.

### storm drain
### undeveloped campus area

The city does not currently show a connection from the City system to the Campus. The existing storm drain plans are insufficient to determine if there is capacity in the existing system to extend piping to the undeveloped portions of the site. We have assumed that the undeveloped areas would be a standalone system and would have a storm drain outfall to the City Storm drain system in 3400 West. The piping system would route all the drainage from the undeveloped portion of the site and route it to the detention area shown on Figure C2. The required water quality volume would be retained on site and the outfall would release to the City at a rate of 0.2 cfs/acre to the pipe in 3400 West. The detention system will need to hold the 100-year rainfall event with the specified release rate. The approximate detention for the undeveloped area will be between 95,000 CF and 115,000 CF Detention depending on the final design of the area. The location approximate depth is shown on Figure C2. The pond could be built full size with the First Phase or could be built in Phases as areas are constructed on the Campus. Minimum pipe sizes will be 12". The main trunk line will need to be sized to handle the 10-year event for this site. An overflow pathway will also need to be developed to route excess flows to the new detention basin that cannot be piped to the site.

### proposed housing building

The new Housing building proposed new the entrance from 9000 South will require a new drainage connection that will need to either connect to the existing Campus drainage system for release or will be detained and released to the City system in 9000 South.





figure C-1 - existing plan

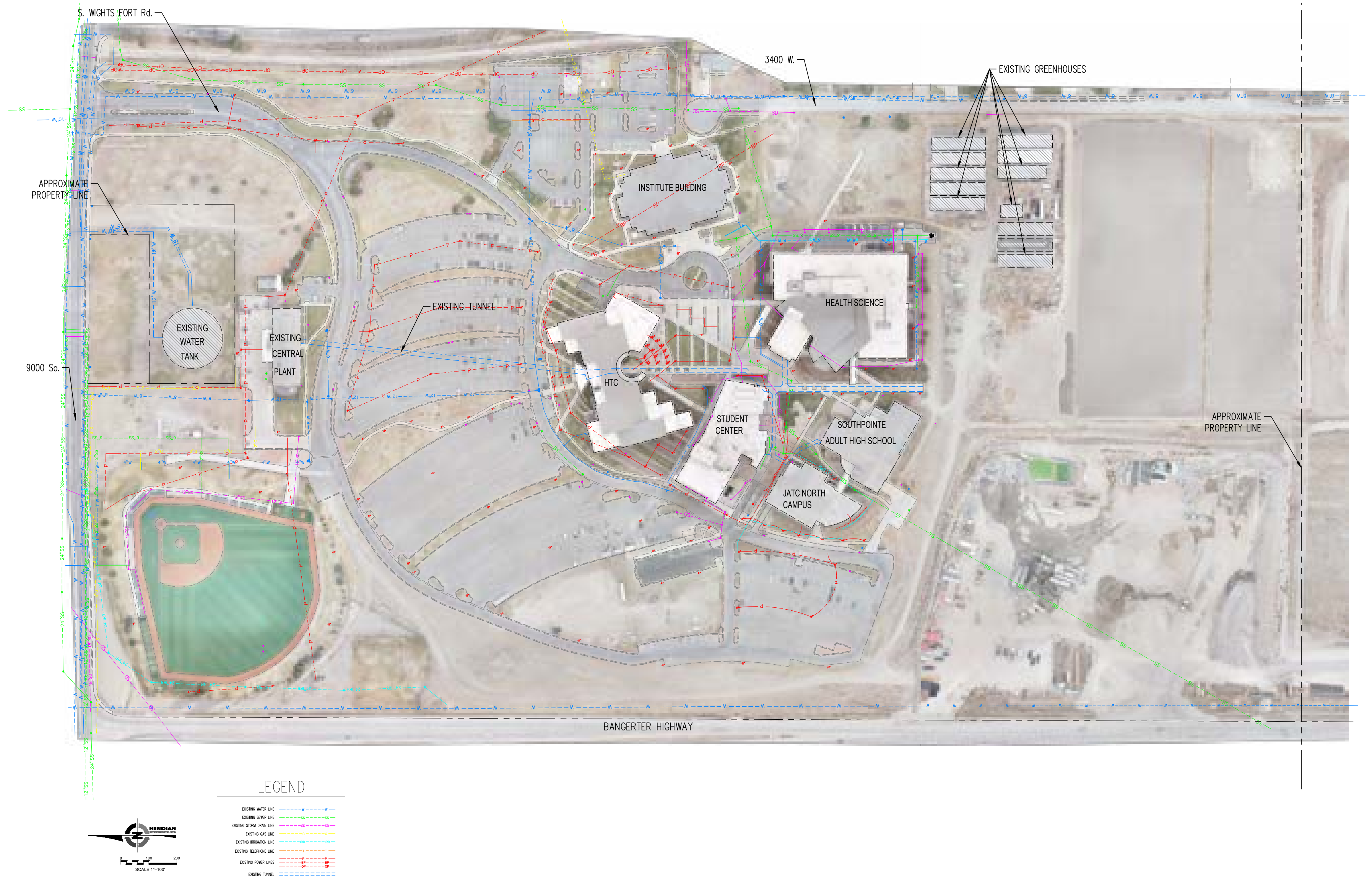


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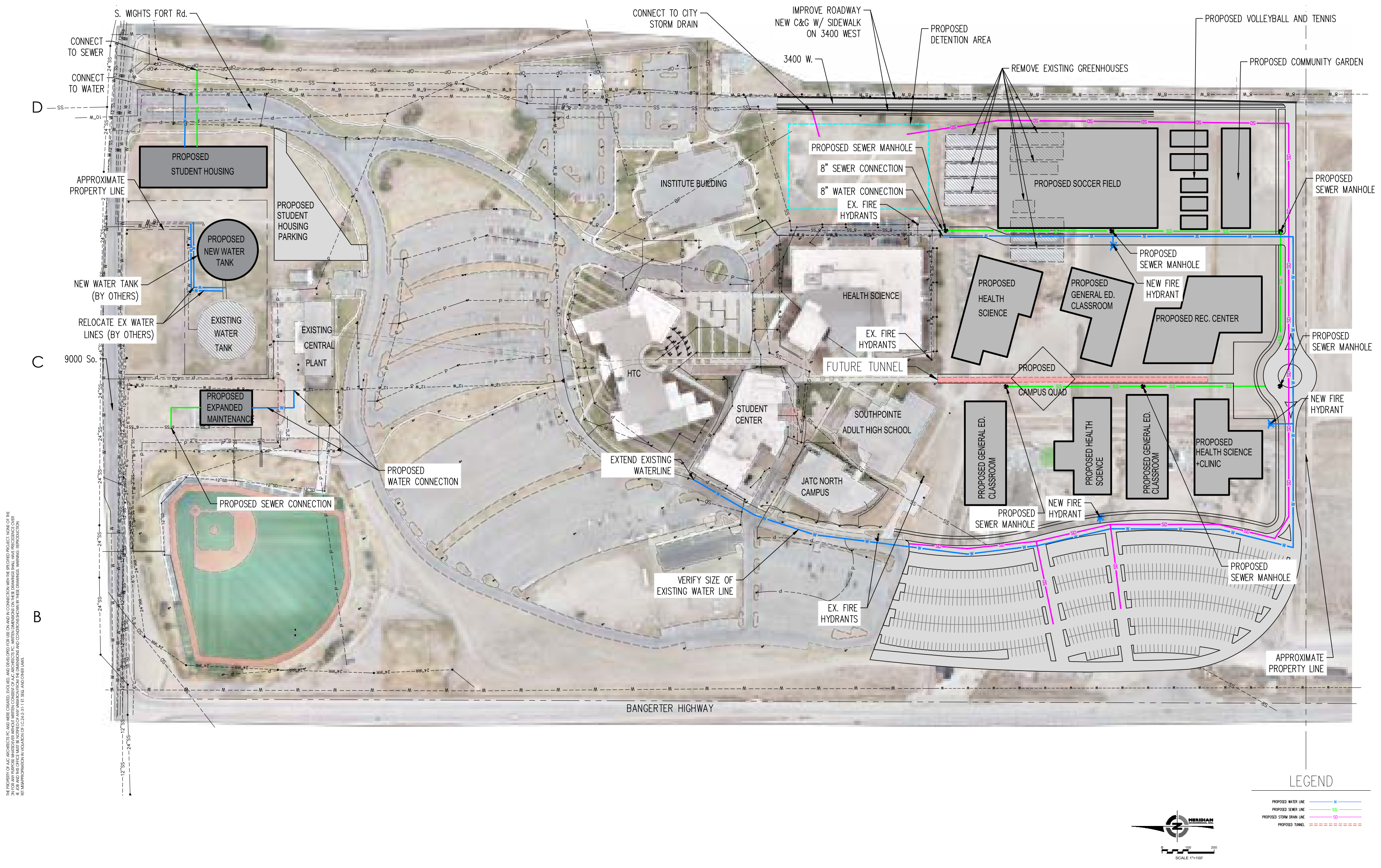
figure C-2 - utility plan



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05

# appendix

SLCC JORDAN CAMPUS
*DESIGN GUIDELINES* — *Architecture*

### *PURPOSE*

The intent of the *Architectural Design Guidelines* is to establish criteria to ensure that all campus buildings contribute to the creation of a coherent, ordered environment consonant with the overall vision articulated in the Campus *Master Plan* and *Development Plan*. This section should not be construed to discourage any creative design direction or solution that can be developed in harmony with the principles outlined here.

The overall architectural goal is the creation of campus with an indigenous architectural vernacular. This ***High Desert / Mountain Architecture*** will be characterized by

- a human scale.
- a noninstitutional character.
- the reinterpretation of traditional desert and mountain forms.
- reliance on natural organic materials with a timeless quality.
- a hierarchy of spaces that provides order without rigidity.
- a sense of openness and intimacy.
- the visual enclosure and definition of exterior space.
- a surrounding garden of native and drought resistant plants.
- sustainable and timeless design that takes advantage of solar orientation and allows the penetration of light into and between buildings.
- a "Grand Floor" that extends throughout the core of the campus at the mean plaza elevation, linking indoor and outdoor social and activity spaces and providing connection throughout.

### *RELATIONSHIPS*

All campus buildings should be placed in a way that respects

- the existing setting and environment.
- the principle of development at a human scale.
- the organizational grid system, with its solar and view orientations.

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- designated view corridors to the east and west.
- the internal focus oriented to the Plaza and the pedestrian "Main Street."
- the organization of campus infrastructure and circulation systems defined during master planning.
- the commitment to preserving campus open and green space as established by master plan ratios for site development.

Every building should create a hierarchy of ordered spaces and reflect that hierarchy through

- relation to the Plaza at the "Grand Floor."
- relation to other buildings.
- placement of public spaces and all social spaces (including student services, recreation, open computer labs, and food service) adjacent to the Plaza.
- location of specialized functions away from the Plaza.

Building relationships should

- be visually apparent.
- stimulate interaction among students, faculty, staff, and community members to enhance the academic process.
- be manifested in direct pedestrian access routes through and around buildings.

### *FUNCTION*

Overall campus architecture must perform the following functions:

- Each building shall include at least one major space dedicated to social interaction and gathering. That space will be located adjacent to the Plaza to encourage a flow of activities into outdoor areas.
- Each building will address specific programmatic needs defined prior to architectural design.
- In the initial phases, each building will provide

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multipurpose areas capable of accommodating the broad range of college functions and activities.

- Buildings will give form to the spaces between them, define outdoor spaces, and contribute to the creation of a village character expressed in the vernacular of *High Desert / Mountain Architecture*"
- Buildings will employ solar design to reduce energy consumption and provide daylighting.

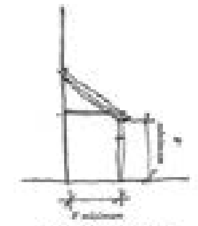
The following architectural components will have additional specific functional requirements:

**Entries**

- Building entries will provide protection from weather.
- The transition in materials from exterior to interior space will be seamless.
- Each entry will have an entry mat to capture foot-borne debris and protect floors from water damage.

**Arcades**

- Each building will have an arcade at least 8'-0" wide and 8'-0" high that creates a covered pedestrian path at the Plaza face, provides a transition from building to Plaza, accommodates diverse activities, establishes a human scale, provides visual connections throughout the campus, and defines exterior space.



*Arcade Dimensions*

**The "Grand Floor"**

- The Plaza level or "Grand Floor" of every building will be designed with a 20'-0" floor-to-floor height (with a finish ceiling height of approximately 16'-0") to accommodate larger spaces for public functions and activities.
- The "Grand Floor" will provide a connecting east-west link among buildings.
- Each building will have at least two main entries


*Floor-to-Floor Heights*

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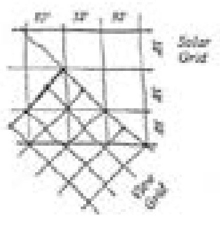
on the "Grand Floor."

- The "Grand Floor" will allow daylight to penetrate into the building and allow building illumination to be seen on the Plaza.

### *CHARACTER*

Overall campus architecture should

- reflect historic forms and cultural heritage.
- have a timeless design that will not become dated; avoid faddish and trendy designs, materials, and elements.
- emphasize consistency of attitude and scale rather than uniformity of design style.
- use the solar design grid and the view grid as a significant determinant of architectural form (with the exception of the structure designated as Phase 7 in the *Master Plan*, which will be oriented to the orthogonal grid to emphasize its centrality).




*Grid Organization*

Any phased building must stand alone. If a building must be developed in multiple phases, the area should be split horizontally, not vertically.

**Building Interiors**

- A 32'-0" base grid will be used to provide flexibility and continuity.
- Circulation should be designed for flexibility
- The impact of shear wall location on flexibility should be reviewed.

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**Building Entries**

- All building entries should be inviting, open, and easily accessible, not threatening, ominous, or confusing.
- Entries should be well-lit, with accent lighting throughout. This light should spill into adjacent indoor and outdoor areas.
- Each entry should lead to a clear circular path that provides a sense of orientation.

The "Grand Floor"

- Each building will have a "Grand Floor" at Plaza level.
- The "Grand Floor" will provide orientation and direction.
- The "Grand Floor" will accommodate public and group activities in a location adjacent to the Plaza.

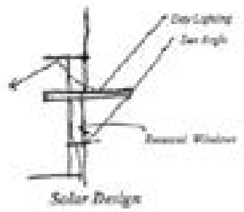
The Arcade

- Building arcades must be integrated with building design, not merely "tacked on"; they should reflect building materials and forms.
- Arcades should have a stone base.
- The arcades should reinterpret a traditional form. Acceptable shapes include a colonnade, a series of arches, or a similar passageway with rectilinear openings.
- The arcade and the main building facade should be oriented to the Plaza.
- The arcade should have supplemental lighting designed to encourage transparency between the building and the Plaza and permit the flow of light from the interior to the exterior.

*Arcade Types*

Solar Design

- Design should include the analysis of solar impacts on the north, south, east, and west exposures of each building.
- Buildings should be designed to incorporate daylighting.
- Building orientation should follow solar design principles.
- Roof monitors may be used to bring daylight into the facilities.
- Solar design should be integral to the architecture and contribute to the creation of building image.


*Solar Design*



Roof Design

- Seventy percent (70%) of total roof area should be sloped or terraced.
- Flat roofs will be limited to buildings that require long-span structure. Any use of a flat roof over more than thirty percent (30%) of a structure will require the approval of the ***Campus Review Board***.
- Each building should have a variety of roof levels and roof forms designed to "create the unexpected."
- Acceptable roof forms will include gabled roofs (with a 6/12, a 9/12, or a 12/12 slope), terraced roofs, and, in limited applications, domes or vaults, hip roofs, pyramid roofs, and shed roofs.
- Skylights and sloped glazing will not be permitted on the roof. Monitors with overhangs may be used to provide daylighting.
- Eave overhangs should be a minimum of 2'-0" on the ridge or gable; parapets and hipped ends are not allowed.
- Forms should respond to solar design principles to warm the plaza and allow interior daylighting.
- Gutter systems must be integral, not attached to the roof.
- Exhaust fans should be located in attic/dormer areas.
- Roof penetrations should be kept to an absolute minimum.

Mass-to-Glass Ratio

- The overall mass-to-glass ratio should be no less than 60/40.
- The mass at the second floor must be at least ten percent (10%) greater than that of the main floor. To conform with the energy code, overall glass on floors other than the first floor should not exceed thirty percent (30%).
- No single expanse of glass greater than 28'-0" wide will be permitted.


*Roof Types*



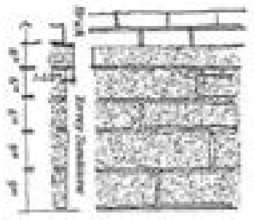


◆ *MATERIALS*

Colors for all elements will be selected from the approved color palette (see *Appendix B*) unless a specific color is identified for the element. See *Appendix D* for product information about selected components.

*Approved Building Materials*

| USE | MATERIAL | NOTES |
|---|---|---|
| ***Major Building Elements*** | | |
| walls | Interstate Sunset brick | standard height weather joints textures: wire cut, natural finish, cut as fired, blade, matte |
| exterior base | Torrey Sandstone or equivalent | 36" height above mean plaza elevation standard (windows and sills can penetrate) |
| | | 6" - 9" high 12" - 24" long |
| | | laid in random running bond pattern with raked joints with natural mortar (rough, face) |
| cut stone cap | Torrey Sandstone or equivalent | 6" high with sill slope to 4" min. |
| | | 1½" overhang (with drip) at face |
| | | 24" - 48" lengths |
| | | Sill cap must be expressed. |


*Typical Base Detail*



*Approved Building Materials*

| USE | MATERIAL | NOTES |
|---|---|---|
| lintels and sills | Torrey Sandstone | |
| | Interstate Sunset brick | |
| | precast concrete | |
| roof tile | flat concrete tile | gray/green color (Pantone 5575U) |
| glazing | clear glass | required for main-level entries, arcades, storefronts, and full-height windows |
| | | acceptable all areas |
| | Libbey Owens Ford Evergreen (low-e) | all glazing above first level |
| | | small punched windows on first level |
| mullions, frames, and other metal elements | aluminum with factory finish | color as approved by *Campus Review Board* |

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*DESIGN GUIDELINES* *Architecture*

*Approved Building Materials*

| USE | MATERIAL | NOTES |
|---|---|---|
| *Materials for Accents and Special Uses* | | |
| curved forms, banding | precast concrete | |
| soffits | exposed structure | |
| | cement plaster | |
| | wood | |
| metals | nonferrous metals | |
| | stainless steel | |
| | aluminum | |
| | brass | |
| | copper | |
| | bronze | |
| split-face brick | Interstate Sunset | for accent only |
| fascia | precast concrete | |
| | aluminum with a factory finish | |
| | copper | |
| accent roofing | standing-seam copper | |
| handrails | stainless steel | |





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