JOHNSON COUNTY
COMMUNITY COLLEGE

Facilities Master Plan

October 2016

Letter from the President

Dear Friends:

As Johnson County Community College prepares to celebrate its 50th anniversary, we recommit ourselves to our mission to "inspire learning to transform lives and strengthen communities." We continually strive to maintain our relevance to provide the best service possible to our students and community in a changing landscape. An important aspect of planning for our future is ensuring that our facilities align with our students' needs and best support their success.

To that end, we embarked on a facilities master plan, the first in a very long time, if ever. This document is the culmination of that work, the result of analysis and discussion among many faculty, staff and students, guided by our Board of Trustees. We asked ourselves a lot of questions throughout this planning process. What does the classroom of the future look like? How accommodating is our campus design to new students, students who may be the first in their families to step foot on a college campus? How much importance should be placed on our physical campus when some of our largest growth is in online courses? Are we using our current space as efficiently and effectively as possible?

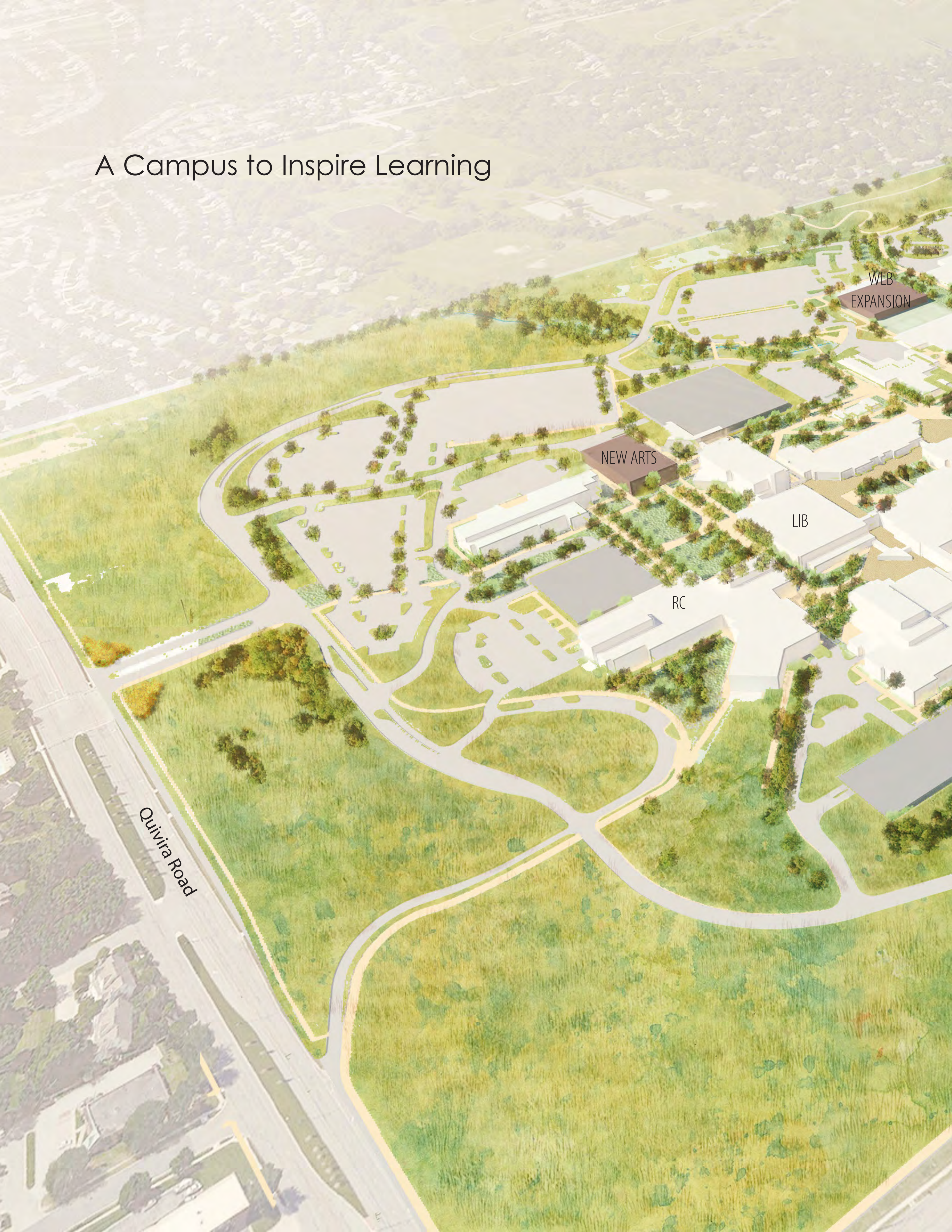
Our facilities must be innovative, flexible and functional. This plan provides a blueprint for the future, for making wise decisions about building and renovation projects with one goal in mind: ensuring that we keep our students' needs front and center as we invest for the future. Thank you to our Board of Trustees and to our entire campus community for helping to create a shared vision from which to move forward.

Sincerely,

Joseph M. Sopcich

Joe Sopcich
President; Johnson County Community College

A Campus to Inspire Learning




ITC
NEW CTE
ATB
GYM
SC
GEB
CC
College Blvd

Master Plan Drivers + Guiding Principles

The Mission, Vision and Values Statements were developed in advance of the planning process and were used in conjunction with physical planning drivers to guide the over-arching direction of this Johnson County Community College (JCCC) Facility Master Plan (Master Plan).

Mission

JCCC inspires learning to transform lives and strengthen communities.

Vision

JCCC will be a national leader through educational excellence and innovation.

Values

- Integrity: We hold ourselves accountable for decisions and actions
- Collaboration: We respect diversity of thought in building a culture of collaboration
- Responsiveness: We respond to the needs of our students and communities through relevant offerings
- Leadership: We pursue leadership roles in our communities and higher education

Physical Planning Drivers

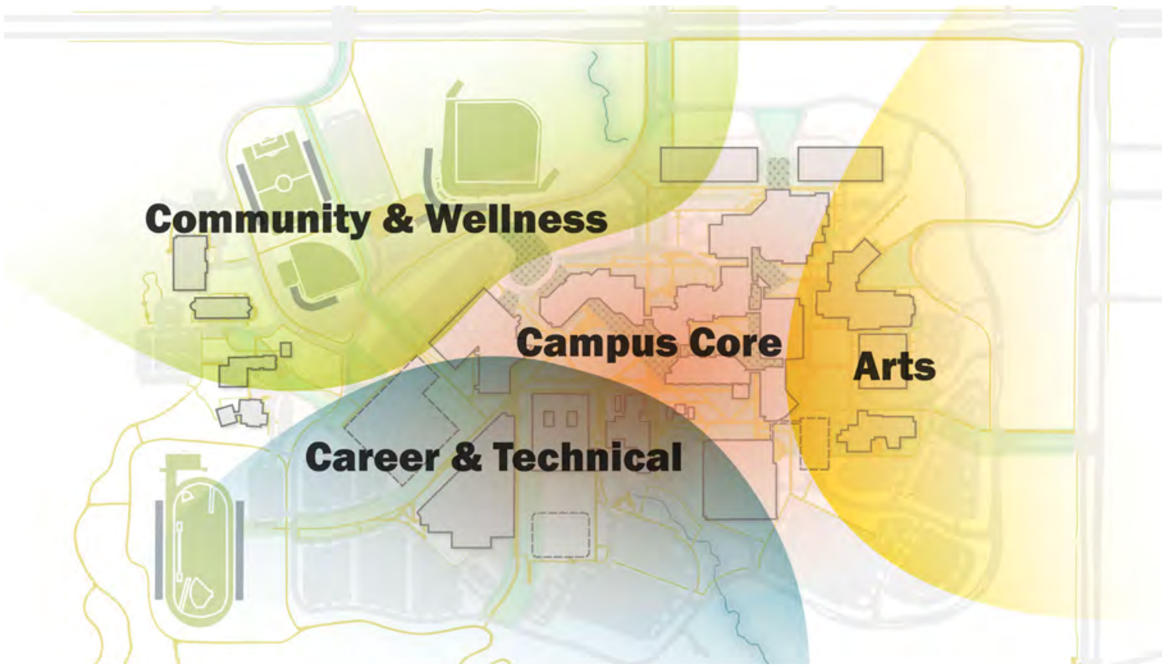
- While overall enrollment is projected to grow by nearly 5% over the next 10 years, in person enrollment at the Overland Park campus is predicted to decrease by 4.9% over the next 10 years
- Technology, changing pedagogies and course delivery, online students, and enhanced remote tutoring and coaching will be required
- JCCC students will be more diverse and require more financial aid and academic support
- A space needs analysis conducted as part of this planning process identified a net space deficit of approximately 40,000 assignable square feet. In addition, the quality of space must be advanced to meet the needs of 21st century students
- Campus space will require more active learning spaces, more collaborative areas, maker spaces, fab labs, and informal spaces to engage one another and interact more with faculty
- This plan must enhance student success and accommodate a future student pathways model
- In response to regional economic trends, career and technical programs should be given strategic consideration for growth and expansion
- JCCC is widely recognized as a pioneer in sustainable campus leadership. This plan should advance leading sustainability missions and goals and integrate wellness initiatives

Guiding Principles

A series of enduring principles were developed early in the planning process to guide decision making by conveying the intent, goals, and long-term values of JCCC. Guiding Principles include:

- [QUALITY] Provide 21st century spaces to teach, learn, study, work, collaborate
- [UTILIZATION] Improve the utilization of campus space throughout the day
- [TYPE] Align facilities with college/program goals
- [LOCATION] Develop appropriate programmatic adjacencies
- [EXPERIENCE] Make the campus more welcoming, navigable and attractive
- [COMMUNITY] Encourage community engagement
- [SUSTAINABILITY] Achieve a more sustainable campus
- [FEASIBILITY] Optimize cost and implementation feasibility
- [ADAPTABILITY] Maximize flexibility for future growth

Master Plan Concept + Initiatives



Concept

The Master Plan builds on the strong existing campus framework and provides opportunities to redefine the fabric of campus through strategic renovation, the introduction of new infill buildings and improved circulation and wayfinding. With respect to the historic inner campus core, the Master Plan envisions three distinct but connected campus neighborhoods to reinforce centers of excellence and improve campus legibility:

- **Campus Core.** The Master Plan preserves and enhances the well-established campus core. Initiatives will activate the first two floors, improve pedestrian connectivity, enhance interior common space, and optimize the campus courtyard to re-invigorate the campus core.
- **Career & Technical Education (CTE).** Anchored by a proposed new CTE building, the CTE neighborhood emphasizes JCCC's commitment to technology and innovation. Shared resources with the Burlington Northern Santa Fe (BNSF) Railway and adjacencies to the core will contribute to the culture of collaboration.
- **Arts.** A proposed new Arts building will strengthen the presence of arts on the eastern side of the campus, allowing Fine Arts programs to synergize with existing venues and arts assets.
- **Community & Wellness.** Athletic facilities will be consolidated on the College Boulevard frontage to enhance operational efficiency and community engagement and promote JCCC's image and identity.

Initiatives

The Master Plan concept is supported by nine strategic and implementable initiatives, including:

- Establish Centers of Excellence for CTE and Arts
- Prioritize Active Learning Classrooms
- Realign Academic Resource Centers
- Enhance Campus Front Door and Wayfinding
- Activate Collaboration Spaces
- Optimize Offices
- Create Maker Spaces
- Incorporate Sustainability
- Strengthen Athletic Facilities

Contents

CHAPTER 1

THE CAMPUS TODAY


STUDENT CENTER
JCCC
Johnson County Community College
Carlsen Center

01 | The Campus Today

As the first college in Kansas to be developed after the Community College Act of 1965, JCCC has been continually operating the main Overland Park location at the corner of College Boulevard and Quivira Road since 1972. From its start with six buildings sited around a central campus courtyard, through new buildings including the Hospitality and Culinary Academy, Carlsen Center, Regnier Center and Nerman Museum of Contemporary Art, JCCC has epitomized innovation and quality in higher education.

The Master Plan is a forward-looking document that is built upon the foundations of the past. As such, the study of the current campus systems establishes a starting point for planning recommendations in the following chapters of this report. Existing conditions analysis combines and synthesizes information gained from site visits, research, documents provided by JCCC and from discussions held during meetings conducted as part of the planning process.

Physical and functional analysis as part of the Master Plan was conducted at three different levels, including:

- Regional Context
- Campus Systems
- Space Utilization

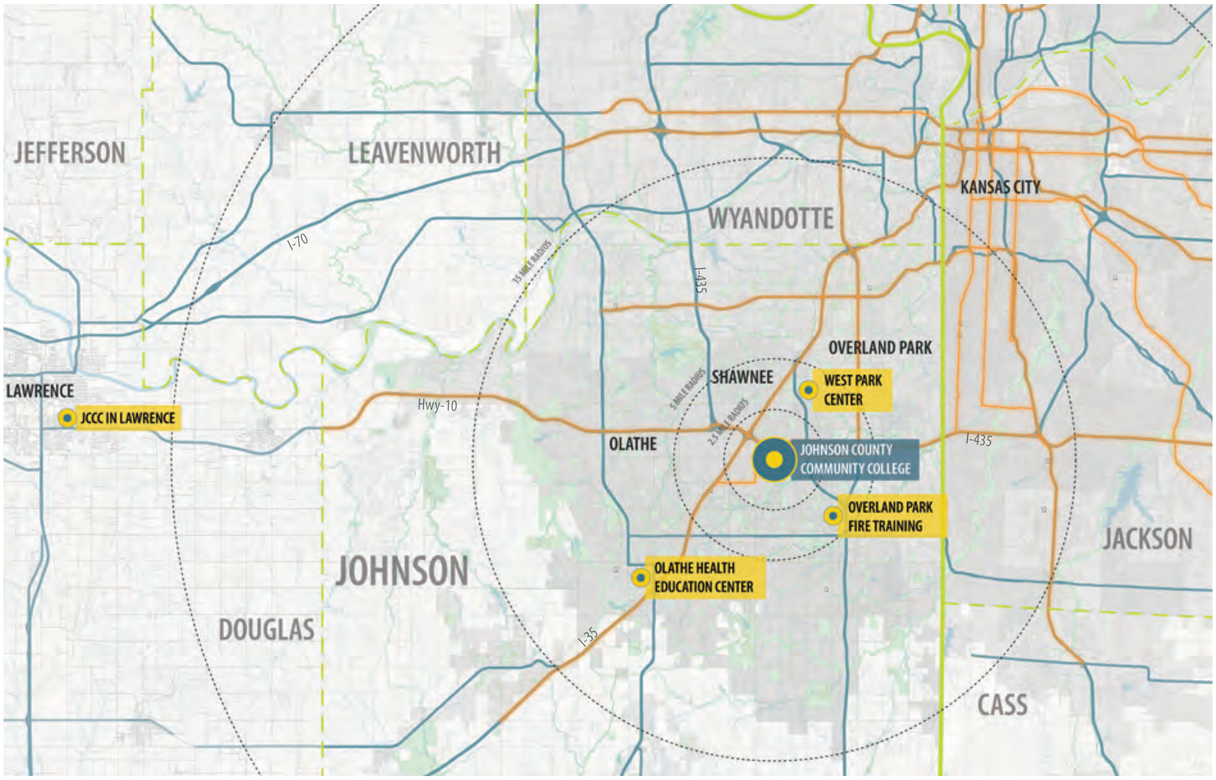
This holistic approach provided the planning team with a comprehensive understanding of the internal and external relationships that shape JCCC's role in larger context as well as campus characters in micro-scale.

Regional Context

The fast-growing population and economy in Johnson County provides opportunities for JCCC to maintain its historical excellence while continuing to grow, evolve, and transform as a 21st century institution. As the most populous county in Kansas and second most populous county in the Kansas City metropolitan area, Johnson County contributed to nearly 40% of the metropolitan' area's job growth in 2015. Overland Park serves as a principal city in the region and provides a diverse business base for different industries such as health care, retail trade, professional and technical services, finance and insurance, and information technology.

As one of the primary providers of certificate and associate degrees within the Kansas City metropolitan region, JCCC nurtures healthy relationships with surrounding communities. Analyses in this section focus on regional demographic and economic trends that influence JCCC's enrollment patterns, program offerings, and campus character, including:

- JCCC Locations
- JCCC Students
- Population
- Employment
- Assets
- Transportation
- Green Spaces



Educational Objectives

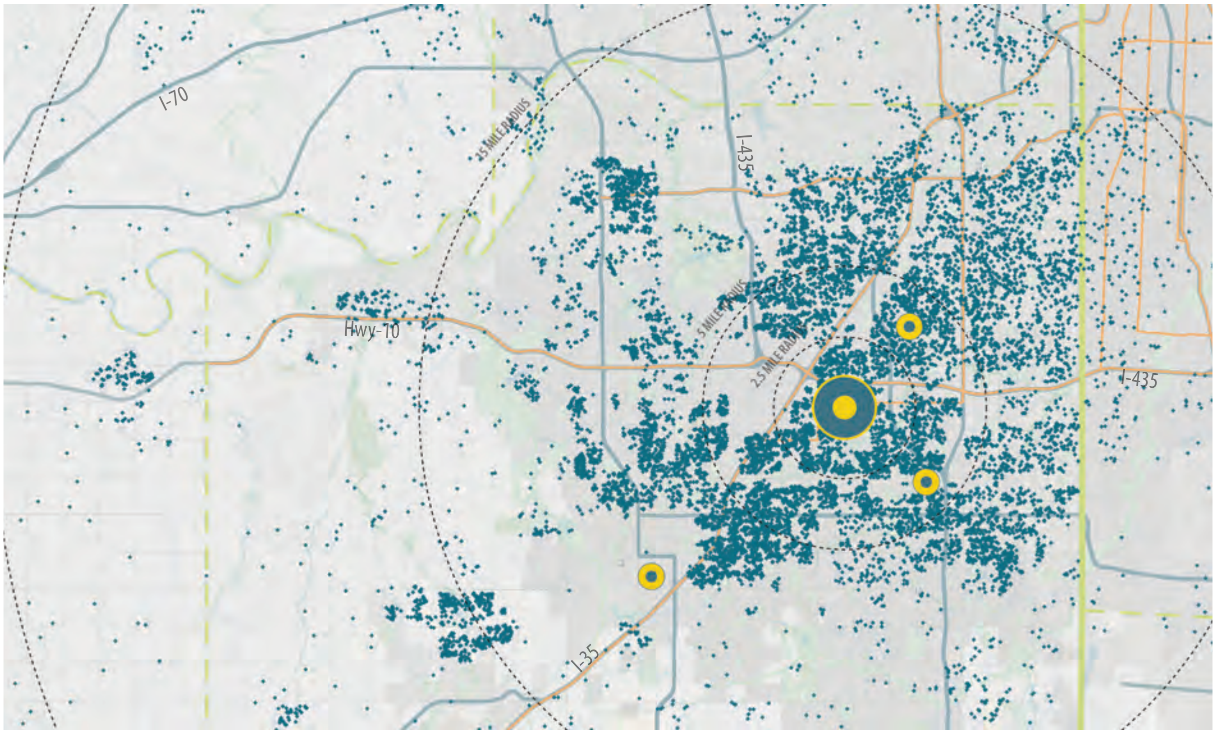
- Transfer 41%
- Job 37%
- Personal 10%
- Other 11%

JCCC Locations

- Main Campus 108,265
- Olathe 2,849
- Lawrence 375
- West Park 789
- Online 24,099

JCCC Locations

JCCC operates multiple off-campus education centers and learning sites that serve the diverse population in Johnson County and larger Kansas City and Lawrence metropolitan areas. This Master Plan focuses on the Overland Park campus, JCCC's main campus that generated more than three quarters of total credit hours in the Fall 2015 semester. Of the 19,091 2015 Fall headcount across all locations, over 40% transfer to a four-year institution and slightly less (37%) pursue a job. As demographics in the county continue to shift, this balance may shift slightly to highlight JCCC's increased commitment to job training while continuing to support a robust transfer population.



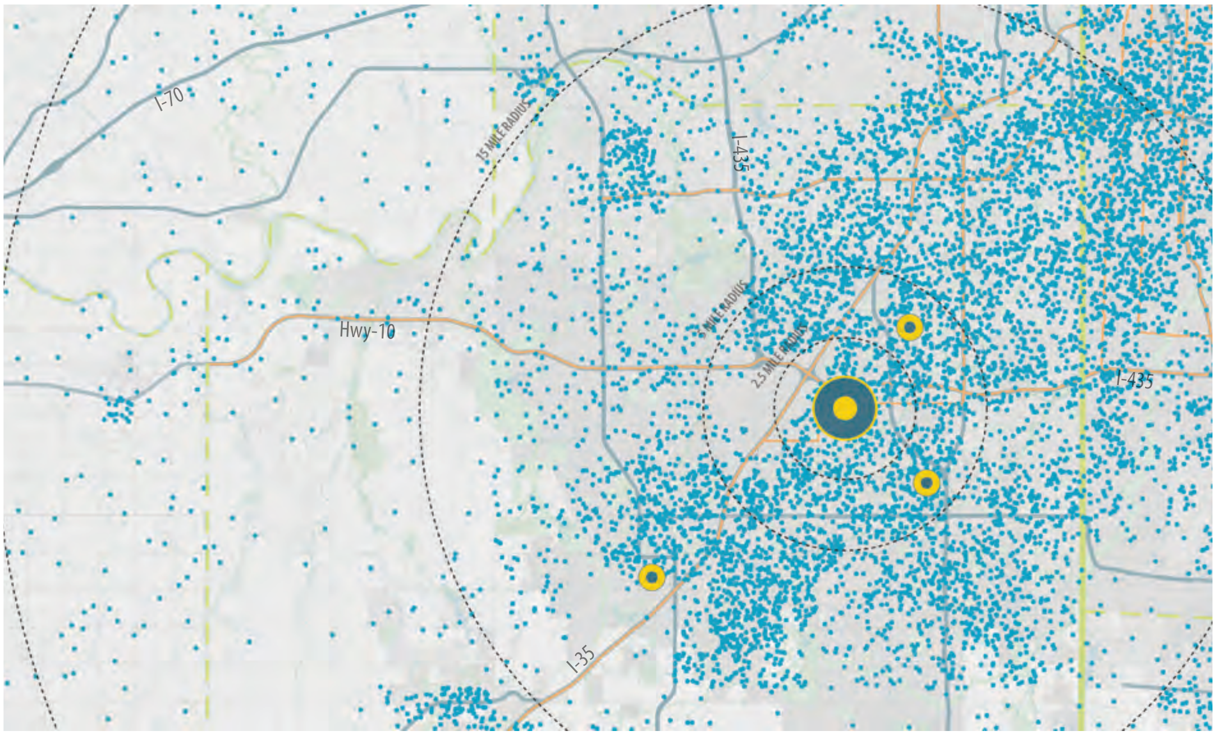
● 1 Student

Student Residence

- Johnson County 77%
- Other KS County 16%
- Out of State 8%

JCCC Students

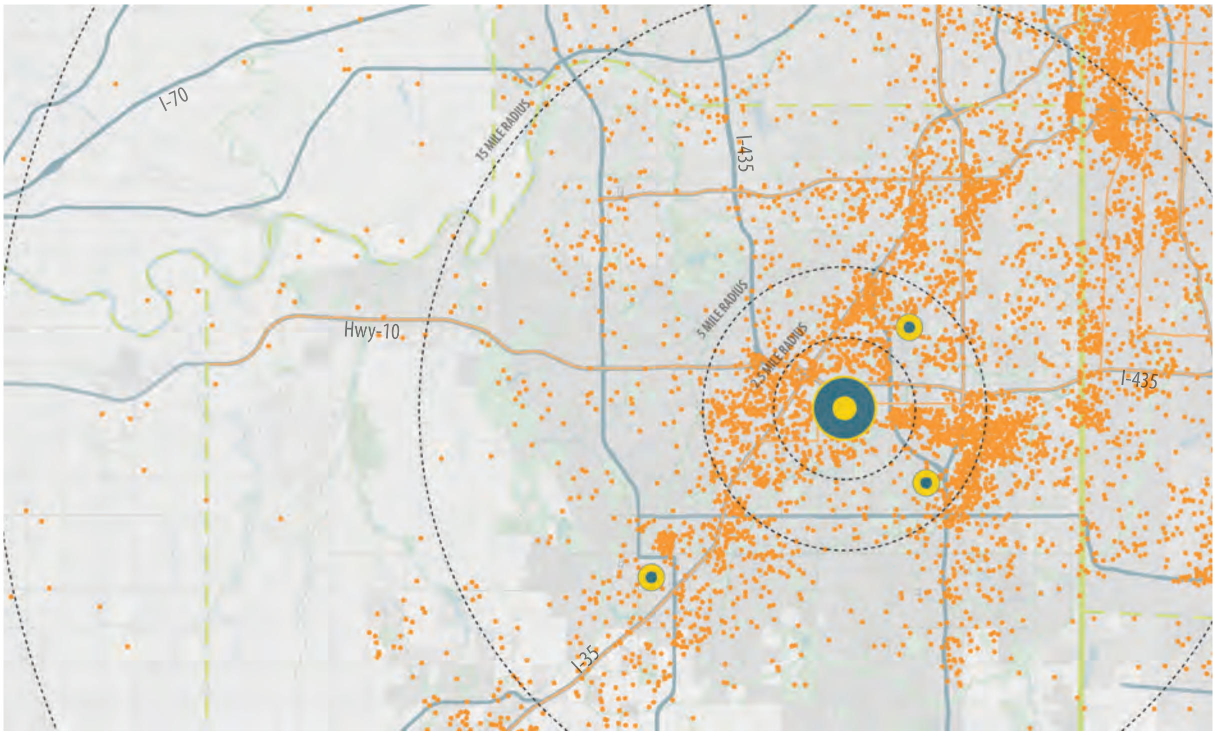
GIS-based student address mapping highlights that nearly 60% of the students reside more than 5 miles away from the Overland Park campus. Due to the commuting distance, these students may be more likely to stay on campus longer between classes and may require more campus amenities.



100 Residents

Population

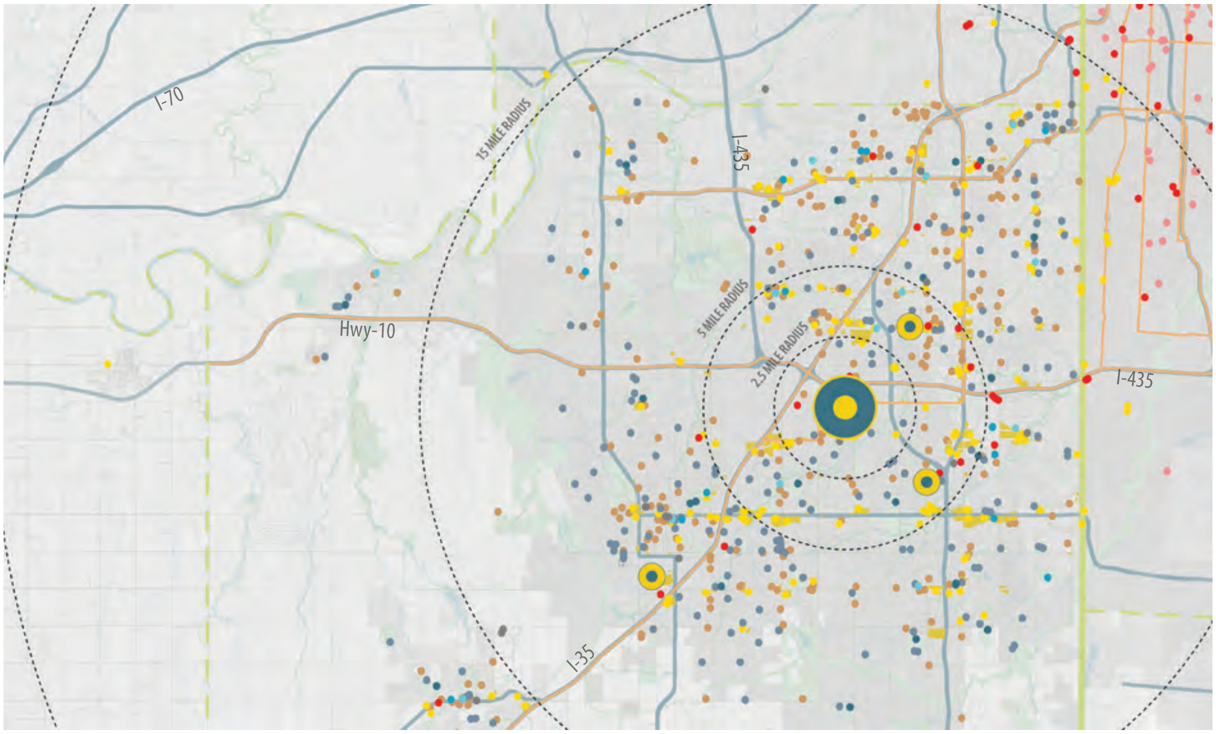
Regional population distribution analysis generally reflect student address data and indicates a higher population density to the northeast of the Overland Park campus. JCCC's proximity to Missouri provides opportunities to capture more enrollment on the Missouri side of the metropolitan area. JCCC recently implemented a new Metro-rate, a reduced tuition rate for out-of-state Missouri residents residing in close proximity to Johnson County.



100 Employees

Employment

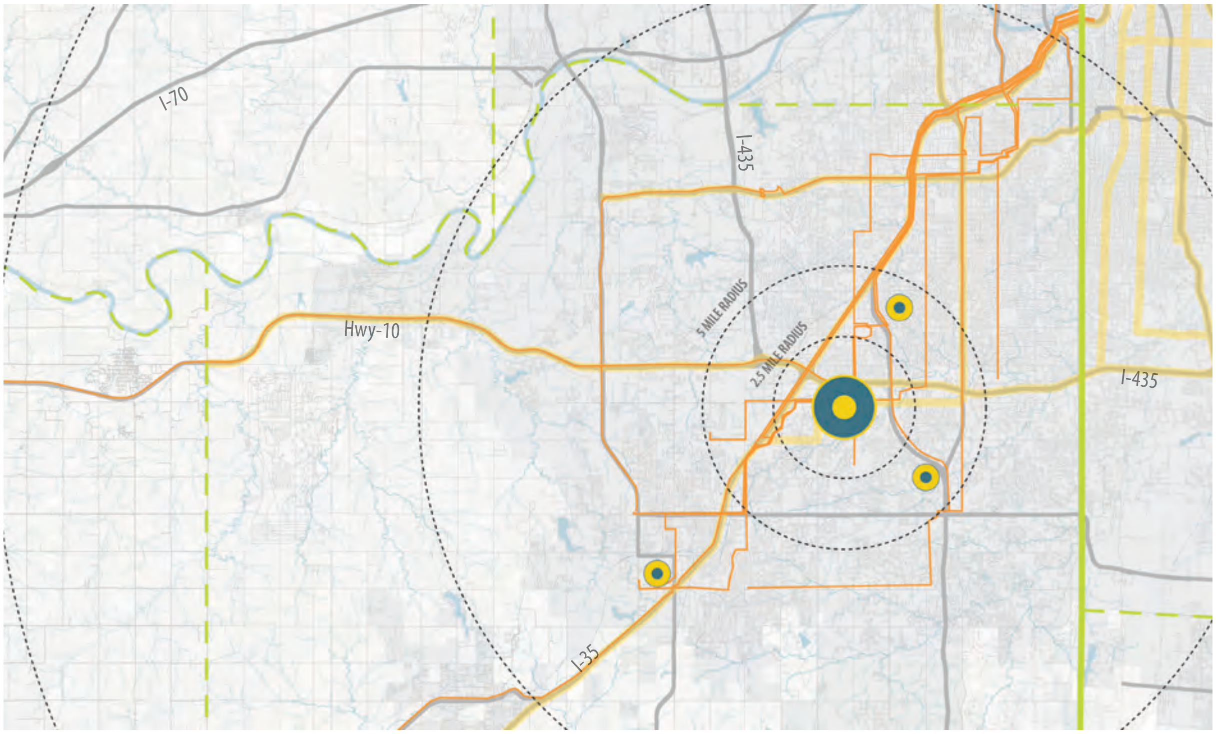
The diverse business base in Overland Park supports growing employment opportunities in the region and in close proximity to the campus. These employment locations generally follow student and population locations, with a higher emphasis on easy access to major transportation corridors. JCCC is well positioned for this automotive connectivity, with proximity to several major employment clusters along I-35, I-435, and Highway 69.



- Head Start Location
- High School
- Other School
- Hospital
- Library
- Museums
- Places of Worship
- Groceries
- Shopping Center
- Police Station

Assets

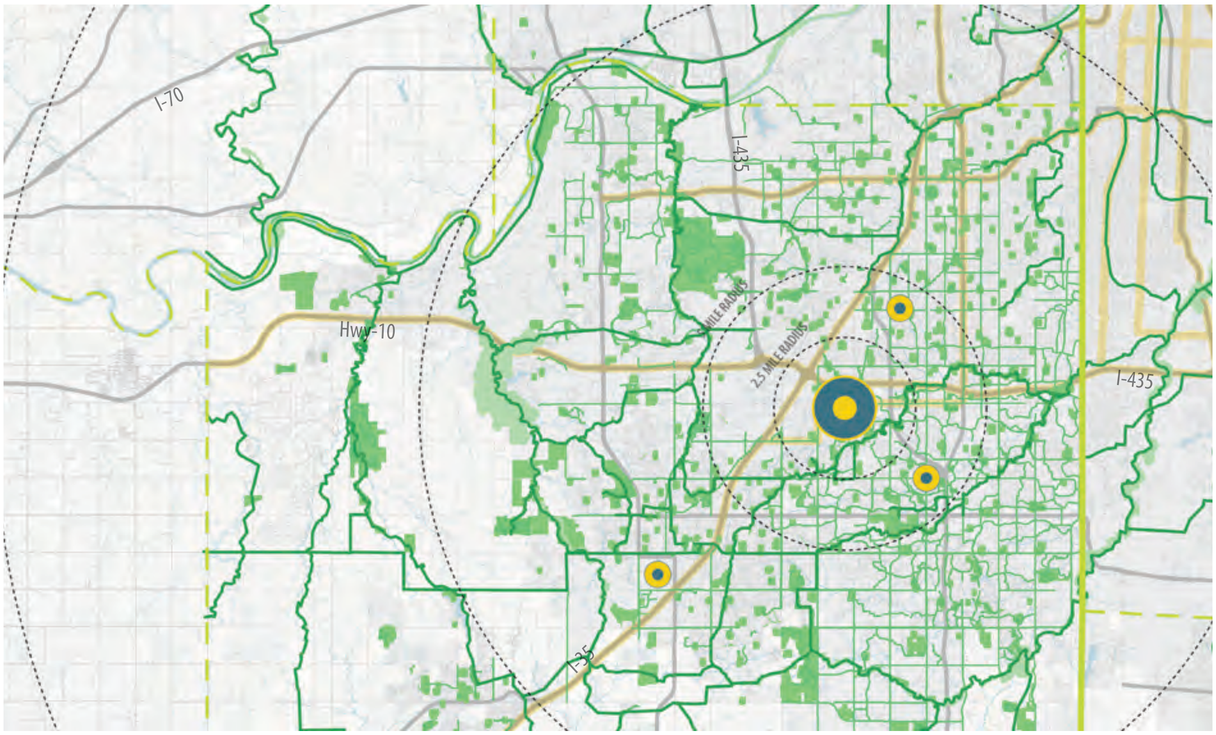
21st century students have a higher desire to be proximate to a robust and authentic mix of uses near places of learning and study. JCCC enjoys proximity to food, grocery and shopping destinations clustered along I-35 and Metcalf Avenue. However, there are fewer cultural assets in the immediate adjacent area. Opportunities exist to better leverage JCCC's position as a cultural hub and mixed-use destination within a 5-mile radius of the campus.



JO Bus Routes
Smart Moves Corridors

Transportation

Public transportation systems connect the campus to other JCCC locations in Johnson County and Lawrence. Downtown Kansas City is also accessible via public transportation. As part of an overall sustainability strategy, and as the Overland Park campus becomes an important transfer hub for JO buses, there is an opportunity for JCCC to better engage the JO for partnership opportunities.



Smart Moves Corridors
MetroGreen Corridors
Bike & Hike Trails
MetroGreen Priority
Public Green Space

Green Spaces

An extensive network of green spaces and corridors in the area offers a potential to better connect the campus to regional trail and public transportation systems.

Campus Frameworks

As the primary focus of the Master Plan, the Overland Park campus provides a traditional campus atmosphere, extraordinary learning facilities, and an integrated connection to nearly 20,000 students and a robust and growing community. The 254-acre campus includes 22 academic, administrative, and auxiliary buildings occupying approximately 15 acres of land and an additional 40 acres of parking. The physical campus systems analyzed in this section include:

- History
- JCCC Facilities Milestones
- Elevation
- Slope
- Vehicular Circulation
- Pedestrian Circulation
- Open Spaces
- Views and Wayfinding

This analysis provides a comprehensive understanding of the existing campus framework that forms a foundation for informed recommendations regarding opportunities for change.

BUILDING	Year Occupied	Gross Area (Sq. Ft.)	Assignable Area (Sq. Ft.)
Billington Library (LIB)	1972	92,200	71,125
Campus Service Building (CSB)	1972	27,700	26,072
Commons Building (COM)	1972	76,505	46,588
General Education Building (GEB)	1972	94,645	60,549
Gymnasium (GYM)	1972	95,443	91,759
Science Building (SCI)	1972	66,975	49,026
Arts & Technology Building (ATB)	1981	63,810	49,743
Office & Classroom Building (OCB)	1983	66,485	41,302
Industrial Technical Center (ITC)	1988	120,000	96,694
Carlsen Center (CC)	1990	258,435	93,205
Hiersteiner Child Development Center (HCDC)	1990	11,180	8,183
Classroom Laboratory Building (CLB)	1993	88,195	43,656
Welding Lab (WLB)	1993	12,270	10,658
Student Center (SC)	2000	94,185	62,306
Campus Warehouse (WH)	2001	23,915	20,586
Horticultural Science Center (HSC)	2001	15,185	14,289
Police Academy & Administration of Justice (PA)	2001	16,944	15,550
Nerman Museum of Contemporary Art (NMOCA)	2007	38,190	39,965
Regnier Center (RC)	2007	154,900	97,920
Galileo's Pavilion (GP)	2012	3,000	2,563
Hospitality Culinary Academy (HCA)	2013	37,000	26,767
TOTAL CAMPUS BUILDING AREA (Sq. Ft.)		**1,457,162**	**968,506**

2010s
2000s
1990s
1980s
1970s

Building GSF by Age

2010s: 45,450 SF
2000s: 392,659 SF
1990s: 441,600 SF
1980s: 179,915 SF
1970s: 402,998 SF

History

The campus opened in 1972 with six buildings centered on a courtyard and expanded its building footprints with new CTE facilities to the southwest, new academic expansions towards JCCC and Quivira frontage, and additional support and professional development buildings to the west. The newest buildings have provided opportunities for intentional infill and additional visibility from the street.

Over half of the campus was built before the year 2000, including nearly one quarter that is approaching 50 years old. While significant renovations have been made, future plans must account for additional modifications to meet the changing needs of 21st century students.

JCCC Facilities Milestones

JCCC's 254-acre site was purchased in 1969, and the design and construction of the campus was complete by the fall of 1972. The first six buildings included the College Commons Building (COM), the Electronic Media Center ((EMC), later to be named as the Billington Library (LIB)), the Science Building (SCI), the General Education Building (GEB), the Campus Services Building (CSB), and the Gymnasium (GYM). The multi-story buildings were all constructed with the same brick veneer and a concrete column and floor system.

The size of the campus remained the same until the construction of the Arts and Technology Building (ATB). Opened in 1981, this building is a single-story structure constructed with a steel frame and brick veneer. High bays at both ends contain studio and CTE labs.

The Office and Classroom Building (OCB) is an infill building adjoining the GEB. This building continued the construction standards of the campus with the same brick and structural framing. The linkages to COM and GEB on the upper floors provided convenience for interior circulation.

In 1988, the Industrial Technology Center (ITC) was constructed as a joint venture with the Burlington Railroad, later to become the BNSF Railway. Shared by the college technology programs and BNSF, this single-story building is located to the west of ATB. This building was expanded in 2007, doubling in size to accommodate the expanding training needs.

The Child Care Center, later to be named as the Hiersteiner Child Development Center (HCDC), was constructed in 1990 and later expanded.

Also constructed in 1990, the Carlsen Center (CC) is linked to OCB to the south and public parking structures to the north. The building's location and performance venues offer outreach to the community.

The Classroom Laboratory Building (CLB) was constructed in 1993. It is connected with the SCI to the east, the LIB to the north, and the parking structure to the south.

The Student Center (SC) was constructed in 2000 and is linked to COM to the east. This building contains a book store, bank, food court and a majority of student services.

In 2001 a major addition was made to the GYM that included a large field house with a 6-lane running track, and playing courts for basketball, volleyball, and other track events.

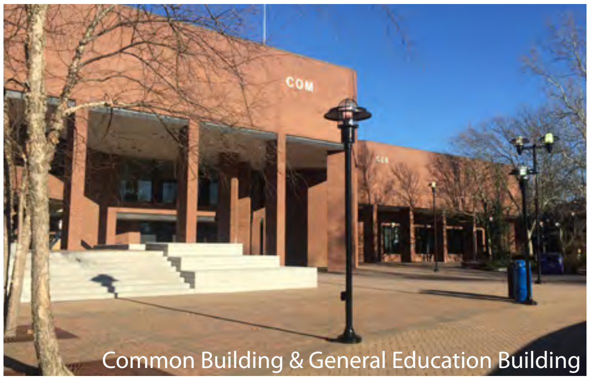
Both the Police Academy (PA) and the Horticultural Science Center (HSC) on the west side were constructed in 2001. The PA serves the training of law enforcement officers and JCCC's Administration of Justice programs.

The Regnier Center (RC) and the Nerman Museum of Contemporary Art (NMOCA) were constructed in 2007. The RC houses community meeting rooms in addition to classroom and office space. Attached to RC, the NMOCA presents contemporary art and offers educational programs.

The Galileo's Pavilion (GP), a LEED Platinum building, was designed and constructed by the University of Kansas Master of Architecture Studio. It demonstrates green building practices and related energy saving methods.

The Hospitality and Culinary Academy (HCA) was constructed in 2013. Serving the Hospitality Management program, it has five culinary labs, an innovation kitchen, a culinary theater, and a dining room.

With the addition of each new building, renovation of existing buildings occurred to utilize vacated areas. Due to the timing and availability of spaces, there are programs that are disjointed or operating in spaces less than desirable, and this Master Plan provides the flexibility and opportunity to address some of these inefficiencies.



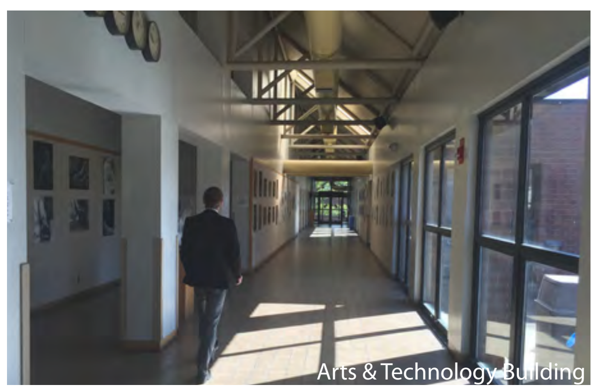
Common Building & General Education Building


Industrial Technology Center


Science Building

Office & Classroom Building

Billington Library


Arts & Technology Building

1970

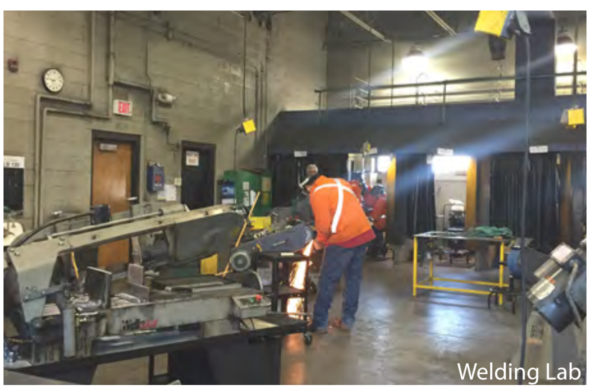
1980

Classroom Laboratory Building


Student Center


Carlsen Center


Nerman Museum of Contemporary Art



Welding Lab


Hospitality and Culinary Academy

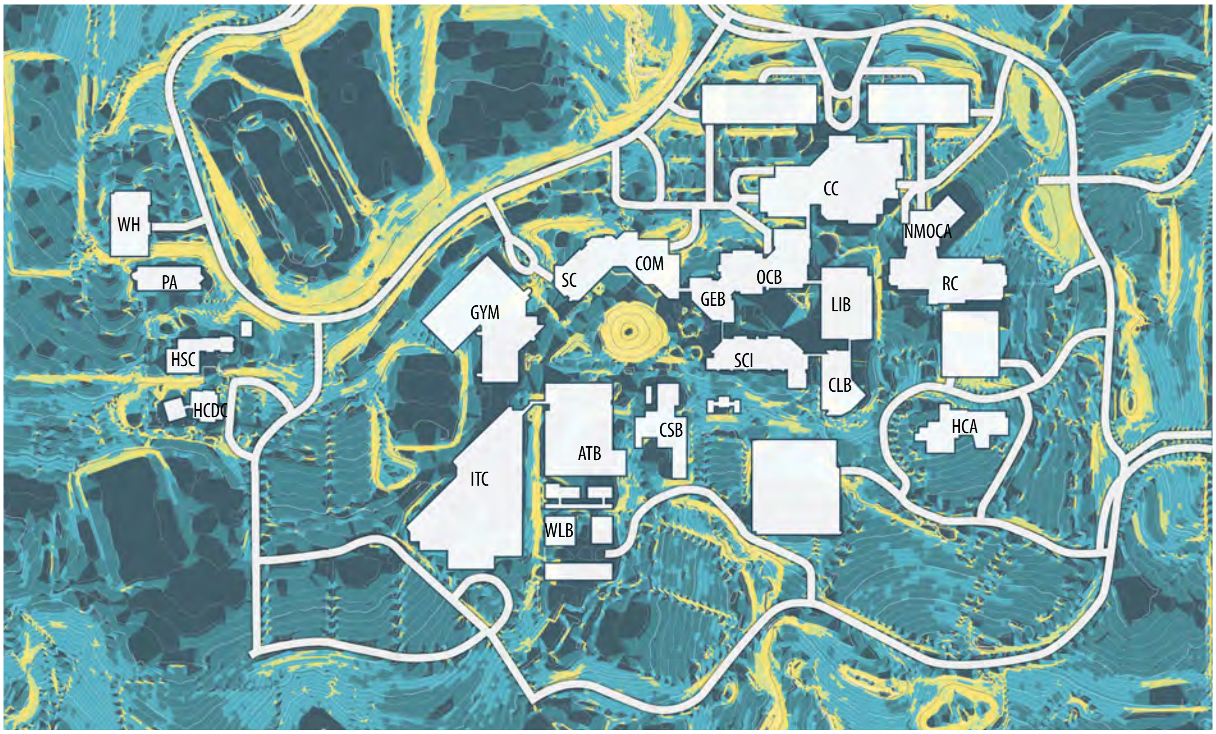
1990

2000

>1050.01’
1035.01’ - 1050.00’
1020.01’ - 1035.00’
1005.01’ - 1020.00’
<1005.00’

Elevation

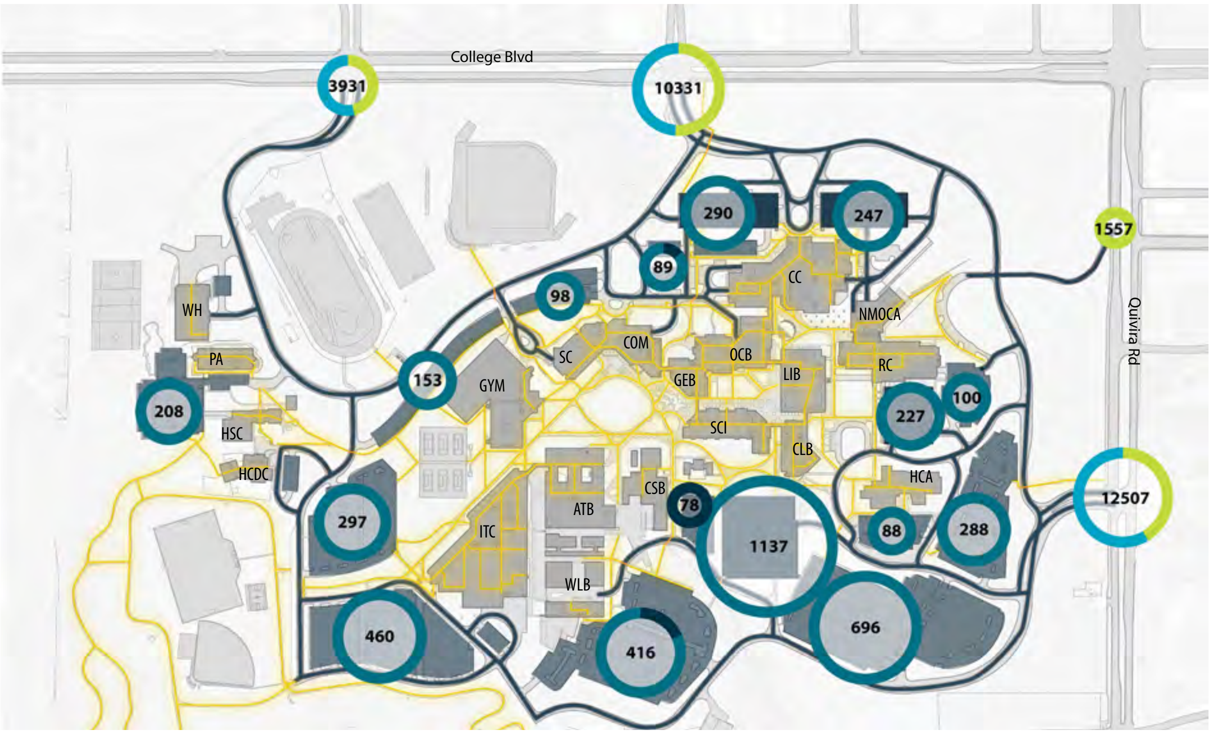
The campus core occupies the topographic high points in the area. Lower area in the southeast and northwest is used for parking and athletics. The hilly topography of the campus creates challenges to site new buildings to respond to elevation change and view lines. Specific considerations for future buildings must consider stormwater management and location of sewer lines, as new buildings to the south may require a lift station that may overburden project budgets.



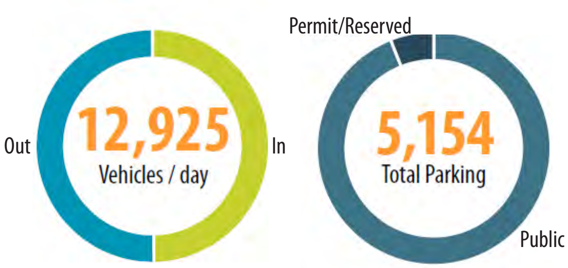
15.01% - 10.00%
10.01% -15.00%
5.01% - 10.00%
2.01% - 5.00%
0.00% - 2.00%

Slope

The site generally slopes from the center to the southeast and northwest. The most challenging slopes are located on the north (College Boulevard) side of the campus, particularly near the track, soccer and baseball fields. Easier terrain for development is mostly located to the south of the campus core. This central courtyard is divided by a water tank berm that separates ITC and ATB from primary academic buildings and provides a challenge in regards to accommodating desired paths for collaboration.

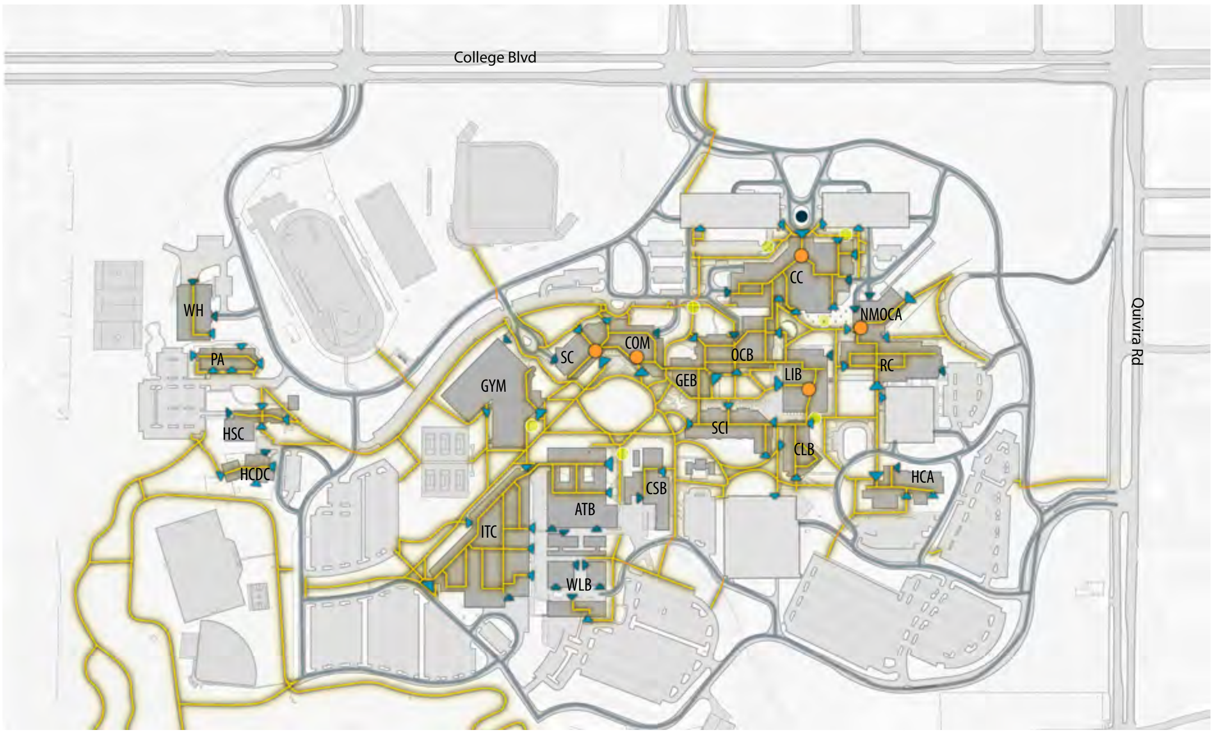


Structural Parking
Surface Parking
Vehicular Circulation
Pedestrian Circulation



Vehicular Circulation

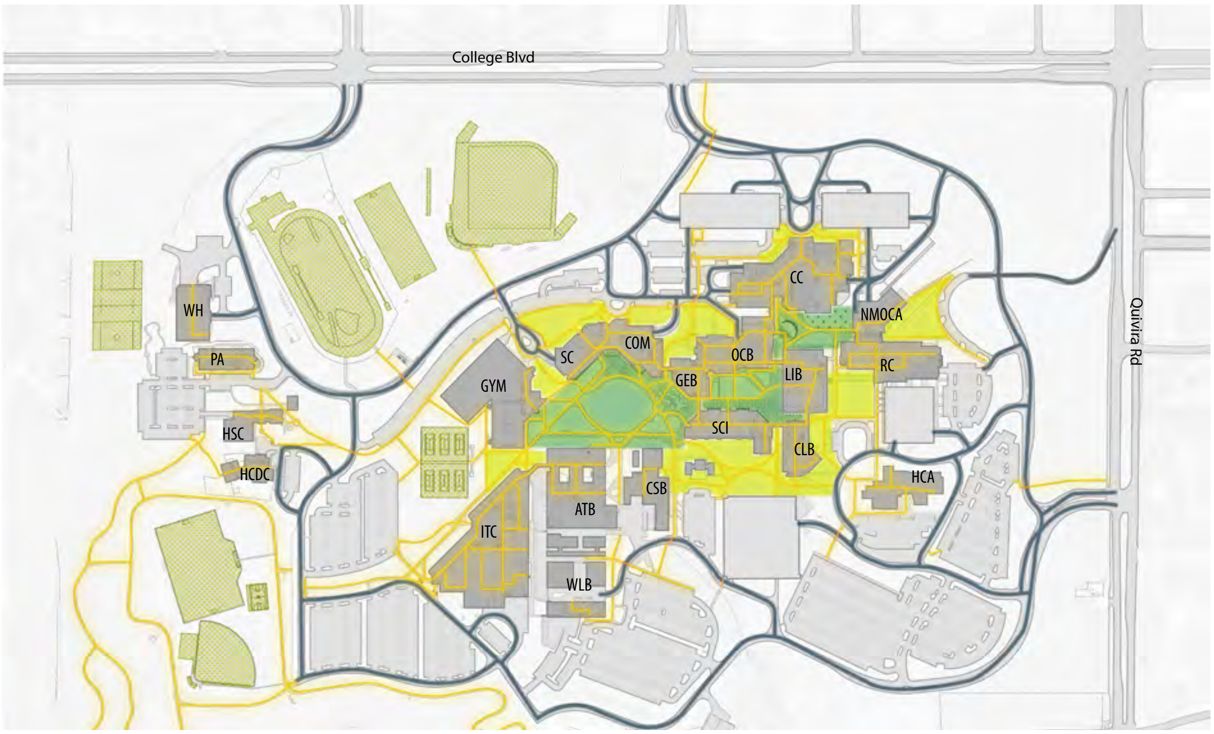
According to a transportation survey conducted in 2009, 97% of the students arriving to the Overland Park campus commuted by car. Per a 2011 Spring Traffic Study, the majority of vehicles used the Quivira Road or College Boulevard main entries. There is a disconnect regarding where vehicles are entering the campus (in the north and east) and where the majority of parking resources are located (in the south and southwest). The unbalanced parking distribution leads to confusing wayfinding, a general lack of visitor parking proximate to desired locations, and contrasting utilization patterns that are studied in the following section.



- Building Entrance
- Major Common Space
- Pedestrian Circulation
- Pedestrian Crossing
- Vehicular Circulation
- Bus Stops
- Bike Racks

Multi-Modal Circulation

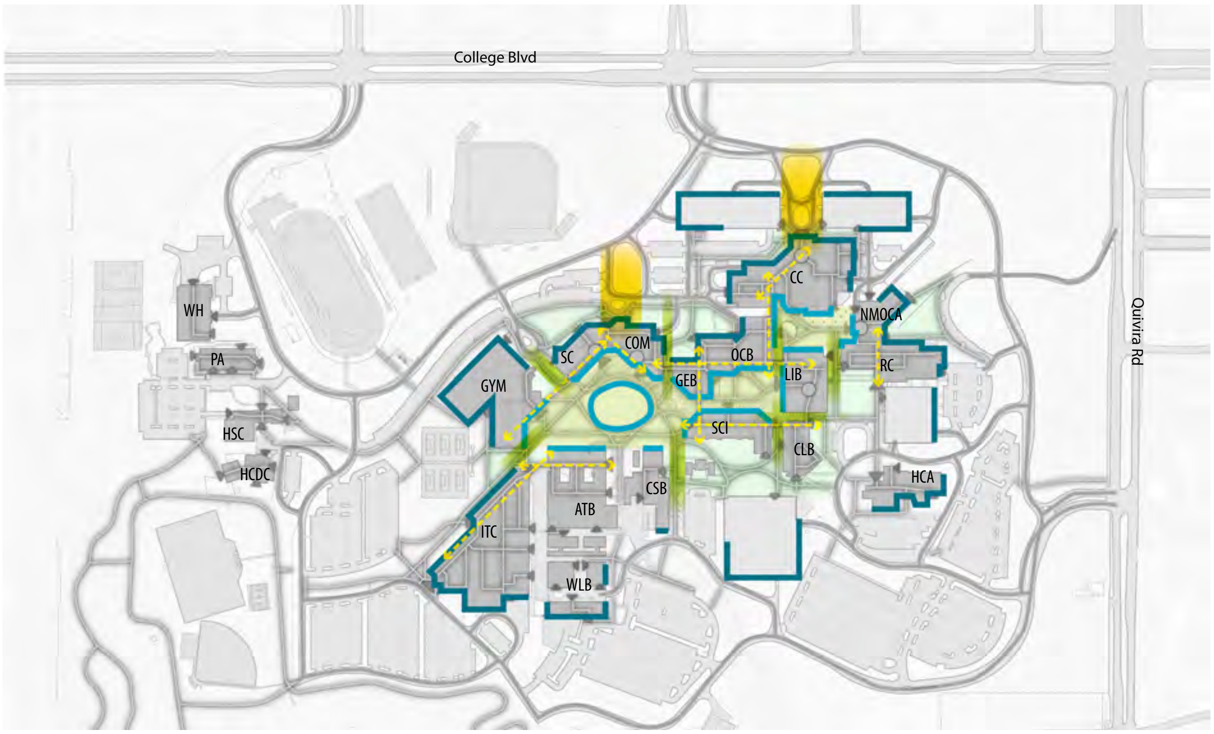
A well-established pedestrian circulation system in the campus core sufficiently connects the primary interior routes and generally high quality exterior environments in the courtyard. However, wayfinding can be challenging due to the lack of hierarchy and organization of these routes. There is also a general disconnect between a vehicular centered character on the loop road side of the campus and the pedestrian focused interior (or courtyard) side. The Master Plan seeks to rectify this disconnect as part of a recommendation to create a more intuitive wayfinding system.



Core Open Space
Gateway Open Space
Recreation/Athletics

Open Spaces

Centrally located and interconnected, courtyards in the campus core create important and quality outdoor spaces for students to study and socialize. These internal open spaces are defined by continuous building walls. Outside the campus core, limited landscape amenities are available, which contributes to very different experience between the "inside" and "outside" spaces.



External Space Boundary
Internal Space Boundary
Major Gateway Approach
Major View Corridor
Major Internal Circulation

Views and Wayfinding

Navigation on campus is less than ideal from both pedestrian and vehicular perspectives. Many of the focus groups highlighted this topic as one of the more important issues to address as part of the Master Plan.

Some of the wayfinding issues addressed as part of the Master Plan include:

- Campus gateways are not adequately celebrated
- Few visual connections guide wayfinding between the outside space and central campus courtyards
- Interior and exterior circulation axes change frequently between orthogonal and diagonal directions, which complicates pedestrian experience

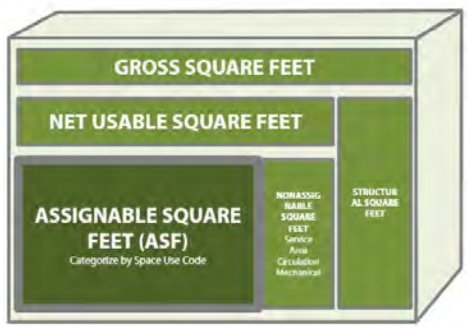
Space Utilization + Capacity

Conducted concurrently with the physical analysis of the campus, a space utilization assessment was completed. Space utilization measures the current use of existing facilities, benchmarked against standards that are informed by national, state, and college level guidelines. A thorough understanding of JCCC's space utilization serves as an analytical tool to determine space requirements and measures the viability of proposed alternatives. Space utilization components include:

- Defining Common Terminology
- Room Use by Facilities Inventory Classification Manual (FICM) Code
- Room Use by Discipline
- Space for Interaction and Collaboration
- Classroom Weekly Room Hours
- Classroom Efficiency
- Lab Weekly Room Hours
- Room and Parking Occupancy Dynamics

This section provides an overview of more detailed information presented in the Appendix to this document and serves as a foundation for the Space Needs Analysis in the following chapter.

Defining Common Terminology



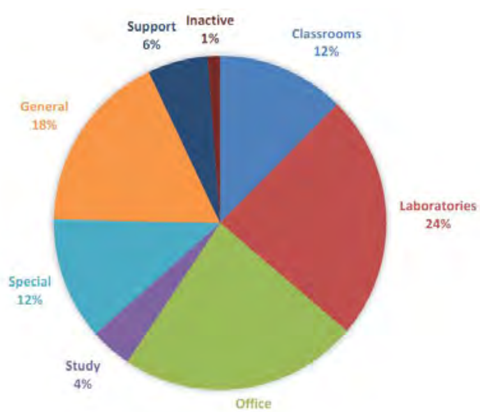
Space Area Definitions

Gross Square Feet (GSF):

- All space within a building's footprint

Assignable Square Feet (ASF):

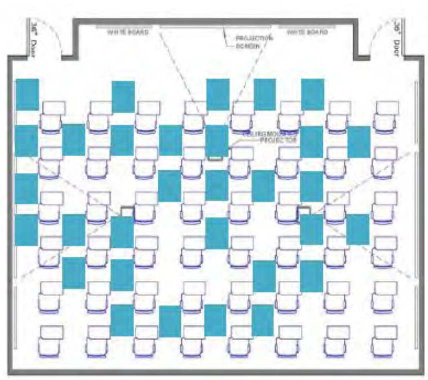
- Usable space assigned to a program
- Measured from inside wall to inside wall
- Excludes public restrooms, elevator area, stairwells, egress corridors, main circulation paths, mechanical/electrical/plumbing spaces, and structural areas



Space Use Codes

As a commonly-used taxonomy in higher education, FICM Code classifies campus spaces by their primary use. These generally include:

- 100 Classroom
- 200 Laboratories
- 300 Office
- 400 Study
- 500 Special Use
- 600 General Use
- 700 Support



Classroom Definitions

Weekly Room Hours

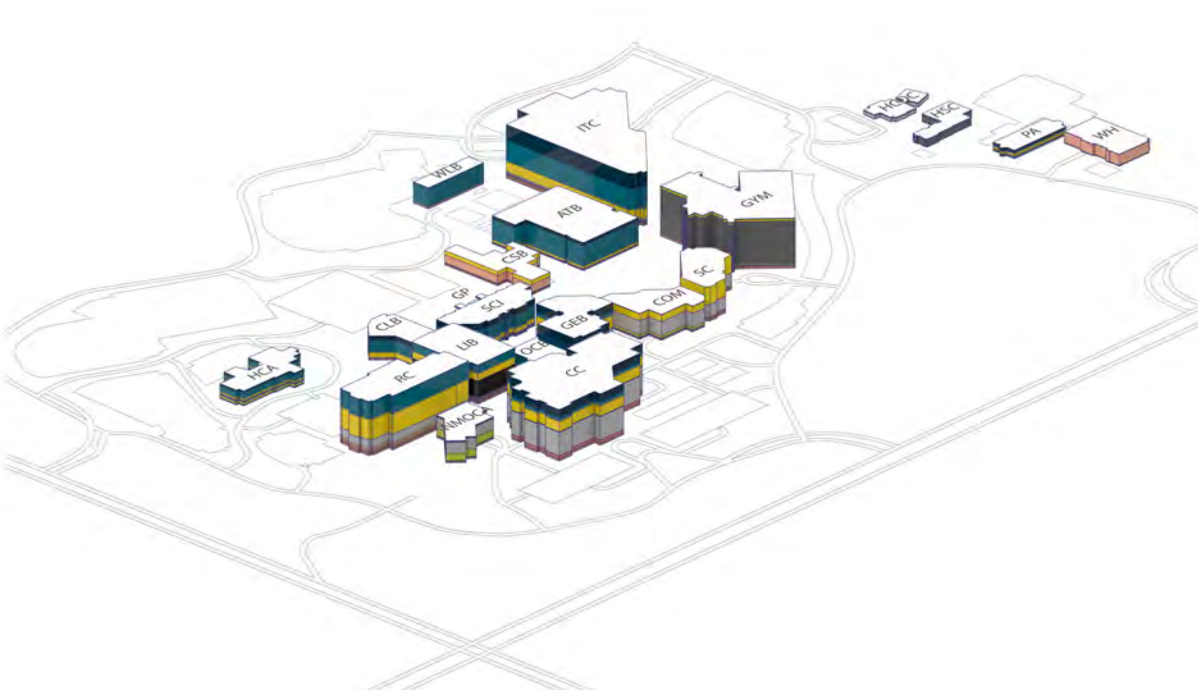
- The average number of hours per week a room is scheduled over a term or semester

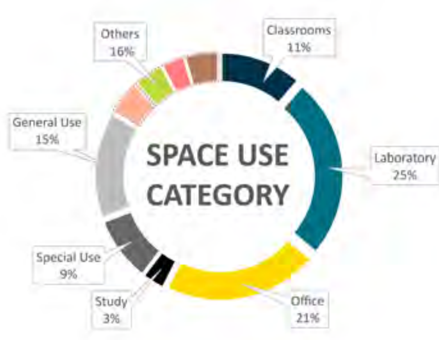
Student Station Occupancy

- The average percent of seats filled when a room is occupied during scheduled use

Assignable Square Feet (ASF) per Station

- The amount of space per student station



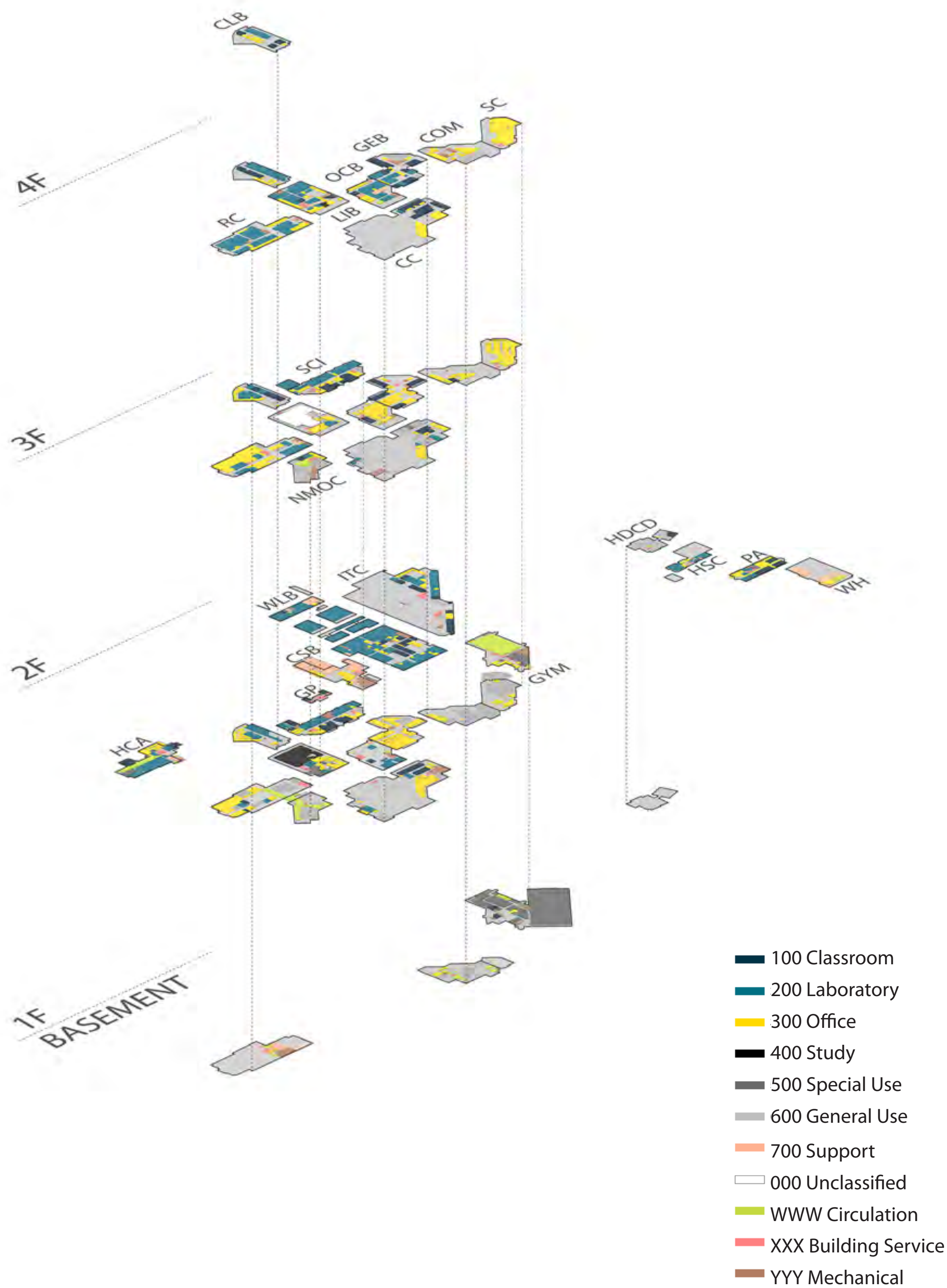


Percentage is based on square feet

Room Use by FICM Code

A campus-level analysis of room use revealed a general disconnect between instructional and academic support spaces. While major instructional spaces are distributed across most buildings in the south and the east, academic support spaces are generally concentrated in the north.

The above diagram depicts buildings as a "bar chart" highlighting percentage of FICM code space per building. The facing diagram provides additional detail by room by floor.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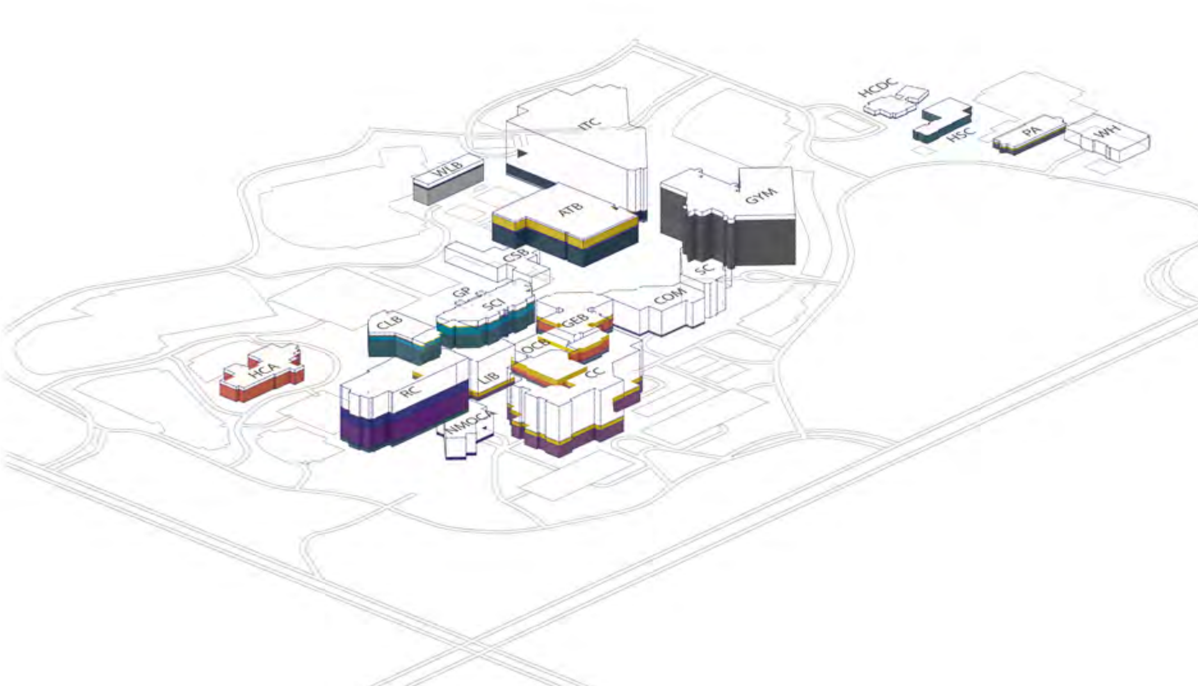
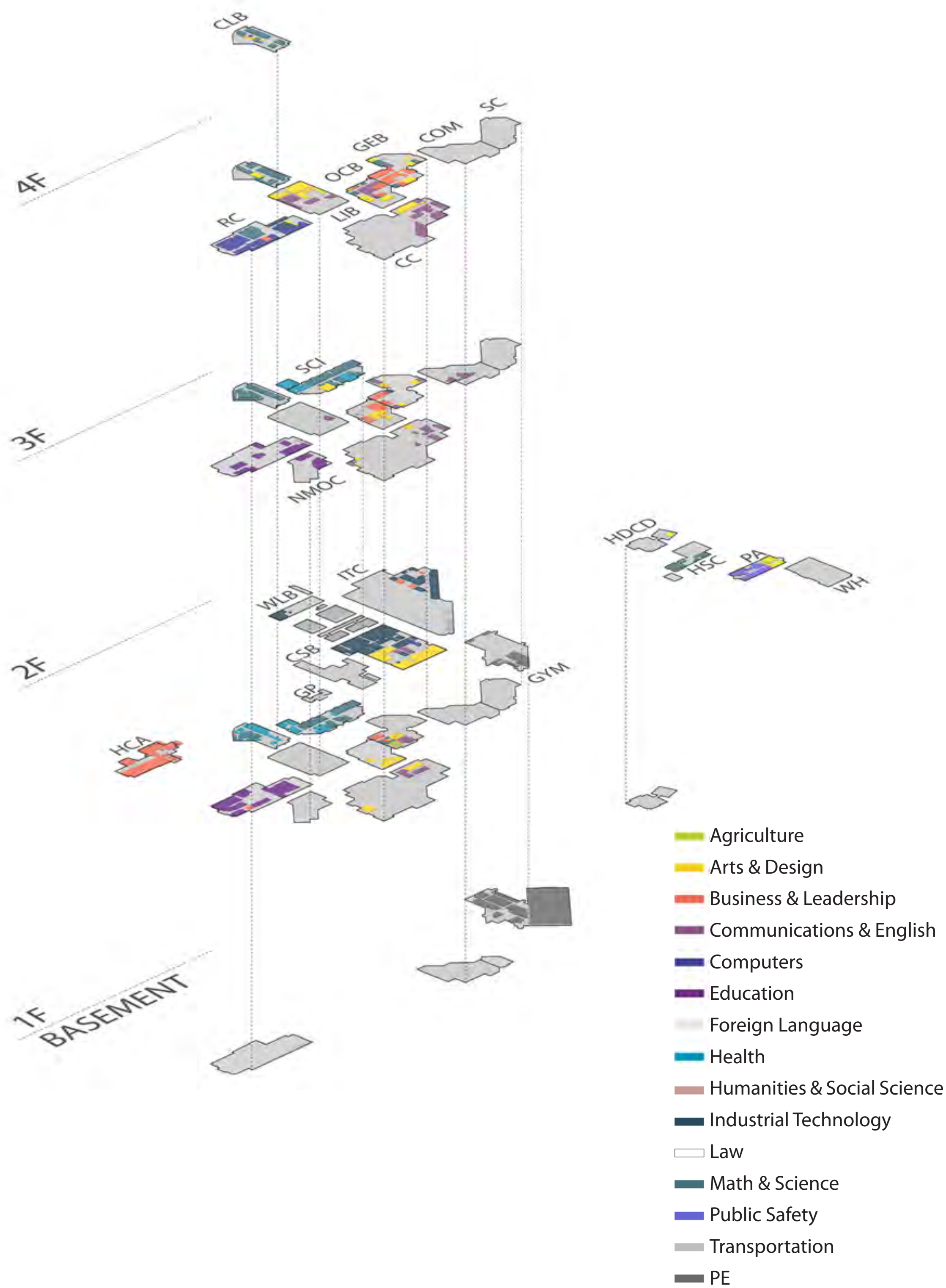
WLB
2F
CSB
GYM
GP
HCA
1F
BASEMENT
100 Classroom
200 Laboratory
300 Office
400 Study
500 Special Use
600 General Use
700 Support
000 Unclassified
WWW Circulation
XXX Building Service
YYY Mechanical



Percentage is based on square feet

Room Use by Discipline

The distribution of different disciplines on campus provides opportunities for both interdisciplinary collaboration and the creation of centers of excellence. Clustering occurs for divisions including Communications, English and Journalism, Science & Math, Healthcare Professions and Wellness, and Industrial Technology. Some other divisions, such as Arts, Humanities and Social Sciences, and Business & Technology, are dispersed. The Master Plan ideas explore both of these divergent organizing ideas as part of future planning considerations.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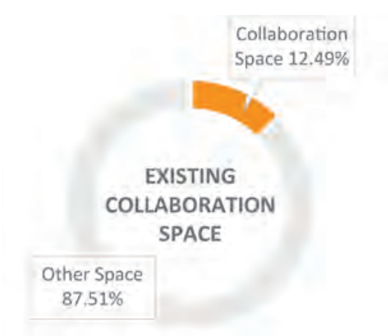
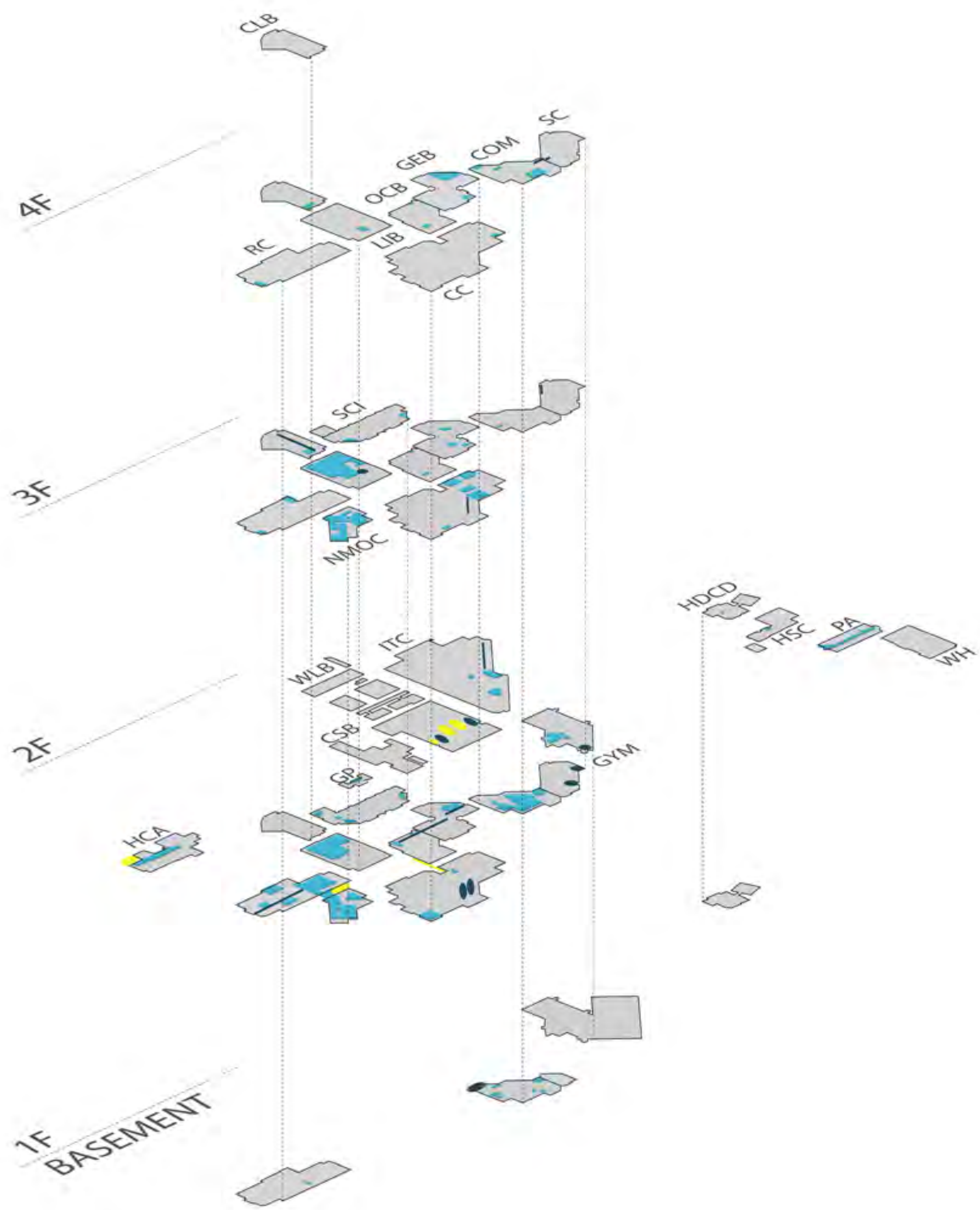
GYM
HCA
HDCD
HSC
PA
WH
1F
BASEMENT
Agriculture
Arts & Design
Business & Leadership
Communications & English
Computers
Education
Foreign Language
Health
Humanities & Social Science
Industrial Technology
Law
Math & Science
Public Safety
Transportation
PE



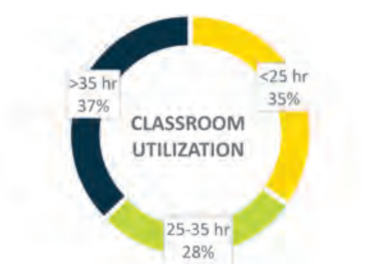
Percentage is based on square feet

Space for Interaction and Collaboration

Changing technologies and pedagogies require a higher need for collaboration spaces on campus. Under 13% of current space on campus can be identified as "collaboration space." Spaces highlighted in the diagrams include assignable spaces and “unowned” spaces. “Unowned” spaces refer to corridors, lobbies, outdoor spaces that can contribute to collaboration and interaction. More collaboration space opportunities exist on first and second floors of the buildings on the north side of the campus. The above diagram depicts a higher percentage of collaboration space on the north side of campus and a general lack of collaboration space proximate to learning space to the south. The facing diagram provides additional information regarding the typologies of existing collaboration space by floor.



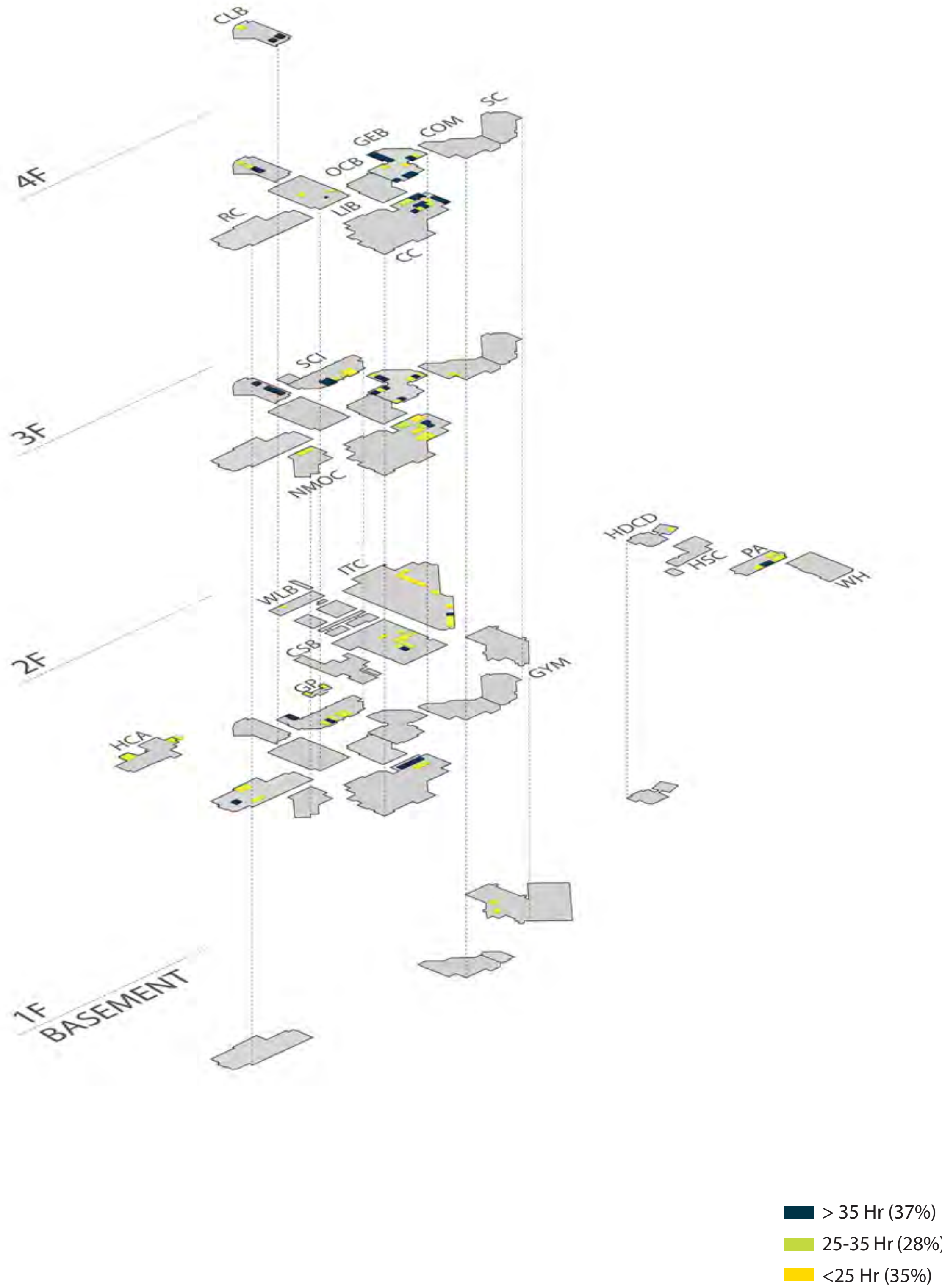
Enclosed Interior Space
Corridor Space with Furnishing
Open Interior Space with Furnishing
Exterior Space



Percentage is based on the quantity of classrooms

Classroom Weekly Room Hours

Weekly room hours describes the average number of hours per week a room is scheduled. Analysis reveals that more than a third of classrooms are scheduled for less than 25 hours per week for credit and non-credit courses. These classrooms may be improved through reconsideration of layout, furnishing or adjacency. The above and facing diagrams depicts more efficient classrooms (in dark blue) and less efficient classrooms (in yellow). Data analysis and site observation informed the classroom initiatives in the following chapter.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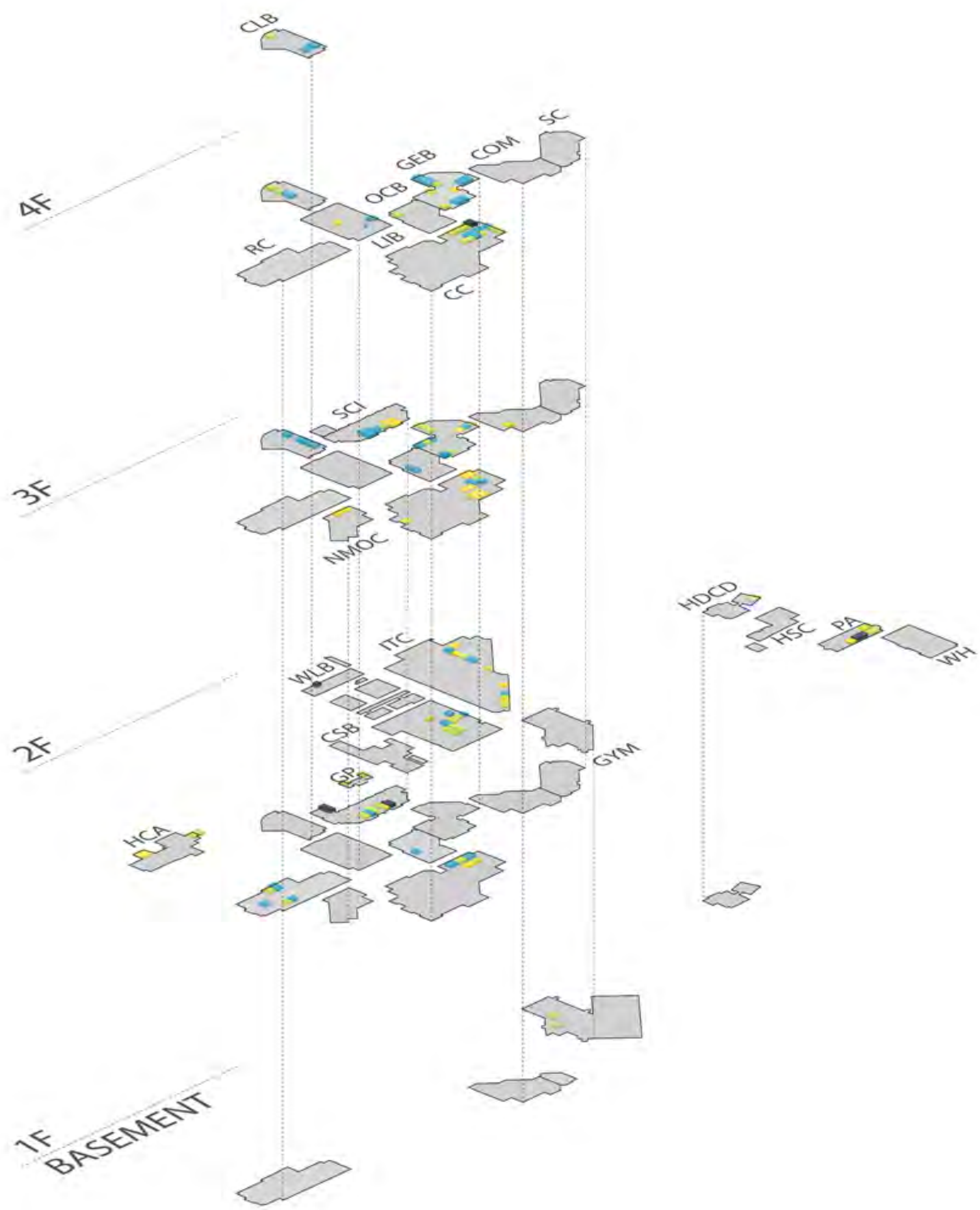
WLB
2F
CSB
GYM
GP
HCA
1F
BASEMENT
> 35 Hr (37%)
25-35 Hr (28%)
<25 Hr (35%)

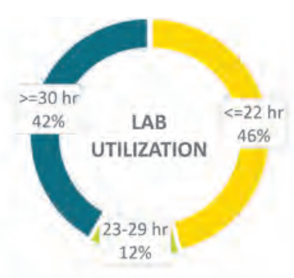
Percentage is based on the quantity of classrooms

Classroom Efficiency

Classroom efficiency percentage was calculated and compared with an established standard of 34 room hours, 68% station occupancy at 26 ASF/station. The buildings with highest classroom efficiency are SCI, CLB and OCB. Low-efficiency classrooms are dispersed across the campus, which indicates opportunities to retrofit them to collaboration spaces.



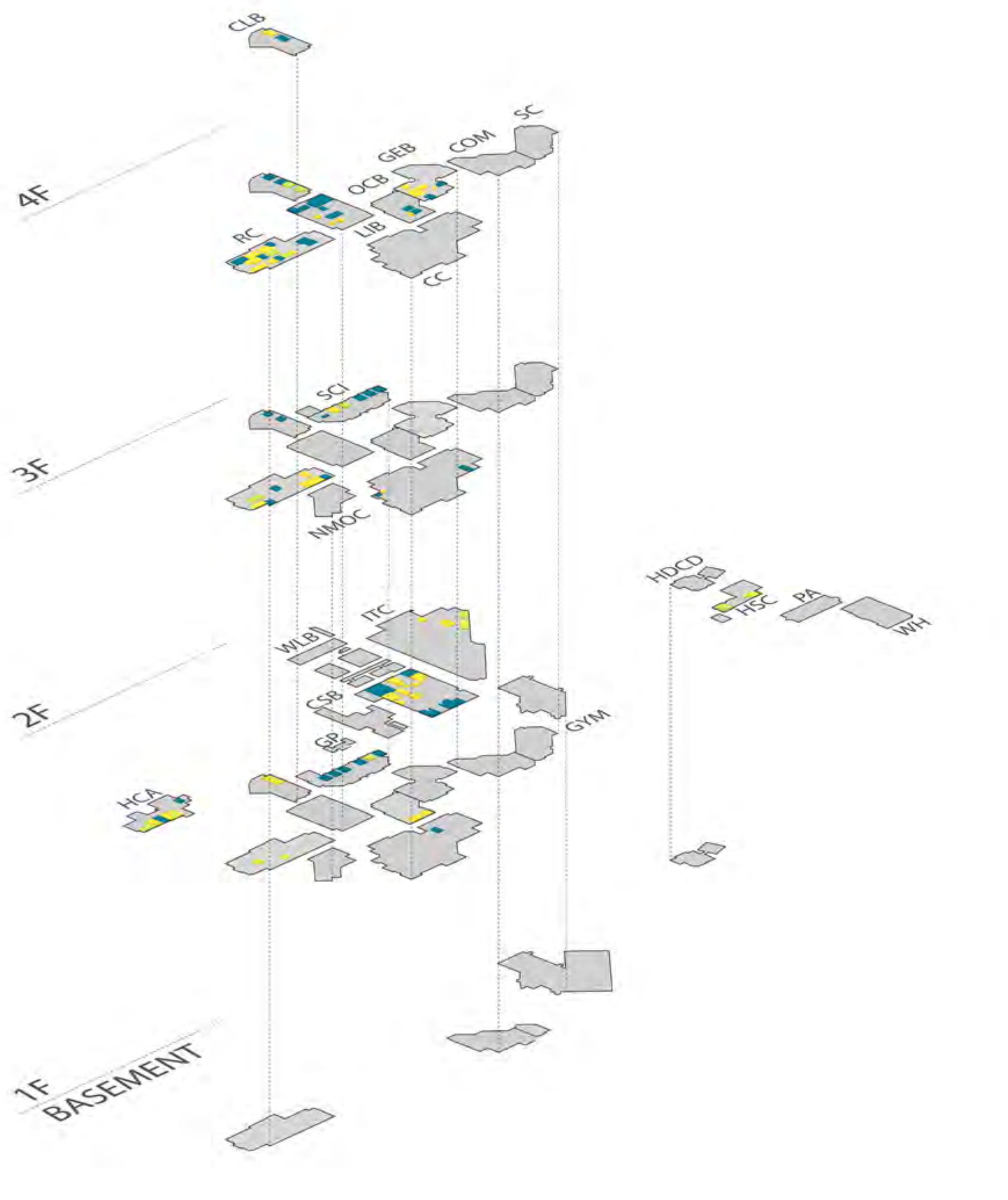
> 120% Efficiency
100%-119.99% Efficiency
80%-99.99% Efficiency
<80% Efficiency



Percentage is based on the quantity of classrooms

Lab Weekly Room Hours

The weekly room hours for labs represents the number of hours that the 124 class labs are scheduled for instructional activities. Although there are some underutilized labs across the campus, the average weekly room hour utilization is equal or higher than most established guidelines. Spatial analysis shows that number of class labs with low weekly room hours are clustered in ATB, ITC, and RC.

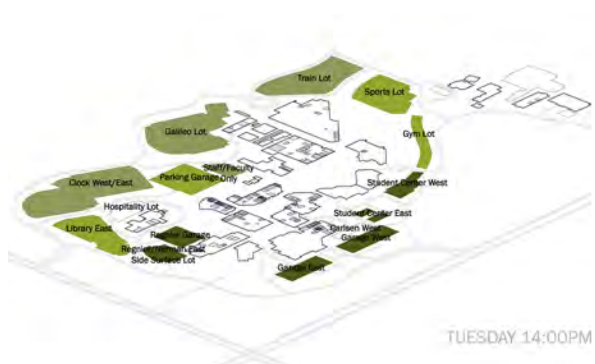


CLB
4F
GEB
COM
SC
OCB
LIB
RC
CC
SCI
3F
NMOC
HDCD
HSC
PA
WH
ITC
WLB
2F
CSB
GYM
GP
HCA
1F
BASEMENT
>=30 Hr (42%)
23-29 Hr (12%)
<=22 Hr (46%)

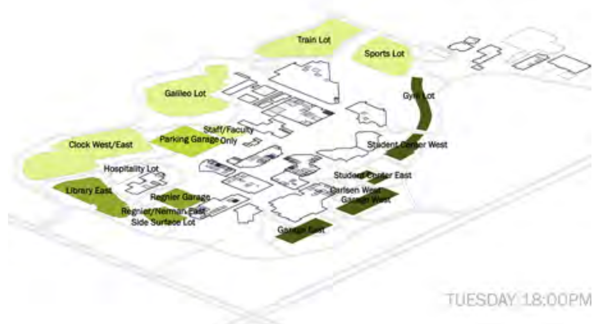

Train Lot
Sports Lot
Galileo Lot
Gym Lot
Staff/Faculty
Parking Garage Only
Clock West/East
Student Center West
Hospitality Lot
Student Center East
Library East
Carlsen West
Garage West
Regnier Garage
Regnier/Nerman East
Side Surface Lot
Garage East
TUESDAY 8:00AM

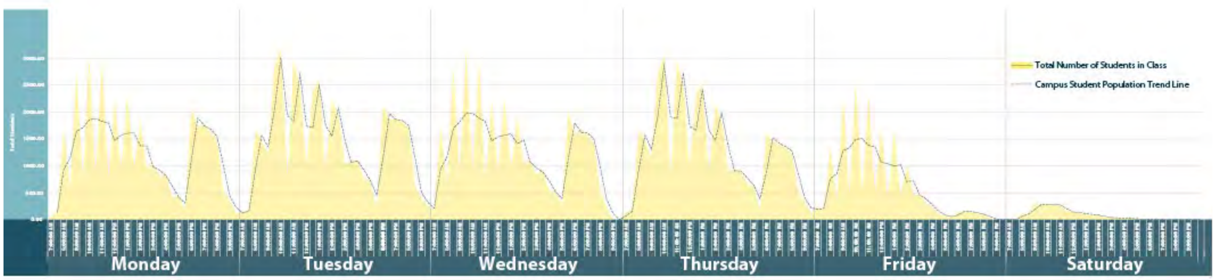

Train Lot
Sports Lot
Galileo Lot
Gym Lot
Staff/Faculty
Parking Garage Only
Clock West/East
Student Center West
Hospitality Lot
Student Center East
Library East
Carlsen West
Garage West
Regnier Garage
Regnier/Nerman East
Side Surface Lot
Garage East
TUESDAY 10:00AM


Train Lot
Sports Lot
Galileo Lot
Gym Lot
Staff/Faculty
Parking Garage Only
Clock West/East
Student Center West
Hospitality Lot
Student Center East
Library East
Carlsen West
Garage West
Regnier Garage
Regnier/Nerman East
Side Surface Lot
Garage East
TUESDAY 12:00PM


Train Lot
Sports Lot
Galileo Lot
Gym Lot
Staff/Faculty
Parking Garage Only
Clock West/East
Student Center West
Hospitality Lot
Student Center East
Library East
Carlsen West
Garage West
Regnier Garage
Regnier/Nerman East
Side Surface Lot
Garage East
TUESDAY 14:00PM


Train Lot
Sports Lot
Galileo Lot
Gym Lot
Staff/Faculty
Parking Garage Only
Clock West/East
Student Center West
Hospitality Lot
Student Center East
Library East
Carlsen West
Garage West
Regnier Garage
Regnier/Nerman East
Side Surface Lot
Garage East
TUESDAY 16:00PM


Train Lot
Sports Lot
Galileo Lot
Gym Lot
Staff/Faculty
Parking Garage Only
Clock West/East
Student Center West
Hospitality Lot
Student Center East
Library East
Carlsen West
Garage West
Regnier Garage
Regnier/Nerman East
Side Surface Lot
Garage East
TUESDAY 18:00PM



Weekly Campus Student Population Trend

- >= 100% Utilization
- 75%-99% Utilization
- 50%-64% Utilization
- 25%-49% Utilization
- <25% Utilization
- Lack of Data
- Student in Classrooms

Room and Parking Occupancy Dynamics

The high correlation between classroom utilization and parking occupancy throughout the day indicates that class scheduling drives parking utilization. North parking areas remain at capacity at most times of the day, while the utilization in southern and more remote parking drops significantly in the afternoon. Contributing factors to the underutilization of southern parking include the disconnection between primary vehicle gateways and parking resources, and the misalignment between classroom and parking location.

CHAPTER 2

VISION FOR THE FUTURE


Do you know your
top 5 strengths?
I do.
Empathy
Woo
Relator
Includer
Restorative

02 | Vision for the Future

This chapter describes the drivers, guiding principles, planning concepts and planning initiatives as part of the Master Plan. Analytical findings and space needs assumptions provide a foundation for future change, emphasizing empirical and data-driven strategies to evaluate planning initiatives identified in this report and future initiatives not identified within.

The Master Plan proposes planning initiatives that are both visionary and implementable. The ideas represent key solutions applicable to specific campus locations, which will also contribute to a holistic development of campus-wide systems.

A Framework for Change

The Master Plan is built on an understanding of 21st century pedagogies that emphasize unique, high-impact learning experiences and result in real-world solutions. JCCC's mission and values are reflected in the guiding principles, which, in turn, informs the conceptual frameworks of the Master Plan.

Guiding Principles

The master planning principles convey the intent, goals, and long-term values of JCCC. These principles embody visionary ideas regarding campus enhancement, preservation, and transformation opportunities. The key themes, goals and objectives were developed early in the process in conjunction with the various committees, and served as the guiding framework from which specific campus systems recommendations were derived.

[QUALITY]	Provide 21st century spaces to teach, learn, study, work, collaborate
[UTILIZATION]	Improve the utilization of campus space throughout the day
[TYPE]	Align facilities with college/program goals
[LOCATION]	Develop appropriate programmatic adjacencies
[EXPERIENCE]	Make the campus more welcoming, navigable and attractive
[COMMUNITY]	Encourage community engagement
[SUSTAINABILITY]	Achieve a more sustainable campus
[FEASIBILITY]	Optimize cost and implementation feasibility
[ADAPTABILITY]	Maximize flexibility for future growth

Master Plan Concept

The fundamental concept of the Master Plan translates guiding principles into an inspiring vision that reinforces JCCC's goals and values. With respect to the historic inner campus core, the Master Plan envisions three distinct but connected campus neighborhoods to promote centers of excellence and improve campus legibility.

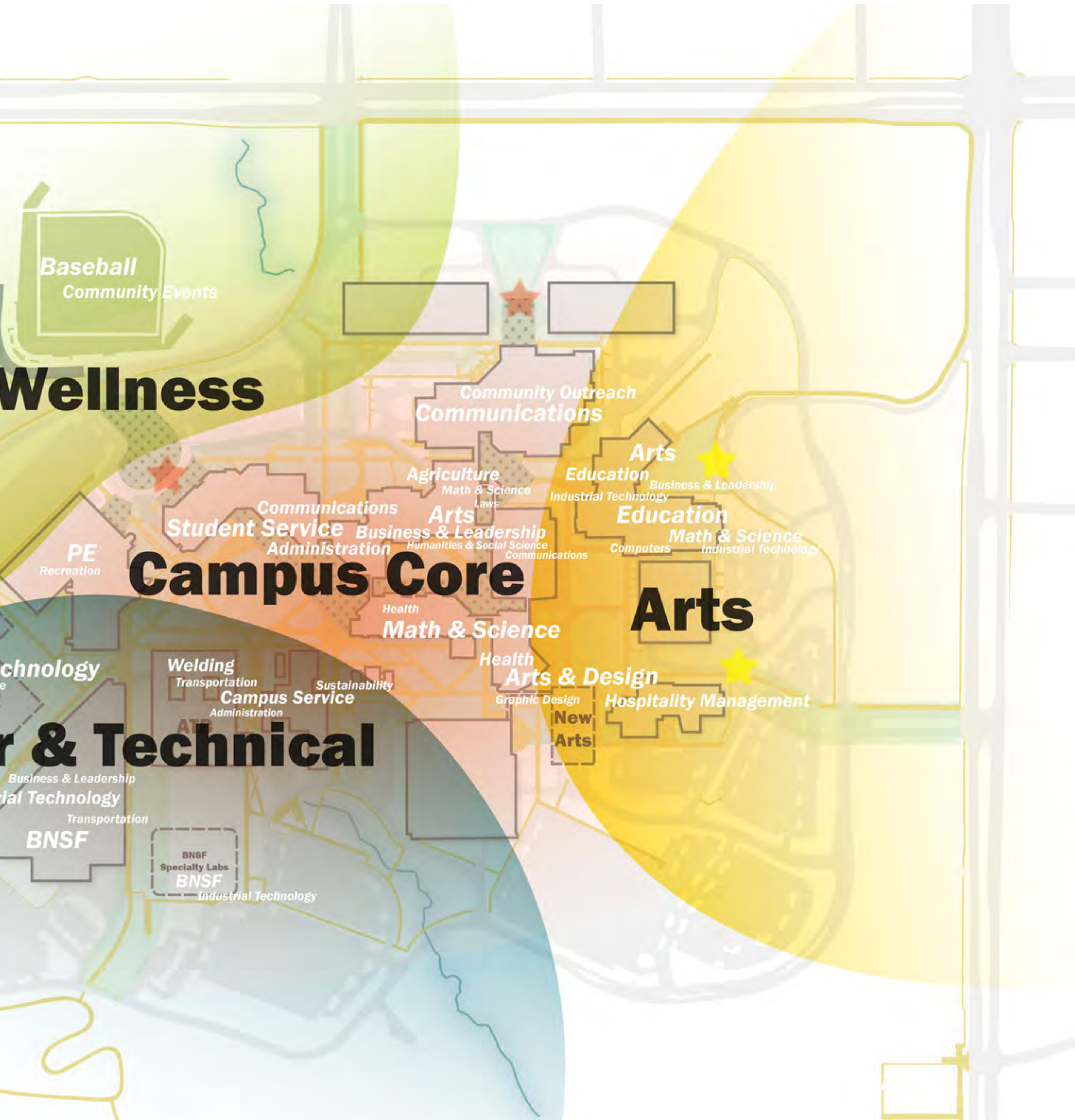
[Campus Core] The Master Plan preserves and enhances the well-established campus core. Initiatives will activate the first two floors, improve pedestrian connectivity, enhance interior common space, and optimize the campus courtyard to re-invigorate the campus core.

[Career & Technical] Anchored by a proposed new CTE building, the Career & Technical neighborhood emphasizes JCCC's commitment to technology and innovation. Shared resources with BNSF and adjacencies to the core will contribute to the culture of collaboration.

[Arts] A proposed new Arts building will strengthen the presence of arts on the eastern side of the campus, allowing Fine Arts programs to synergize with existing venues and arts assets.

[Community & Wellness] The Master Plan consolidates the athletic facilities on the College Boulevard frontage to enhance operational efficiency and community engagement. The neighborhood will promote JCCC's image and identity as an important community interface.

The Master Plan concept is supported by space needs guidelines and nine strategic and implementable initiatives that will be elaborated in this chapter.


Baseball
Community Events
Wellness
Community Outreach
Communications
Arts
Agriculture
Math & Science
Laws
Education
Business & Leadership
Industrial Technology
Communications
Student Service
Arts
Business & Leadership
Administration
Humanities & Social Science
Communications
Education
Math & Science
Computers
Industrial Technology
PE
Recreation
Campus Core
Arts
Health
Math & Science
chnology
Welding
Transportation
Sustainability
Campus Service
Administration
Health
Arts & Design
Graphic Design
Hospitality Management
New
Arts
r & Technical
Business & Leadership
rial Technology
Transportation
BNSF
BNSF
Specialty Labs
BNSF
Industrial Technology

Space Needs Guidelines

Built on a robust space utilization study and future enrollment and staffing projections, space needs analysis were developed for 15 primary space categories. The planning team compared recognized guideline sources and incorporated new pedagogical trends into the space modeling. The amount of space required over the next 10 years was compared to the existing space on campus to illustrate surplus or deficits of space by space category. The guidelines inform efficient space allocation and provide critical foundations for campus planning initiatives. Space categories include:

- Classrooms & Service
- Class Labs & Service
- Academic Achievement Laboratories
- Instructional/Testing Open Laboratories & Service
- Offices & Service
- Supplemental Instruction
- Library/Learning Commons
- Physical Education, Recreation, Athletics
- Video and Media Productions & Service
- Assembly, Exhibition & Service
- Social & Study Space
- Meeting Rooms & Service
- Central Computer & Service
- Facilities Maintenance & Service
- Student Union

MASTER PLAN ENROLLMENT ASSUMPTIONS

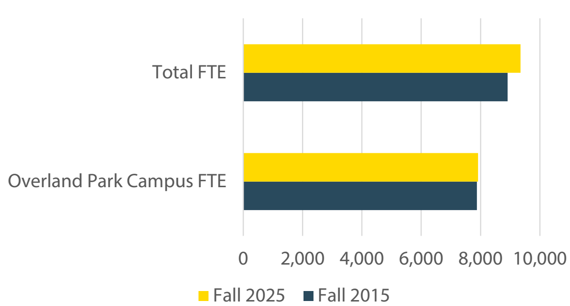
Fall Semester	Overland Park Campus FTE	Overland Park and Centers FTE	Total FTE (excluding High Schools)
Fall 2015	7,875	8,197	8,912
Fall 2025	7,491	7,919	9,349
% Change	**-4.9%**	**-3.4%**	**4.9%**

Term FTE = credit hours /15

CAMPUS MASTER PLAN STAFFING ASSUMPTONS-OVERLAND PARK CAMPUS

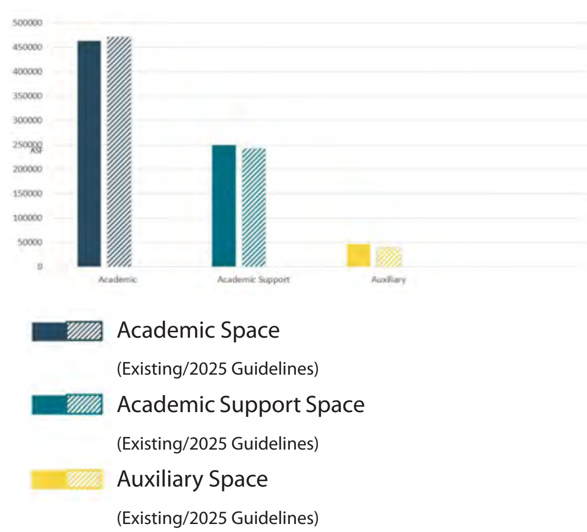
Employee Classification	% Growth	Fall 2015	Fall 2025	Change in Positions 2015 -2025
Administrative/Management	1.0%	253	256	3
Full-Time Faculty 12, 10 & 9 Month Bargaining Unit	1.5%	305	310	5
Full-Time Hourly Staff and FT Temp Hourly	1.0%	329	332	3
Full-Time Temp Salaried	2.0%	31	32	1
Part-Time Hourly Regular Staff	1.0%	354	358	4
Part-Time Temporary Staff	1.7%	549	558	9
Part-Time Faculty Salaried	2.0%	722	736	14
College Work-Study	1.5%	57	58	1
Librarians and Library Aides (all titles)	2.0%	31	32	1
Total		**2,631**	**2,671**	**40**

2015 Data Source: JCCC Staffing File for Campus Master Plan Analysis



Enrollment and Staffing Projections

Fall term 2015 serves as the baseline for the space needs analysis. Over the 10-year planning time frame, projections show a moderate decrease of full-time equivalent (FTE) students on the Overland Park campus, due to a projected increase in on-line course offerings. These student and staff population changes drive future space demand on campus illustrated in the following pages.

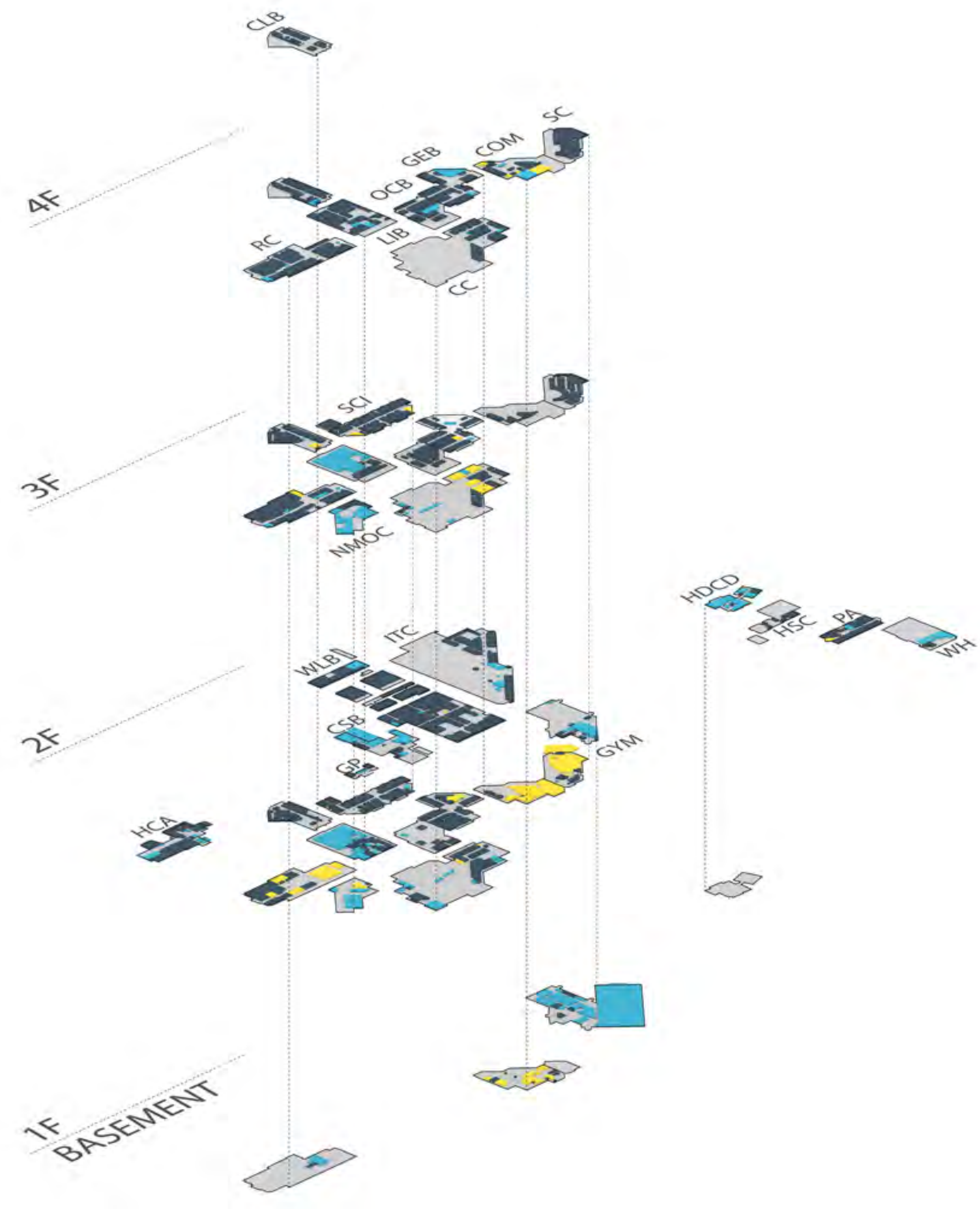


2025 Space Needs Analysis

The space needs analysis predicts a total need for 808,230 ASF for Fall 2025, a 5% deficit of 39,215 ASF when compared to existing space of 758, 546 ASF. A review of first-tier space categories indicates:

- Academic Space: 49,485 ASF (10% deficit)
- Academic Support Space: 2,510 ASF (1% deficit)
- Auxiliary Space: 7,760ASF (15% surplus)

Space needs numbers must be studied in conjunction with the space distribution pattern. The surpluses in auxiliary and academic support categories do not preclude creating new auxiliary or academic support spaces, since current spaces may not be appropriately located. The Master Plan recommends a holistic view that includes realignment of campus spaces and functions based on space quantity, quality, and location.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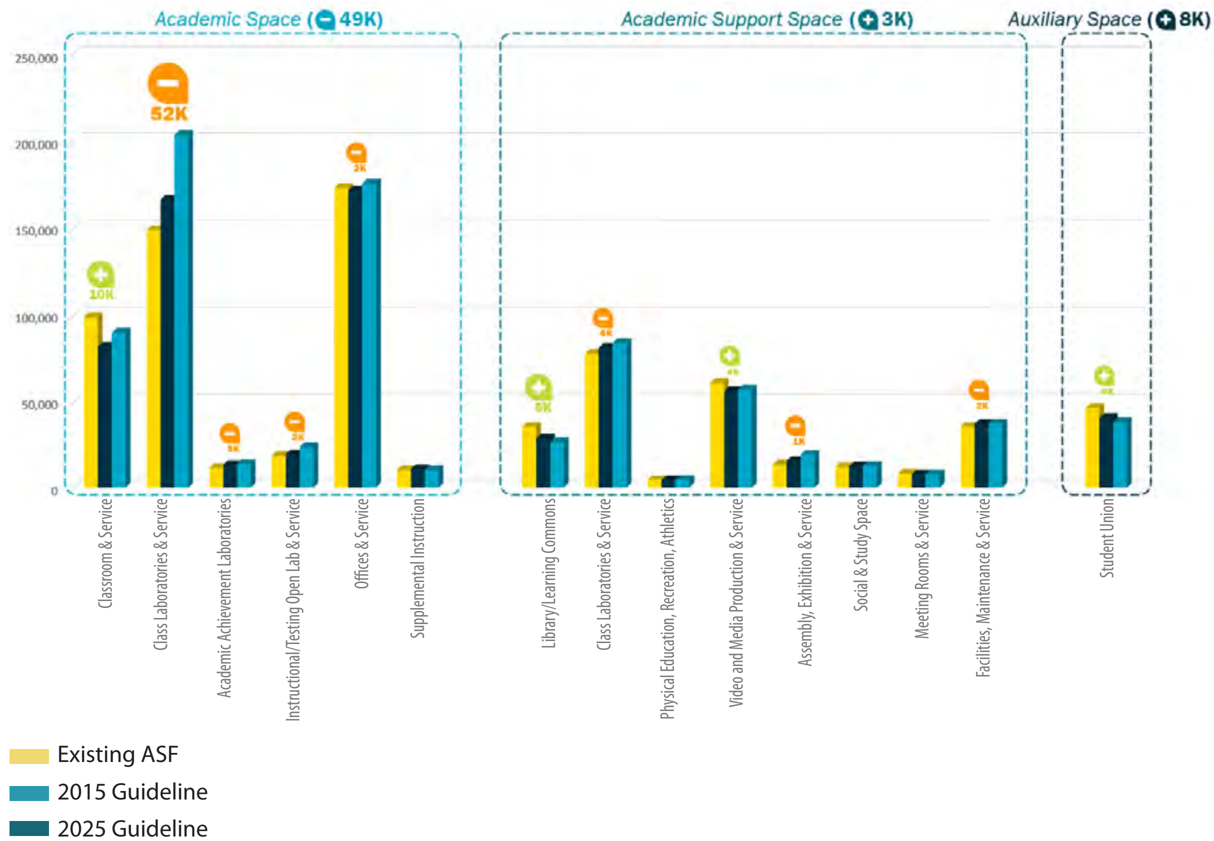
BASEMENT

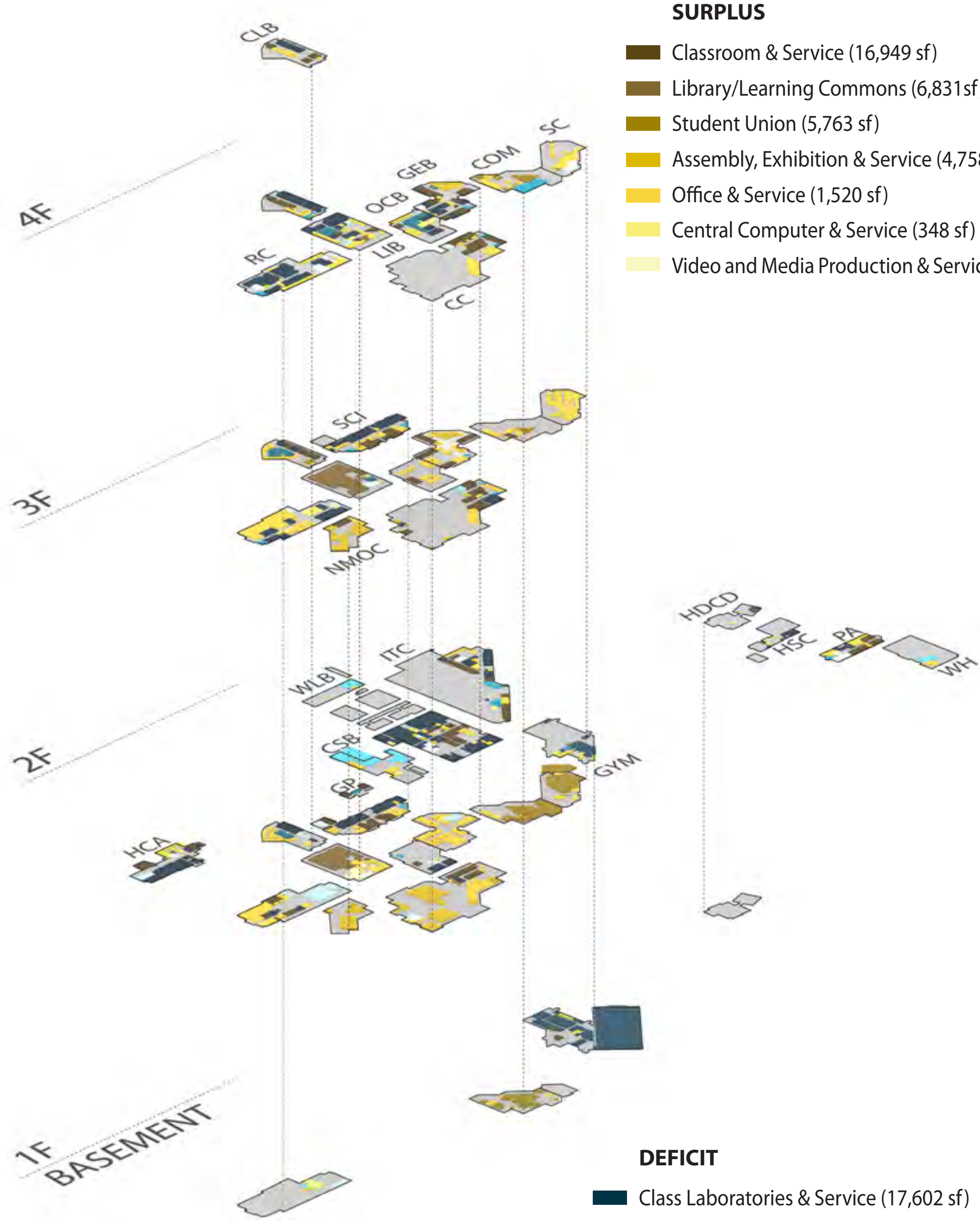


Space needs analysis indicates the following space deficits or surpluses in the second-tier space categories:

- Significant surplus in Classrooms & Service, Library/ Learning Commons, and Student Union
- Minor surplus in Assembly, Exhibition & Service
- Significant deficit in Class Labs & Service
- Minor deficit in Academic Achievement Laboratories, Instructional/Testing Open Laboratories & Service, Offices & Service, Physical Education, Recreation, Athletics, Social & Study Space, and Facilities Maintenance & Service

Overlaying space needs characteristics to space distribution mapping, potential physical planning opportunities include:

- Construct a New CTE building to provide more lab spaces
- Renovate classrooms to class labs, study or collaborative spaces
- Renovate student union, open lab and library spaces to collaborative spaces



SURPLUS

- Classroom & Service (16,949 sf)
- Library/Learning Commons (6,831sf)
- Student Union (5,763 sf)
- Assembly, Exhibition & Service (4,758 sf)
- Office & Service (1,520 sf)
- Central Computer & Service (348 sf)
- Video and Media Production & Service (157 sf)

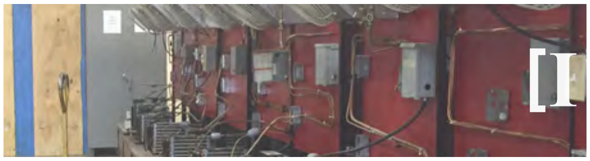
DEFICIT

- Class Laboratories & Service (17,602 sf)
- Physical Education, Recreation, Athletics (3,659 sf)
- Academic Achievement Laboratories (2,234 sf)
- Social & Study Space (2,127 sf)
- Facilities, Maintenance & Service (1,756 sf)
- Supplemental Instruction (503 sf)
- Meeting Rooms & Service (445 sf)
- Instructional/Testing Open Lab (308 sf)

Planning Initiatives

Guided by planning concepts and space needs analysis, the Master Plan proposes nine initiatives that address key improvements for campus systems and facilities. The Master Plan outlines implementable strategies and defensible metrics to support the initiatives. Driven by guiding principles and fundamental objectives, the initiatives function coherently, and contribute to the overall quality and character of the future campus environment.

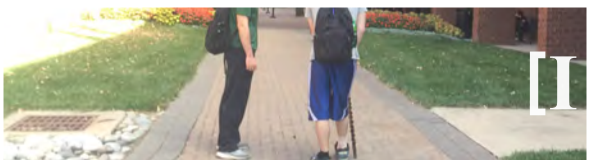
Planning initiatives are not shown in order; however, initiatives have been separated as tier I initiatives (Ia-Id) and tier II initiatives (IIa-IIe).



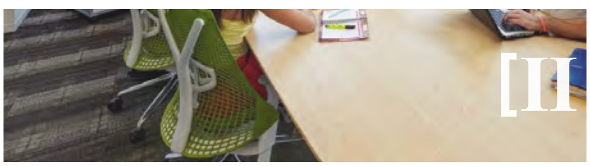
[I a] Establish Centers of Excellence for ***CTE and Arts***

[I b] Prioritize ***Active Learning Classrooms***

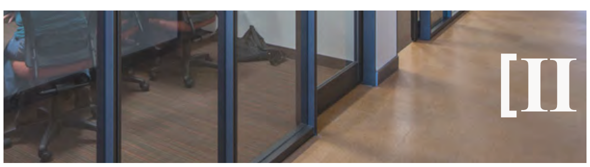
[I c] Realign ***Academic Resource Centers***



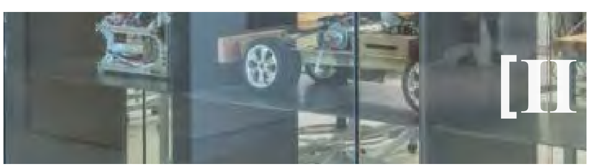
[I d] Enhance Campus ***Front Door and Wayfinding***



[II a] Activate ***Collaboration Spaces***

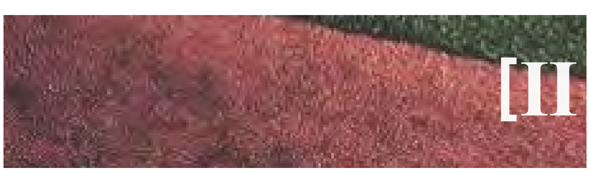


[II b] Optimize ***Offices***



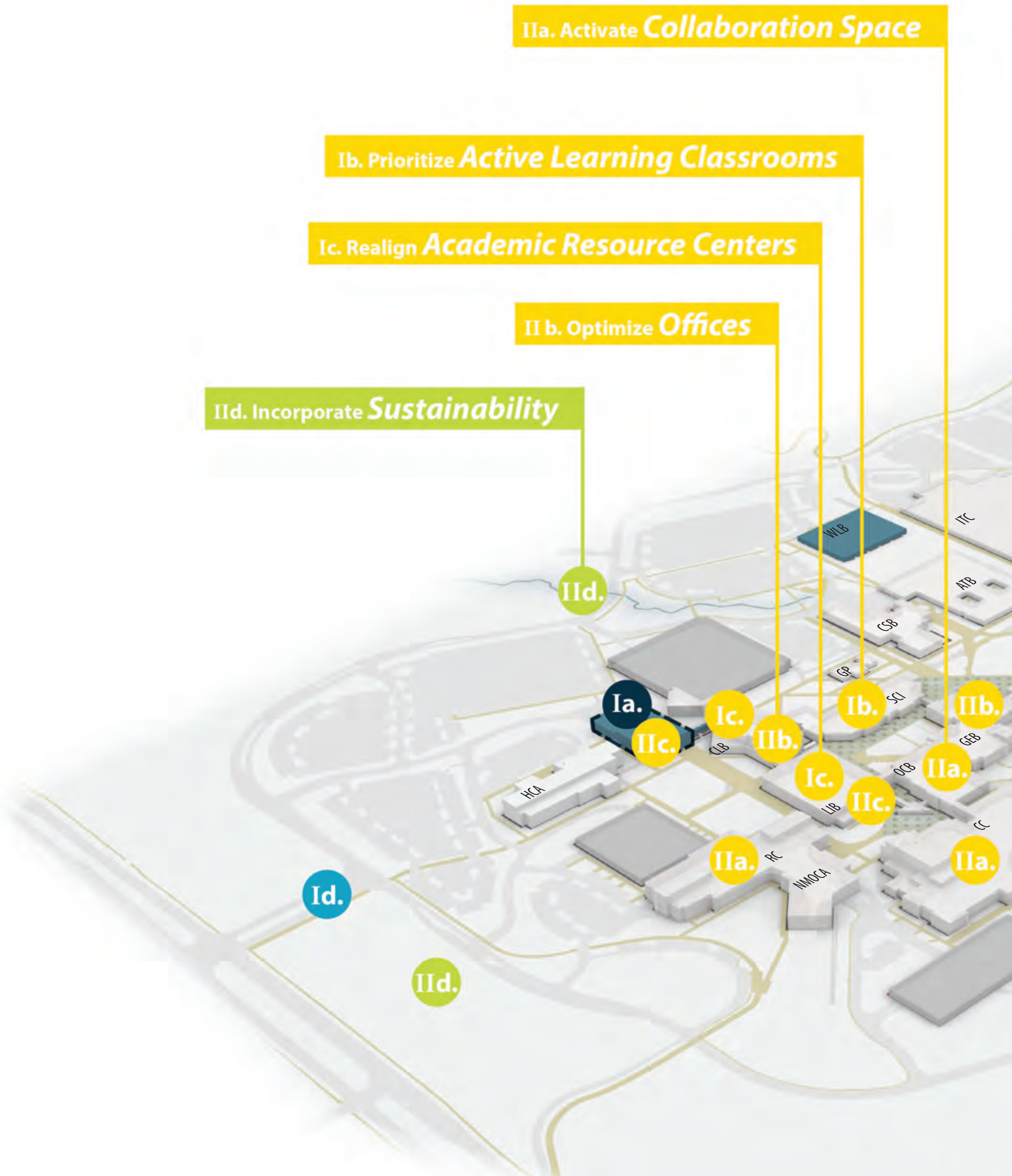
[II c] Create ***Maker Spaces***

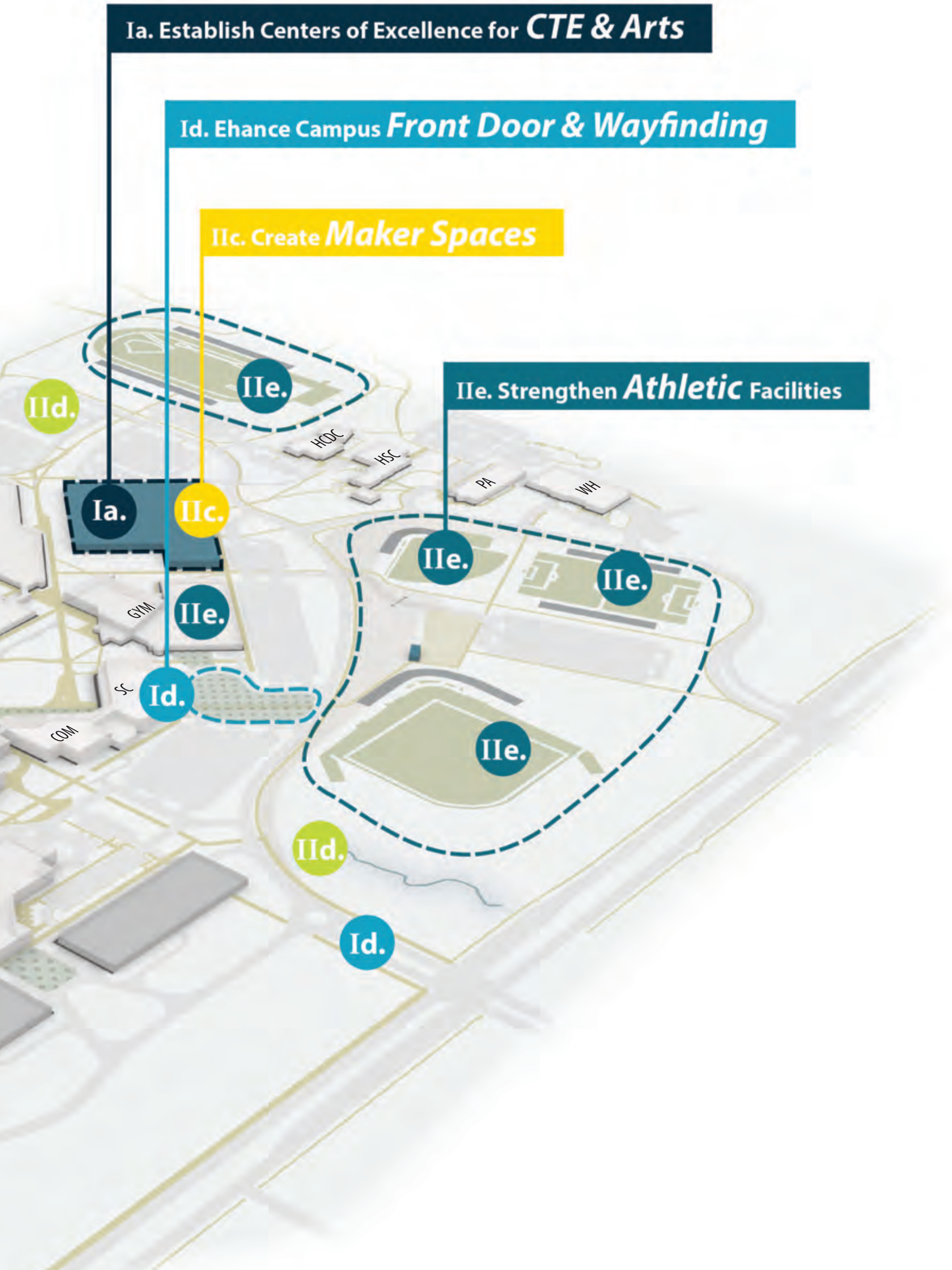
[II d] Incorporate ***Sustainability***



[II e] Strengthen ***Athletic*** Facilities

Initiatives





Ia. Establish Centers of Excellence for CTE & Arts
Id. Ehance Campus Front Door & Wayfinding
IIc. Create Maker Spaces
IIe. Strengthen Athletic Facilities
IId.
IIe.
HCDC
HSC
PA
WH
Ia.
IIc.
IIe.
IIe.
GYM
IIe.
SC
Id.
COM
IIe.
IId.
Id.

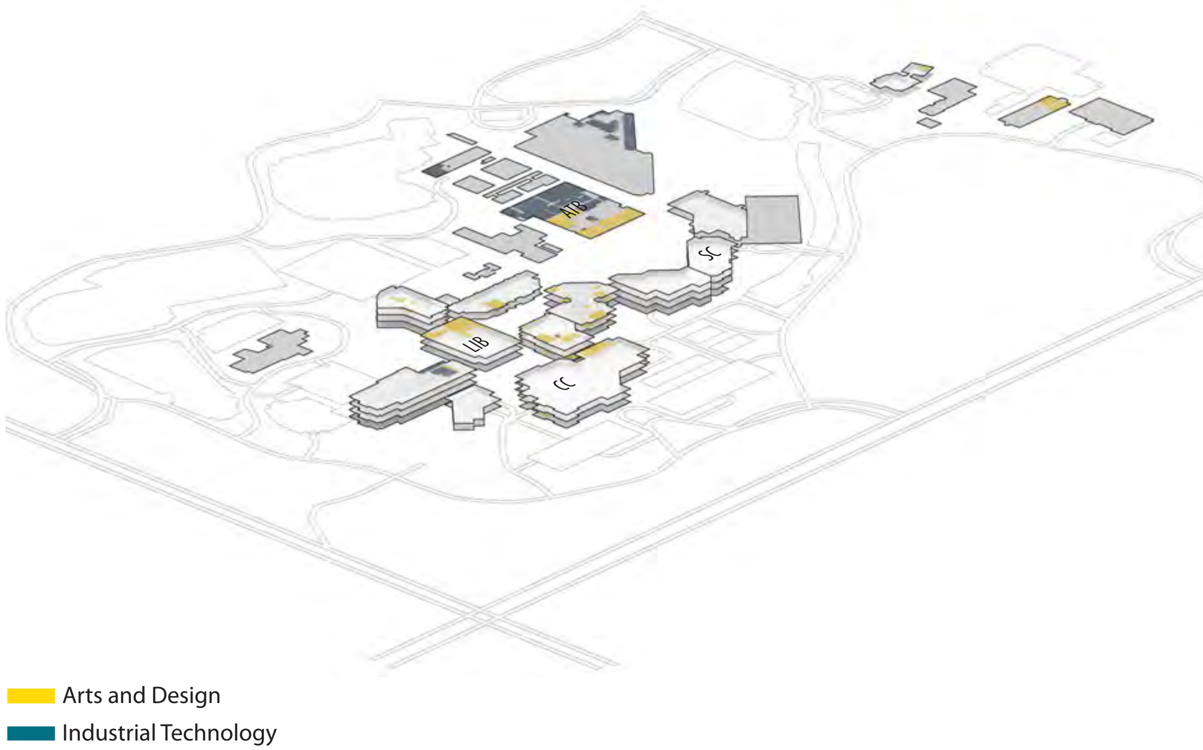
Ia. Establish Centers of Excellence for CTE + Arts


Yavapai Community College


Nerman Museum of Contemporary Art


Welding Lab

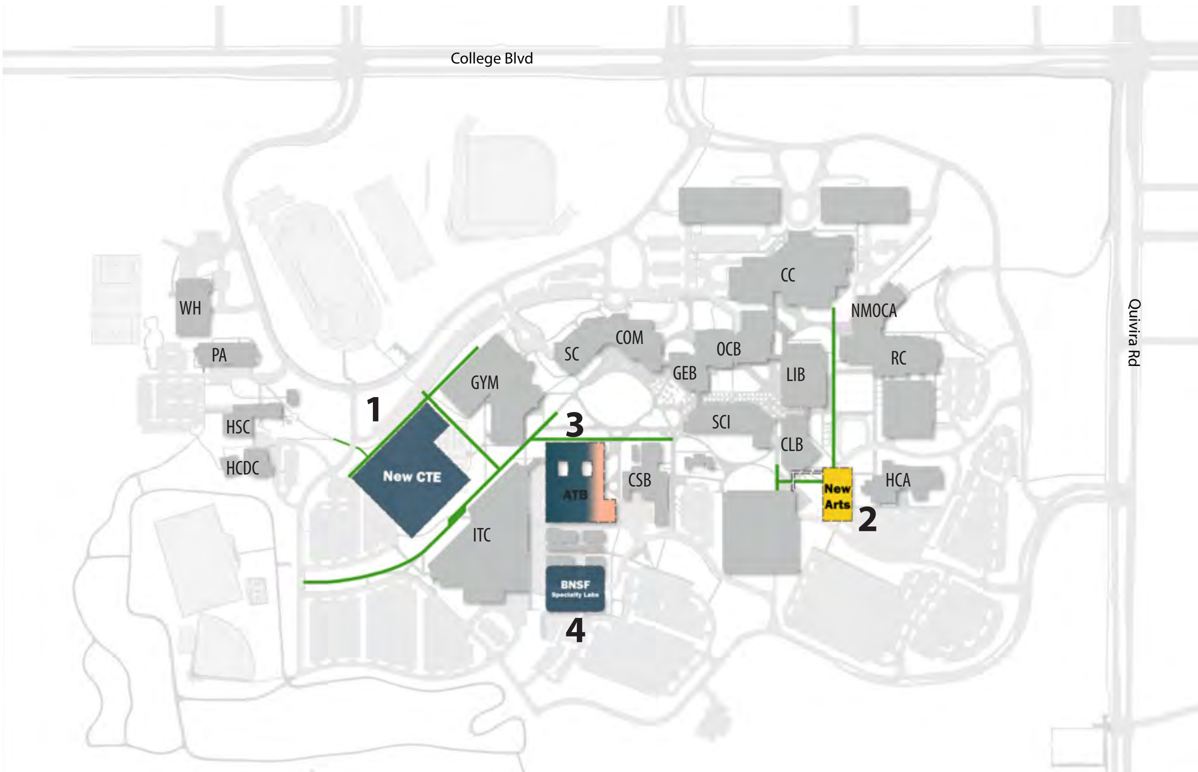
Technology advancement and economic changes across the country have triggered growing interests at many community colleges to reposition themselves on the forefront of rapidly changing career and technical education. At JCCC, because of the close relationships with adjacent academic and BNSF programs, the future development of CTE programs offers unique opportunities for collaboration and partnerships. Working with NorthStar Consulting, the planning team analyzed regional demographic and workforce demands, studied opportunities and constraints in current facilities, developed multiple options, and provided a flexible framework for the future CTE and Arts neighborhoods.



Opportunities and Constraints

Located on the south side of the campus core, ATB currently serves as the home for most CTE and Fine Arts programs. Despite similar typological building requirements (i.e. high bay space with significant mechanical support), limited synergy occurs between the two divisions. In response to user groups' desires for upgraded facilities and more integration with campus life, the following planning opportunities have been considered:

- Establish a center of excellence of CTE and catalyze the collaboration with BNSF
- Co-locate Arts and Design programs and promote an Arts neighborhood



Building Area Metrics

Building	ASF	GSF
Existing ATB	49,743	63,430
New CTE without welding	48,350	69,071
New CTE with welding	84,430	120,614
New Specialty Labs	27,647	39,496
New Arts	19,620	28,028

Construct a New CTE Building and a New Arts Building

Following a robust internal discussion and based on an application of the guiding principles, the strategies below are recommended for the future CTE and Arts programs:

1. Construct a new CTE building (excluding welding) on the existing Tennis Courts
2. Construct a new Arts building on the eastern campus
3. Renovate ATB for combined welding, grounds, transportation and other campus uses
4. Renovate and expand WLB for BNSF specialty labs

This scenario provides an efficient and cost-effective implementation strategy for JCCC. It avoids controversial demolition and minimizes conflicts in construction scheduling.

Future CTE Neighborhood

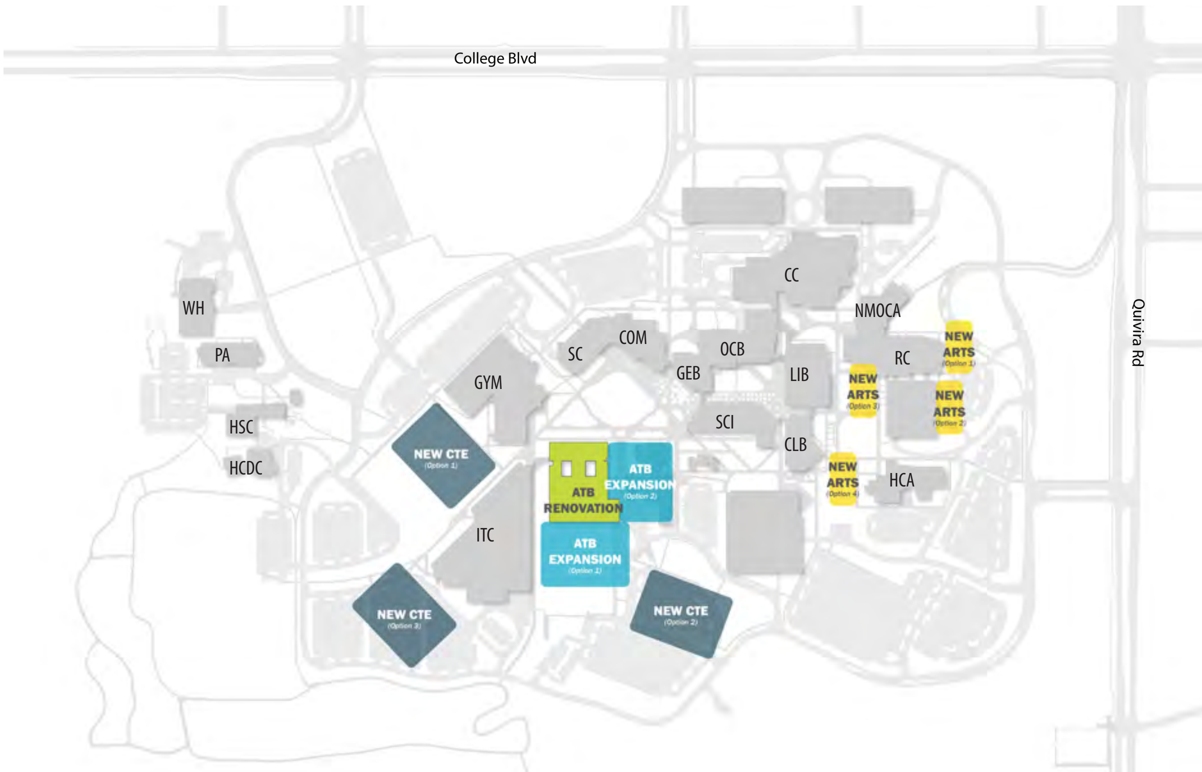
The quality of space provided by a new CTE building and renovated existing facilities will contribute to a new CTE neighborhood with the following assets:

- A new CTE building conveniently located with key frontage on the loop road and excellent visibility from College Boulevard
- An upgraded combined welding facility shared with BNSF located in close proximity to BNSF specialty labs and classrooms
- An improved pedestrian corridor to better link students to the campus core

Future Arts Neighborhood

An Arts neighborhood will strengthen JCCC's image on Quivira Road, which is supported by the following facility improvements:

- A new Arts building with multi-story classrooms in the north and high bay studio spaces and loading area accessible from the south
- Optional incorporation of the Graphic Design program to the new Arts building can be archived by adding another story to the building. This alternative will enhance synergy between Graphic Design and Fine Arts, and provide more space in LIB for other initiatives
- An enhanced courtyard space framed by multiple Arts facilities, including the new Arts building and NMOCA
- The addition of the Arts building also better integrates HCA with the campus core through improved pedestrian connection



Additional Candidate Sites for the New Building(s)

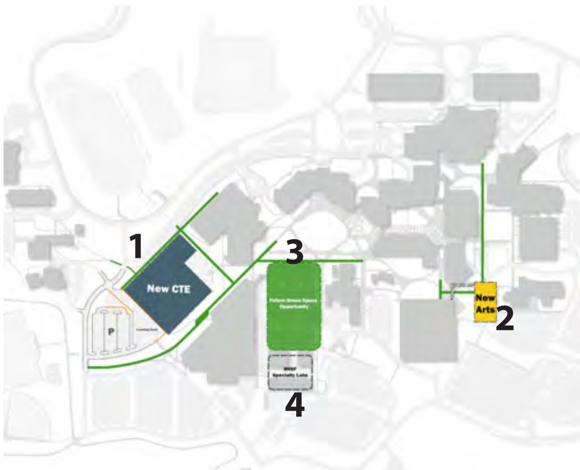
Prior to agreeing to a single concept to expand CTE and Arts facilities and optimize program adjacencies, the Master Plan explored multiple scenarios. Each scenario incorporates one or two of the following strategies:

- Construct a new CTE building
- Construct a new Arts Building
- Expand and renovate ATB

Potential locations for future building additions or expansions were evaluated. Selection criteria considered:

- Program Adjacency
- Wayfinding Experience
- Image and Visibility
- Demolition and Relocation Difficulty
- Utilities
- Construction Cost
- Sustainability

Favorable candidate sites were integrated as part of three major development scenarios.



[Option 1] Construct a New CTE Building and a New Arts Building

This option addresses the adequacy and quality of both CTE and Arts spaces. Optimized program adjacencies support the overarching concept of centers of excellence. Major strategies include:

1. Construct a new CTE building (with or without combined welding) on existing Tennis Courts
2. Construct a new Arts building on the east side of the campus
3. ATB can be either demolished for open space and parking, or renovated for combined welding (if not built elsewhere) and other campus uses
4. Renovate and expand WLB for BNSF specialty labs (and combined welding if not built elsewhere)

[Option 2] Construct a New CTE Building and Renovate ATB for Arts

With a stronger focus on the CTE improvement, this option proposes to retrofit ATB. Despite the slightly reduced cost, this alternative creates challenges of maintaining Arts classes during the renovation of ATB. Detailed steps include:

1. Construct a new CTE building (excluding welding) on existing Tennis Courts
2. Renovate ATB for Arts and combined welding
3. Renovate and expand WLB for BNSF specialty labs

[Option 3] Renovate and Expand ATB for both CTE and Arts

In order to keep Arts and CTE in current location, this option requires longer implementation time, because CTE and Arts improvements are dependent on the construction of a new campus services facility. Potential sequencing is explained as follows:

1. Construct a new Campus Service building
2. Renovate and expand ATB for both CTE (combined welding) and Arts
3. Renovate and expand WLB for BNSF specialty labs

Ib. Prioritize Active Learning Classrooms

Active learning classrooms promote activity-based student involvement in the academic experience beyond passive listening. Generally, active learning involves a variety of activities including listening, conversation, collaboration, experimentation, and analyzation. Statistics indicate that this environment leads to increased content absorption and retention along with student satisfaction.

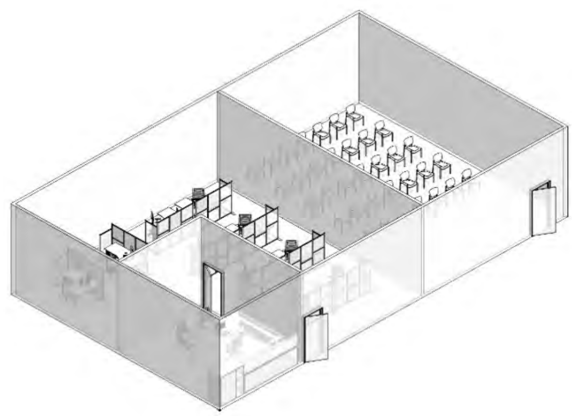
To facilitate a broader adoption of this pedagogical approach, spaces should be technology-rich with flat floors accommodating 24 to 32 stations and 28 SF to 34 SF per student. Writable surfaces should be prevalent and distributed with furniture that is flexible and movable allowing students to move from didactic to collaborative activities and back easily.

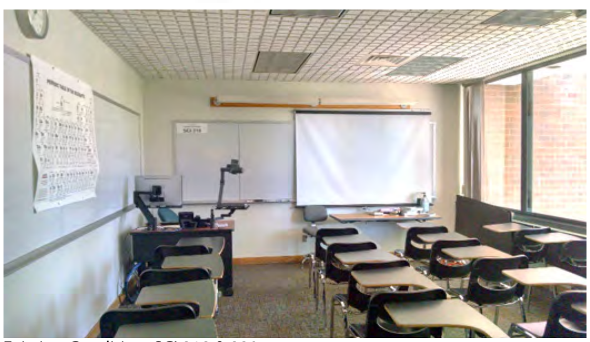
JCCC should aim for a ratio of 50% of instructional spaces to be active learning spaces within the 10-year timeframe of the Master Plan.

Opportunities and Constraints

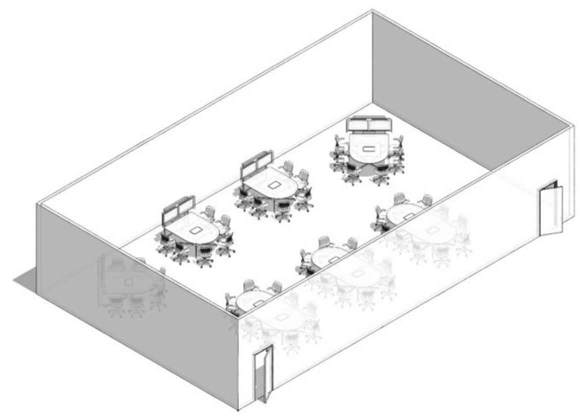
The Master Plan identifies low-efficiency classrooms as the focus of the initiative. Dispersed across multiple buildings on campus, these classrooms may suffer from low utilization due to inadequate furnishing, inappropriate size, unfavorable layout, disconnected location, or inefficient scheduling. Working with the Academic Space Committee at JCCC, the planning team proposes two major strategies to activate theses spaces:

- Architectural renovation for adjoining smaller classrooms
- Furnishing and equipment improvement for large classrooms





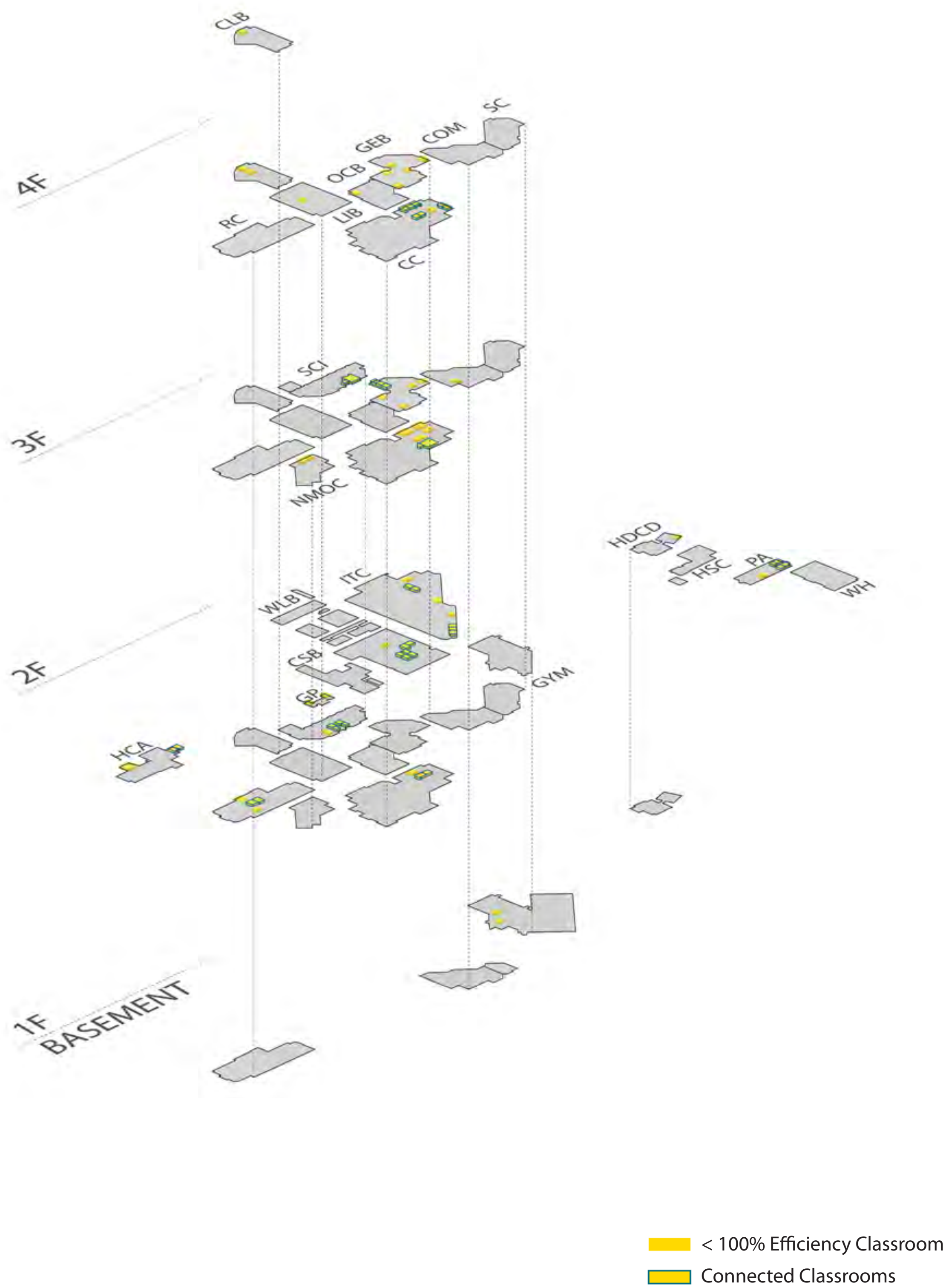
Existing Condition: SCI 218 & 220



Proposed Scenario

Architectural Renovation

While JCCC has already embraced the construction of several active learning classrooms, a common critique by faculty and students highlights a general lack of space in these new environments. Because many of JCCC's classrooms were built for different pedagogical trends, a number of the existing classroom stock provide inadequate spaces for active learning. Targeted at adjoining smaller low efficiency classrooms, architectural renovation will be proposed to merge and expand classroom spaces for flexible furnishing and active collaboration.


CLB
4F
GEB
COM
SC
OCB
RC
LIB
CC
SCI
3F
NMOC
HDCD
HSC
PA
WH
ITC
WLB
2F
CSB
GYM
GP
HCA
1F
BASEMENT
< 100% Efficiency Classroom
Connected Classrooms


Tiered Classroom


Active Learning Classroom

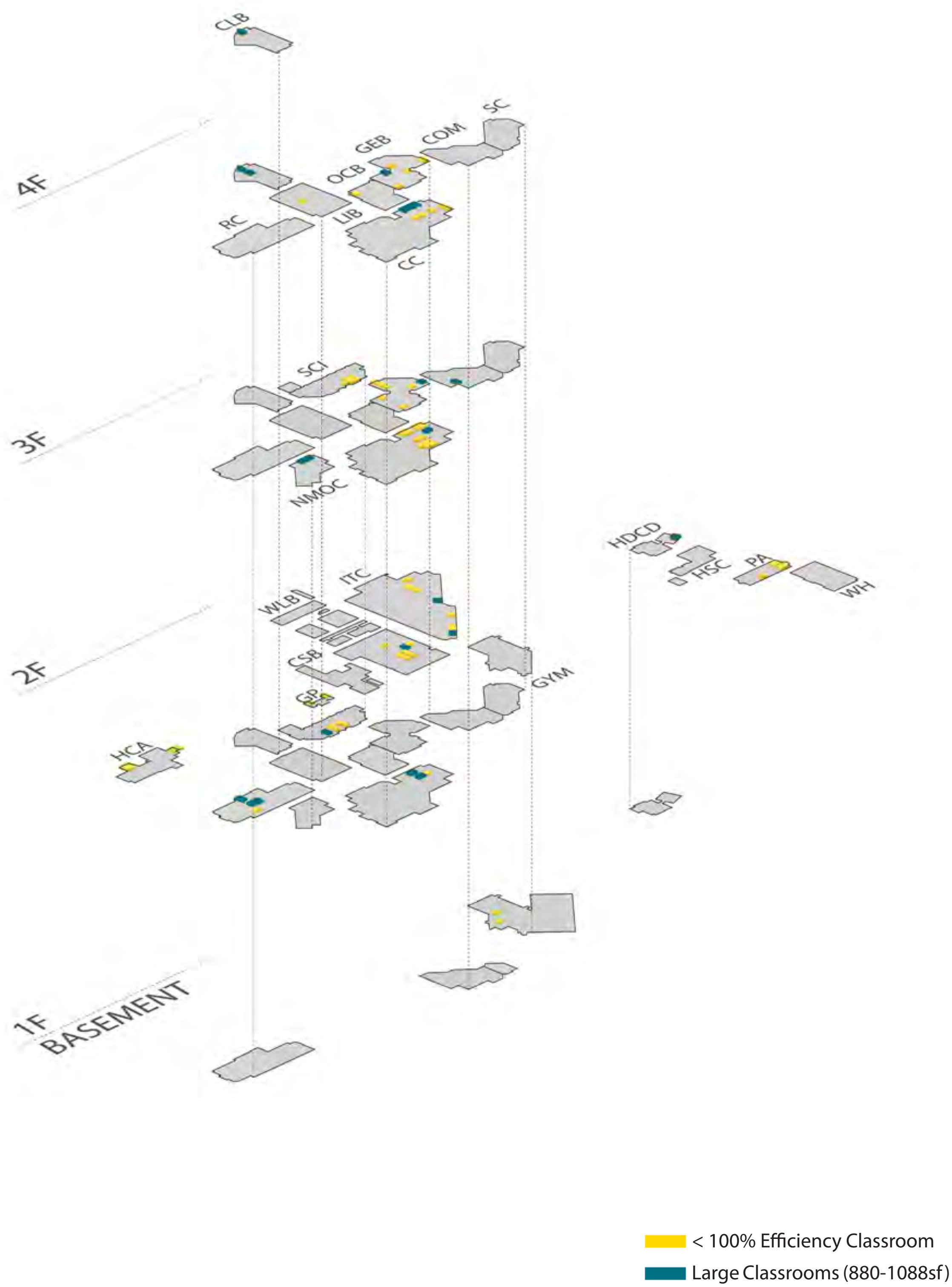

Classroom in GEB


Classroom in OCB

Furnishing and Operational Adjustments

Some larger classrooms at JCCC have become inefficient because they offer more seats and stations than typical class demand. Classrooms between 720 to1088 SF have high potential to convert to active learning spaces through furnishing and operational adjustments. Key initiatives include:

- Promote flexible seating for both larger classes and smaller groups
- Create more flexible surface for writing and projection
- Provide infrastructural updates for new equipment and technology

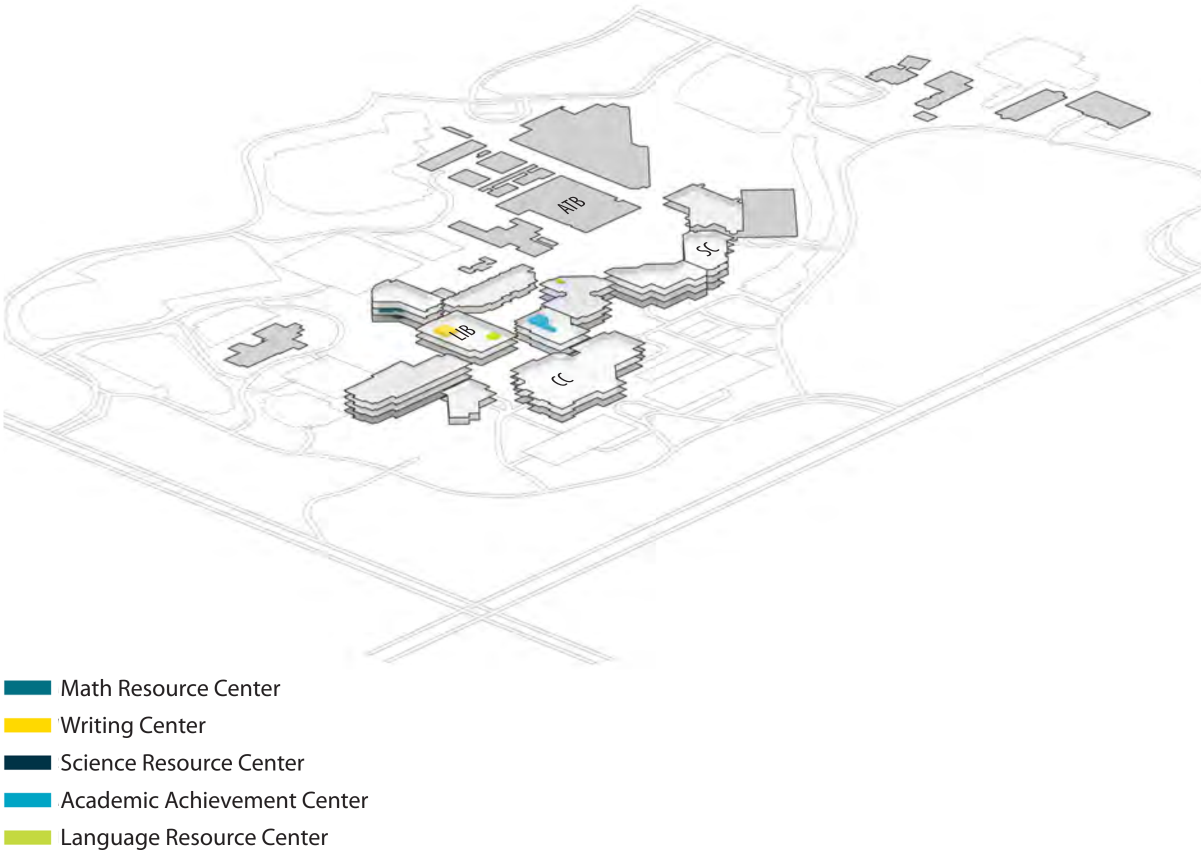


CLB
4F
GEB
COM
SC
OCB
LIB
RC
CC
SCI
3F
NMOC
HDCD
HSC
PA
WH
ITC
WLB
2F
CSB
GYM
CP
HCA
1F
BASEMENT
< 100% Efficiency Classroom
Large Classrooms (880-1088sf)

Ic. Realign Academic Resource Centers

Austin Community College

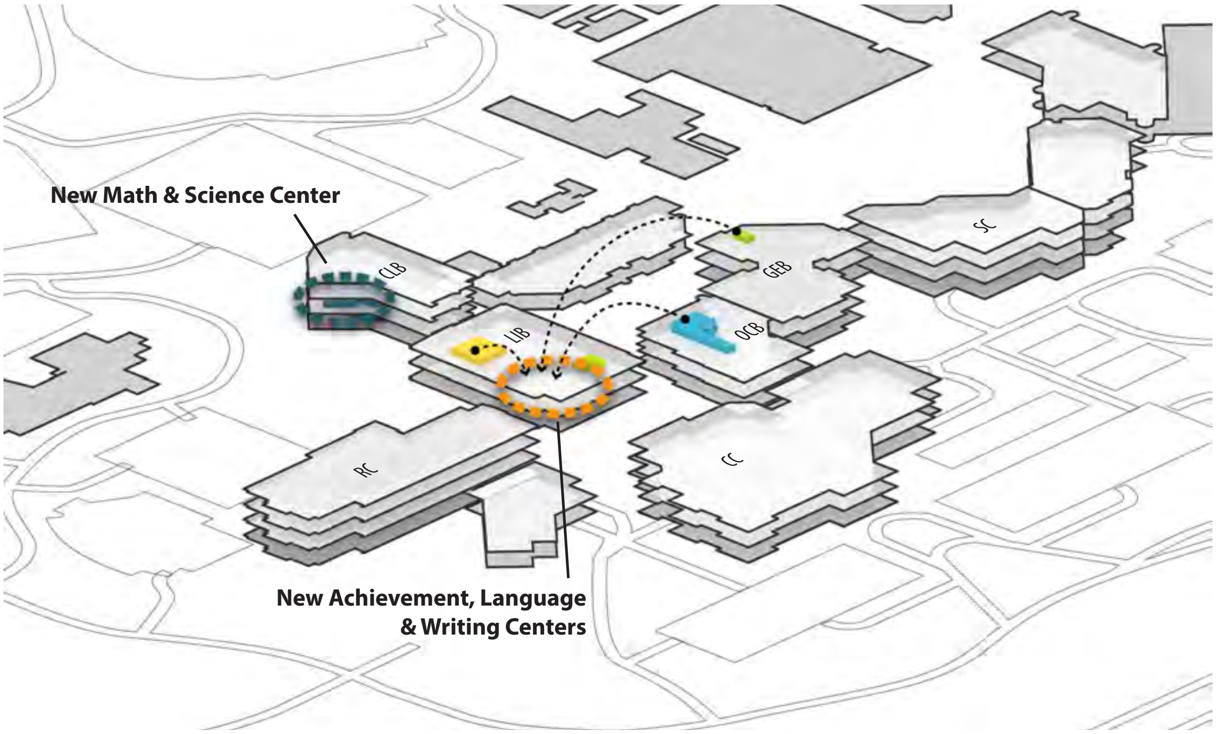
As important assets on campus, academic resource centers serve JCCC's diverse student body and enhance student success. The flexible learning model at resource centers represents significant advantages to adapt to future student needs and pedagogical trends. The Master Plan provides a holistic approach to evaluate resource centers with other initiatives and creates meaningful future spaces for learning, teamworking, and sharing.



Opportunities and Constraints

Current condition analysis indicates that five resource centers are located in four different buildings on three different floors. Some centers are located on higher levels that are difficult to find. Inspired by the guiding principles to improve the quality, utilization, and location of campus spaces, the Master Plan envisions the future resource centers, with a targeted ASF of 13,000, to be centrally and conveniently located, and shared by multiple disciplines.

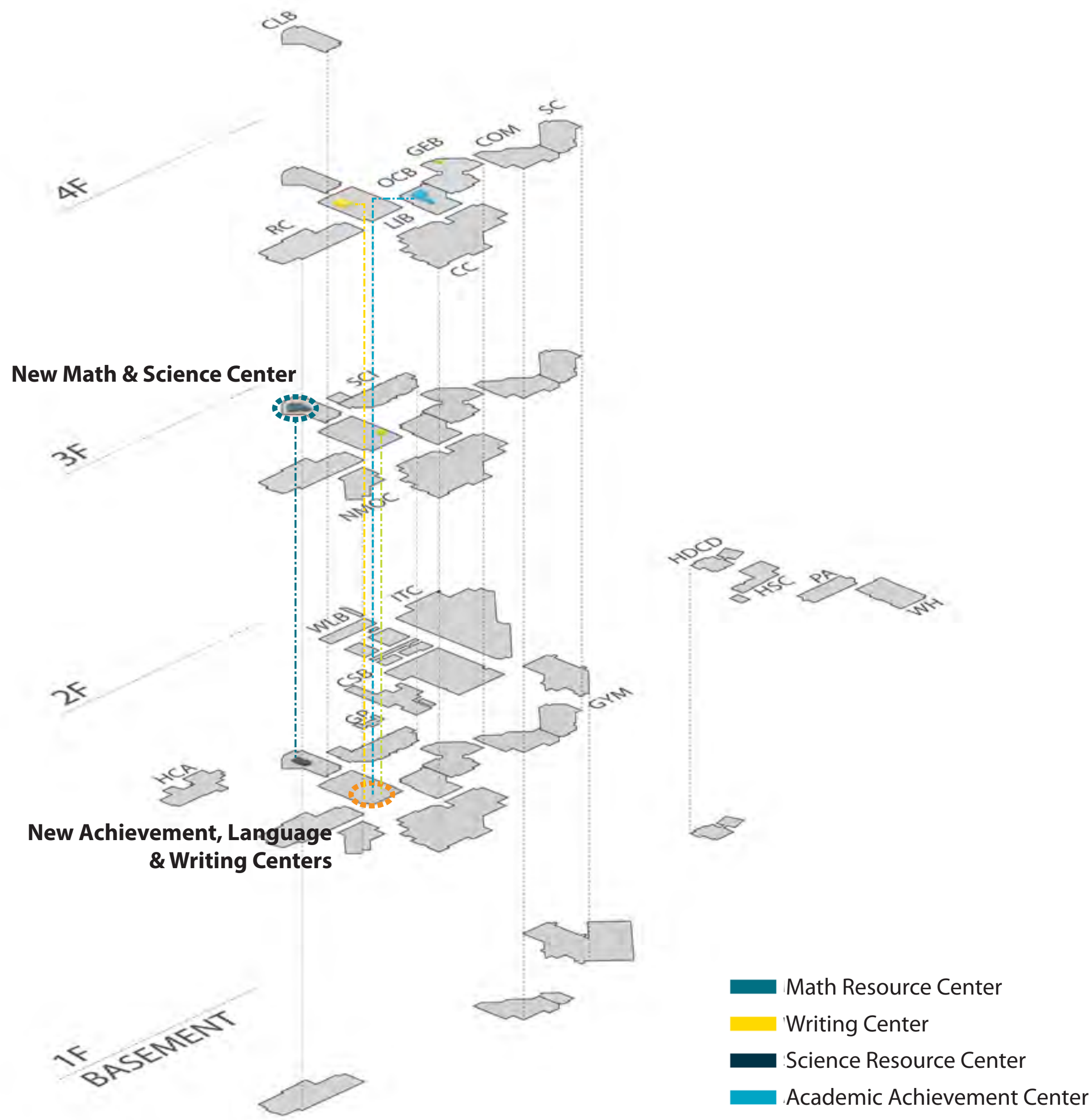
Several discussions during the Master Plan focused on the location of the centers, including collocation to promote sharing, or clustering close to related disciplines to reinforce centers of excellence by disciplines. Two scenarios were developed in response to these contrasting ideas.



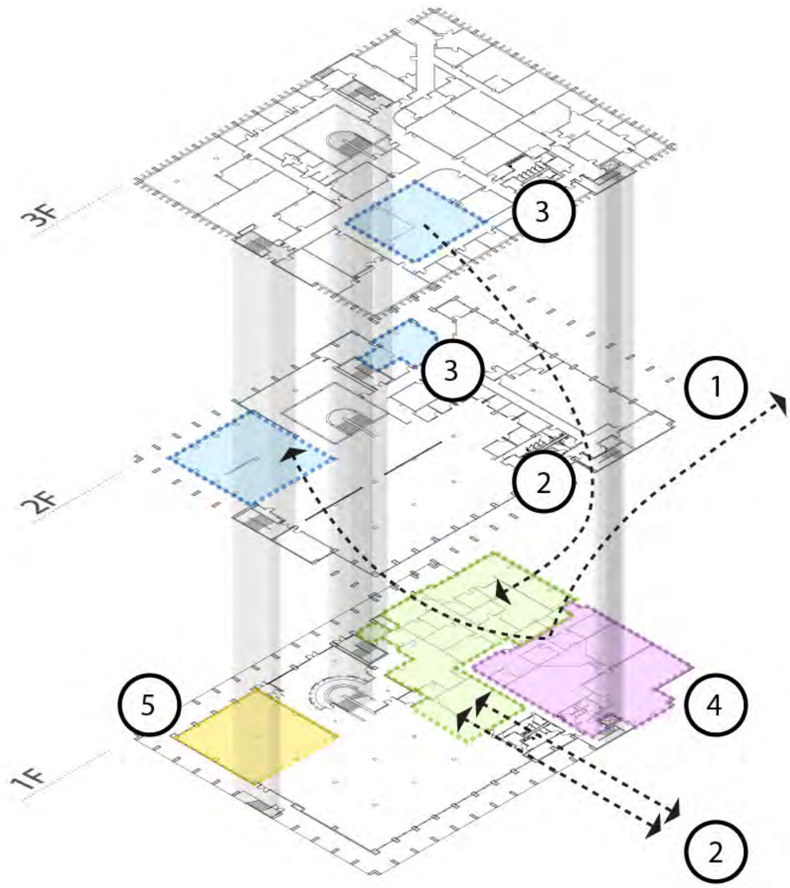
[Option 1] Two Resource Centers

This option balances the desires for both interdisciplinary collaboration and centers of excellence. Two distinct resource centers are proposed:

1. Math & Science Resource Center: Located on the second floor of CLB, this proposed collaboration space maintains the adjacency preferred by Math & Science faculty
2. Academic Achievement, Language & Writing Center: The space on the first floor of LIB offers an ideal location for collaborative learning and resource sharing



Center	Current Locations	Proposed Locations	2015 Current ASF	2025 Target ASF
Math Resource Center	2nd Floor of CLB	2nd Floor of CLB	3,128	4,079
Writing Center	3rd Floor of LIB	1st Floor of LIB	2,160	2,222
Science Resource Center	1st Floor of CLB	2nd Floor of CLB	1,819	2,719
Academic Achievement Center	3rd Floor of OCB	1st Floor of LIB	2,936	2,972
Language Resource Center	2nd Floor of LIB	1st Floor of LIB	1,139	1,252
Total			11,182	13,244



Academic Resource Center

Office

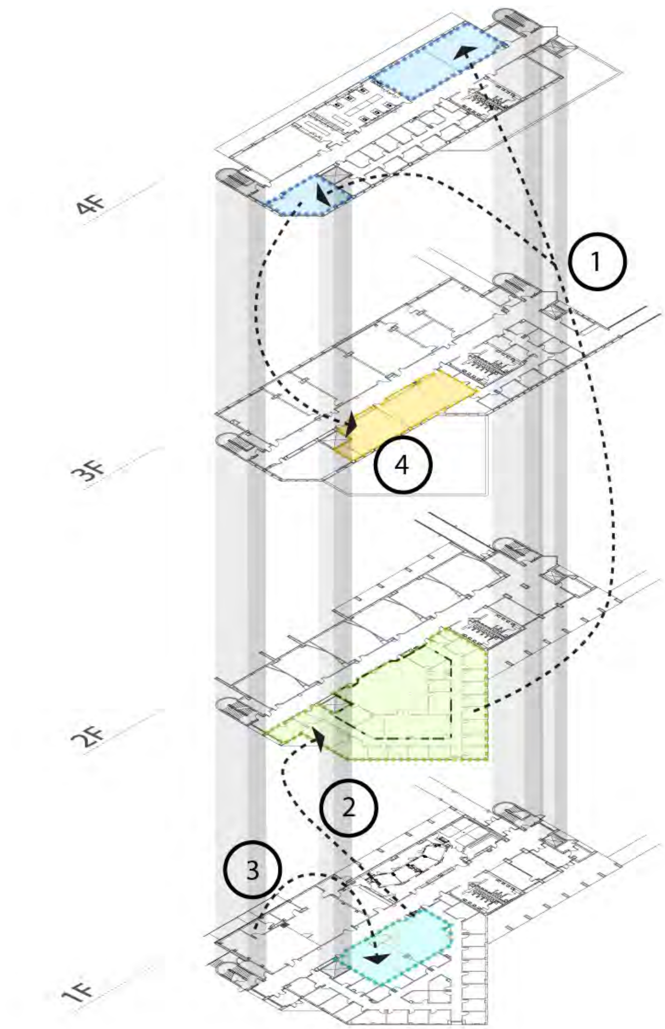
Maker Space

Student Lounge

Co-locate Academic Achievement, Language & Writing Centers to the First Floor of LIB

Centrally located on the campus, LIB will become the activity hub with integrated collaboration and socialization spaces. Major improvements include:

- Relocate existing offices and media stations to second floor open stack space and other locations (future consolidated Marketing & Publication space)
- Relocate Writing Center, Language Center, and Academic Achievement Center to vacated first floor space
- Move first floor office to the vacated second and third floor space
- Consider a maker space in vacated first floor space
- Create a student lounge in first floor space

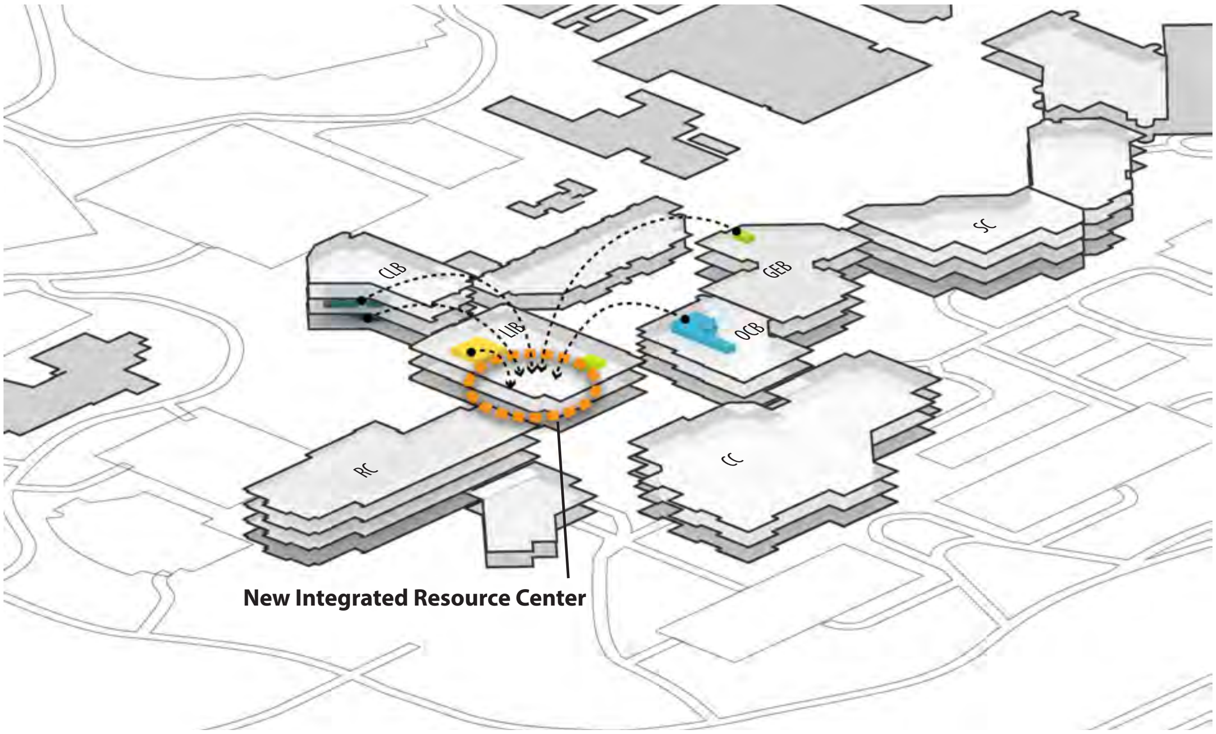


Relocated Math Offices
Math and Science Resource Center
Existing Math Resource Center
Health Sciences Expansion
Renovated Classrooms

Establish a Math & Science Resource Center on the Second Floor of CLB

Current Math & Science Centers in CLB are convenient to Math and Science classrooms and offices. The Master Plan consolidates the two centers on the second floor's major circulation spine via the following steps:

- Relocate Math offices into renovated space on the forth floor adjacent to existing science offices, and add new shared space for adjunct faculty
- Co-locate the Science Resource Center with the Math Resource Center in renovated space on the second floor
- Expand Health Sciences space into space vacated by the Science Resource Center
- Renovate classrooms on the third floor to accommodate flexible active learning

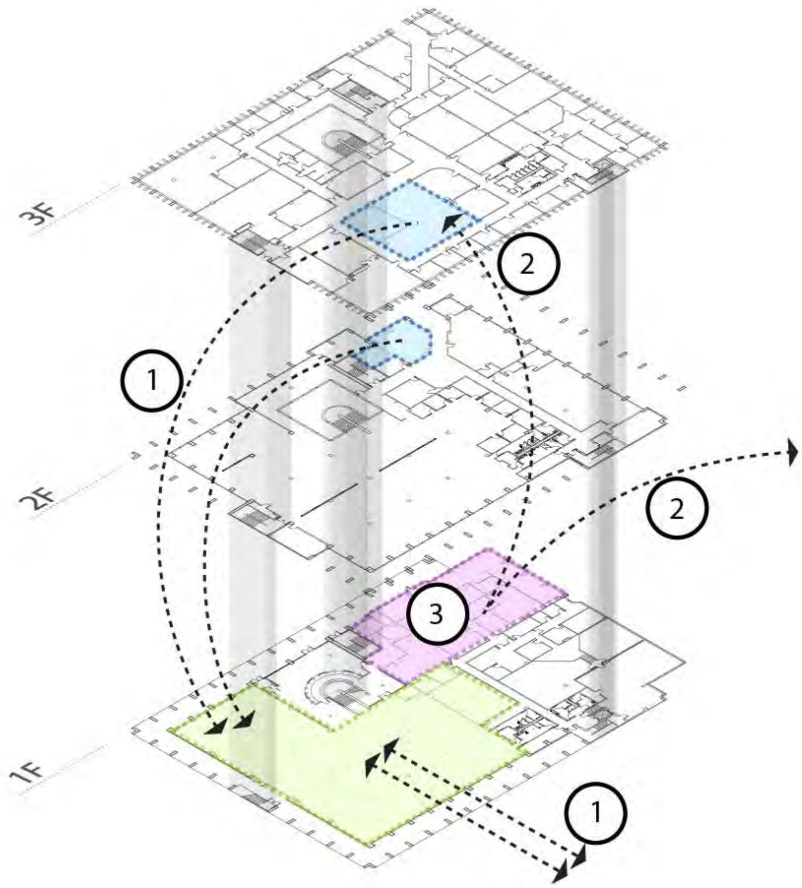


[Option 2] An Integrated Resource Center

In this option an integrated Academic Resource Center located on the first floor of LIB will accommodate all five resource centers. As the heart of the future campus demonstrating JCCC's commitment to collaborative learning, the new consolidated center could benefit from the following amenities:

- Central check-in
- Central computer area for all units
- Study rooms shared among all resource units
- Semi-designated areas for each discipline
- Shared space for tutors for online help
- Shared storage and supply space

The vacated spaces in other buildings may become student lounge, active learning classrooms, or shared office spaces that generate positive synergy with adjacent uses.



Academic Resource Center
Office
Maker Space

Establish an Integrated Resource Center in LIB (First Floor)

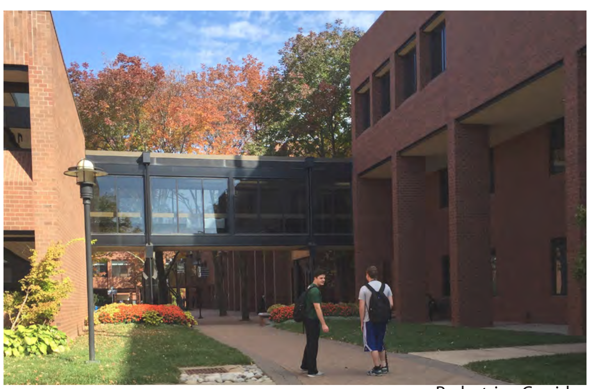
The future library will become the "100% place" on campus for students to gather, learn, collaborate, and relax. The following initiatives provide an implementable and flexible framework for the future library.

- Co-locate five resource centers to the first floor open stack space
- Move first floor offices to the vacated second and third floor space or other locations
- Create maker space in vacated first floor space

Id. Enhance Campus Front Door + Wayfinding

Pedestrian Corridor


Water Tank Berm


Pedestrian Corridor

Functional analysis of campus wayfinding (especially through the eyes of first-time visitors) reveals a duality of the campus. Enclosed by dense buildings, a green and pedestrian-friendly campus core is separated from an outer portion of campus dominated by the automobile. Focused on blending these two experiences and connecting interior and exterior spaces, the Master Plan proposes architectural and site improvements for a holistic campus arrival and wayfinding experience.

Based on the reevaluation of campus gateways and front doors, the Master Plan recommends the following improvements on the outer campus:

- Develop iconic signage at campus gateways
- Realign the Campus Drive at College Boulevard and Quivira Road entries to improve the campus gateway experience
- Optimize parking distribution to improve visitor's wayfinding
- Enhance campus front doors and create a memorable arrival experience

Campus experiences at the internal campus core should reinforce campus integrity. Key initiatives includes:

- Integrate new buildings with campus courtyards and the existing interior circulation system
- Improve interior wayfinding via physical and programmatic realignment

The following strategies offer an integrated approach to improve the wayfinding between inside and outside campus spaces:

- Promote direct and continuous pedestrian paths between the "inner" and "outer" campus
- Connect interior and exterior spaces
- Improve critical visual corridors

Vehicular Circulation and Wayfinding

Landscape enhancements at major gateway locations will promote memorable driving experience to the campus:

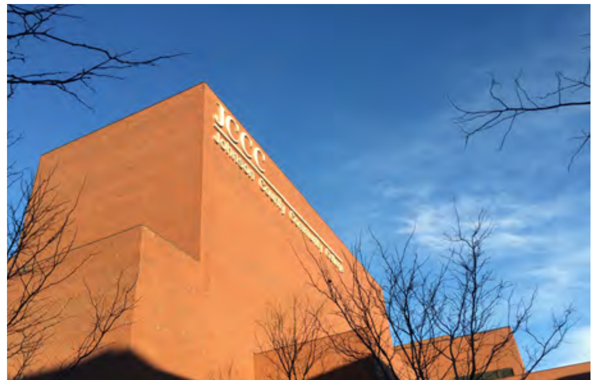
- Strengthen college image at the Quivira Road and College Boulevard intersection
- Enhance the College Boulevard main entrance through improved landscape and signage

Improved drop-offs and open spaces will guide vehicles to major front doors of buildings:

- Reinforce SC as the main campus front door
- Maintain CC as an important community front door

The Master Plan also proposes enhanced security measures including security gates at major entries to restrict access during non-operational hours and an emergency egress route at the south of the campus.


College Blvd and Quivira Rd Intersection


Existing JCCC Signage on Building Facade


Existing JCCC Skyline from the Intersection of College and Quivira

Proposed JCCC Gateway Monument (by Bright Ideas Signs & More)

Gateway Signage

The corner of College Boulevard and Quivira Road provides an initial arrival experience to JCCC for visitors from the east or north. Aiming to reinforce JCCC's identity and strengthen community visibility, the proposed signage should complement the consistent architectural expression on campus as well as respect the established streetscape and landscape character in the surrounding area.

Security

JCCC has made the safety and security of students, employees and visitors its highest priority with not only physical enhancements, but a multi-pronged approach based on training and education, professionally trained law enforcement offices, and cross-functional communication. Recent improvements include:

- **24 x 7 x 365 Onsite Law Enforcement Professionals and Dispatch Center** – JCCC employs 23 full-time, sworn law enforcement officers including the department chief and three sergeants. (Average response time to emergency calls is 1 minute, 58 seconds.) This is in addition to civilian staff including a full-time Emergency Preparedness manager who oversees all aspects of training and communication relative to campus preparedness.
- **Training and Communication** - JCCC has invested in the promotion of armed intruder A.L.I.C.E (Alert, Lockdown, Inform, Counter, Evacuate) training for employees, students and volunteers. Its Keeping Our People Safe program (KOPS) provides information and avenues for communicating safety concerns, such as KOPS watch and KOPS alert. The KOPS alert program is a multi-modal communication platform (text, email, public address, computer monitor pop-ups) to convey emergency information. In 2016, the JCCC Guardian program was launched for quick communication with JCCC Police dispatch or municipal 911 emergency operations centers via a smartphone app. In addition, JCCC's established Behavioral Intervention Team (BIT) is a cross-functional team that receives and assesses reports of danger or harm that may result from the actions of an identified person or persons engaged with the college.
- **Security Camera Investment** – For the Fiscal Year 2016-17, JCCC included funding to substantially enhance its investment in security surveillance. An investment of $500,000 was approved to convert analog cameras to digital, and to add to the number of cameras, moving from 348 cameras to an estimated 466 cameras at the conclusion of the project. This technology will greatly enhance the ability of JCCC personnel to monitor and record activity on campus.

The Master Plan recommends the integration of Crime Prevention Through Environmental Design (CPTED) principals and strategies in the future site planning and facility designs. CPTED focuses on the positive use of space and natural elements to maintain a desirable quality of life for intended users, while increasing the difficulty for criminal or abnormal activities.

Built upon campus wayfinding initiatives, the following strategies are proposed:

- **South Egress Route:** JCCC should work with Johnson County and Johnson County Park & Recreation District regarding the potential to construct a road from the south of the campus through Stoll Park. This exit point will be gated, and opened only as an emergency route for egress from the campus.
- **Security Gates:** JCCC should consider introducing security gates to campus entrances. The gates will enhance campus security control in the late night or during any emergency situations.

Pedestrian Front Door to Buildings

Pedestrian Front Door to Courtyards

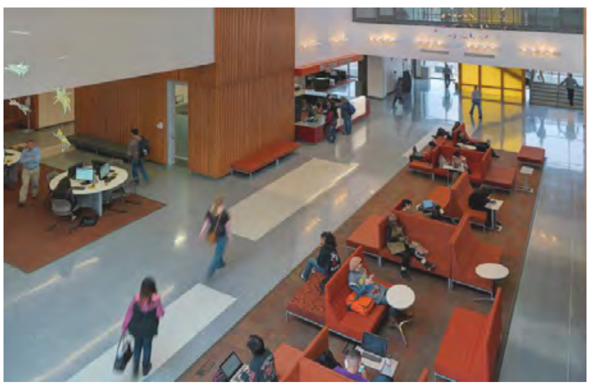
Enhanced Inside-Outside Connection

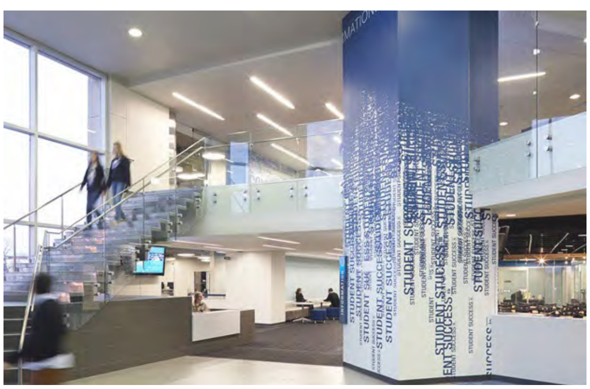
Pedestrian Circulation and Wayfinding

The Master Plan prioritizes pedestrian movement over other transportation methods as a key component of a college campus and the opportunities for serendipitous encounter. JCCC should establish a hierarchy of pedestrian walkways with consistent materials to help to define and articulate open spaces. Opportunities for improvements include:

- Establish a continuous pedestrian experience and an accentuated visual connection from the College Boulevard main entrance to the campus core
- Create signature pedestrian spaces to reinforce campus front doors
- Integrate the indoor and outdoor pedestrian experience through deliberate views, landscapes, materials, lighting, and furnishing
- Connect campus core courtyards
- Extend the pedestrian network to outlying facilities and adjacent community


Student Center Lobby

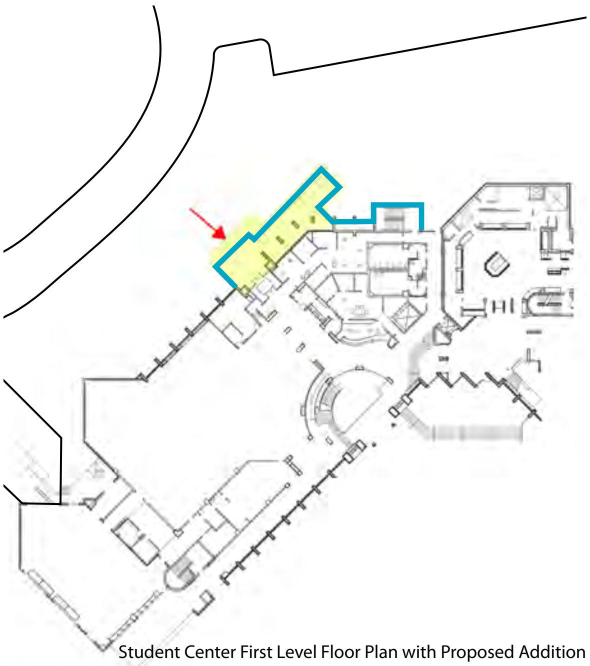




Reinforce SC as the Main Campus Front Door

As a hub of campus activities and the arrival point for new students, SC is not well-defined and celebrated as the campus front door. The building entry is not very prominent from the loop road. Significant slope and limited parking in front of the building are not user-friendly for new comers. The Master Plan promotes SC as the main campus front door:

- Create a transparent and welcoming facade for SC frontage
- Expand the entry corridor and elevate the lobby ceiling to enhance the visitor experience
- Optimize exterior parking, circulation and landscape to reinforce the "front door" image
- Integrate JCCC branding into the architecture
- Improve visual connection from the drop-off to the campus courtyard
- Integrate a "one stop" welcome center to the "front door" space
- Relocate bursar office to SC
- Enhance the linkage to COM
- Consider memorable and welcoming furnishings and amenities to strengthen JCCC identity



Student Center First Level Floor Plan with Proposed Addition

Existing Student Center Front Door

Proposed Student Center Front Door

Exterior Front Door Experience

The front facade of SC is not easy to find. The entry is oriented towards the northwest, not facing the major vehicular approach from the campus entry. The topographical change from the parking to the building also creates challenges upon arrival.

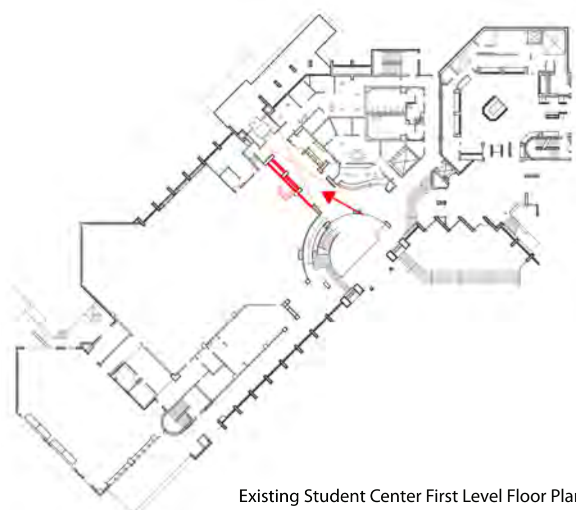
Realignment of the loop road will direct traffic from the College Boulevard entrance to SC. New drop-off and landscaped plaza space in front of the building will reinforce the formality of the front door. A new glazed facade facing northeast with iconic JCCC signage will further facilitate the wayfinding.

A moderate expansion at the ground level of SC will create an open and welcoming transitional space for the building. Contemporary glass walls and sleek cantilevers will guide visitors to the renovated interior first-floor space.

Existing Student Center First Level

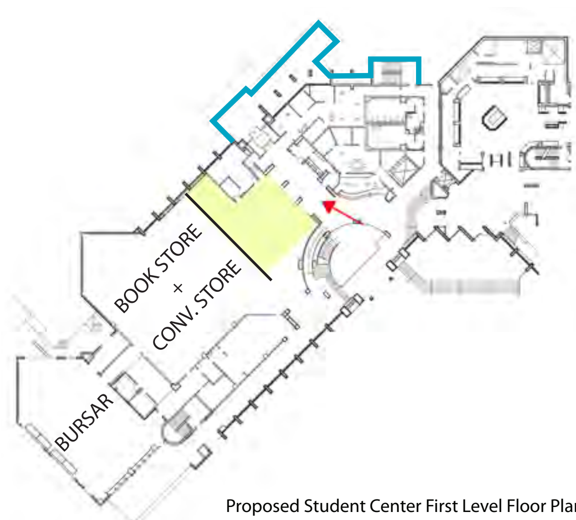
Interior Front Door Experience

Currently, the main lobby in SC is on the opposite side of the parking lot and oriented towards the internal courtyard. The visitors arriving at the drop-off need to pass through an unattractive corridor to find the welcome desk and the staircase in the lobby.


Existing Student Center First Level Floor Plan

Proposed Student Center First Level

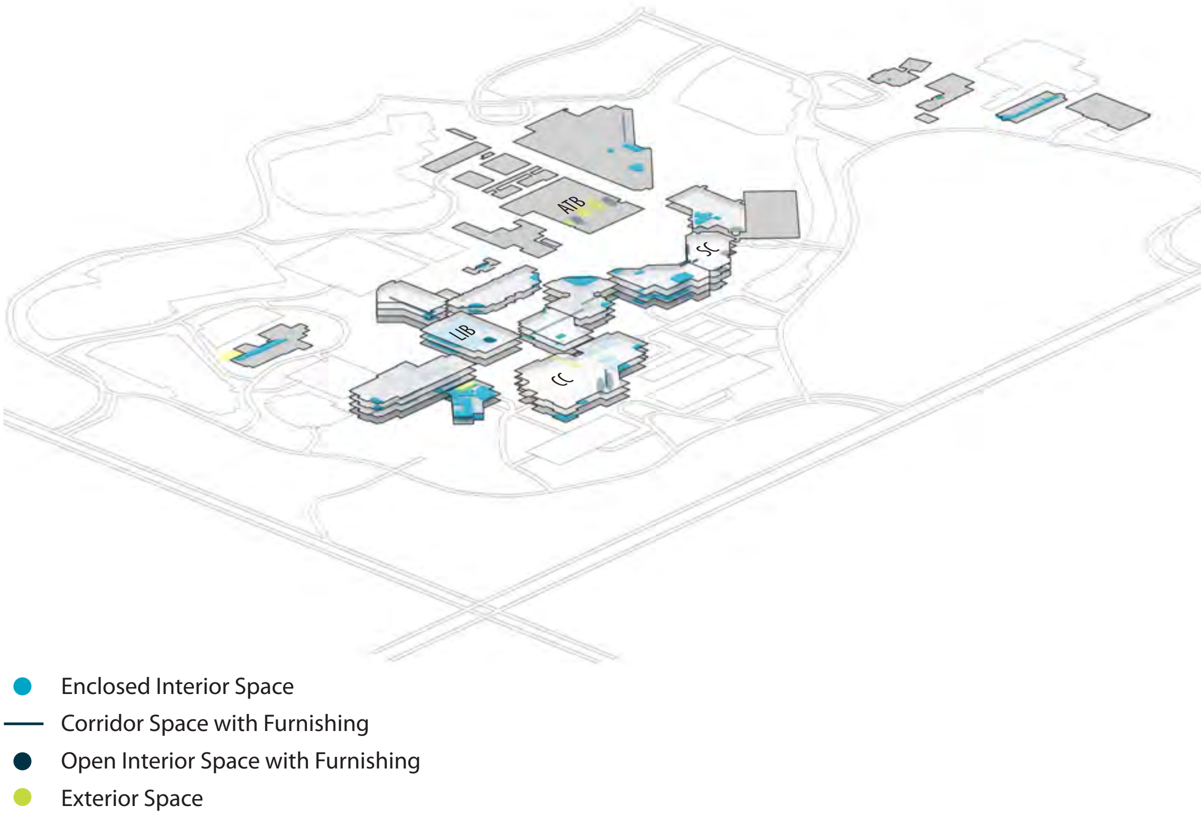
As the future front door of the campus, the first floor of SC will undergo architectural and programmatic transformations to promote a welcoming and memorable experience. The corridor connecting the north and south will be expanded into the bookstore space. At the northern entry from the parking lot, the corridor will be further expanded vertically to be two-stories. Offering spacious room for circulation and socialization, the renovated corridor and lobby provides a smooth transition from the outside vehicle-dominated environment to the internal pedestrian-scaled academic core. With the welcome center, bursar office, bookstore, student services, dining area and other campus amenities clustered nearby, this campus front door showcases the vitality of JCCC.



Proposed Student Center First Level Floor Plan

IIa. Activate Collaboration Spaces

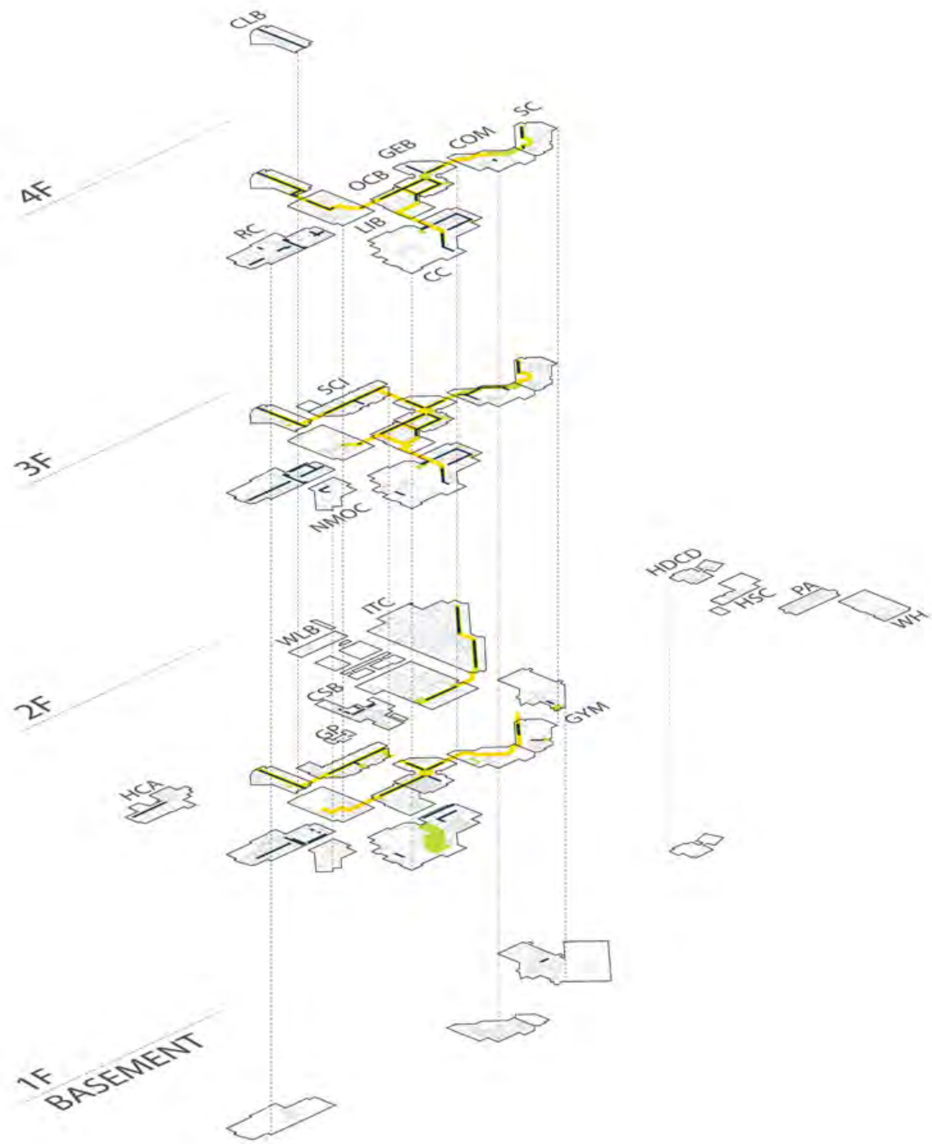
Statistics indicates that learning varies by individual and that peer to peer learning in the spaces around and between traditional classrooms tends to be more impactful than traditional didactic lessons. These "in between" active collaboration spaces may manifest as study spaces, social spaces, or break out spaces, each offering students adjacencies and amenities that support study, team work and learning. Variety and flexibility are keys to the success of these spaces. JCCC could implement active collaboration opportunities in "found" spaces across campus. These spaces should be supported with appropriate furniture, technology, writable surfaces and (where applicable) food.



Opportunities and Constraints

Space utilization analysis reveals existing and potential collaboration spaces on campus. The Master Plan develops strategies based on the following space typology to create 21st century collaboration spaces for a targeted ASF of 56,000 to 80,000 (7% - 10% of total building ASF).

- Open Collaboration Space: lobby, gathering space and wide corridor
- Enclosed Collaboration Space: study, assembly, lounge, meeting, and other spaces in surplus



Overhead Connection
Over 10ft Wide Corridor
Lobby and Gathering Space

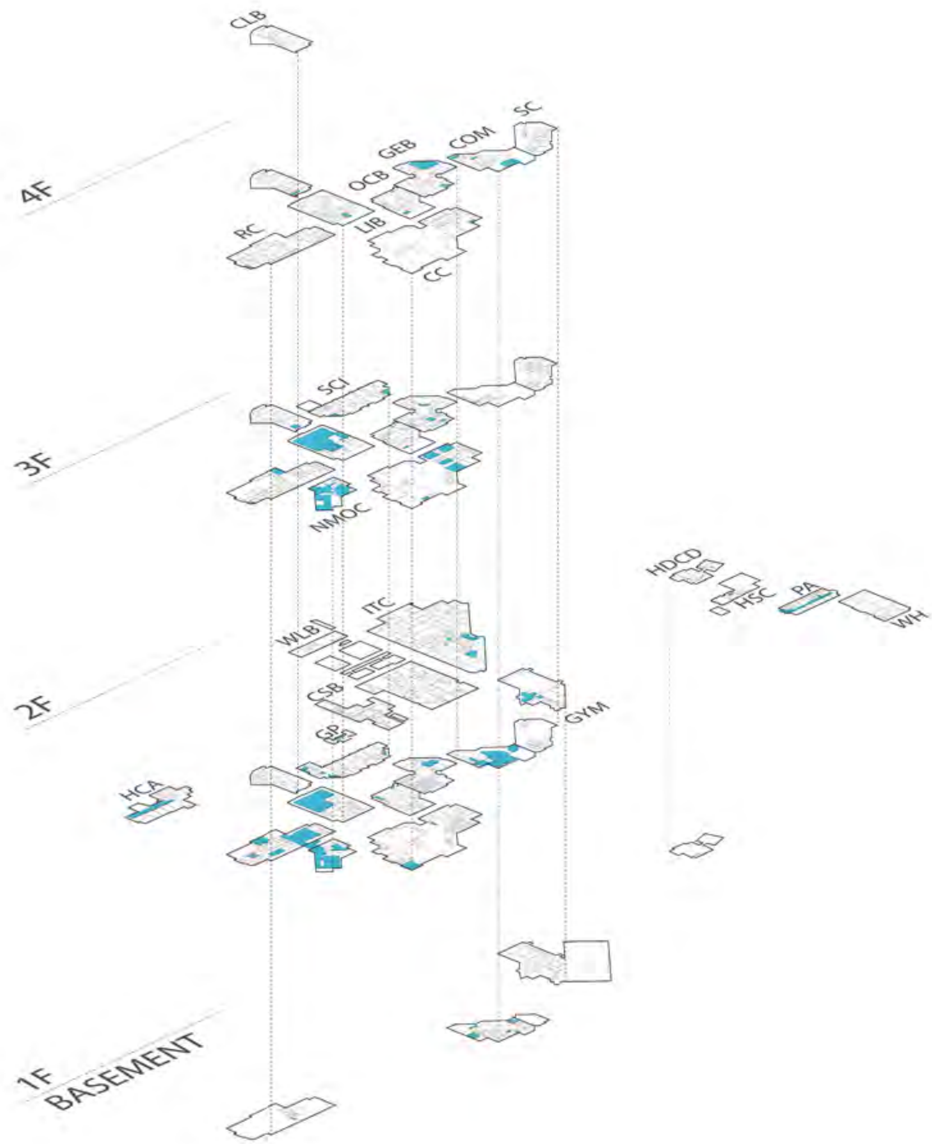
Open Collaboration Space

Lobbies, lounges, and corridors over 10-feet wide are usually open and connected to the circulation systems. These spaces provide short-term opportunities for socialization, study and break out. The following furnishing adjustments are recommended:

- Provide desk and bar height seating, writable surfaces, and digital media in linear break out spaces
- Integrate soft furniture, digital media, and food in larger open areas including lobbies and lounges for socialization

Corridor in GEB (Existing)

Corridor in GEB (Proposed)



Potential Enclosed Collaboration Space

Enclosed Collaboration Space

More private and schedulable collaboration spaces can be created through interior renovation of alcoves, niches, and other enclosed study and meeting spaces. The following renovation concepts will offer opportunities for group collaboration and learning.

- Add screens or partitions to alcoves and niches to create separated but transparent collaboration spaces
- Provide a variety of amenities including desk, seating, writable surfaces, and digital media to support different activities

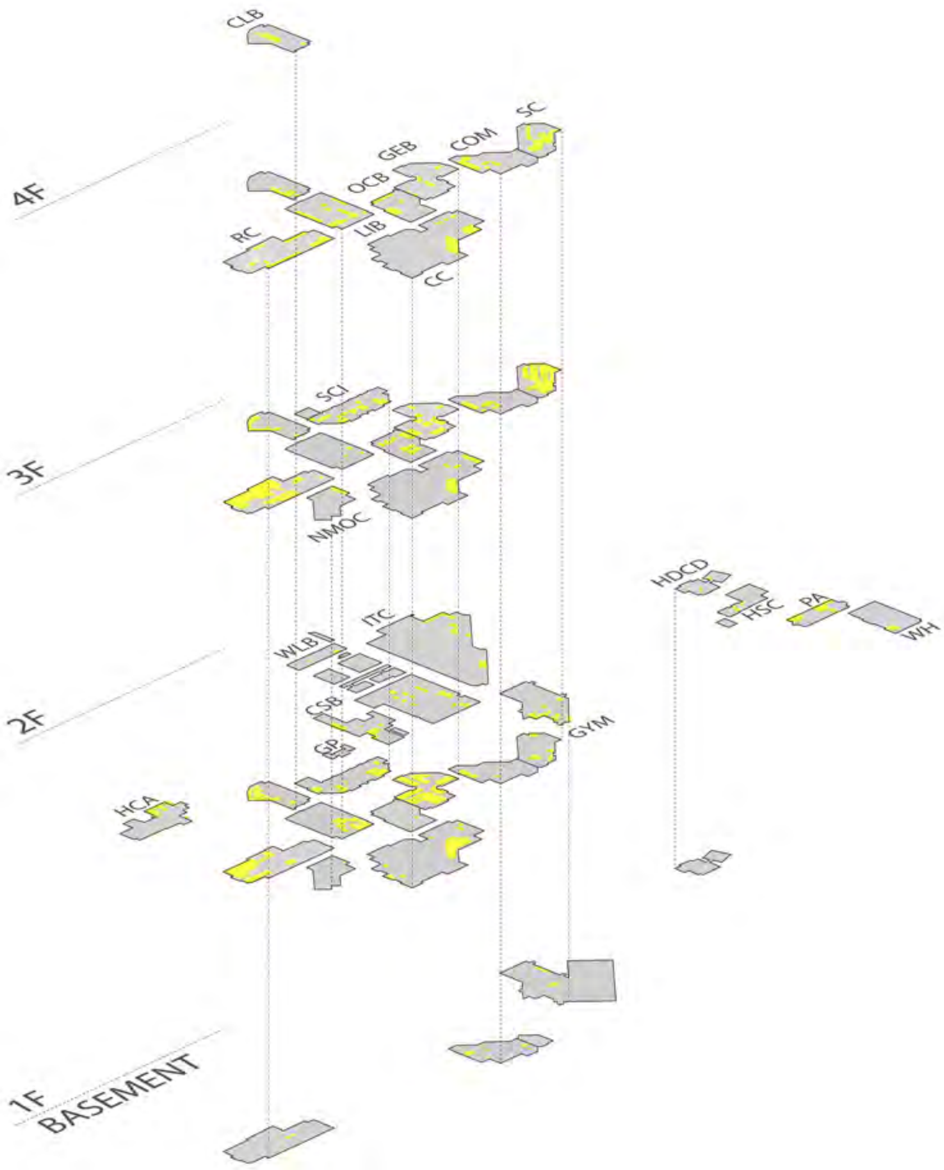
Alcove in CC (Existing)

Alcove in CC (Proposed)

IIb. Optimize Offices

The historic office model - private, enclosed space approximately 100 SF to 200 SF - is no longer economically, functionally or operationally viable. Neither is it conducive to a contemporary, collaborative work environment. Smaller, fewer private office spaces along with more flexible open work stations promote efficiency of space, improve employee energy levels and support collaboration.

To ensure a successful open workplace design, open office work station distribution must be properly balanced - assigned vs reservation based - and must be paired with adequate huddle room spaces to support private conversations and/or "heads down" work.

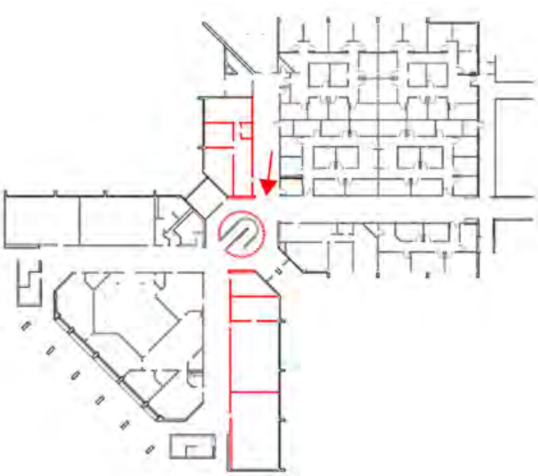


Opportunities and Constraints

Since office space needs will stay balanced in the next decade, the Master plan envisions 5% to 15% of offices will be candidates for renovation or realignment to improve space utilization and promote collaboration. Strategies include:

- Relocate administrative offices to upper levels and activate the first floor space for students
- Reorganize adjunct faculty offices and encourage a "free address" approach
- Optimize full-time faculty offices to promote shared spaces

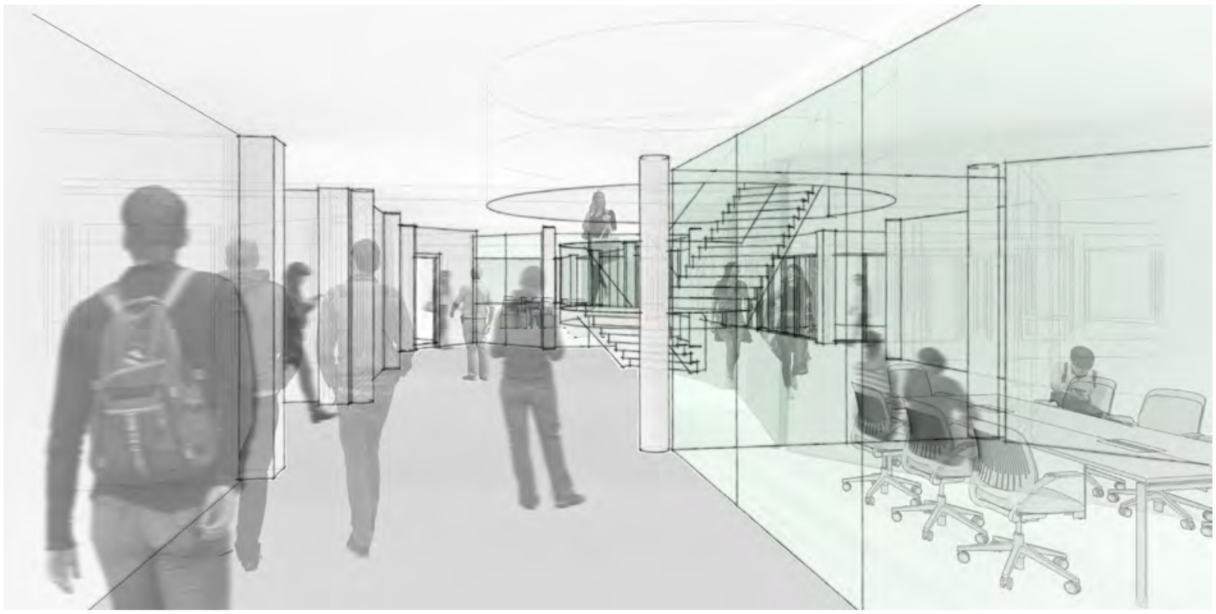
Existing GEB First Level



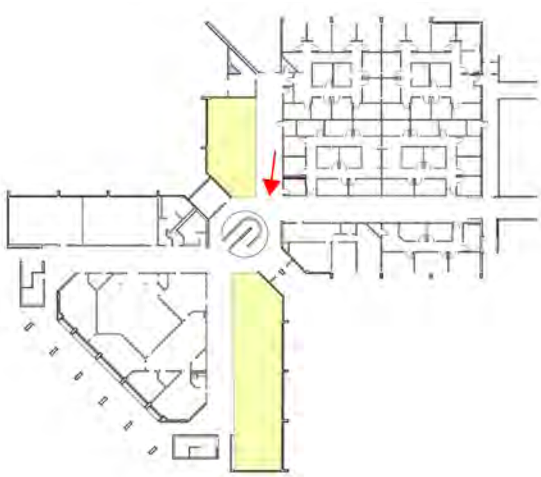
Existing GEB First Level Floor Plan

Activate the First Floor of GEB

Currently, administrative offices occupy prominent locations on the first floor. Wayfinding is challenged because solid office walls and a prominent concrete stairway block the views through major corridors.



Proposed GEB First Level

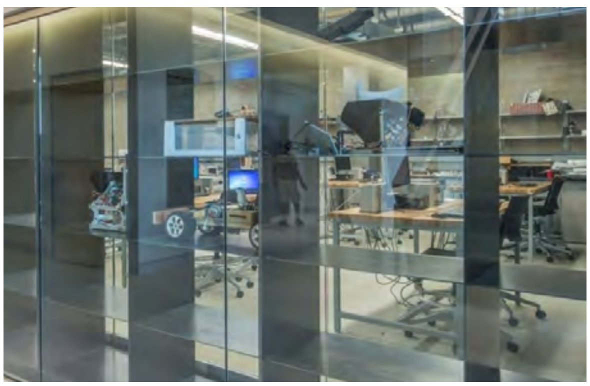


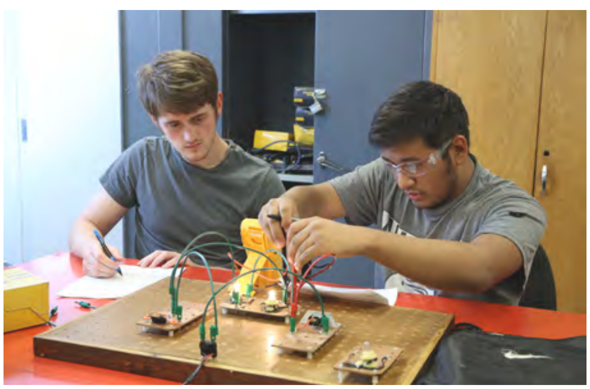
Proposed GEB First Level Floor Plan

The Master Plan proposes the following recommendations to improve student experience on the first floor.

- When practical, move first floor administrative offices to upper floors or other buildings
- Create open and transparent collaborative learning space on the first floor
- Renovate the stairs in the lobby to improve lighting and wayfinding

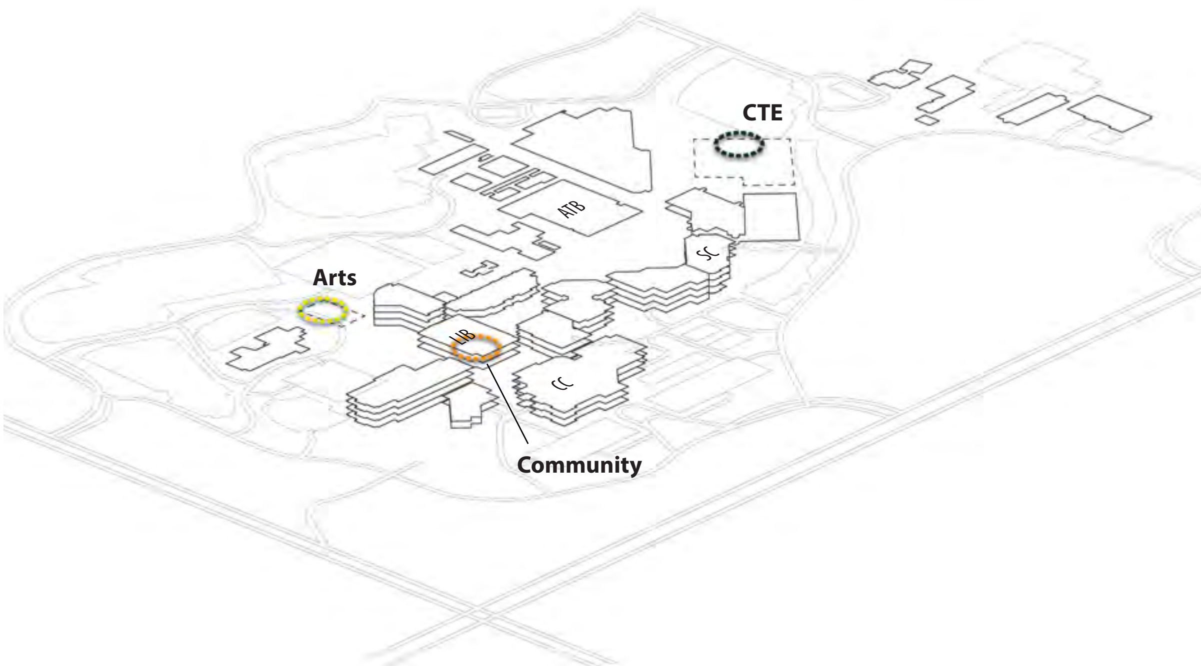
IIc. Create Maker Spaces





Maker spaces are lab environments containing resources such as shop equipment, tools, computers, printers, etc that allow users to create physical or digital products. Makers work with advisors or other makers through hands-on exploration to create.

Typically associated with arts, engineering or technology disciplines, Maker Spaces exemplify multidisciplinary, collaborative learning and can allow users to "take control" of their own learning. Public access to on-campus Maker Spaces can also strengthen the college's connection with its community and, additionally, act as a revenue generator. One to three appropriately located, sized and outfitted Maker Spaces would have a significant positive impact on the campus and community.



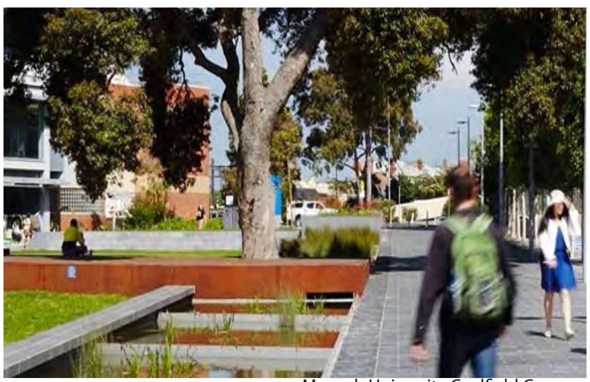
Opportunities and Constraints

Approximately 12,400 ASF Maker Spaces are projected as part of the Space Needs analysis. High bay spaces adjacent to loading is preferable. Strategies for future Maker Spaces include:

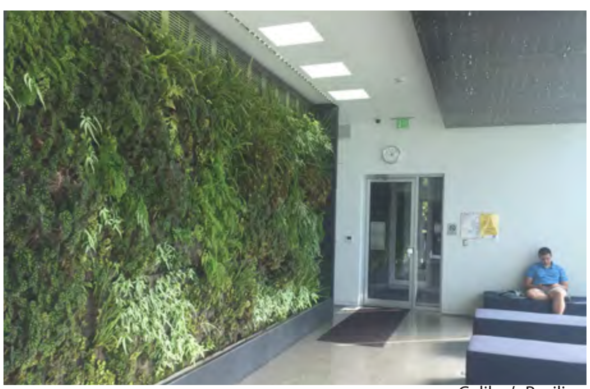
- Create department-specific Maker Spaces in the new buildings for CTE and Arts
- Establish a non-dedicated Maker Space in LIB or other central locations to promote interdisciplinary collaboration and community engagement

IId. Incorporate Sustainability

Hospitality Culinary Academy



Monash University Caulfield Campus



Galileo's Pavilion

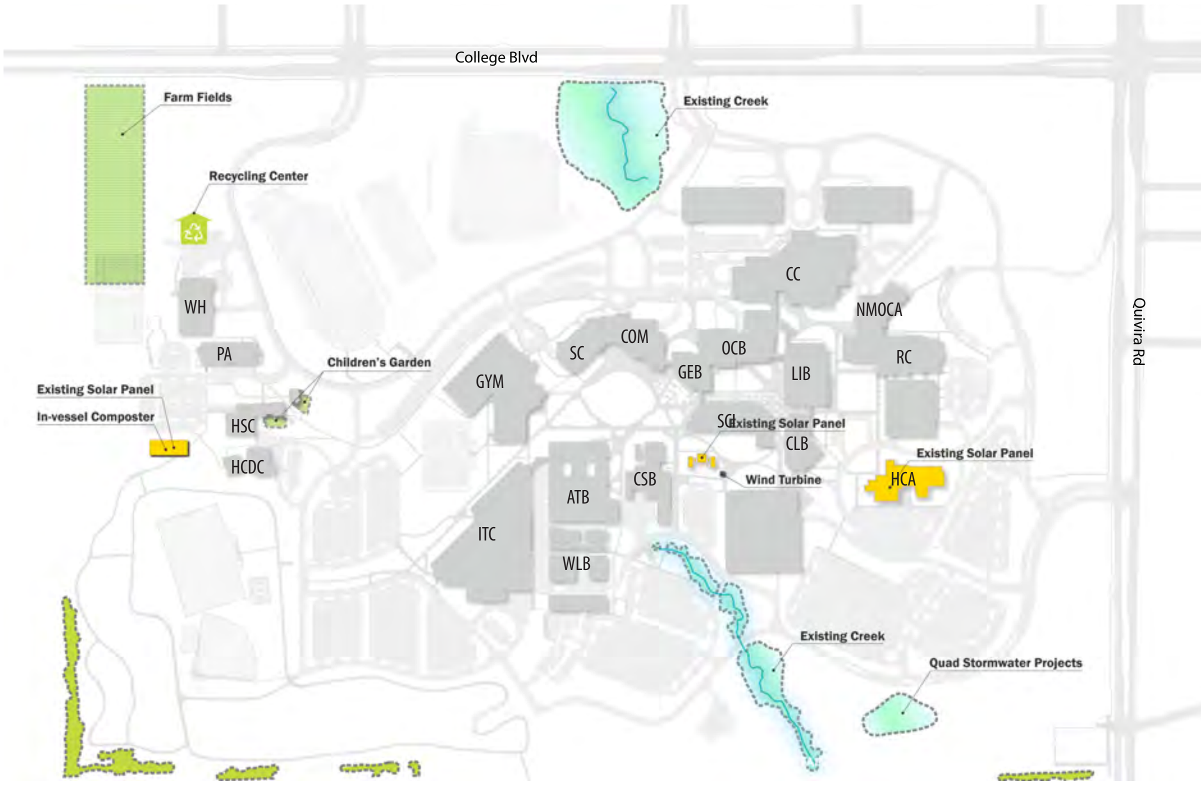
JCCC is a proven leader in early adoption of sustainability goals when compared to other higher education peers. The college's goal of zero waste by 2025 sets an ambitious tone for adoption of other sustainability initiatives.

Environmental sustainability will play a crucial role in the physical development of JCCC's campus. The Master Plan defines a broad holistic approach towards sustainability that unifies fundamental planning recommendations with the following JCCC's sustainability goals.

- Become a zero-waste-to-landfill campus by 2025, with 50% of waste diverted by 2016
- Make JCCC a 100% renewable-energy campus by 2050, with 15% achieved by 2020
- Reduce JCCC's carbon footprint through energy efficiency, renewable energy deployment, carbon sequestration and effective vehicle fleet management
- Support continued reduction of energy and water use through conservation
- Develop and implement a sustainable transportation plan that focuses on increasing the use of public transportation, carpooling, bicycling and other lower-impact forms of transportation
- Engage the campus and community on food issues through the JCCC Open Petal Farm and discussion of the links between food production, preparation, nutrition and wellness

Sustainable recommendations are integrated throughout this document to inform the development vision for the campus and ensure that growth is forward-thinking and environmentally sustainable. This section provides specific direction and recommendations regarding:

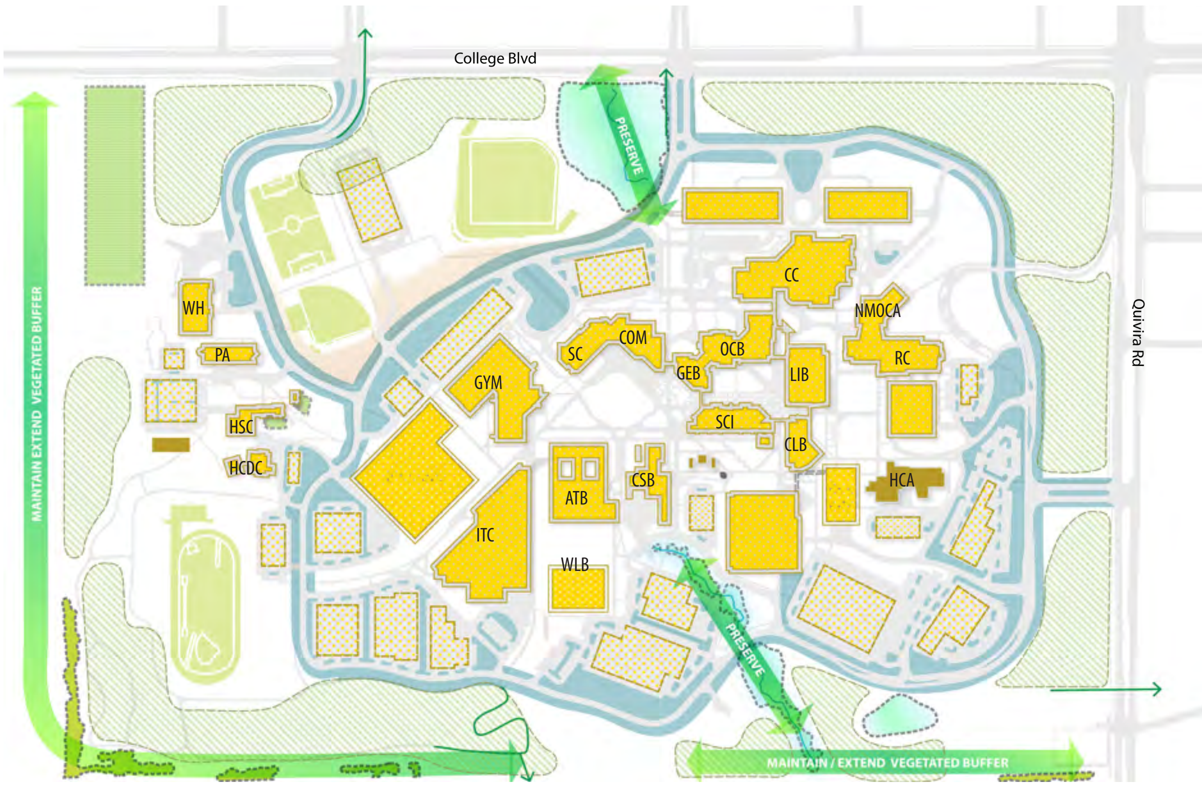
- Energy Conservation in Buildings
- Alternative Modes of Transportation
- Sustainable Stormwater
- Low-maintenance Landscape
- Opportunities for Renewable Energy



Accomplishments

JCCC's well-recognized leadership in sustainability can be exemplified by many existing and on-going campus initiatives.

- Sustainable Classrooms: JCCC has constructed three Energy and Environmental Design (LEED) certified buildings that demonstrate a variety of green building practices
- Recycling: More than $140,000 has been raised for scholarships from JCCC's recycling efforts
- Composting: JCCC's composting program converts waste into soil amendment for campus farming
- Campus Farm: The farm provides both chemical-free produce and a hands-on educational experience
- Renewable Energy: JCCC has installed solar panels and wind turbines on campus
- Curriculum Development Integration: The Sunflower Project facilitates the infusion of sustainability across the curriculum



Existing Solar Panels
Proposed Stormwater Management
Proposed Low Maintenance Landscape
Proposed Solar Panels on Building Roof
Proposed Solar Panels at Parking Lots
Connections to Existing/Proposed Trail

Future Initiatives

Integrating JCCC's sustainability goals, the following future initiatives are planned to preserve natural heritages and promote sustainability in various parts of campus life.

- Promote energy conservation in existing facilities and construct energy-efficient new buildings to reduce JCCC's carbon footprint
- Enhance bike infrastructure, extend bike trails, and optimize bus stop locations to support the sustainable transportation plan
- Harvest renewable solar, wind, and geothermal energy on campus to achieve the goal of a 100% renewable-energy campus
- Integrate stormwater facilities along the loop roads and on parking islands
- Implement low-maintenance landscape strategies
- Preserve natural drainage channels and peripheral vegetation


Energy-Efficient Building


Stormwater Management


Low-Maintenance Landscape

Renewable Energy

Energy Conservation in Buildings

JCCC has committed that all new campus buildings will be designed to meet LEED Silver certification guidelines. Sustainability will be demonstrated through energy-efficient building envelopes, intelligent HVAC systems, innovative wastewater treatment, and effective daylighting. Recognizing JCCC's achievements in energy conservation through the Powerswitch project, the Master Plan advocates existing infrastructure upgrades focused on campus lighting, scheduling and controls, and HVAC systems.

Alternative Modes of Transportation

The Master Plan prioritizes pedestrian, bike, and bus circulation on campus. JCCC should continue to improve cycling amenities and work with the city and the county to make critical trail connections. JCCC should also leverage the opportunity as a regional bus hub and promote alternative modes of commuting.

Sustainable Stormwater

Circling the campus in lower elevations, the loop road provides an excellent opportunity to apply stormwater best management practices (BMP's). Detention facilities and rain gardens along the road and on parking islands will slow down surface runoff. Preserved and restored drainage channels will create ecological mircohabitat and add scenic interests to the campus.

Low-maintenance Landscape

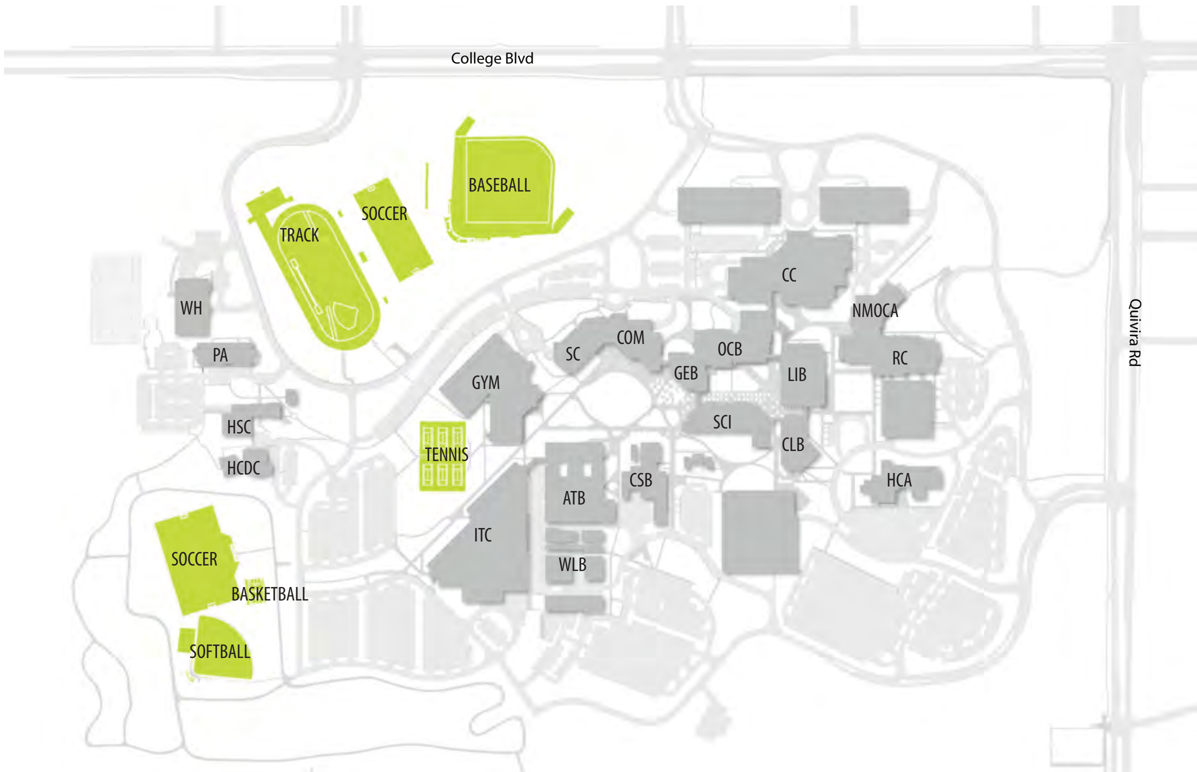
The Master Plan proposes low-maintenance landscape in the peripheral campus. Drought-tolerant, native species reflective of Kansas climate should be considered.

Renewable Energy

The location of the campus core on the top of a hill offers opportunities to better capitalize renewable solar and wind energy. JCCC should continue to apply solar photovoltaic (PV) electrical production to parking lots and roofs.

IIe. Strengthen Athletic Facilities

Athletic and recreational facilities contribute to a strong campus community and support a holistic part of campus life and student wellness. By consolidating athletic resources and improving athletic amenities, the Master Plan envisions a high-profile community- and student-oriented frontage along College Boulevard to celebrate JCCC's long-standing athletic heritages.



Opportunities and Constraints

The athletic facilities in the north and west side of the campus are used and maintained in varied conditions. Major opportunities for improvements include:

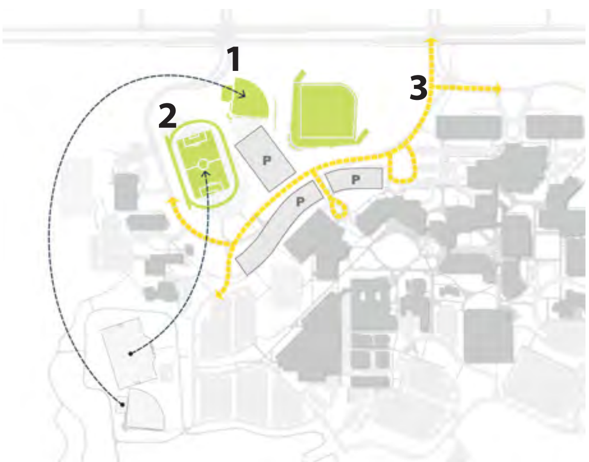
- Provide surface upgrades for softball and soccer fields
- Add or improve bleachers, restrooms, locker rooms and other amenities
- Improve accessibility to parking
- Update furnishings in GYM
- Optimize the location and establish central facilities for all sports
- Re-purpose underutilized spaces

As part of the Master Plan, several athletics alternatives were developed and compared on the following page.

[Option 1] Improve in Place

Upgrading existing athletic facilities in place is preferable from a cost standpoint, but it does not resolve current wayfinding and operational efficiency issues.

[Option 2] Consolidate Athletics



Consolidation of athletic facilities at the campus frontage can be achieved by:

1. Relocate softball to the north
2. Build a new "broken-back" track to consolidate soccer and track in one location
3. Realign North Campus Drive to improve campus wayfinding and parking

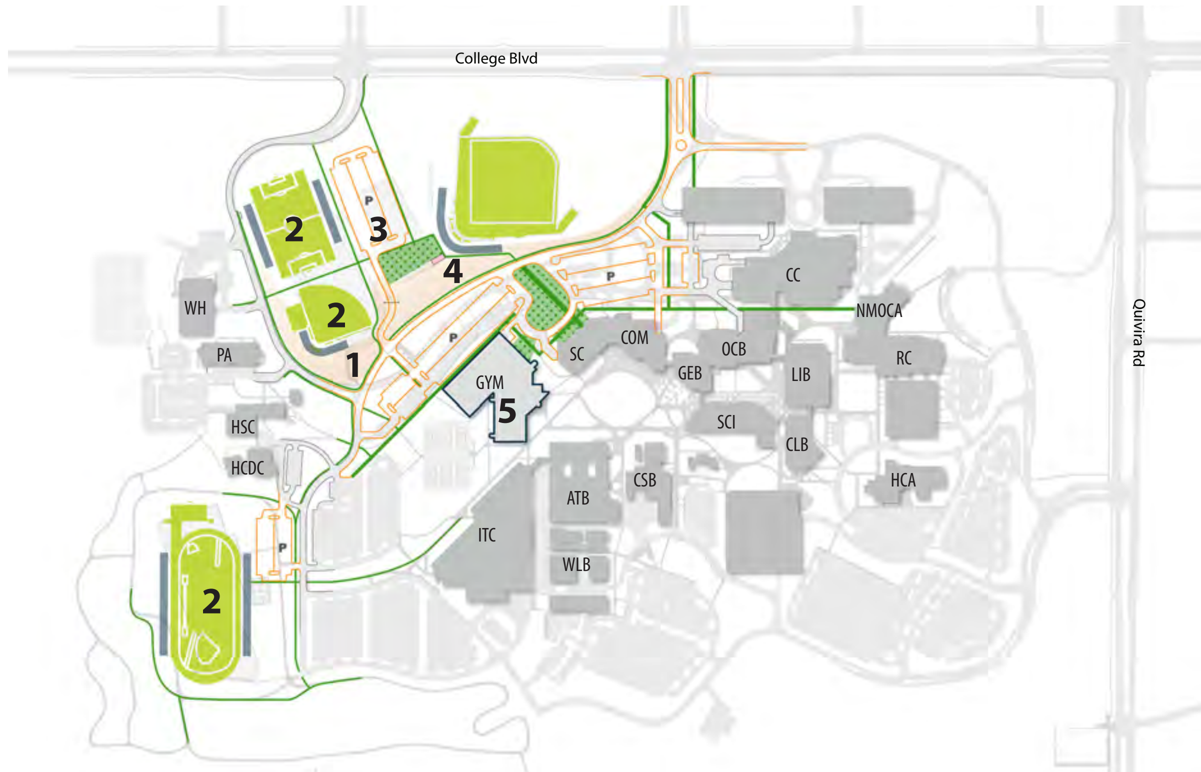
This layout can contribute to improved campus wayfinding, optimized adjacencies, and increased community engagement, but it may also lead to congestion and conflicts.

[Option 3] Relocate Track

This scenario co-locates facilities that frequently require event coverage simultaneously. Primary steps include:

1. Relocate softball to the north
2. Relocate soccer to the north
3. Relocate track to the south
4. Realign North Campus Drive to improve campus wayfinding and parking

This option improves wayfinding, optimizes resource sharing, and encourages community participation.



Athletic Field
Proposed Restroom
Bleachers
Ceremonial Open Space
Proposed Topo Modification
Proposed Road
Existing Road
Proposed Pedestrian Walkway
Proposed Gymnasium Renovation

A New Athletic Frontage

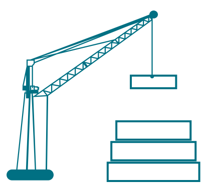
Option 3 was refined and a community-oriented athletic frontage on the northwest side of the campus can be established through the following steps:

- Improve site grading
- Relocate softball and soccer to the north, and relocate track to the south
- Construct new road and parking (220 spaces)
- Build public restrooms
- Refurbish GYM

The athletic improvements consolidate spectator sports, enhance campus amenities, and provide potential for revenue generation through diversified uses.

CHAPTER 3

IMPLEMENTATION




STUDENT CENTER
Royals

03 | Implementation

As a living document, the long-term value of the Master Plan will be its power to establish capital priorities and optimize limited and valuable resources. Based on the guiding principles, overarching concepts, and initiatives discussed in the previous chapters, this chapter introduces a flexible implementation strategy that groups priorities as part of two tiers.

In moving forward with the phasing and implementation strategy, priorities should continually be evaluated with an evolving series of strategic prioritization criteria based on JCCC's vision and mission, funding, maintenance, and other implications.

Conceptual cost estimates for the initiatives have been prepared based on limited information and should be considered as being for high level planning purposes only. Additionally, regarding the conceptual cost estimate, it should be noted that:

- Construction costs have been prepared at an order of magnitude and pre-design level. Construction cost ranges accommodate a range of equipment, finishes, and other cost variances
- Costs have been verified for consistency with several local contractors
- The estimate includes soft costs (design, review, permitting, construction management, furniture, etc.) beyond construction costs
- Project costs do not include move-in/relocation costs
- All construction costs reflect 2016 costs, and should be escalated for long-term planning

Priorities and Conceptual Cost Estimation

Initial Priorities	Estimated Cost
I a. New *Career & Tech Building* and New *Arts building* *ATB Renovation* for Welding	**$48.7 to $80.1 Million**
- Construct New Career & Tech Building	$21.5 to $32.0 Million
- Construct New Art Building (Without Graphic Design)	$7.1 to $11.2 Million
- Construct New Art Building (With Graphic Design)	$9.1 to $14.5 Million
- Renovate ATB for General Welding	$11.0 to $18.8 Million
- Renovate and Expand WLB for BNSF Labs & Demolish BNSF Specialty Labs & Demolish BNSF Specialty Labs	$9.0 to $14.7 Million
I b. Create Additional *Active Learning Classrooms*	**$3.6 to $5.0 Million**
I c. Consolidate *Resource Centers*	**$2.8 to $3.8 Million**
- Integrated Option: One Resource Center in LIB	$2.8 to $3.8 Million
- Two Centers Option: Math and Science Resource Center in CLB, Academic Archivement, Language, and Writing Centers in LIB	$2.8 to $3.8 Million
I d. Create College *Gateway and Front Door*	**$10.0 to $12.4 Million**
- Renovate Student Center	$2.6 to $4.4 Million
- Campus Front Door Enhancement	$5.9 to $6.3 Million
- Other Campus Wayfinding Enhancement	$1.5 to $1.6 Million
- Security	$0.1 to $0.2 Million
***Total* of Initial Priorities**	**$65.1 to $101.3 Million**

Funding Sources	Start Year (Potential Planning)
Reserves = $15 M Capital Campaign = $15 M Bonding = $40 M	2016-17
General Fund Budget $1M in FY 2016-17	2016-17
Capital Outlay Reserves	2017-18
Bonding	2017-18

* Assumes $1Million for Active Learning Classrooms

Initial Priorities

This table provides a framework to assist JCCC with implementation of the following initial priorities that are considered most critical for JCCC's mission and near-term needs:

- [Ia] Construct new CTE and Arts buildings. Renovate ATB and WLB
- [Ib] Create additional active learning classrooms
- [Ic] Consolidate resource centers
- [Id] Improve college gateway and front door

The table seeks to convey an order of prioritization for when initiatives should happen on campus to make strategic use of JCCC's resources.

Tier II Initiatives (Unranked)	Estimated Cost
II a. Establish Collaborative Learning/Gathering Areas	$7.4 to $10.4 Million
II b. Remodel to Create Collaborative Offices	$2.0 to $2.7 Million
II c. Create Maker Spaces	$1.4 to $2.3 Million
II d. Expand Sustainability Initiatives	$19.3 to $22.0 Million
II e. Improve and Upgrade Athletic Facilities	$6.6 to $7.3 Million

Funding Sources	Start Year (Potential Planning)
General Fund or capital outlay annual budgeting.	2017-18
General Fund or capital outlay annual budgeting.	2017-18
General Fund or capital outlay annual budgeting.	Future
General Fund or capital outlay annual budgeting. Potential contribution from sustainability fund.	2017-18
General Fund or capital outlay annual budgeting. Some facilities rental dollars available.	2017-18

Tier II Initiatives

In summary, future planning initiatives include:

- [IIa] Establish collaborative learning spaces
- [IIb] Remodel to promote collaborative offices
- [IIc] Create Maker Spaces
- [IId] Expand sustainability initiatives
- [IIe] Improve and upgrade athletic facilities

Phasing and implementation sequencing must remain flexible, thus Tier II initiatives identified in this chart are unranked and can be prioritized depending on specific circumstances in the future.

A Future Vision for the Campus


WLB
EXPANSION
ITC
NEW CTE
GYM

ACKNOWLEDGMENTS

Master Plan Process

The Master Plan was completed over a 11-month period that consisted of five key planning phases. The planning process was designed to be transparent and provided JCCC the opportunity to develop a collective vision for the Master Plan built upon input from both campus and community stakeholders.

Discovery

The master planning process commenced with a discovery phase wherein the planning team established objectives, started a working partnership with the Facilities Planning Steering Committee, and ascertained key issues.

Analysis

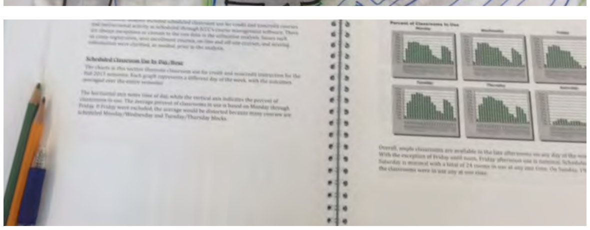
The planning team evaluated campus data, uncovered meaningful physical and functional relationships, and identified opportunities and constraints that would influence future facilities planning decisions.

Idea Generation

The planning team developed preliminary strategies and alternatives for JCCC's campus with special focuses on Career and Technical Education programs, collaborative learning spaces, and campus wayfinding.

Refinement

Based on the comments from diverse constituent groups, the planning team proceeded with refined recommendations. Implementation strategies and cost estimates informed decision making.



Documentation

The planning team documented the process and the recommendations in a final narrative. This document includes all final graphics, and recommendations for future proposed development and expansion.

Master Plan Engagement

JCCC developed an inclusive, consensus-oriented process to encourage greater representation across broad reaching constituent groups. Extensive input from these groups guided the process, providing valuable insight to the planning team and allowing constituents to gain ownership of the plan. JCCC held five on-campus planning sessions, two board workshops, five open forums, and multiple on-line conferences with more than 200 campus stakeholders throughout the planning process.

Steering Committee

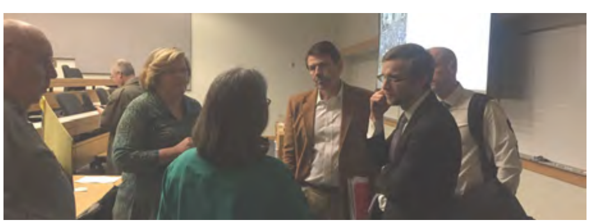
The planning team routinely engaged with the Steering Committee to define strategy and facilitate decisions. The committee was comprised of organizational leaders and key integrators representing the missions of the institution.

Advisory Teams

Representing diverse stakeholders on campus, advisory teams met with the planning team periodically throughout the planning process. They synthesized information and advised on planning issues.

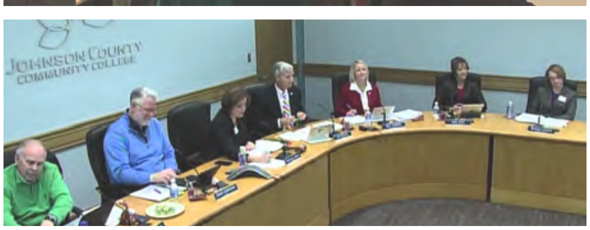
Focus Groups

The planning team interviewed selected campus and community constituents with specialized expertise who could provide input on detailed planning, programming facility, campus, and community development efforts.



Open Forum

Involving more than 200 faculty members and students, on-campus open forums provided platforms for the broader campus community to share ideas and interact with the planning team.



Board of Trustees

Workshops with the Board of Trustees at two strategic points during the process enriched planning vision and facilitated decision making.

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Frank Sotolar
Will Chmylak

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Paulien & Associate, Inc.

Frank Markley

APPENDIX

Appendix

- Space Needs Analysis Report
- ATB Facility Programmatic Recommendations
- Academic Spaces Committee Report

JOHNSON COUNTY COMMUNITY COLLEGE

SMITHGROUPJJR

JOHNSON COUNTY COMMUNITY COLLEGE

Space Standards and Space Needs Analysis for the Facilities Master Plan

Overland Park Campus

PAULIEN & ASSOCIATES, INC.

September 2016

Space Standards and Space Needs Analysis for the Facilities Master Plan

Overland Park Campus

Prepared by:

Paulien & Associates, Inc.

Denver, Colorado

Frank Markley, Ph. D.
Vice President and Principal

In Association with:

SmithGroupJJR

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Mike Bloemker, Head Coach, CC/Track and Field Bill Buese, Professor/Trainer, Athletics
Benjamin Conrad, Head Coach, Women's Basketball
Jim Dice, HPER Facility & Clinic Coordinator
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Section 1: Introduction and Background

Paulien & Associates, Inc., a nationally recognized academic and space planning firm, was part of a larger team selected in October 2015 to complete the Johnson County Community College Facilities Master Plan, conducted by SmithGroup JJR of Ann Arbor, Michigan. Paulien & Associates conducted multiple work sessions and presented findings over a seven-month period culminating with the development of this report.

The purpose of this study is fivefold:

- Document the existing physical assets on the campus by validation of the facilities inventory;
- Complete a utilization analysis for the Overland Park campus to understand how efficiently classrooms and laboratories are being utilized;
- Compare results to benchmarking data to establish utilization guidelines;
- Develop space standards based on proven industry metrics and use these standards to generate a space needs analysis by space category at current and prescribed enrollment and staffing levels;
- Develop a programmatic framework for key academic, academic support, and student services concepts, including a high level facility program for a fine arts facility, and;
- Integrate the findings from the facility and programmatic recommendations for the Arts and Technology Building, as completed by NorthStar Consulting, into the space needs analysis.

These tasks were developed and completed through a college-wide collaborative process that engaged stakeholders in discussions about JCCC's future over a seven-month period spanning from November 2015 through May 2016.

The utilization, space standards, and space needs analysis study were developed to be comprehensive planning studies that integrate key components of JCCC's mission and strategic goals into a ten-year campus planning vision for the College.

Description of the College:

Johnson County Community College is a public two-year community college located in Johnson County, Kansas and is the largest two-year higher education institution in the state. Johnson County was founded on August 25, 1855, six years prior to Kansas becoming the 34th state to enter the Union.

Johnson County is one of Kansas City's metropolitan area's largest growth engines. In 2012, Johnson County accounted for more than half of the new businesses and job growth in the Kansas City Metropolitan Statistical Area (MSA). The County has 20 incorporated cities and seven townships. More than 60% of the 477 square miles of land in the county has been developed.

Brief College History

Like many community colleges established in the 1960s, JCCC began as a grass-roots movement by residents of Johnson County to address the postsecondary educational needs of a rapidly growing population and a good school system from which a local college could draw students. In 1964, a county-wide feasibility study and needs assessment was conducted that demonstrated a need for a local college. A citizen's action committee was mobilized to implement study recommendations.

A petition signed by all school boards in the county requested the formation of a community junior college district. Johnson County Community College became the first new college recommended for creation under the Kansas Community Junior College Act of 1965. A special county-wide election was held in March 1967, and the proposed community college was approved. The district was formally established in June 1967. In 1968, the board selected the first president, identified the site that would eventually become the permanent campus, and developed the first mission statement for the College.

In 1969, county residents voted approval of general obligation bonds to purchase more than 200 acres in Overland Park, Kansas and construct the first buildings. In fall, 1972, classes began at the permanent campus at College Boulevard and Quivira Road with approximately 100 full-time faculty and more than 3,600 students.

Today, JCCC is one of the state's largest institutions of higher education with an enrollment of more than 19,000 students. JCCC is governed by a seven-member board of trustees elected at-large from the community to four-year terms. The board governs the College and sets the budget and local tax levy. About 60 percent of JCCC's operating funding comes from county taxes and motor vehicle taxes; the remainder comes from student tuition and state aid.

JCCC has received ongoing accreditation from the Higher Learning Commission (HLC) with the most recent reaffirmation of accreditation in 2010. Accreditation by the HLC indicates that JCCC has been carefully evaluated and found to meet standards agreed upon by qualified educators. JCCC is also a board member of the League for Innovation in the Community College.

Programs

Credit students attending JCCC are preparing for entry into numerous career fields or seeking transfer to a baccalaureate institution for further study. In response to student and community needs, JCCC offers more than 50 programs of study leading to150 degree and certificate options. Courses are held days, evenings, and online, as JCCC provides flexibility for working students and those with families.

JCCC is also a national leader in Workforce, Community and Economic Development through its noncredit workforce training and personal enrichment programs. JCCC has nearly 23,000 duplicated enrollments each year in more than 4,600 certification, recertification and re-licensure workshops, seminars, independent study, computer and information technology classes, and contract training events. More than 3,800 employees of 85 area companies take advantage of contract training courses specifically personalized and delivered at the College or on site in the workplace.

In addition, JCCC has more than 75 student clubs and organizations and an active Student Senate. The Senate is comprised of 25 senators-at-large and five executive board members. JCCC offers three general degrees (AA, AAS, AGS), seven specific degrees (AA, AAS), and eight certificates where 50 percent or greater of the courses required in these programs are offered online.

Campus and Facilities

JCCC has three campus locations. A full-service comprehensive campus is located in Overland Park, Kansas, a suburb of the larger Kansas City metropolitan area. The Overland Park campus was the focus of this study.

The Olathe Health Education Center (OHEC) is located approximately 10 miles from the home campus in Olathe, Kansas. The center houses classrooms and skills labs for practical nursing and multiple health occupation programs, as well as general education courses.

The College also has a leased facility called the West Park Center. The Center houses the College's cosmetology program, adult basic education, GED preparation, and English as a Second Language courses.

With more than 200 acres, the Overland Park campus houses 22 buildings. The newest building opened in Fall 2013 and contains the Hospitality and Culinary Academy. The Carlsen Center contains Yardley Hall, Polsky Theatre, and the Bodker Black Box Theatre for academic productions and community events.

The Regnier Center houses credit and noncredit classes, as well as the College's Continuing Education Division, while the Nerman Museum of Contemporary Art is a world-class gallery devoted to regional, national, and international contemporary art.

The National Academy of Railroad Sciences (NARS), a partnership of JCCC and BNSF Railway, is located on the Overland Park campus and provides training for railroad workers, as well as those already employed in the industry.

Committee Membership and Meetings

The utilization study and space need analysis were developed with diverse representation of faculty, staff, and administrators from JCCC. The process was informed by the President and his cabinet, which was comprised of the executive leadership of the campus and the decision–making body for the Facilities Master Plan.

Multiple meetings were conducted with administrators, including vice presidents, deans, directors, and other professional staff during the course of the study. In an effort to disseminate the results of the analyses, multiple open forums were scheduled and conducted to gather input from faculty, staff and students.

Planning Statements

The Mission, Vision, and Values Statements were developed in advance of the planning process and were used to guide the over-arching direction of this study.

Mission

JCCC inspires learning to transform lives and strengthen communities.

Vision

JCCC will be a national leader through educational excellence and innovation.
Values

Integrity - We hold ourselves accountable for decisions and actions.

Collaboration - We respect diversity of thought in building a culture of collaboration.

Responsiveness - We respond to the needs of our students and communities through relevant offerings.

Leadership - We pursue leadership roles in our communities and higher education.

Section 2: Student, Staff, and Academic Planning Assumptions

Planning Assumptions

This chapter describes the development of student, staff, and academic planning assumptions for a ten-year period from Fall 2015 through Fall 2025. Accurate student enrollment and staffing projections are critical in the space planning process. Space planning standards and guidelines use student and staff data to determine if sufficient space is available for current and future operations.

Enrollment Projections

Paulien & Associates worked with JCCC in developing ten-year full-time equivalent (FTE) planning assumptions for the Facilities Master Plan. Since JCCC enrollment is generated from multiple sources, there was a need to disaggregate these data. Figure 1 delineates FTE for the Overland Park campus, OHEC and West Park combined, and total FTE, excluding high school students. High school students were eliminated from FTE projections, as a large majority of the instruction occurs in the high schools and not at JCCC campus or center locations.

Figure 1

MASTER PLAN ENROLLMENT ASSUMPTIONS (Face-to-Face)

Fall Semester	Overland Park Campus FTE	Overland Park and Centers FTE	Total FTE (excluding High Schools)
Fall 2015	7,875	8,197	8,912
Fall 2020	7,491	7,919	9,349
% Change	**-4.9%**	**-3.4%**	**4.9%**

Term FTE = credit hours /15

In reviewing the table, FTE on the Overland Park campus is predicted to decrease by 4.9% over the ten-year master planning timeframe. It must be noted that these enrollment assumptions are based on the number of students physically present on the Overland Park campus and exclude online course delivery.

OHEC and West Park are expected to increase slightly in FTE, but not at the rate of the total campus. When the campus and centers are combined, face-to-face FTE is projected to decrease by 3.4% over the ten-year period.

Total FTE, which includes FTE generated by alternative delivery and online courses, is expected to gradually increase over the next ten years, outpacing on-campus growth to generate a 4.9% overall increase in FTE over the planning period.

As the Overland Park campus was the focus of the study, two different FTE data points were used in the space planning model:

1) Overland Park campus only: including FTE of students not on campus tends to inflate space needs in certain categories like student unions, classrooms, laboratories, and selected academic support spaces.
2) Some campus departments or units at the Overland Park campus, either directly or indirectly, support all campus locations and online students. These entities include academic resource centers, library, campus information technology centers, athletics, and facilities support.

Overland Park Campus Staff Projections

Based on FTE projections, the consultant projected the growth in staff positions by employee classification for the ten-year planning period. The analysis is delineated in Figure 2. This projection has not been validated through JCCC strategic goals or available fiscal resources. The only purpose of this analysis is to project the quantity of office and office service space needed to accommodate potential new employees.

One of the goals is to maintain a favorable ratio of student FTE to full-time faculty. This may be a challenge in some areas in the future. As a result, a modest 1.5% growth rate was established for full-time teaching faculty at the Overland Park campus. Adjunct faculty were projected to increase by 2% over the planning period, as a disproportionate growth in FTE will be in online courses.

As most of the growth in FTE will be generated from online courses, on-campus staff growth in most non-academic areas will be minimal as the total number of students on campus steadily declines. Administration and staff positions were projected to increase at a rate between 1.0% and 2.0% over the planning period. A total of 40 new administrative, faculty, staff and student positions were generated from this analysis.

Figure 2

CAMPUS MASTER PLAN STAFFING ASSUMPTONS-OVERLAND PARK CAMPUS

Employee Classification	% Growth	Fall 2015	Fall 2025	Change in Positions 2015 -2025
Administrative/Management	1.0%	253	256	3
Full-Time Faculty 12, 10 & 9 Month Bargaining Unit	1.5%	305	310	5
Full-Time Hourly Staff and FT Temp Hourly	1.0%	329	332	3
Full-Time Temp Salaried	2.0%	31	32	1
Part-Time Hourly Regular Staff	1.0%	354	358	4
Part-Time Temporary Staff	1.7%	549	558	9
Part-Time Faculty Salaried	2.0%	722	736	14
College Work-Study	1.5%	57	58	1
Librarians and Library Aides (all titles)	2.0%	31	32	1
Total		**2,631**	**2,671**	**40**

2015 Data Source: JCCC Staffing File for Campus Master Plan Analysis

Academic Programs

The Vice President of Instruction and academic deans were interviewed for the space needs analysis. Information varied, but generally included enrollment trends, issues related to current space needs, and discussion regarding the development of new career and technical programs under consideration.

Many of these programs are included in the facility and programmatic recommendations for the Arts and Technology Building report by NorthStar Consulting. The expansion of industrial technology program space combined with the potential for additional program options in fine arts could generate increased enrollments. Some programs have special teaching laboratory requirements or other special space needs that were taken into consideration in the space needs analysis. No academic or technical programs were identified for relocation between the campuses.

Building Assumptions

During the study, 8,889 assignable square feet (ASF) of space on the first floor of the Office and Classroom building was inactive as the result of relocation of the culinary program to its new facility. The space is being repurposed into a collaboration center. Based on preliminary review of floor plans, the new spaces, totaling 8,278 ASF, were incorporated into Fall 2025 existing space category by space use code. Room number, space use code, and ASF for the proposed collaboration center are noted in Figure 3.

Figure 3

SPACE INVENTORY FOR COLLABORATION CENTER

Room Number	Space Use Code	ASF
#100	220	4,403
#102	680	224
#104	680	156
#106	210	851
#107	110	762
#108	220	766
#108A	220	479
#110	210	516
#112	680	121
Total		**8,278**

A collaborative lab (RC 301) at 498 ASF was also noted as vacant in the JCCC facility inventory and was placed back into service for the ten-year planning horizon.

Section 3: Process and Existing Space Analysis

Process

The utilization, development of space standards, and the space needs analyses were completed using four primary data sets supplied by JCCC: facilities, course, staffing, and enrollment data.

These quantitative data sets were analyzed with a proprietary relational software program developed by the consultant over a 20-year period. Several reports were generated to review the variances between the data sets. After an acceptable level of accuracy was established, these data were analyzed and converted into information that was used by the consultant to make informed decisions and create viable planning scenarios at current and future enrollment levels.

The goal of this chapter is to provide an overview of the methodology used to develop the outcomes noted in this report and to review the existing amount of space on the Overland Park Campus.

Data Sets

A Data Request Memorandum was submitted to JCCC outlining the information needed to develop the analyses contained in this report. Items requested and received for the Fall 2015 semester are as follows:

- **Course Data –** This included the course number and description, student enrollments, course type, start and stop times, start and end dates, and meeting locations for both credit and non-credit courses for each campus or center location.
- **Staffing Data –** This consisted of a unit record database of each employee by headcount and FTE, including job title and major employee category for the Overland Park campus.
- **Facilities Inventory –** This was developed by JCCC representatives with portions site-verified by the consultant. This data set provided building name, departmental designation, room number, square footage, and space use classification, and room equipment list on a room-by-room basis.
- **Floor Plans of Existing Buildings –** These plans were used for developing planning scenarios and the space inventory validation process.
- **Library Data –** Data included collection volumes, number of study stations, gate counts, and hours of instructional activity by librarians.
- **Student Enrollment –** This included student headcount and FTE enrollment by campus, center, and program.
- **Programs –** A list of potential new career programs that are under consideration over the master plan period, as outlined by NorthStar Consulting.

These data provided a snapshot of activities for Fall 2015, which was used as the base year for the analysis.

Methodology

The outcomes of the utilization and space needs analyses were developed from space standards or guidelines based in part on the outcomes of work sessions with campus representatives. Empirical observations noted during site visits helped solidify the application of associated space guidelines or standards.

Discussions with JCCC administrative representatives further highlighted the consultants understanding of issues. A brief description of the methodology used for this study is as follows:

- The consultant became familiar with the campus via published sources, including mission and vision statements, strategic and academic plans, program offerings, organizational structure, campus and center locations, and history.
- Once data were received, the consultant reviewed Fall 2015 semester data sets as noted in the previous section, and developed exception reports for these data to identify discrepancies for resolution. These reports were shared with the College and were used to refine the facility inventory.
- On-site tours to various buildings, grounds, and spaces at the Overland Park campus were completed to gain familiarity with the facilities and assess the overall reliability of the base data.
- The consultant conducted numerous work sessions over several days with key JCCC representatives. Enrollment growth, institutional vision, academic program goals, changing pedagogies, current space needs, and JCCC's planning goals were the focus of most on-site sessions.
- The quantity and distribution of space at the Overland Park campus was analyzed, based on established space categories published by the National Center of Education Statistics' (NCES) *Postsecondary Educational Facilities Inventory and Classification Manual (FICM), 2006.* This analysis is presented at the end of this section.
- The consultant analyzed the current utilization of classrooms and teaching laboratories and compared outcomes to recognized guidelines as a point of comparison.
- Based on work sessions and observations, space standards were developed for 15 space categories for the Overland Park campus based on a comprehensive review of state and national association recommendations, as well as Paulien & Associates own empirical research in working with more than 225 community colleges campuses over a 35-year period.
- Using existing data sets and space standards created specifically for JCCC, an order-of-magnitude space needs analyses for all academic, academic support, and auxiliary space was generated for the Overland Park campus.
- Utilization, space standards, and the space needs analysis were presented during work sessions with the various master planning committees.
- The consultant worked with SmithGroup JJR to develop a programmatic framework for various campus initiatives, including a new fine arts facility.
- Draft and final reports were developed and disseminated for review and comment.

The remaining sections of this study present findings for the utilization of classrooms and class laboratories, the development of space standards, and the application of these standards to generate the space needs analysis.

Inventory of Existing Space

As part of the overall planning services provided by the consultant, portions of the facilities inventory were field verified for accuracy. It must be noted that no departmental data was verified during the facilities review process.

After an on-site review of the physical inventory file, the consultant ran a series of reports that specifically looked for facilities issues and discrepancies. Several space discrepancies were reviewed with JCCC facilities and scheduling personnel and modified accordingly. In some cases, rooms were added to the facility inventory and are included in the analysis based on actual room measurements completed in the Arts and Technology building by NorthStar Consulting.

Other records were modified to reflect current use. A list of buildings and the estimated ASF contained in the facilities inventory is noted in Figure 4 for the Overland Park campus. The Collaborative Center was in the final stages of architectural design during the development of this study. This space was included in the space needs analysis at the plan horizon.

Buildings in the Analysis

The facility inventory includes a total of 22 buildings on the Overland Park campus comprising a total of 873,301 ASF, including space dedicated to the BNSF railroad program. The Olathe Health Education Center (29,586 ASF) and the Westpark Center (20,280 ASF) bring the institutional total to 923,167 ASF. The total ASF by building is noted in the table, *JCCC ASF by Building.*

Figure 4

JCCC ASF BY BUILDING

Building Name	ASF	Building Name	ASF
Arts and Technology Building	45,859	Library Building	65,783
Carlsen Center	84,476	Nerman Museum of Contemporary Art	22,538
Classroom Laboratory Building	40,939	Office and Classroom Building	31,145
Commons Building	38,078	OCB to GEB Link	2,242
Campus Services Building	22,197	Police Academy	12,154
General Education Building	55,398	Regnier Center	87,793
Galileo's Pavilion	1,929	Student Center	48,001
Gym Building	82,678	Science Building	44,330
Hospitality & Culinary Academy	21,403	Warehouse	19,023
Hiersteiner Child Develop Ctr	7,848	Welding Laboratory Building	38,006
Horticultural Science Center	13,032	Olathe Health Education Center	29,586
Industrial Technical Center	88,449	Westpark Center	20,280

ASF - Assignable Square Feet

Existing Space Allocation – Overland Park Campus

Figures 5a and 5b illustrate ASF by space use category for the Overland Park Campus. Compilation of the room-by-room facilities data by space use code, excluding the ASF contained within the BNSF railroad program, calculated to 775,770 ASF. The BNSF space was omitted from this calculation as space and staff are dedicated to this program and not readily available for use by JCCC. At the time of the study, a total of 97,531 ASF was dedicated to the BNSF program. The total space on the Overland Park campus is 873,301 ASF, as noted in the table.

Figure 5b notes the percentage of space in each space use category. While classroom and laboratory space is often considered the most significant allocation of space on higher education campuses, it is typically less than 40% of the total. At the Overland Park campus, 36% of the total ASF is being used for this purpose.

Academic and administrative offices comprise the other largest space category, representing 23% of all space on the Overland Park campus. At 18% of the total space on campus, the general space category includes the theatres, auditoriums, and exhibition space, as well as food facilities and childcare spaces.

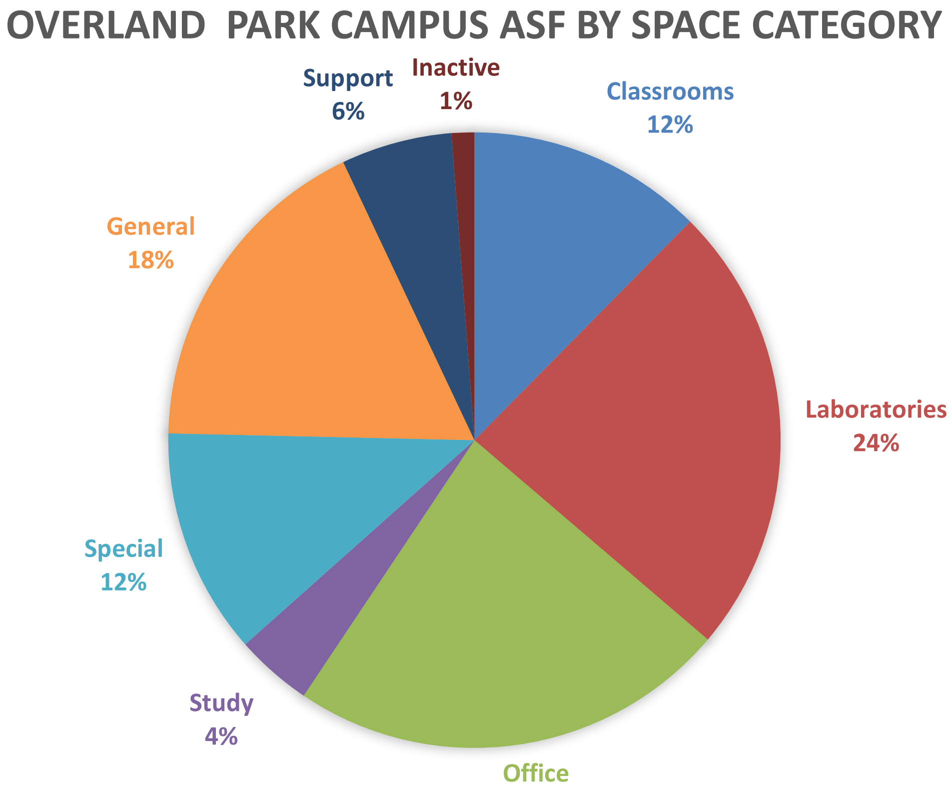
The special space category, at 12% of space on campus, includes athletic and physical education facilities as well as greenhouses, demonstration and clinic spaces. Support space (6%) includes telecommunication rooms and physical plant and maintenance spaces. The general space category, at 18% of the total, includes assembly and exhibition spaces such as the Newman Museum and Yardly Hall within the Carlsen Center, food facilities, day care, merchandising, recreation, and meeting rooms, as contained within the Regnier Conference Center. The study space category comprises 4% of the space on campus and includes spaces contained with the library and Hospitality and Culinary Academy reading room. At 1%, inactive space for Fall 2015 was space vacated in the Office and Classroom building by the relocation of the culinary program.

Figure 5a

ASF BY SPACE CATEGORY
OVERLAND PARK ASF

SUC	Space Category	ASF	Percent
100	Classrooms	96,466	12%
200	Laboratories	184,466	24%
300	Office	179,931	23%
400	Study	31,472	4%
500	Special	92,174	12%
600	General	136,517	18%
700	Support	45,357	6%
70	Inactive	9,387	1%
	Subtotal ASF	**775,770**	**100%**
	BNSF ASF	97,531	
Overland Park ASF		873,301	
OHEC ASF		29,586	
Westpark Center ASF		20,280	
Total JCCC ASF		**923,167**	

Figure 5b



Comparative Analysis by Space Use Category

The distribution of space by space category was totaled for each campus and center location. Space allocation to BNSF was excluded from the analysis as JCCC does not have access to these spaces. The percent of space in each space category was compared to community colleges in eight states comprising 177 community college campuses and 70 extended campus or center locations. The results are noted in the table.

Figure 6

ASF BY SPACE CATEGORY: PRELIMINARY COMPARATIVE ANALYSIS

		Space Category Percent									
SUC	**Space Category**	**JCCC**	**Eight State Average**	**Maryland**	**Illinois**	**North Carolina**	**South Carolina**	**Colorado**	**Georgia**	**Utah**	**Wyoming**
100	Classrooms	15%	16%	15%	19%	22%	18%	14%	16%	17%	11%
200	Laboratories	24%	26%	23%	26%	28%	35%	27%	16%	25%	26%
300	Office	23%	20%	23%	18%	19%	20%	19%	23%	19%	18%
400	Study	4%	6%	5%	6%	6%	4%	8%	9%	4%	5%
500	Special	11%	10%	10%	8%	4%	5%	11%	15%	16%	14%
600	General	16%	13%	12%	13%	12%	10%	14%	13%	13%	17%
700	Support	6%	6%	5%	6%	5%	7%	4%	8%	6%	7%
800	Health	0.0%	0%	0%	0.20%	0%	0%	0.1%	0.4%	0.0%	0.4%
70	Inactive	1%	2%	6%	3%	4%	1%	3%	0%	0%	2%
	Total Percent	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
	Total ASF	0.81M	7.4M	7.3M	18.8M	17.3M	5.5M	3.0M	3.6M	1.3M	2.2M
	Campuses	1	177	16	40	58	15	24	12	5	7
	Centers	2	70	9	13	0	35	2	0	4	7

Source: Paulien Analysis

In comparison, JCCC has slightly less classroom and laboratory space, as a percentage of total, than other community colleges in the analysis but 3% more space in the office space category. This additional office space may be due to the size of JCCC's Information Technology, Continuing Education, and Workforce Divisions.

The 3% difference in the general space category can be attributed to the theatre and art exhibition spaces contained on the campus. JCCC is 2% lower on the amount of study space compared to other campuses in this analysis. The comparative analysis provides initial evidence of space surpluses and deficits as part of the space needs analyses.

Section 4: Classroom and Laboratory Utilization

Utilization Analyses

This section provides utilization results for classrooms and class laboratories at the Overland Park Campus and Olathe Health Education Center (OHEC). The utilization of these rooms was examined using the Fall 2015 course file and facility inventory data. Understanding how classrooms and teaching laboratories are scheduled and utilized provides the foundation for, and assists in, the understanding of space standards and guidelines.

Classrooms are categorized as 110 and 115 space use codes in the FICM taxonomy.

Classroom Utilization Overview

The utilization analysis included scheduled classroom use for credit and noncredit courses and instructional activity as scheduled through JCCC's course management software. There are always exceptions or caveats to the raw data in the utilization analysis. Issues such as cross-registration, zero enrollment courses, on-line and off-site courses, and missing information were clarified, as needed, prior to the analysis.

Scheduled Classroom Use by Day/Hour

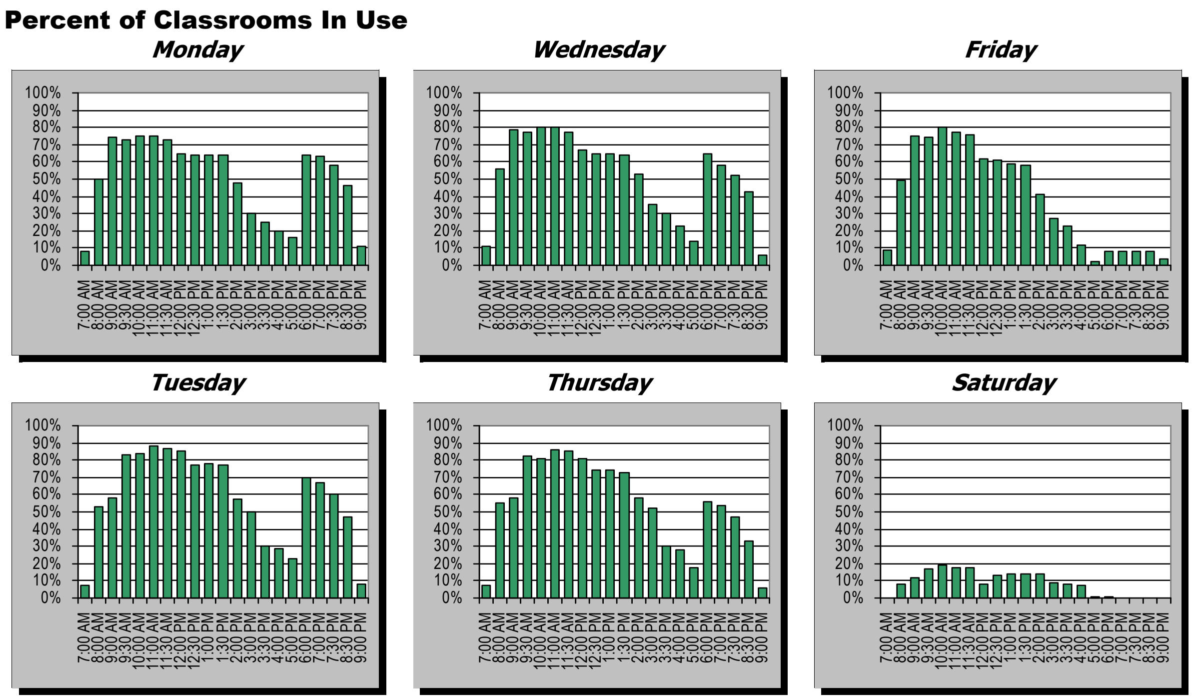
The charts in this section illustrate classroom use for credit and noncredit instruction for the Fall 2015 semester. Each graph represents a different day of the week, with the outcomes averaged over the entire semester.

The horizontal axis notes time of day, while the vertical axis indicates the percent of classrooms in use. The average percent of classrooms in use is based on Monday through Friday. If Friday were excluded, the average would be distorted because many courses are scheduled Monday/Wednesday and Tuesday/Thursday blocks.

Overland Park Campus

Figure 7 notes use of the 132 classrooms. The outcomes of the analysis reveal that the heaviest classroom use for the Fall 2015 semester occurred at 11:30 AM on Tuesday where 87% of the classrooms were in use. Overall, classroom use is greater on Tuesday and Thursdays, especially from 10:00 AM until Noon. Classroom use declines significantly between the hours of 3:30 PM and 5:00 PM before evening classes begin at 6:00 PM. Evening use is greatest on Tuesdays, with 71% of the classrooms in use at 6:00 PM. Friday evening use is minimal, as typical at most urban community colleges. Unlike many community colleges, Friday morning and early afternoon use is robust.

Figure 7

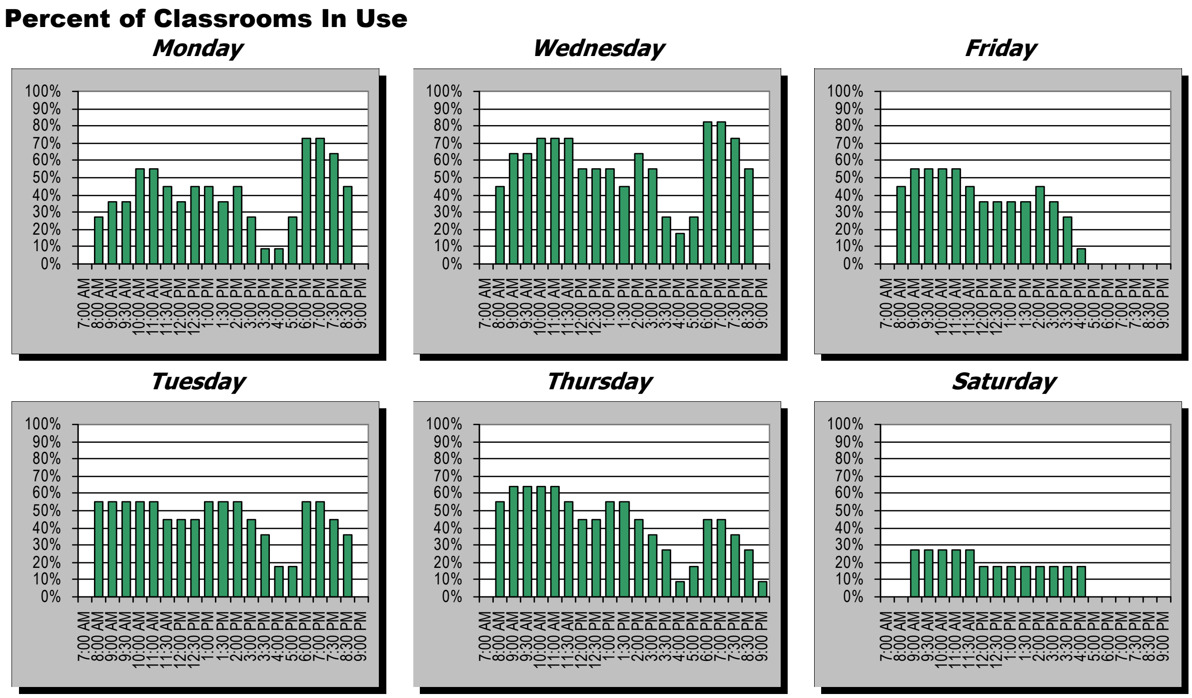


Overall, ample classrooms are available in the late afternoons on any day of the week. With the exception of Friday until noon, Friday afternoon use is nominal. Scheduled use on Saturday is minimal with a total of 24 rooms in use at any one time. On Sunday, 1% to 2% of the classrooms were in use any at one time.

JCCC OHEC

Figure 8 notes use of the 11 classrooms located at the OHEC. The outcomes reveal that classroom use overall is lower than that on the Overland Park campus. Wednesday evening has the heaviest use with 82% of the classrooms scheduled between 6:00 PM and 7:00 PM. Evening use is greater on Monday and Wednesday, while day use is greatest on Wednesday and Thursday. Friday is also less utilized compared to the other four weekdays, especially after 4:00 PM.

Figure 8



Overall, classroom availability is less limited than at the Overland Park campus. Additional capacity is available at most times during the day. There was some scheduled use on Saturday, with three classrooms used in the morning hours and two from 12:30 PM until 4:00 PM. No courses were scheduled on Sunday.

It has to be noted that the number of classrooms at the OHEC is significantly less than on the Overland Park Campus. At times when 64%, or 7, of the 11 classrooms are in use, only three classrooms are available.

Classroom Utilization by Building Summary

A classroom utilization analysis was developed for both locations. The analysis was completed at the room level for credit and noncredit instruction with statistical averages for each building and for the campus or center as a whole. The room-level analysis can be found in Appendix C.

Overland Park Campus – Credit and Noncredit Courses

One hundred-thirty-two classrooms (Space Use Code 110) were noted in 17 buildings on the Overland Park campus. Classrooms dedicated to the BNSF railroad program that had no documented use were eliminated from the analysis. Most of these courses are not added to the College's scheduling system. Interpreting Figure 9 on the next page, the majority of the classrooms were located in six Buildings as noted in the **No. of Rooms** column. These include:

- Arts and Technology Building: 10 classrooms
- Carlsen Center: 27 classrooms
- Classroom Laboratory Building: 11 Classrooms
- General Education Building: 23 Classrooms
- Industrial Technical Center: 11 Classrooms
- Science Building: 14 Classrooms

Together, these six building comprise 73% of all classrooms on the campus.

Continuing to interpret Figure 9, the ten classrooms in the Arts and Technology Building had an **Average Room Size** of 593 ASF each. The rooms had 24 **Average ASF per Station** with an **Average Section Size,** or course size, of 16 students. The 29 **Average Weekly Room Hours** is the number of hours (averaged over the entire semester) that the ten classrooms were scheduled for credit and noncredit instruction.

The **Hours in Use Student Station Occupancy** of 65% is the average number of seats filled during scheduled hours of use. The **Weekly Seat Hours** is the average room hours multiplied by the student station occupancy (29 x .65), which equals 18.6, and is a measure of utilization efficiency.

Overall, the 132 classrooms on the Overland Park campus were utilized 30 weekly room hours at 68% student station occupancy with an average of 26 ASF per station.

In reviewing Figure 9, *Classroom Utilization Analysis by Building Summary • Credit/Non-Credit Courses,* four buildings averaged more than 36 weekly room hours while four buildings averaged 15 weekly room hours or less. Student station occupancy ranged from a high of 92% in the Welding Lab building to a low of 37% in the Child Development Center. Average ASF per station was greatest in the Welding Lab building with an average of 51 ASF/Station. Eight buildings were in the 22 to 25 ASF per station category.

Figure 9

Classroom Utilization Analysis by Building Summary - Credit/Non-Credit Courses

Building Name and Id		No. of Rooms	Average Room Size	Average ASF per Station	Average Section Size	Weekly Seat Hours	Average Weekly Room Hours	Hours in Use Student Station Occupancy %
Arts and Technology Building	*ATB*	10	593	24	16	18.6	29	65%
Billington Library	*LIB*	3	630	25	16	18.0	26	67%
Carlsen Center	*CC*	27	846	26	19	17.3	32	62%
Classroom Laboratory Building	*CLB*	11	812	24	24	28.5	40	71%
College Commons Building	*COM*	1	806	34	9	3.5	9	39%
Galileo's Pavilion	*GP*	2	654	22	19	14.4	24	61%
General Education Building	*GEB*	23	658	22	20	25.7	37	67%
Gymnasium	*GYM*	2	650	27	18	15.4	20	76%
Hiersteiner Child Development Center	*HCDC*	1	991	26	14	5.2	14	37%
Hospitality & Culinary Academy	*HCA*	3	1,215	28	22	8.2	16	62%
Industrial Technical Center	*ITC*	11	666	33	11	8.7	15	58%
Nerman Museum of Contemporary Art	*NMOCA*	2	747	31	10	0.6	2	35%
Office and Classroom Building	*OCB*	6	562	20	22	28.5	37	77%
Police Academy	*PA*	7	589	22	18	22.4	30	69%
Regnier Center	*RC*	8	788	36	10	10.1	18	56%
Science Building	*SCI*	14	762	25	22	22.9	36	82%
Welding Lab Building and Outstructures	*WLB*	1	822	51	14	22.5	24	92%
Total No. of Rooms = 132		**AVERAGE**	**734**	**26**	**18**	**19.8**	**30**	**68%**

Overland Park Campus – Credit Courses

Using the same methodology, the utilization analysis was completed for credit generating courses. Figure 10 illustrates the results. The 132 classrooms generated 27 weekly room hours at 70% student station occupancy. As compared to credit and noncredit courses, weekly room hours were lower in the Carlsen Center, Industrial Technology Center, the Police Academy, and the Regnier Center. The higher student station occupancy suggests that course sections were placed in more appropriate sized rooms for credit instruction.

Figure 10

Classroom Utilization Analysis by Building Summary - Credit Courses

Building Name and Id		No. of Rooms	Average Room Size	Average ASF per Station	Average Section Size	Weekly Seat Hours	Average Weekly Room Hours	Hours in Use Student Station Occupancy %
Arts and Technology Building	*ATB*	10	593	24	16	18.6	29	65%
Billington Library	*LIB*	3	630	25	16	18.0	26	67%
Carlsen Center	*CC*	27	846	26	23	16.1	29	67%
Classroom Laboratory Building	*CLB*	11	812	24	24	28.5	40	71%
College Commons Building	*COM*	1	806	34	9	3.5	9	39%
Galileo's Pavilion	*GP*	2	654	22	19	14.4	24	61%
General Education Building	*GEB*	23	658	22	21	25.5	36	67%
Gymnasium	*GYM*	2	650	27	18	15.4	20	76%
Hiersteiner Child Development Center	*HCDC*	1	991	26	14	5.2	14	37%
Hospitality & Culinary Academy	*HCA*	3	1,215	28	22	8.2	16	62%
Industrial Technical Center	*ITC*	11	666	33	11	6.8	10	63%
Nerman Museum of Contemporary Art	*NMOCA*	2	747	31	0	0.0	0	
Office and Classroom Building	*OCB*	6	562	20	22	28.5	37	77%
Police Academy	*PA*	7	589	22	14	14.0	23	57%
Regnier Center	*RC*	8	788	36	8	2.1	2	86%
Science Building	*SCI*	14	762	25	22	22.9	36	82%
Welding Lab Building and Outstructures	*WLB*	1	822	51	14	22.5	24	92%
Total No. of Rooms = 132		**AVERAGE**	**734**	**26**	**19**	**18.6**	**27**	**70%**

JCCC OHEC

The Olathe Health Education Center contained 11 classrooms. Classroom averaged 937 ASF with an average section size of 14 students. This is considerably greater than the average room size of 593 ASF for the Overland Park campus.

Classrooms averaged 39 ASF per station, almost twice the ASF per station of most state classroom guidelines. The 11 rooms averaged 22 weekly room hours at 57% student station occupancy. If classrooms were programmed at 28 ASF per station, 2,948 ASF could be removed from the classroom space category.

Figure 11

Classroom Utilization Analysis by Building Summary - Credit/Non-Credit Courses

Building Name and Id		No. of Rooms	Average Room Size	Average ASF per Station	Average Section Size	Weekly Seat Hours	Average Weekly Room Hours	Hours in Use Student Station Occupancy %
Olathe Health Education Center	*OHEC*	11	937	39	14	12.3	22	57%
Total No. of Rooms = 11		**AVERAGE**	**937**	**39**	**14**	**12.3**	**22**	**57%**

While not displayed, credit courses generated 21 weekly room hours at 58% station occupancy.

Classroom Utilization Analysis by Room Capacity

Room size inefficiencies are often detectable when classrooms are sorted by room size. The following table disaggregates classrooms into 11 categories based on the number of stations. A review of the table and bar graphs provides further insight into classroom use.

There are 34 classrooms with capacities of 21 to 25 stations. These rooms average 27 weekly room hours at 73% student station occupancy with an average of 27 ASF/station. There are four capacity groupings where classrooms are used 38 weekly room hours or more per week.

There are 22 classrooms in the 20 and under category with 371 seats that are only used an average of 21 hours per week. The 36 ASF per station is significantly higher than classrooms in other capacity groupings. These poor performing classrooms contain approximately 13,356 ASF (371 seats x 36 ASF per seat). These rooms should be studied in more detail to determine if weekly room hours can increase or if rooms with very low utilization can be repurposed for other uses.

The one large classroom (101-150 seat category) was only used 14 hours a week for scheduled instruction. When scheduled, only 35% of the seat were filled. It may be that this room is used heavily for guest speakers and other campus/community events.

Figure 12

Classroom Utilization Analysis by Capacity Summary - Overland Park

Classroom Capacity Grouping	No. of Rooms	No. of Seats	Average Room Size	Average ASF per Station	Average Section Size	Weekly Seat Hours	Average Weekly Room Hours	Hours in Use Student Station Occupancy %
20 and Under	22	371	594	36	10	14.7	21	81%
21 - 25	34	811	648	27	16	19.9	27	73%
26 - 30	32	907	647	23	18	19.3	30	64%
31 - 35	19	632	694	21	22	25.5	38	66%
36 - 40	18	681	807	21	23	25.0	38	66%
46 - 50	1	50	1,167	23	34	32.2	48	67%
61 - 75	4	289	1,932	27	30	6.5	19	34%
76 - 100	1	84	2,055	24	36	21.0	49	43%
101 - 150	1	118	2,432	21	52	5.0	14	35%
Total No. of Rooms = 132		**AVERAGE**	**734**	**26**	**18**	**19.8**	**30**	**68%**

JCCC OHEC

The 11 classrooms at the Olathe Health Education Center were divided into four categories. Weekly room hours were consistent in three of the four categories. The single classroom in the 31 to 35 capacity grouping was used only six hours per week at 51% student station occupancy. The five classrooms with 20 or less seats averaged a staggering 43 ASF/Station, more ASF/Station than typically found in a computer laboratory.

Figure 13

Classroom Utilization Analysis by Capacity Summary - OHEC

Classroom Capacity Grouping	No. of Rooms	No. of Seats	Average Room Size	Average ASF per Station	Average Section Size	Weekly Seat Hours	Average Weekly Room Hours	Hours in Use Student Station Occupancy %
20 and Under	5	100	860	43	10	9.9	21	47%
21 - 25	4	94	895	38	16	17.5	25	69%
31 - 35	1	34	979	29	18	3.1	6	51%
36 - 40	1	40	1,450	36	22	14.2	27	53%
Total No. of Rooms = 11		**AVERAGE**	**937**	**39**	**14**	**12.3**	**22**	**57%**

National Perspective on Classroom Utilization

More than half the 50 states either have a statewide utilization expectation, or there are specific expectations in one or more of their public higher education systems. The lowest classroom utilization guideline currently in use is approximately 30 hours per week. This figure used to be a widely accepted standard and remains the most commonly used figure today. In many jurisdictions it was based on day usage only with evening and weekend usage being excluded from the expectation. More recently, common practice has been using this guideline as a full day expectation.

A few states have much higher utilization targets. The average of those systems which have classroom utilization guidelines is now 38 weekly room hours, as states monitor the efficiency of physical resources.

The consultant has performed utilization studies for more than 180 campuses. The most common findings are between 32 and 36 average weekly room hours for classrooms specifically scheduled for credit and noncredit instruction.

The second utilization factor, which is normally part of the utilization expectation in jurisdictions that have adopted guidelines, is the percentage of seats occupied when rooms are in use. The most widely used guideline remains at 60%.

There has recently been a strong push in many states to increase the utilization factor to 67%. One jurisdiction has gone to 75% for a particular subset of classrooms.

In the many studies the consultant has conducted, the actual seat utilization tends to be lower. Because institutions do not ultimately control the final enrollment in a specific course, there will always be a degree of disparity between estimated course size and the actual size of the course.

Pedagogy and the Learning Environments

Technological advancements and recent changes in pedagogy all place demands on physical space, especially classrooms. These demands can best be described based on the assignable square feet per student station (ASF/station). While there is still a need for lecture type rooms where seat count can be maximized, there is also an increasing need for rooms that can accommodate a variety of teaching methods and pedagogies.

Based on programming studies provided by the consultant, the following ASF/Station is noted for several classroom types:

> **Traditional Classroom:** Loose Seating: 20 to 26 ASF/Station with table and chair or tablet arm chair configurations.
>
> **Active Learning Classroom for Collaborative (group) Methods:** 32 to 40 ASF/Station accommodates flexibility in furniture arrangements and group presentation systems.
>
> **Seminar Classroom:** 26 to 32 ASF/Station where students typically face each other in a conference style or U-Shaped arrangement.

Classroom Utilization Analysis Summary

Overland Park Campus

The heaviest utilization of classrooms is between 9:30 AM and Noon, Monday through Friday. Late afternoon use, especially between 3:00PM and 5:00 PM, is minimal and provides opportunities to expand course offerings during this time block.

A total of 38 of the 132 classrooms were scheduled 38 weekly room hours or more and are close to reaching capacity. The Classroom Laboratory building, with an average of 40 weekly room hours, is also heavily utilized. The balance of the classrooms on the Overland Park campus have additional capacity.

The classroom utilization analysis findings suggest the following actions:

- With a campus average of 30 weekly room hours, there is additional opportunity to increase the number of course sections in many of the existing classrooms without increasing the total number of rooms;
- With a potential decrease in on-campus enrollments, multiple classrooms could be repurposed into other types of spaces;
- At 68% student station occupancy, there is only limited ability to increase the number of students in existing course sections;
- With an average of 26 ASF per station, multiple existing classrooms could reflect contemporary pedagogical trends and be converted into active learning spaces with more flexible furniture arrangements. Additional technology will require a higher ASF per station metric.

JCCC OHEC

The utilization of classrooms for the OHEC demonstrates there are opportunities to schedule additional courses and add additional students to existing course sections without increasing the amount of physical resources. In other words, existing classrooms have capacity for additional use and a greater number of students. The findings show that there is additional capacity during mornings, especially on Monday and Tuesdays, mid- afternoons and evening hours.

The average 39 ASF per station is high, based on current trends. Additional seating could be added to many of the classrooms to increase class size or accommodate active learning furnishings. Additional flexibility and greater utilization of technology will require a more focused ASF per student station. This should be done on a case-by-case basis.

There are a variety of reasons why some classrooms are used heavily and others are not. Classroom utilization needs to be considered within the context of the existing classrooms' educational adequacy and functionality, available technology, and overall qualitative assessment, which were not part of this study.

Class Laboratory Utilization

During the Fall 2015 semester, there were 124 rooms classified as discipline class laboratories and computer laboratories (SUC 210) within the facilities inventory. Discipline class laboratories have specialized equipment and include instructional areas used for biology, chemistry, physics, art, and career and technical programs such as automotive, welding and electronics.

Class laboratories are categorized at the 210 space use code in the FICM taxonomy.

Overland Park Campus Credit and Noncredit Courses

Laboratories were noted in 12 buildings on the Overland Park campus. Interpreting Figure 14, the majority of labs were located in the Regnier building (31 labs) and the Arts and Technology building (21 labs). The laboratory utilization analysis does not include all spaces occupied by the BNSF railroad program, as a complete list of courses was not available.

The 124 labs contained an average of 1,254 ASF each. The six labs in the Welding Lab building, at 4,776 ASF each, significantly skew the overall average. The labs averaged 68 ASF per station, but varied widely from 42 ASF to 299 ASF per station with an average section or course size of 14 students.

The 20 average weekly room hours is the number of hours (averaged over the semester) that the 124 labs were scheduled for instructional activities. Again, weekly room hours vary significantly by building with a low of 16 room hours in the Industrial Technical Center to a high of 40 hours in the Billington Library. The Hours in Use – Student Station Occupancy of 73% is the average number of lab seats filled during scheduled use. The Weekly seat hours is the average room hours multiplied by the student station occupancy and is a measure of lab utilization efficiency.

Figure 14

Teaching Laboratory Utilization Analysis by Building Summary - Credit/Non-Credit Courses

Building Name and Id		No. of Rooms	Average Room Size	Average ASF per Station	Average Section Size	Weekly Seat Hours	Average Weekly Room Hours	Hours in Use Student Station Occupancy %
Arts and Technology Building	*ATB*	21	1,364	75	14	14.4	19	76%
Billington Library	*LIB*	11	762	42	13	30.6	40	75%
Carlsen Center	*CC*	4	961	45	16	29.0	35	75%
Classroom Laboratory Building	*CLB*	10	1,062	44	20	26.5	33	78%
General Education Building	*GEB*	7	867	49	12	16.4	23	69%
Horticultural Science Center	*HSC*	2	1,654	69	17	19.3	26	74%
Hospitality & Culinary Academy	*HCA*	6	1,568	93	14	20.5	25	81%
Industrial Technical Center	*ITC*	8	1,058	57	13	11.4	16	68%
Office and Classroom Building	*OCB*	6	962	49	12	13.5	26	69%
Regnier Center	*RC*	31	878	51	10	15.3	25	60%
Science Building	*SCI*	12	1,263	47	21	27.3	34	83%
Welding Lab Building and Outstructures	*WLB*	6	4,776	299	14	17.4	20	86%
Total No. of Rooms = 124		**AVERAGE**	**1,254**	**68**	**14**	**19.7**	**26**	**73%**

Overland Park Campus Credit Courses

The laboratory utilization analysis for credit instruction is noted in Figure 15. Overall, laboratories averaged 24 average weekly room hours at 77% student station occupancy. The largest differences between credit and credit/noncredit are mostly in the Regnier Center.

Figure 15

Teaching Laboratory Utilization Analysis by Building Summary - Credit Courses

Building Name and Id		No. of Rooms	Average Room Size	Average ASF per Station	Average Section Size	Weekly Seat Hours	Average Weekly Room Hours	Hours in Use Student Station Occupancy %
Arts and Technology Building	*ATB*	21	1,364	75	14	14.3	19	76%
Billington Library	*LIB*	11	762	42	13	30.6	40	75%
Carlsen Center	*CC*	4	961	45	16	29.0	35	75%
Classroom Laboratory Building	*CLB*	10	1,062	44	20	26.2	32	81%
General Education Building	*GEB*	7	867	49	12	16.4	23	69%
Horticultural Science Center	*HSC*	2	1,654	69	17	19.3	26	74%
Hospitality & Culinary Academy	*HCA*	6	1,568	93	14	20.5	25	81%
Industrial Technical Center	*ITC*	8	1,058	57	13	11.4	16	68%
Office and Classroom Building	*OCB*	6	962	49	11	13.3	26	68%
Regnier Center	*RC*	31	878	51	7	11.8	15	75%
Science Building	*SCI*	12	1,263	47	21	27.3	34	83%
Welding Lab Building and Outstructures	*WLB*	6	4,776	299	14	17.4	20	86%
Total No. of Rooms = 124		**AVERAGE**	**1,254**	**68**	**13**	**18.8**	**24**	**77%**

JCCC OHEC

A total of four laboratories were noted in the inventory. In reviewing Figure 16, the four computer laboratories were used sporadically for credit instruction. Two of the labs were only used for noncredit courses. On average, laboratories were utilized four weekly room hours at 50% student station occupancy. While not shown, lab utilization for credit courses was three weekly room hours at 68% student station occupancy. Some of these spaces may be used as open labs, so scheduled use may not be aligned with actual use.

Figure 16

Teaching Laboratory Utilization Analysis by Building Summary - Credit/Non-Credit Courses

Building Name and Id		No. of Rooms	Average Room Size	Average ASF per Station	Average Section Size	Weekly Seat Hours	Average Weekly Room Hours	Hours in Use Student Station Occupancy %
Olathe Health Education Center	*OHEC*	4	900	51	6	2.4	4	50%
Total No. of Rooms = 4		**AVERAGE**	**900**	**51**	**6**	**2.4**	**4**	**50%**

National Perspective on Laboratory Utilization

As with classroom utilization, laboratory guideline targets are usually implemented by states, systems, or institutions within the public higher education sector. These targets tend to oversimplify the use of teaching laboratories. Some guideline targets are based on discipline, while others are based on the intensity in which a discipline relies on laboratories for instructional delivery.

The most used guideline targets have expectations of 20 hours per week at an 80% student station occupancy rate. In an effort to increase laboratory use, one state has raised utilization goals to an extreme of 40 hours per week at 85% student station occupancy. One set of published guidelines recommends 11 weekly room hours for certain heavily equipped labs such as engineering, agriculture, and selected health professions but maintains the 80% student station occupancy rate.

While 80% student station occupancy is the most used rate in guideline targets, most colleges rarely achieve it. In reality, occupancy averages studied by the consultant typically range between 68% and 76%.

Teaching laboratory usage has as much to do with course level, instructional methods, and student research activities and capstone experiences, as it does discipline or discipline type. It is not unusual to find lower scheduled use (12 hours and under) in upper division laboratories. On the other hand, entry level science laboratories and computer labs can have much higher levels of scheduled use – 30 hours or more.

Laboratories tend to be subject specific and do not lend well to sharing among disciplines. However, more laboratories are being used for interdisciplinary activities which can assist in achieving higher weekly room hour usage. Conversely, if discipline class laboratories are required for interdisciplinary activities, then scheduled use may be lower.

Class Laboratory Summary

Laboratories have additional time demands that classrooms typically do not have. For example, there is setup and preparation time required, sometimes for a class, sometimes for the day. Other laboratories require an experiment to stay set up for multiple lab sessions or the entire semester which excludes the room from other scheduled activity. As a result, expectations are typically lower than classrooms.

Overland Park Campus

With the exception of discipline class laboratories in the ITC, weekly room hour utilization was equal or higher than most established guidelines, suggesting that it would be difficult to add additional courses into many of the existing laboratories. With the exception of labs in the Science building and the Welding Lab Building, student station occupancy was slightly lower than typical guidelines, indicating some additional enrollment capacity in existing course sections is possible.

JCCC OHEC Campus

Both weekly room hour utilization and student station occupancy were extremely low, indicating ample opportunities for additional credit and noncredit instruction.

Section 5: Space Standards for the Overland Park Campus

Using a comparative analysis methodology that reviewed multiple statewide standards and numerous community college studies completed by Paulien & Associates, space standards were developed for 15 primary space categories. Given the differences in facilities and enrollments between the Overland Park campus and the other JCCC sites, the standards were developed to address the comprehensive mission of the Overland Park campus.

The following statements outline the comprehensive mission of this JCCC campus. This information assisted in the development of space standards:

- Robust transfer and dual enrollment programs with comprehensive offerings in General Education, Fine Arts and Humanities disciplines;
- A significant number of Career and Technical programs;
- Ability to address the need for Developmental Education and academic success during matriculation;
- Offerings in Adult Basic Education (ABE), GED and High School Equivalency; and
- Significant Workforce/Economic Development and Continuing Education outreach.

To develop campus standards, a comparative analysis was compiled from previously completed projects by Paulien & Associates. The consultant has completed community college space modeling projects at the state-wide level in Kentucky, Indiana, Wyoming, Colorado, Utah, Minnesota, and New York. Paulien & Associates has also completed a significant number of community college projects in Colorado, Florida, Pennsylvania, Maryland, Virginia, Wyoming, North Carolina and South Carolina, and has compiled state-wide data for all community and technical colleges for inclusion into this study.

The state-wide comparative analysis included 177 community and technical college main campus locations. Physical space parameters were divided into separate categories, consistent with the classification system outlined in the *Postsecondary Education Facilities Inventory Classification Manual, 2006 Edition*, as published by the U.S. Department of Education, National Center for Education Statistics.

The categories applicable to this study include:

1. Classroom and Service
2. Class Laboratories and Service
3. Academic Achievement Laboratories and Service
4. Office and Service
5. Instructional Testing / Open Laboratories and Service
6. Supplemental Instruction
7. Library / Learning Commons
8. Physical Education, Recreation, Athletics
9. Video and Media Production and Service
10. Assembly, Exhibition, and Service

11. Social and Study Space
12. Meeting Rooms and Service
13. Central Computer & Service
14. Facilities, Maintenance, and Service
15. Student Union

To compensate for differences in student enrollments, assignable square feet data were normalized by student FTE. Based on experience, Paulien & Associates believes that comparisons using FTE are the most appropriate, since they are comparing an equivalent amount of academic instruction rather than the number of headcount students. The unit of analysis for this study is assignable square feet per student full-time equivalent or ASF/FTE.

The space guidelines or standards described in this section will be used in Section 6 to develop a space needs analysis for the Overland Park campus. The space needs analysis for facilities master planning involves a process that quantifies space amounts likely to be needed at a comprehensive community college based on projected enrollment, staffing, program, and service quality levels. Reliability of the findings depend on several factors including the quality of the facility data, the appropriateness of the space standards, and the validity of the planning projections.

Unless otherwise noted, all findings are in assignable square feet (ASF). ASF is defined as the area measured within the interior walls of a room that can be assigned to a program. ASF does not include circulation, mechanical, or building service spaces; therefore, space standards were not developed for these spaces. The appropriate conversion to gross square feet (GSF) is determined based on design parameters such a building type and climate requirements. Converting assignable space to gross square feet usually adds approximately 30% to 50% to the assignable space amount.

The following section outlines space standards or guidelines for each of the 15 categories. First, a definition of the space will be provided followed by the space standard or guideline. In some space categories, the study and report for the ATB by NorthStar Consulting was used as the appropriate standard.

Classrooms and Service (110, 115)

Classrooms are defined as any room generally used for scheduled instruction requiring no special equipment and referred to as a “general purpose” classroom, seminar room, or lecture hall. Classroom service space directly supports one or more classrooms as an extension of the classroom activities, providing media space, preparation areas, or storage. The classroom station size does not include classroom service area space.

As JCCC does not have a standardized set of classroom utilization guidelines nor does it have State of Kansas space standards to which it is required to adhere, the consultant established classroom utilization guidelines based on a stated future goal of increasing efficiency of use in instructional spaces.

The classroom utilization guideline established for the Overland Park campus states that each classroom should be scheduled **35 weekly room hours** at **68% student station occupancy** when the room is in use. The 35 hours per week target will allow scheduling of 15 hours of workforce and continuing education courses, given a 50-hour week.

Prior to 2000, many guidelines for classroom space were developed at a time when tablet armchair classrooms were the predominant seating preference. These guidelines called for approximately 18 ASF per student station, which is significantly lower than what today's active classrooms require. For master planning purposes, Figure 17 reflects the ASF per station standards for the various types of classrooms envisioned at JCCC and should be used as a space standard moving forward.

Figure 17

CLASSROOM ASF/STUDENT STATION RANGES

Classroom Type	ASF/ Station
Tablet Arm Chairs	20-22
Tables and Chairs	24-26
Tables and Chairs (Seminar Format)	26-32
Tables/Chairs with Demonstration Area	32-38
Learning Studio/Active Learning	30-34
Technology Enriched Active Learning	36-40

ASF = Assignable Square Feet

An **average** ASF/per station guideline was established at **28 ASF/station** to accommodate future arrangements for 50% active learning classrooms over the planning period. These technology-rich environments require adequate front of room space for projection or flat screens, electronic podiums, appropriate sight lines, and additional space for presentation systems or movable white boards where needed. Classroom service space was established at 3.0% of total classroom space.

Classroom space requirements are determined by a formula that takes the target utilization of 35 hours per week, multiplies it by the target student station occupancy of 68% and divides the result into the 28 square feet per student station. This calculation produces a guideline of 1.176 ASF per weekly student contact hour (WSCH) for lecture courses. Assignable square feet per weekly student contact hour (ASF/WSCH) is calculated as follows:

Figure 18

Lecture Guideline per Weekly Student Contact Hour (WSCH):

$$\frac{\text{28 ASF/STATION}}{\text{35 WEEKLY ROOM HOURS } \mathbf{X} \text{ 68\% STUDENT STATION OCCUPANCY}} = \text{1.176 ASF/WSCH}$$

As further explanation, the total number of weekly student contact hours for a lecture course section is obtained by multiplying the enrollment of the course section by the number of meeting hours in one week. For example, a history course with 30 students enrolled which meets three (3) times a week for one hour produces 90 weekly student contact hours (WSCH). Multiplying the 90 weekly student contact hours by the classroom guideline of 1.176 generates 105.8 ASF of classroom space, as noted in Figure 19.

Figure 19

EXAMPLE OF CLASSROOM GUIDELINE APPLICATION

Step 1 • Calculate Weekly Student Contact Hours for Lecture Section
Enrollment (30) X Weekly Room Hours (3) = Weekly Student Contact Hours (90)

Step 2 • Calculate Classroom Guideline

$$\frac{\text{28 ASF/Station}}{\text{35 Weekly Room Hours } \mathbf{X} \text{ 68\% Student Station Occupancy}} = \text{1.176 ASF/WSCH}$$

Step 3 • Calculate Guideline Square Footage
Weekly Student Contact Hours (90) X ASF/WSCH (1.176) = Guideline Square Footage (105.8)

Application of the space guideline generated a total need for 78,368 ASF in classroom and service space for the Overland Park campus for Fall 2025, excluding the ATB. Dividing the 78,368 ASF by on-campus FTE generated 10.5 ASF per FTE as a space guideline. The space program, as developed by NorthStar Consulting, includes another 11,665 ASF of classroom space proposed in the ATB for a total of 90,033 ASF, or 12.0 ASF, per on-campus FTE at the plan horizon.

Class Laboratories and Service (210, 215)

Teaching laboratories are defined as rooms used primarily by regularly scheduled classes that require special purpose equipment to serve the needs of particular disciplines for group instruction, participation, observation, experimentation, or practice. In community colleges, teaching laboratories include spaces for biology, chemistry, and physics, art, and computer science. Many technical programs use laboratories as the curriculum requires hands on skills-based learning. Programs heavily dependent on laboratories include nursing, computer sciences, and many industrial and precision trades programs such as carpentry, automotive, and welding.

The scheduled weekly room hour average for teaching laboratories is generally found to be less than scheduled use of classrooms due to the need for preparation time of specialized equipment prior to class. Conversely, the student station occupancy is normally higher as the number enrolled in a laboratory exercise is more closely monitored, safety being a key issue, as well as the limitations of faculty observation. **The utilization goal of no less than 28 weekly room hours at 76% student station occupancy should be used for all disciplines moving forward.**

It is understood that class laboratories may contain large amounts of computer and human simulation equipment. As a result, these laboratories may have extended periods of open access so students can practice skills or work in groups as part of collaborative based learning. ASF per station laboratory guidelines were established for 24 programs, as noted in Figure 20. Overall, the class laboratory analysis generated 203,632 ASF for Fall 2025, including space programmed by NorthStar Consulting within ATB for industrial programs. Dividing by on-campus FTE generated approximately 27 ASF per FTE in this space category.

Figure 20

JCCC Overland Park Campus (Includes JCCC and BNSF Combined Welding) Fall 2025 Class Laboratory (210, 215) Summary

Lab Type	Space Use Code	Total Existing 210 ASF	Existing Total Station Count	Guideline ASF/Station	Total Guideline ASF	Fall 2025 Surplus or (Deficit)
Welding (combined w/BNSF)	210	4,969	128	180	23,069	(18,100)
HVAC	210	3,436	65	93	6,066	(2,630)
Automotive	210	8,997	48	248	11,904	(2,907)
Culinary	210	8,683	82	105	8,610	73
Art	210	8,492	128	61	7,860	632
Dental Hygiene	210	2,970	40	74	2,960	10
Textiles	210	838	24	75	1,800	(962)
Horticulture	210	3,308	48	70	3,360	(52)
Continuing Education	210	0	44	119	5,236	(5,236)
New Collaboration Space Lab	210	1,367	28	49	1,865	(498)
CTE/BNSF Computer Labs	210	0	0	40	1,920	1,920
Music	210	5,175	168	40	6,720	(1,545)
Drafting/Architecture	210	4,768	79	72	5,688	(920)
Interior Design	210	754	24	55	1,320	(566)
Graphic Design	210	5,099	111	50	5,550	(451)
Theatre/Costume	210	427	12	65	780	(353)
Photography	210	2,290	83	30	2,490	(200)
General Computer	210	38,844	832	36	29,952	8,892
Chemistry	210	4,494	96	50	4,800	(306)
Physical Sciences	210	5,612	120	45	5,400	212
Biology	210	11,993	240	50	12,000	(7)
Nursing	210	2,251	46	60	2,760	(509)
Electronics	210	3,694	67	60	4,020	(326)
Electrical Technology	210	735	36	75	3,708	(2,973)
Subtotal (210)		**131,194**	**2,567**		**162,520**	**(31,326)**
General Lab Support Space (215)		20,416		18%	29,254	(8,838)
ATB Programs Support Space (215)		0			11,858	(11,858)
Subtotal (215)		**20,416**			**41,112**	**(20,696)**
Total ASF (210, 215)		**151,610**			**203,632**	**(52,022)**

NOTE: Excludes existing BNSF non welding laboratory space

Academic Achievement Laboratories and Service (210, 215)

These laboratories and spaces are used primarily for individual or group instruction that is informally unscheduled for the purpose of academic achievement. Spaces include areas for individual and/or group study, and computer stations. Many of the spaces required for a robust learner success program fall into this category. The types of spaces include tutorial facilities for math and writing centers, and rooms with adaptive technology for impaired learners.

At JCCC, these include Achievement/Resource Centers for Math, Writing, Science, Foreign Language and Academic Achievement. As these spaces support all JCCC locations and delivery methods (on-campus, centers, and virtual), the guideline reflects total institutional FTE. A guideline of 1.5 ASF per FTE was developed based on a comparative analysis of like institutions.

For Fall 2025, application of the guidelines generated a total space need of 14,024 ASF.

Instructional Testing, Open Laboratories and Service (220, 225)

The space classified as Open Laboratories includes rooms that are open for student use or are irregularly scheduled. This includes labs that are used exclusively for one semester, open access labs, and self-paced labs. These rooms may provide equipment to serve the needs of particular disciplines for group instruction in informally or irregularly scheduled classes. Alternatively, these rooms are used for individual student experimentation, observation, or practice in a particular field of study. Types of rooms typically included in this category include program computer labs, placement testing rooms, photography rooms, simulation areas, and music practice rooms.

In recent space studies conducted by the consultants, a low of 2 ASF per student FTE and as much as 5 ASF per student FTE have been used in the open laboratory category. For JCCC, 3.2 ASF per on-campus student FTE is recommended.

Office and Services Facilities (310, 315, 350, 355)

The guideline application for office space needs is based upon major categories of staff types and the additional application of space amounts for office service and conference space needs. Office space usually consists of at least three types of space: offices and workstations, conference rooms, and office service space. Office service space includes work rooms, file rooms, supply rooms, reception areas, and other rooms usually found in an office suite environment.

As noted in Figure 21, office space standards were developed for 12 employee groups. As there is a wide diversity of positions in most of these employee categories, the office standards represent minimum and maximum space amounts for those employees needing office space. In many of the categories, there are employees that will require a private office and others that will require a desk or cubical space. The table highlights the range of office sizes by employee group that should be used as a standard going forward.

Figure 21

Office Standards by Employee Classification

Employee Classification	310 Office ASF Range	315 Service ASF	350, 355 Conference ASF
Administrative/Management			
Vice President to Executive VP	160 - 225	25	12
Executive Director to Associate VP	150 - 210	22	10
Directors to Deans	120 - 160	20	8
Managers	110 - 140	18	5
All others	100 - 140	15	5
Faculty, Part-time Staff and Students			
Full-Time Faculty 12, 10 & 9 Month Bargaining Unit	115 - 125	15	8
Full-Time Hourly Staff and FT Temp Hourly	60 - 120	12	6
Full-Time Temp Salaried	60 - 100	8	6
Part-Time Hourly Regular Staff	30 - 80	4	2
Part-Time Temporary Staff	30 - 80	3	0
Part-Time Faculty Salaried (pooled space)	5	1	0
College Work-Study	25	1	0
Librarians and Library Aides (in Library Guideline)	0	0	0

ASF = Assignable Square Feet

The most appropriate way to evaluate office space needs is on an ASF per employee basis. At a broad level, average office ASF metrics were developed for eight employee groups as noted in Figure 22. Each employee group has a variety of positions, with some needing larger or smaller amounts of office space. The goal is to average the office size in each category as a convenient method of calculating office space needs in the future.

Figure 22

AVERAGE ASF BY EMPLOYEE TYPE

Employee Classification	310 Average Office ASF	315 Average Service	350, 355 Average Conference
Administrative/Management	150	18	12
Full-Time Faculty 12, 10 & 9 Month Bargaining Unit	110	15	10
Full-Time Temp Salaried	100	12	10
Full-Time Hourly Staff and FT Temp Hourly	90	10	6
Part-Time Hourly Regular Staff	60	8	2
Part-Time Temporary Staff	30	2	0
Part-Time Faculty Salaried	5	1	0
College Work-Study	25	1	0
Librarians and Library Aides (all titles)	0	0	0

For the space needs analysis, total ASF was calculated by multiplying the number of positions in each employee category by the ASF, as noted in the table. ASF metrics include office space, conference space, and office service space as previously noted.

For example, the JCCC Overland Park campus staffing file contained 253 administrative and management positions for Fall 2015. A small growth rate for the institution increases the number of positions in this category by 1% or three over the planning horizon. The analysis applies a 150 ASF per office, 16 ASF for service, and 12 ASF for conference space for each position. In total, the space needs analysis generated 45,995 ASF for employees in administrative and management positions. The methodology was used for each of the employee groups. A total of 175,686 ASF was generated for Fall 2025. Total FTE was used as the base metric as employees at the Overland Park campus support all program and services at all locations and multiple delivery formats.

Office metrics include:

- 18.8 ASF per total student FTE
- Average of 66 ASF per total number of employees
- Average of 136 ASF per full time employee
- Office Service space = 12% of total office space
- Conference & Service = 6% of total office space

Supplemental Instruction

This category includes spaces that are not represented in other academic space categories. In most cases, the amount of space is minimal and not sufficient for the development of a formal space standard or guideline.

At JCCC, this spaces include the following space use codes:

540	Clinic (dental program)
550	Demonstration (faculty training lab)
580	Greenhouse
590	Other (All Purpose)

In reviewing various space studies conducted by the consultant, a low of 1 ASF per student FTE and as much as 3 ASF per student FTE have been implemented. For this study, 1.4 ASF per Overland Park Campus FTE is recommended for Fall 2025.

Library/Learning Commons (410, 420, 430, 440, 455)

Many statewide planning models do not include guideline factors for the library. Guidelines that have been established for library space utilize one set of factors for collections, another for reader stations, and a third for service space and staff. Most volume conversions used are originally from the Association of College and Research Libraries (ACRL).

JCCC has a full-service library with comprehensive library resources and a significant volume count.

The library or learning commons of today is a central hub of learning activity. Students use a learning commons to acquire relevant instructional resources through on-line and print sources. In consultation with learning resource specialists, students become familiar with on-line bibliographic search engines and other resources to locate relevant instructional materials. Multiple networked computers are usually accessible to students. Students also expect to bring their own devices and connect to the College's network or local wireless systems. The learning commons also contains space for individual and groups study rooms, and provides presentation systems and other ways for students to engage in academic course content.

For library collections, a guideline of 0.10 ASF per volume for collection space was utilized, as no compact shelving is anticipated. In work sessions with campus librarians, the number of book volumes is expected to decrease by 35% over the master plan period. This includes books, serials, unbound serials, and maps. Audio/visual materials, which are still popular with patrons, are expected to decrease by 20%. The library guideline analysis, as noted in Figure 23, contains columns for Fall 2015 and projections through Fall 2025.

Figure 23

Johnson County Library Space Needs Analysis

COLLECTION VOLUME EQUIVALENTS

	Fall 2015			Fall 2025		
Items	**Actual Items**	**Factor**	**Volume Equivalent**	**Planned Items**	**Factor**	**Volume Equivalent**
Books/Serials	73,987	1.0	73,987	48,092	1.0	48,092
Unbound Serials	1,100	0.5	2,200	715	0.5	1,430
Audio/Visual	10,098	3.0	3,366	8,078	3.0	2,693
Total	**85,185**		**79,553**	**56,885**		**52,214**

COLLECTION SPACE	0 to 100,000 Volumes	100,001 to 150,000 Volumes		**Fall 2015 ASF**	**Plan Horizon ASF**
ASF per Volume	0.1	0.9	*Total Collection Space*	**7,955**	**5,221**
Fall 2015	79,553				
Fall 2025	52,214				

STUDY SPACE	Percent of FTE	Fall 2015 FTE	Fall 2015 Stations	Percent of FTE	Fall 2025 FTE	Fall 2015 Stations
Undergraduate Students	5.70%	8,912	508	5.70%	9349	533

STUDY STATIONS

Station Type	Percent	ASF/ Station	Fall 2015 Stations	Fall 2025 Stations		
Computer Workst	20%	32	102	107		
Flexible Seating	24%	36	122	128		
Carrels	28%	25	142	149		
Group Study	28%	35	142	149		
Total	**100%**		**508**	**533**		
	Total Study Space				**16,174**	**16,967**
	Total Collection and Study Space				**24,129**	**22,189**
	Service Space *(12.5% of total collection and study space)*				3,016	2,774
	Archive Space *(15% of Campus FTE)*				**1,337**	**1,402**
	Culinary Library				**625**	**625**
TOTAL LIBRARY GUIDELINE SPACE					**29,107**	**26,990**
	Existing Space				*35,938*	*35,938*
	Surplus / (Deficit)				**6,831**	**8,948**

Reader station space calculations are based on a percentage of total FTE student population and include a quantity equivalent to 5.7 % of total FTE. In determining a suitable guideline for reader station sizes, the consultant used the number in Figure 23 in developing the reader station guidelines. In total, 533 reader stations were generated for Fall 2025 and are noted below.

Service space is calculated on a percent of the total collection and reader station space. The guideline used was 12.5% of the total collection and reader station space for service and staff space, as less space will be needed for acquisitions and technical processing. It should be noted that the service space calculation is intended to include office space for library staff. Archive space was developed at 15% of total FTE. Application of the library guideline generated 2.90 ASF per total FTE, as the library is an institutional resource.

Assembly, Exhibition and Service (610, 615, 620, 625)

For a community college, assembly and exhibit space usually includes rooms designed and equipped for the assembly of a large numbers of people, such as theaters or auditoriums. Exhibit spaces are used for exhibition of materials, works of art, or artifacts intended for general use by students and the public. At JCCC, there are numerous assembly and exhibit spaces on the campus, including the Nerman Museum of Contemporary Art at 20,825 ASF.

A nationally recognized two-year assembly and exhibit guideline includes:

- A core of 14,000 ASF for first 5,000 FTE;
- Add 2 ASF per FTE above 5,000 FTE;
- Additional theatre program allocation of 6,000 ASF plus music program allocation of 3,000 ASF; and
- Student exhibit space of 0.75 ASF per total FTE

The Nerman MCA is both a college and community resource and is a national model in terms of space and quality of collection. This facility exceeds expectations in terms of what is typically located on a community college campus. Given its uniqueness, there is no established guideline for this type of space. As a result, the space needs analysis used the existing amount of space in the Nerman MCA for this space category.

In total, application of the guideline generated a space need of 57,360 ASF or approximately 6.1 ASF per total FTE.

Physical Education, Athletics and Recreation (520, 523, 525, 670, 675)

Physical Education space includes gymnasia, basketball courts, handball courts, wrestling rooms, weight or exercise rooms, indoor swimming pools, indoor ice rinks, indoor tracks, indoor stadium fields, and field houses. Recreation space includes exercise and general fitness rooms, billiards rooms, games and arcade rooms, bowling alleys, table tennis rooms, dance or ballrooms, and TV rooms, as well as any other rooms that are used for recreation and amusement and not for instructional purposes.

Recreation rooms and areas are used for relaxation, amusement-type activities, whereas physical education facilities are typically used for the more vigorous pursuits associated with physical education, intramural programs, and athletics (as appropriate). Service areas include storage rooms, closets, equipment issue rooms, cashiers' desks, first aid, locker rooms, shower rooms, non-office coaches' rooms, ticket booths, and other space as related to the support of physical education and recreation facilities. As part of recreation space, many community colleges have a fitness or wellness center for exercise and fitness classes. A fitness center usually includes space for stationary bikes and treadmills, cardiovascular equipment, fixed weight machines, and an open space for stretching and floor exercises.

Several states recommend a guideline for Physical Education/Recreation of 20,000 ASF for the first 2,000 FTE with 5 ASF/FTE for each FTE greater than 2,000. A recreation guideline of 1.0 ASF per total FTE was also included in the analysis. In addition, a 17,500 ASF NJCAA athletic allowance was added to the overall guideline to account for the additional need of spectator seating, away team locker rooms, concession areas, and training rooms.

At the plan horizon, the guideline generated at total need for 84,094 ASF, or approximately 8.9 ASF per total FTE.

Video and Media Production Service (530, 535)

This category includes space used for the production and distribution of multimedia materials or signals. Service space directly serves a media production or distribution space. This category includes TV studios, radio stations, sound studios, photo studios, and media centers.

An established space guideline of 0.5 ASF per total FTE was used to generate space in this category. Total FTE was used as these facilities are often involved in creating on-line course content.

Social and Study Space (630, 650, 655)

This category is defined as rooms or areas used by individuals or groups to study or interact with other students or faculty at their convenience, the space not being restricted to a particular subject or discipline or by specialized equipment.

Social and study space or collaborative learning areas are best located near classrooms, laboratories and faculty offices where students can gather before class or a faculty member can easily continue a discussion with students after a class in an active setting. Collaborative learning areas are usually open to a corridor and usually have a white board with movable furniture where the flow of ideas and discussion can easily be communicated. During the master planning phase, additional opportunities will be investigated for these types of spaces in a range of sizes.

This guideline is relatively new as these types of spaces are continuing to evolve in community colleges.

Institutional benchmarks and recent programming studies suggest a 6,000 ASF core with 3.0 ASF per on campus FTE greater than 3,000 FTE for community colleges of 7,500 to 10,000 FTE. This generated a total of 2.6 ASF per on-campus FTE at the plan horizon.

Meeting Rooms and Service (680, 685)

Meeting rooms are used by the institution or the public for a variety of non-class meetings or events. Although these spaces may be assigned to a specific organization unit, a meeting space is more available and open to study groups, governing boards, community groups, and various student groups, or non-employees of the institution.

These types of rooms are often dedicated to workforce training, continuing education, or hosting community organizations. Depending on mission, meeting rooms range from a few rooms on a college campus to rooms that are part of a full-service conference center. At JCCC, examples of meeting rooms include the Board Room, meeting rooms and conference facilities in the Regnier Center.

Conference Center Facilities

There are no recognized guidelines for community college conference facilities. After touring the facility and looking at event use, the consultant used benchmarking and other comparative forms of analysis to understand the space needs in this category. It was determined that the conference center is appropriately sized for its intended use over the master plan period.

A recognized guideline of 0.75 ASF per on-campus FTE ***plus*** existing space in the conference center was used for the analysis for a total of 1.4 ASF per on-campus enrollment.

Central Computer and Service (710, 715)

A space used as a data or telecommunications center with applications that are broad enough to serve overall administrative or academic primary equipment needs of a central group of users, departments, college, or entire institution. It must be noted that this category does not include data closets that are not accessed on a regular schedule.

A recognized guideline includes a Core of 1,500 ASF plus 1.0 ASF per total FTE above 2,500 FTE. The Core reduces to 1,100 ASF for Fall 2025 as server and network equipment continues to reduce in size. This guideline generated a total of 0.85 ASF per total FTE, as equipment serves all students and locations.

Facilities, Maintenance, and Service (720 – 780, & 725 -775)

Physical Plant space includes carpentry, plumbing, HVAC, electrical, and painting shops, as well as any centralized warehouses for campuswide storage. Additionally, facilities such as tool storage rooms, materials storage rooms, and areas related to shops like lockers, showers, and similar non-public areas are included. If storage space was identified for other units and not assigned to or controlled by physical plant operations, it was counted in other space categories such as other academic or administrative department space and the library.

Most guidelines suggest that 4-5% of all square footage on campus, minus existing physical plant space, be used to drive master plan needs in this category. In most cases, these percentages generate a space need that is adequate for physical plant space typically found at community colleges.

For JCCC, the consultant applied 4.25 percent as the physical plant guideline. At the base year, the guideline was calculated using the total amount of existing space on campus. At the plan horizon, the guideline was calculated against the Fall 2025 guideline ASF. This translates into 4.0 ASF per total FTE.

Student Union (630, 635, 660, 665, 680)

Student Union space typically includes facilities built and maintained by auxiliary funds. Spaces may include meeting rooms, food service and dining facilities, bookstores and merchandising areas, film viewing rooms, meeting spaces for student clubs and organizations as well as commercial businesses for student use such as banks. Food facilities include space used for eating such as cafeterias, snack bars, and dining halls and adequate accommodation for seating. In larger community colleges, food facilities may be placed in areas outside of the student union, such as a café near community space. Merchandising includes areas for the sale of products and services and typically consists of bookstores, C-stores, and vending areas without seating.

The Association of College Unions International (ACUI) recommends 10 ASF per student headcount towards generation of student union space. However, this guideline has expectations of a residential population. Benchmarking studies have found that community colleges without housing generally require between 4 and 6 ASF per student FTE. As space needs vary by student function, the guideline was disaggregated by type of space. Overall, 5.2 ASF per FTE was established for the Student Union Space category, as students in the BNSF program also used the dining facilities during the day.

Summary

Figure 24, which follows on the next page, shows a summary of the program guidelines, as normalized by FTE for each space category as articulated in this section. The application of the space standards and guidelines is reviewed in the next section of this report.

The summary table notes that future campus ASF can be estimated with the following metrics:

Total FTE (9,349) multiplied by 45.2 ASF/FTE = 422,575 ASF
Campus FTE (7,491) multiplied by 51.4 ASF/FTE = 385,037 ASF

The current guidelines suggest a space need for Fall 2025 of approximately 806,000 ASF. This excludes space occupied by BNSF Railroad.

Figure 24

SPACE STANDARDS/GUIDELINES SUMMARY TABLE

Space Category	Standard / Guideline ASF/FTE	FTE Base
Academic Achievement Laboratories	1.5	Total
Library / Learning Commons	3.0	Total
Assembly, Exhibition & Service	6.1	Total
Physical Education, Recreation, Athletics	9.0	Total
Video and Media Production & Service	0.5	Total
Offices & Service	18.8	Total
Central Computer & Service	0.85	Total
Facilities, Maintenance & Service	4.0	Total
Meeting Rooms & Service	1.4	Total
Total	**45.2**	
Classrooms & Service	12.0	Campus
Instructional and Testing Laboratories & Service	3.2	Campus
Supplemental Instruction	1.4	Campus
Class Laboratories & Service	27.0	Campus
Social & Study Service	2.6	Campus
Student Union	5.2	Campus
Total	**51.4**	

ASF = Assignable Square Feet

Section 6: Space Needs Analysis by Space Category

This section summarizes the space needs analysis by functional space category. The space needs analysis was performed by classifying existing space categories on the Overland Park campus into three areas:

Academic Space

- Classrooms and Service
- Class Laboratories and Service
- Academic Achievement Laboratories
- Instructional / Testing Open Laboratories and Service
- Offices and Service
- Supplemental Instruction

Academic Support Space

- Library / Learning Commons
- Physical Education, Recreation and Athletics
- Video and Media Production and Service
- Assembly, Exhibition, and Service
- Meeting Rooms and Service
- Central Computer & Service
- Facilities, Maintenance, and Service

Other or Auxiliary Space

- Student Union

Inactive space (former culinary area), space dedicated to the BNSF program, and the Child Care Center were not included in the analyses for the Fall 2015 base year. The inactive space was being converted into collaborative space, as designed by DLR Architecture, in the near future.

Target year space needs were generated in relationship to existing space using Fall semester 2015 as the base year. The space guidelines and standards, as described in Section 5, were applied to the key space determinants using the target enrollment, and future faculty and staff assumptions to develop an order of magnitude space needs analysis. The interpretation of the space needs table will be reviewed to give the reader a better understanding of the Fall 2025 findings.

Interpretation of Space Needs Analysis Outcomes

This section reviews the space need analyses for the Fall 2015 base year. For each space category, three columns illustrate the findings. The Existing ASF includes all current facilities. The Overland Park campus contained 99,042 ASF of existing Classrooms & Service space, per the College's space inventory, as noted in Figure 25.

Figure 25

Johnson County Community College - Overland Park Campus

Space Guideline Analysis (With JCCC and BNSF Combined Welding)

Space Category	FTE Factor	Fall 2015 Base Year Existing ASF	Guideline ASF	Surplus/ (Deficit)
Academic Space				
Classroom & Service	Campus FTE	99,042	82,093	16,949
Class Laboratories & Service	Campus FTE	148,876	166,478	(17,602)
Academic Achievement Laboratories	Total FTE	11,134	13,368	(2,234)
Instructional/Testing Open Laboratories & Service	Campus FTE	19,380	19,688	(308)
Offices & Service	Total FTE	173,328	171,808	1,520
Supplemental Instruction	Campus FTE	10,522	11,025	(503)
Academic Space Subtotal		***462,282***	***464,460***	**(2,178)**
Academic Support Space				
Library / Learning Commons	Total FTE	35,938	29,107	6,831
Physical Education, Recreation, Athletics	Total FTE	77,813	81,472	(3,659)
Video and Media Production & Service	Total FTE	4,613	4,456	157
Assembly, Exhibition & Service	Total FTE	61,135	56,377	4,758
Social & Study Space	Campus FTE	13,623	15,750	(2,127)
Meeting Rooms & Service	Total FTE	12,250	12,695	(445)
Central Computer & Service	Total FTE	8,260	7,912	348
Facilities, Maintenance & Service	Total FTE	35,919	37,675	(1,756)
Academic Support Space Subtotal		***249,551***	***245,444***	***4,107***
Auxiliary Space				
Student Union	Campus FTE	46,713	40,950	5,763
Auxiliary Space Subtotal		***46,713***	***40,950***	***5,763***
	Subtotal ASF	**758,546**	**750,854**	**7,692**
	Inactive / Conversion Space	9,869		
	BNSF Occupied Space	97,531		
	Child Care Center	6,568		
	Total ASF	**872,514**		

ASF - Assignable Square Feet

Reviewing the second column, the Guideline ASF is a calculation of how much space is ideally needed in each space category, given Fall 2015 enrollment, program, and staffing assumptions. Referring again to the table above, application of the Classroom & Service guideline generated a need for 82,093 ASF of Classroom & Service space.

The Surplus / (Deficit) column is the difference between the Existing ASF and Guideline ASF totals. Referring to Figure 25, the Overland Park campus has a 16,949 ASF surplus of Classroom & Service space given current planning assumptions. If JCCC had scheduled classrooms 35 weekly room hours at 68% student station occupancy for the Fall 2015 semester, there would have been a need for 16,949 less ASF than currently available. The space needs analysis is quantitative only and does not take into account the quality of space to serve the campus mission.

Fall 2015 Base Year Space Needs Analysis by Space Category

The full space needs analysis by space category is noted Figure 25. Application of the 15 space guidelines or standards generated a deficit of space in multiple categories. The largest include:

- Class Laboratories: The result of undersized laboratories in many of the industrial technology programs.
- Athletics: The needs for additional locker rooms, training rooms, and weight facilities.
- Social & Study Space: Informal collaborative and group study spaces.

Large space surpluses were generated in four categories. Surpluses were the result of more stringent classroom space guideline or the right-sizing of space based on recognized guidelines. Space categories with surpluses included:

- Classroom & Service
- Library / Learning Commons
- Assembly, Exhibition, and Service
- Student Union

In total, application of the space standards generated a total need for 750,854, a surplus of 7,692 ASF when compared to existing space of 758,546 ASF. As the focus of this study is on the ten-year planning horizon, the Fall 2015 findings will not be reviewed in any greater detail.

Fall 2025 Plan Horizon Space Needs Analysis by Space Category

As students shift from courses taken on campus to those offered at a distance, the number of students physically attending the Overland Park campus is expected to decrease over the next ten years. Despite a small decline at this location, OHEC, West Park and the continued increase in online enrollment is expected to increase enrollment at the institutional level by 4.9%. This increase will require a small number of additional staff. These changes in enrollment and staffing, combined with facility needs that were identified as part of current strategic and academic planning initiatives, are represented in the 2025 plan horizon space needs analysis. This analysis also incorporated the results of the programmatic study of industrial programs in the ATB by NorthStar Consulting.

For Fall 2025, space deficits were generated in nine of the 15 space categories, as noted in Figure 26. The balance of this section will discuss the findings for each space category.

Figure 26

Johnson County Community College - Overland Park Campus

Space Guideline Analysis (With JCCC and BNSF Combined Welding)

Space Category	FTE Factor	Fall 2025 Plan Horizon		
		Existing ASF	Guideline ASF	Surplus/ (Deficit)
Academic Space				
Classroom & Service	Campus FTE	99,804	90,033	9,771
Class Laboratories & Service	Campus FTE	151,610	203,632	(52,022)
Academic Achievement Laboratories	Total FTE	11,134	14,024	(2,890)
Instructional/Testing Open Laboratories & Service	Campus FTE	21,950	23,971	(2,021)
Offices & Service	Total FTE	173,328	175,686	(2,358)
Supplemental Instruction	Campus FTE	10,522	10,487	35
Academic Space Subtotal		***468,348***	***517,833***	***(49,485)***
Academic Support Space				
Library / Learning Commons	Total FTE	35,938	26,990	8,948
Physical Education, Recreation, Athletics	Total FTE	77,813	84,094	(6,281)
Video and Media Production & Service	Total FTE	4,613	4,675	(62)
Assembly, Exhibition & Service	Total FTE	61,135	57,360	3,775
Social & Study Space	Campus FTE	18,026	19,473	(1,447)
Meeting Rooms & Service	Total FTE	12,250	13,023	(773)
Central Computer & Service	Total FTE	8,260	7,949	311
Facilities, Maintenance & Service	Total FTE	35,919	37,881	(1,962)
Academic Support Space Subtotal		***253,954***	***251,444***	***2,510***
Auxiliary Space				
Student Union	Campus FTE	46,713	38,953	7,760
Auxiliary Space Subtotal		***46,713***	***38,953***	***7,760***
	Subtotal ASF	**769,015**	**808,230**	**(39,215)**
	Inactive / Conversion Space	-		
	BNSF Occupied Space	97,531		
	Child Care Center	6,568		
	Total ASF	**873,114**		

ASF - Assignable Square Feet

Academic Space

A large majority of the space deficits are in the Academic Space category and generated deficits as compared to existing space.

Classrooms and Service

As the College focuses on greater efficiencies of instructional spaces, higher weekly room hour and student station occupancy rates will reduce the overall need for classroom ASF. As 50% of the classrooms will be converted to active learning classrooms, a greater ASF per student station will be needed, but this will not offset space efficiencies. As a result, the space needs analysis generated a 9,771 ASF surplus of classroom and service space at the plan horizon. This analysis includes classroom space allocated in the ATB building as a part of the programmatic study by NorthStar Consulting.

Class Laboratories

The majority of class laboratories on the campus are sufficiently sized for the future. This includes laboratories and support spaces for the sciences, health occupations, computer labs, and most technical programs. A large majority of the 52,022 ASF deficit in the class laboratory category is related to undersized laboratories in welding, automotive, HVAC and electrical technology, as identified in the programmatic recommendations for the ATB by NorthStar Consulting.

Academic Achievement Labs

Despite on campus declines in enrollment, there is a 2,890 ASF deficit in academic achievement labs as space is needed for additional tutors and support personnel to assist students virtually and some maker space-type stations for math and sciences. The space need is distributed among the five laboratories as noted in Figure 27.

Figure 27

ACADEMIC ACHIEVEMENT CENTER

Center	2015 Current ASF	2025 Target ASF
Math Resource Center	3,231	4,079
Writing Center	2,160	2,222
Science Resource Center	1,819	2,719
Academic Achievement Center	2,972	2,972
Language Resource Center	952	1,252
Total	**11,134**	**13,244**

Instructional/Testing Open Laboratories and Service

The space classified as open laboratories includes rooms that are open for student use and are not used on a regularly scheduled basis. At the plan horizon, the need for an additional 2,021 ASF in instructional open laboratory space was generated. This category includes maker spaces for new initiatives.

Offices and Service

The Offices & Service category includes office space for full- and part-time faculty, staff and administration. Growth rates for JCCC personnel were minimal, so the space needs analysis reflects the need for some additional conference rooms or confidentiality rooms for faculty. The guideline also includes adequate space for adjunct faculty. Areas for adjunct faculty are typically spread throughout the campus, but located within proximity to full-time faculty and the division office to foster collaboration and unity, as well as to avoid duplication of resources. Some academic units reported having space for adjuncts, while others made little accommodation for this purpose. In total, current standards generated a deficit of 2,358 ASF at the plan horizon.

Supplemental Instruction

Facilities classified in this category include all other areas assigned to an academic category that were not included in the other classifications. Other supplemental instruction space at the Overland Park campus included the employee training laboratory, greenhouse, dental clinical space, a small amount of demonstration space for the textile program. A surplus of 35 ASF of space was generated for Fall 2025.

Academic Support Space

Academic Support Space includes all spaces that directly or indirectly support the academic mission of JCCC. In total, five of the eight categories generated deficits for Fall 2025.

Library / Learning Commons

The Library consists of stacks area, casual seating, on-line resource area, staff offices, several quiet study rooms, and an area containing open use computers. Application of the guideline generated a surplus of 8,948 ASF as the number of volumes is reduced and additional collaborative spaces are introduced into other buildings located outside of the formal library setting.

Physical Education, Recreation, and Athletics

At the Overland Park campus, physical education, recreation and athletics share space in the Gym Building. The guideline generated a need for the expansion of locker rooms, coach's offices, team rooms, training spaces, and the small weight room. As this facility would also serve the needs of the spectators in the area of the play fields, a small concession area was included in the analysis. The following program, as noted in Figure 28, was developed for a facility located adjacent to play fields. The 2,000 ASF of maintenance/grounds space accommodates the need for space in the Facilities, Maintenance, and Service space category. The balance of the space need is related to the need for additional recreation space.

Figure 28

JOHNSON COUNTY COMMUNITY COLLEGE - ATHLETICS OUTBUILDING

Space Use Code	Description	Stations	ASF/ Station	Total ASF
660	Concessions	-	-	180
665	Concession storage	-	-	50
XXX	Public toilets - Women's (1 ADA)	5	52	260
XXX	Public toilets - Men (1 ADA)	5	46	230
525	Men's locker room/showers/toilets	24	45	1,080
525	Women's locker room/showers/toilets	24	48	1,152
680	Huddle / playbook / Media / Conference room	30	30	900
520	Auxiliary Weigh room	15	72	1,080
525	Weight Room/Equipment Storage			150
310	Coaching Offices	6	120	720
315	Office Service	-	-	100
525	Coach's Dressing Room/Shower - Men's	4	60	240
525	Coach's Dressing Room/Shower -Women's	4	64	256
720	Grounds/Turf Maintenance/Supplies/Equipment	-	-	2,000
	Total			**8,398**

ASF = Assignable Square Feet

Video and Media Production Space

Application of the guideline for this category generated a modest 62 ASF deficit of space. The category is in relative balance for Fall 2025.

Assembly, Exhibition, and Service

JCCC has a significant amount of space in this category. A 3,775 ASF surplus of space in this area is the result of excess capacity in the number of large auditoriums on the campus, including Yardley Hall and Polsky Theater in the Carlsen Center. The guideline also includes a 600 ASF allocation for student exhibit space in a relocated fine arts building.

Social & Study Space

The space category generated a need for an additional 1,147 ASF as new spaces are created and some existing open group study areas are expanded as part of larger student engagement initiatives.

Meeting Rooms and Service

Application of the space standard generated a modest space need of 773 ASF as nursing requires a community and debriefing room, as related to simulation courses, and a space for community education.

Central Computer & Service

The space standard generated a small 311 ASF surplus of space. The campus has sufficient data, server, and equipment storage areas to accommodate campus needs moving forward.

Facilities, Maintenance, and Service

The guideline generated a need for 1,962 ASF at the plan horizon as future new facilities, such for industrial programs and the fine arts. Over the next ten years, buildings will continue to age and require a heightened level of maintenance. The guideline generated a need for an additional 1,962 ASF at the plan horizon. This space was allocated for grounds and equipment storage in the athletic play fields.

Student Union

The consultant applied guidelines in accordance with recognized standards. Facilities within the Student Union include food service and dining, bookstore, student meeting rooms, and vending/banking areas. Most of this space is contained within the Commons/Student Center. The guideline generated a 7,760 ASF surplus at the plan horizon. The analysis includes students in the BNSF program at current capacity levels. For Fall 2015, there were approximately 550 seats (tables and booths) in the various dining areas. A more detailed analysis was completed to determine the source of the space surplus.

Figure 29 notes space needs by type. The largest surplus for the 2025 plan horizon was in the bookstore category with a surplus of 5,442 ASF, as open source textbooks will be more available, reducing space needs for storing, selling and book buy-back functions. It is predicted that space currently devoted to book sales will be converted to more retail space in the foreseeable future.

Figure 29

FALL 2025 STUDENT CENTER GUIDELINE

Area	Total Existing ASF	Guideline ASF/ FTE	Fall 2025 Guideline ASF	Surplus (Deficit)
Bookstore	15,929	1.40	10,487	5,442
Food Service	13,634	1.70	12,735	899
Dining	12,670	1.50	11,237	1,434
Student Space	3,533	0.50	3,746	(213)
Vending/ Bank / Misc.	947	0.10	749	198
Total	**46,713**	**5.20**	**38,953**	**7,760**

ASF = Assignable Square Feet

Section 7: Observations and Implementable Strategies

Discussions with campus leadership and key campus representatives highlighted issues for consideration within the context of the physical master plan. The following, not listed in any particular order, are observations and issues for consideration noted by the consultant, and are intended as reflection points for the physical planning process.

1) Establish Centers of Excellence for CTE and Arts

The goal is to align programs with similar technologies for CTE and the Arts. These include digital arts, fine arts and performing arts. It would also be ideal to have business programs close to these programs as well. The College is also considering a digital music program with a focus on experimental new media.

There is a desire to relocate fine arts from ATB. A draft program generated a need for a total of 19,620 ASF for painting, drawing, ceramic, photo, and sculpture labs. The space program also includes student critique space near art labs for a total of 500 ASF which could also serve as studios when not in use for portfolio reviews and critiques.

There will be a motion-capture lab for film-making in the Collaboration Center. Arts could be located close to the Desktop Publishing and Animation and Gaming laboratories. These programs are under the Computer Science/Information Technology Department and includes labs in RC 374, 376, 311, and 378 for a total of 3,645 ASF. All of these programs would share maker space for student projects for a total of 2,160 ASF, including storage. Exhibition space in the form of a corridor gallery was requested to display student work. This area should include digital display monitors as students create digital media content. The best adjacency is near the theatre and the Music areas in the Carlsen Center or close to the Graphic Design program located on the third floor of the Library Building. Art faculty have noted that art is messy and should avoid high visibility areas of the campus. There is also a need for some outdoor areas for sculpture and ceramics.

Figure 30

Johnson County Community College-Fine Arts Space Draft Program Need

Space Use Code	Description	Stations	ASF/Station	Total ASF
110	Three - 28 station Flexible Classrooms	84	25	2,100
210	Mixed Media / Metals Lab / Lapidary Lab	20	50	1,000
210	Painting Lab	24	62	1,488
210	Drawing Lab	24	62	1,488
210	Ceramics Lab	20	70	1,400
210	Sculpture Lab	20	70	1,400
210	Photo Lab	20	54	1,084
	Subtotal	**128**	**61.370**	**7,860**
215	Supplies, Clay, Glazing, Storage, & Kilns	-	0.35	2,751
215	Student Project Storage Space	128	5	640
220	Photo /Edit Work Rooms	10	48	480
220	Photo Viewing and Processing	2	275	550
220	Student Portfolio and Critique Space	25	20	500
310	Faculty Offices	10	120	1,200
315	Office Storage / Supplies	1		100
350	Small Conference Room / Seminar room	12	24	288
525	Student lockers	130	3	390
550	Student Studio & Maker Space	48	45	2,160
620	Student Exhibition / Art Gallery			500
625	Art Gallery Storage			100
	Total			**19,620**

ASF = Assignable Square Feet

2) Prioritize Active Learning Classrooms

In the future, 50% of all classrooms will be outfitted for active learning or will have been converted to learning studios. These spaces should be distributed across the campus. This will increase the ASF per student station in future classrooms.

3) Realign Academic Resource Centers

There is a question of whether the academic resource centers should be combined or remain separate. Staff say these centers are hard to find for students. One goal would be to place them near the library, a popular model in many community colleges. The space needs analysis generated additional square feet in this category:

An additional 848 ASF for quiet rooms (ADA), collaboration rooms, and additional space for tutors to connect with virtual students in the Math Resource Center.

For the Language lab, tutors are in GEB 316 and need to be moved near the main lab in LIB 225 or the new location. The laboratory needs a few additional stations for a total of 300 ASF.

The Science Resource Center needs an additional 900 for a STEM / Science maker-space/ fab lab with 10 stations (5 for chemistry and 3 for biology and two for Information systems).

This could be part of the Science Resource Center. This would include a small study room and a small storage closet for storing supplies and models.

The Writing Center and Reading Laboratory are appropriately sized but would like additional study rooms, with a total of less than 250 ASF.

Based on a review of academic resource centers at other campuses, the Math and Science Centers are often combined into a large STEM Center.

4) Activate Collaborative Spaces

Both faculty and staff stated the need for additional student collaborative areas near classrooms, labs, and building entrances. Social and study space or collaborative learning areas are best located where students can gather before class or a faculty member can easily continue a discussion with students after a class in an active setting. Collaborative learning areas are usually open to a corridor and usually have a white board with movable furniture where the flow of ideas and discussion can easily be communicated. During the master planning phase, additional opportunities will be investigated for these types of spaces in a range of sizes.

5) Create Maker Spaces

Many community colleges are encouraging creativity with the creation of idea labs or maker spaces. These spaces have been a boon to student engagement and have particularly contributed to strategies to broaden interdisciplinary participation among diverse majors.

Maker spaces and fab labs have been created for a diverse array of activities ranging from robotics, 3D printing to capstone projects for the goal of engaging enrolled students in experiential real world experiences. These types of initiatives often focus on increasing enrollments and completion through the unique integration of networked "evidence of promise" strategies. The workforce now requires greater social skills, teamwork, cognitive abilities, and technological skills. As a result, these types of innovative, multi-faceted spaces must have the appropriate physical, computational, and collaborative/social infrastructure.

The Interior Design program is in GEB 361, 358, and 356 and GEB 351A (lab). This program has the ability to grow if they ramp up the commercial design side. Architecture (CAD) is in ITC 128, 132 and 134. They would like a studio atmosphere. Fashion Merchandising is currently in OCB 343A, 374, and 374C. Visual merchandising is in GEB 354 with storage in 354 A, B and C. Historic costume collection is in the Carlsen Center 230B and 230C. All of these programs could use a combined maker space with work benches and 3-D printers and other production equipment.

Programs related to the arts include digital and fine arts, and performing arts. All of these programs could share maker space for student projects moving forward.

6) Optimize Offices

There are multiple opportunities to optimize offices:

a) Marketing staff are in six different office locations. There are a total of 29 employees in this unit. These include:
   - College Information – 5 staff in GEB 140
   - College Relations – 13 staff in LIB 140, LIB 141 and LIB 142 (142 is also a photography studio)
   - Marketing – OCB 204, 204D is conference room. Also have 204A, 204B and 204C
   - Event management is in RC 148 and RC 148A and RC 159 and need to remain in this location.

   Marketing would like more collaboration areas to foster creativity, cubes for student interns (total of 3), a more open office environment, two small conference rooms (10-12), a layout area for marketing materials, and space for printers, scanners and supplies. The unit executive director is open to the concept of offices similar to those at Google and eBay. In the future, there may be other opportunities to optimize offices as part of larger renovation projects.

b) Adjunct faculty space is inconsistent across the campus. A total need of 4,332 ASF for all units and includes confidentiality rooms for private conversations with students (80 ASF each).

c) Many of the administrative leaders are in various buildings. There was some discussion that they should be all together in one place such as an administrative building with the President and VP's. Many are currently in GEB surrounded by classrooms. Should the Foundation and Internal Auditing functions be moved near the President? They would like that.

7) Create a new Center for Digital and Creative Arts

The goal is to align programs with similar technologies. These include digital arts, fine arts and performing arts. It would also be ideal to have business programs close to these as well. The dean would like to start a digital music program and focus on experimental new media close to the theatre.

There is a desire to relocate fine arts from ATB. A draft program generated a need for a total of 19,620 ASF for painting, drawing, ceramic, photo, and sculpture labs. The space program also includes student critique space near art labs for a total of 500 ASF which could also serve as studios when not in use for portfolio reviews and critiques.

There will be a motion-capture lab for film-making in the new Collaboration Center. Arts could be located close to the Desktop Publishing and Animation and Gaming laboratories. These programs are under the Computer Science/Information Technology Department and includes labs in RC 374, 376, 311, and 378 for a total of 3,645 ASF. All of these programs would share maker space for student projects for a total of 2,160 ASF, including storage. Exhibition space in the form of a corridor gallery was requested to display student work. This area should include digital display monitors as students create digital media content. The best adjacency is near the theatre and the Music areas in the Carlsen Center, but the creation of art is untidy with the need for some outdoor areas for sculpture and Raku.

8) Enhance Campus Front Door

a) Information Desk

Several groups discussed the need for a student Welcome Center at the entrance to the Carlsen Center. Parking and wayfinding on the campus give the impression to first time guests that this is the front door of the campus. Students and staff stated that the Student Center building is hard to find and appears to be at the back of the campus.

b) Front Door

The bookstore is oversized as technology changes the way books are sold and published. Food service could also be slightly smaller. Student Services would like to see a more viable student front door and information center on the first floor of the Student Center Building

9) Campus Wayfinding

To improve wayfinding, participants suggested that the first floor of buildings in the academic core be dedicated to students. This is the “Main Street” of the campus. There was a request to make a conscious effort at placing administration spaces and faculty offices on upper floors over the span of the master plan.

Limitations of Analysis

The consultant analyzed campus data provided by JCCC on staffing, course, facilities and projected enrollment. The data provides a "snapshot in time" of current conditions at the JCCC Overland Park campus.

The Space Needs Analysis is a quantitative analysis only. All permanent existing space is counted regardless of its quality. Because several rooms in the facilities inventory have multiple functions (i.e., one room containing a reception space, clerical workstation, storage and filing), it is impossible to distribute the existing space among the appropriate space use categories with 100% accuracy. Therefore, the relationship between existing space and proposed guideline space should be considered as approximate at the master planning level.

With the exception of the Facility and Programmatic Recommendations for the Arts & Technology Building: Industrial Arts Programs report by NorthStar Consulting (May, 2016), this study is not intended to replace program level analysis. The scope of this study did not identify every individual departmental requirement and did not include detail normally developed in room-by-room program plan of specific facilities.

Reliability of the findings of any space needs study depends on several factors including the quality of the data, the appropriateness of the space standards used, and the validity of the projections. Data used in this study was updated and refined to as high a level of accuracy as possible, given the broad magnitude of the study. The scope of this study did not identify every individual department requirement and did not include detail normally developed in room-by-room program planning of specific facilities.

Furthermore, this study only analyzed space needs and did not evaluate the quality of existing space or the suitability of the space, which are often factors that reduce occupancy. Unless otherwise noted, all findings are in assignable square feet (ASF). ASF is defined as the area measured within the interior walls of a room that can be assigned to a program. It does not include circulation, mechanical or building service space.

APPENDIX A - ASF BY ROOM USE CODE BY BUILDING

JOHNSON COUNTY COMMUNITY COLLEGE • OVERLAND PARK

Assignable Square Feet by Building by Campus *for*

Building	Class-rooms (110-115)	Teaching Labs (210-215)	Open Labs (220-225)	Research Labs (250-255)	Office (300's)	Library & Study (400's)	Ath/Phys Ed & Rec (520-525)	Special Use (500's)	Assembly & Exhibit (610-625)	General Use (600's)	Support (700's)	Health Care (800's)	Residence (900's)	Inactive/ Conver-sion	Uncoded Space	TOTAL ASF
Arts and Technology Building	5,929	33,069	1,959		3,698					348	567				289	45,859
Billington Library	1,931	8,521	6,082		12,128	31,187		4,952			982					65,783
Campus Services Building					7,823						14,374					22,197
Carlsen Center	23,008	3,844	1,927		18,536				35,443	1,518	200					84,476
Classroom Laboratory Building	9,021	13,924	6,933		9,783					894	384					40,939
College Commons Building	806				11,956					25,316						38,078
Galileo's Pavilion	1,389									540						1,929
General Education Building	15,424	6,071	1,023		22,895				6,880	2,888	217					55,398
Gymnasium	1,315				3,812		76,743	530		248	30					82,678
Hiersteiner Child Development Center	991				514					6,343						7,848
Horticultural Science Center	91	3,917			436			8,588								13,032
Hospitality & Culinary Academy	4,034	11,384	548		3,375	285				1,625	152					21,403
Industrial Technical Center	4,279	9,910	850		3,969					1,287	476				67,678	88,449
Nerman Museum of Contemporary Art	1,605				1,347				15,267	4,319						22,538
OCB (GEB)					2,242											2,242

Assignable Square Feet by Building by Campus *for*

Building	Class-rooms (110-115)	Teaching Labs (210-215)	Open Labs (220-225)	Research Labs (250-255)	Office (300's)	Library & Study (400's)	Ath/Phys Ed & Rec (520-525)	Special Use (500's)	Assembly & Exhibit (610-625)	General Use (600's)	Support (700's)	Health Care (800's)	Residence (900's)	Inactive/ Conver-sion	Uncoded Space	TOTAL ASF
Office and Classroom Building	3,373	5,849	4,131		6,907					275	1,721			8,889		31,145
Police Academy	4,120	1,052	1,933		4,053		540			456						12,154
Regnier Center	6,585	28,073	3,123		36,202					8,963	4,349			498		87,793
Science Building	11,743	21,330	1,984		6,811			821		1,641						44,330
Student Center			2,391		23,143					22,266	201					48,001
Warehouse					0						19,023					19,023
Welding Lab Building and Outstructures	822	4,638			301						2,681				29,564	38,006
Johnson County Community College • Overland Park Total	*96,466*	*151,582*	*32,884*		*179,931*	*31,472*	*77,283*	*14,891*	*57,590*	*78,927*	*45,357*			*9,387*	*97,531*	*873,301*
Campus Student FTE: 7,875																
Campus ASF/FTE	*12*	*19*	*4*		*23*	*4*	*10*	*2*	*7*	*10*	*6*			*1*	*12*	*111*

Assignable Square Feet by Building by Campus *for*

	Class-rooms (110-115)	Teaching Labs (210-215)	Open Labs (220-225)	Research Labs (250-255)	Office (300's)	Library & Study (400's)	Ath/Phys Ed & Rec (520-525)	Special Use (500's)	Assembly & Exhibit (610-625)	General Use (600's)	Support (700's)	Health Care (800's)	Residence (900's)	Inactive/ Conver-sion	Uncoded Space	TOTAL ASF
Olathe Health Education Center	10,550	4,718	3,589		6,735					3,547	447					29,586
Johnson County Community College • OHEC Total	*10,550*	*4,718*	*3,589*		*6,735*					*3,547*	*447*					*29,586*
Campus Student FTE: 194																
Campus ASF/FTE	*54*	*24*	*19*		*35*					*18*	*2*					*153*

Appendix B - Scheduled Classroom Use by Day and Time

JOHNSON COUNTY COMMUNITY COLLEGE

Scheduled Classroom Use by Day and Time *(Fall 2015)*

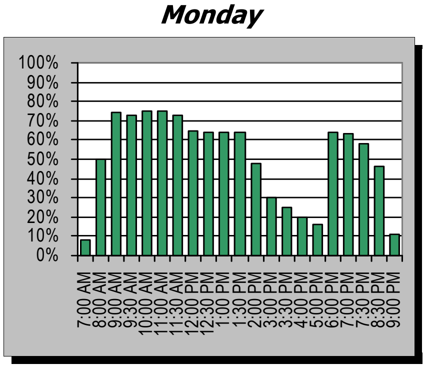
(Darker colors indicate a large percentage of rooms are scheduled.)

Time of Day	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday		Average	
	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use
7:00 AM	11	8%	9	7%	15	11%	9	7%	12	9%	0	0%	0	0%	11	8%
8:00 AM	66	50%	70	53%	74	56%	72	55%	65	49%	11	8%	1	1%	69	53%
9:00 AM	98	74%	76	58%	104	79%	77	58%	99	75%	16	12%	1	1%	91	69%
9:30 AM	96	73%	109	83%	101	77%	108	82%	98	74%	22	17%	1	1%	102	78%
10:00 AM	99	75%	111	84%	106	80%	107	81%	105	80%	25	19%	1	1%	106	80%
11:00 AM	99	75%	116	88%	105	80%	113	86%	101	77%	24	18%	1	1%	107	81%
11:30 AM	96	73%	115	87%	102	77%	112	85%	100	76%	24	18%	1	1%	105	80%
12:00 PM	86	65%	112	85%	89	67%	107	81%	82	62%	11	8%	3	2%	95	72%
12:30 PM	85	64%	102	77%	86	65%	98	74%	80	61%	17	13%	3	2%	90	68%
1:00 PM	85	64%	103	78%	86	65%	98	74%	78	59%	18	14%	3	2%	90	68%
1:30 PM	85	64%	101	77%	85	64%	97	73%	76	58%	18	14%	3	2%	89	67%
2:00 PM	64	48%	75	57%	70	53%	76	58%	54	41%	19	14%	4	3%	68	51%
3:00 PM	40	30%	66	50%	46	35%	69	52%	35	27%	12	9%	2	2%	51	39%
3:30 PM	33	25%	40	30%	40	30%	39	30%	31	23%	11	8%	2	2%	37	28%
4:00 PM	26	20%	38	29%	30	23%	37	28%	16	12%	9	7%	1	1%	29	22%
5:00 PM	21	16%	31	23%	19	14%	24	18%	2	2%	1	1%	0	0%	19	15%
6:00 PM	85	64%	93	70%	86	65%	74	56%	10	8%	1	1%	0	0%	70	53%
7:00 PM	83	63%	88	67%	77	58%	71	54%	10	8%	0	0%	0	0%	66	50%
7:30 PM	76	58%	79	60%	69	52%	62	47%	10	8%	0	0%	0	0%	59	45%
8:30 PM	61	46%	62	47%	57	43%	44	33%	10	8%	0	0%	0	0%	47	35%
9:00 PM	14	11%	10	8%	8	6%	8	6%	5	4%	0	0%	0	0%	9	7%

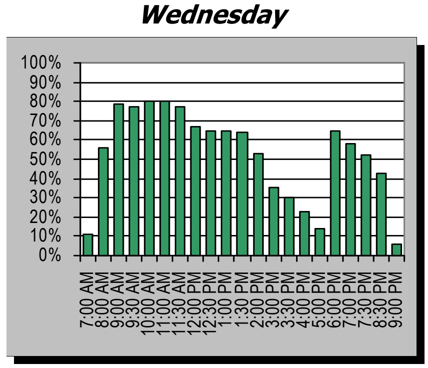
Total classrooms = 132

Percent of Classrooms In Use

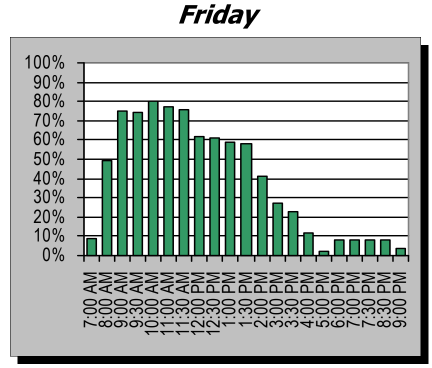
Monday



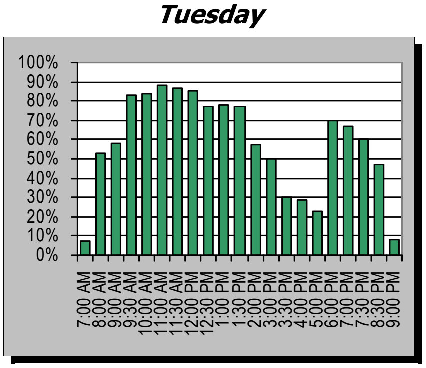
Wednesday



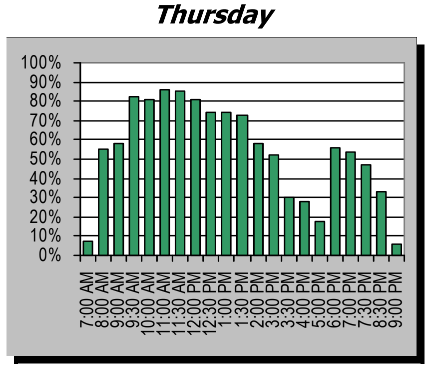
Friday



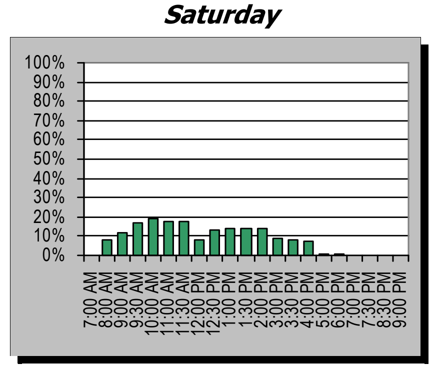
Tuesday



Thursday



Saturday



Scheduled Classroom Use by Day and Time *(Fall 2015)*

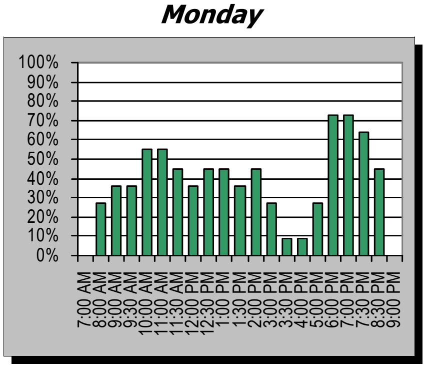
(Darker colors indicate a large percentage of rooms are scheduled.)

Time of Day	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday		Average	
	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use
7:00 AM	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
8:00 AM	3	27%	6	55%	5	45%	6	55%	5	45%	0	0%	0	0%	5	45%
9:00 AM	4	36%	6	55%	7	64%	7	64%	6	55%	3	27%	0	0%	6	55%
9:30 AM	4	36%	6	55%	7	64%	7	64%	6	55%	3	27%	0	0%	6	55%
10:00 AM	6	55%	6	55%	8	73%	7	64%	6	55%	3	27%	0	0%	7	60%
11:00 AM	6	55%	6	55%	8	73%	7	64%	6	55%	3	27%	0	0%	7	60%
11:30 AM	5	45%	5	45%	8	73%	6	55%	5	45%	3	27%	0	0%	6	53%
12:00 PM	4	36%	5	45%	6	55%	5	45%	4	36%	2	18%	0	0%	5	44%
12:30 PM	5	45%	5	45%	6	55%	5	45%	4	36%	2	18%	0	0%	5	45%
1:00 PM	5	45%	6	55%	6	55%	6	55%	4	36%	2	18%	0	0%	5	49%
1:30 PM	4	36%	6	55%	5	45%	6	55%	4	36%	2	18%	0	0%	5	45%
2:00 PM	5	45%	6	55%	7	64%	5	45%	5	45%	2	18%	0	0%	6	51%
3:00 PM	3	27%	5	45%	6	55%	4	36%	4	36%	2	18%	0	0%	4	40%
3:30 PM	1	9%	4	36%	3	27%	3	27%	3	27%	2	18%	0	0%	3	25%
4:00 PM	1	9%	2	18%	2	18%	1	9%	1	9%	2	18%	0	0%	1	13%
5:00 PM	3	27%	2	18%	3	27%	2	18%	0	0%	0	0%	0	0%	2	18%
6:00 PM	8	73%	6	55%	9	82%	5	45%	0	0%	0	0%	0	0%	6	51%
7:00 PM	8	73%	6	55%	9	82%	5	45%	0	0%	0	0%	0	0%	6	51%
7:30 PM	7	64%	5	45%	8	73%	4	36%	0	0%	0	0%	0	0%	5	44%
8:30 PM	5	45%	4	36%	6	55%	3	27%	0	0%	0	0%	0	0%	4	33%
9:00 PM	0	0%	0	0%	0	0%	1	9%	0	0%	0	0%	0	0%	0	2%

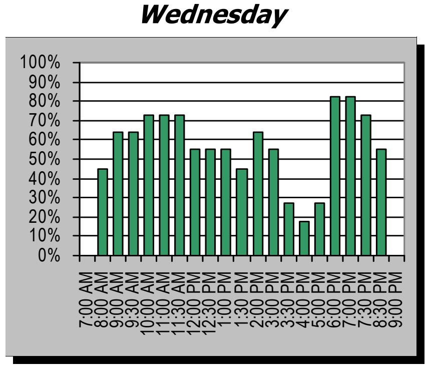
Total classrooms = 11

Percent of Classrooms In Use

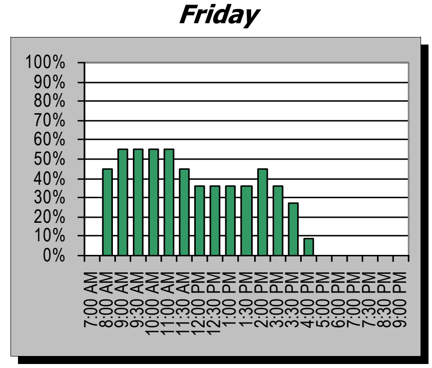
Monday



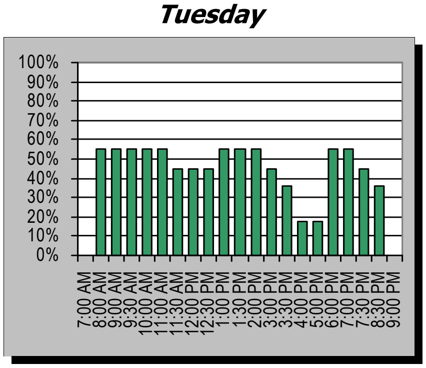
Wednesday



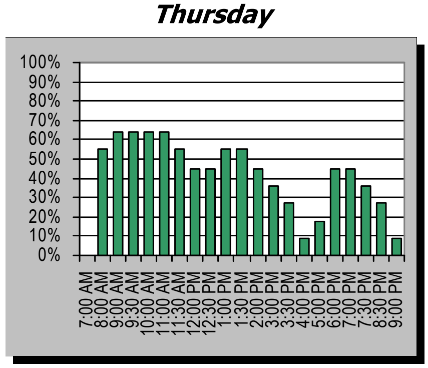
Friday



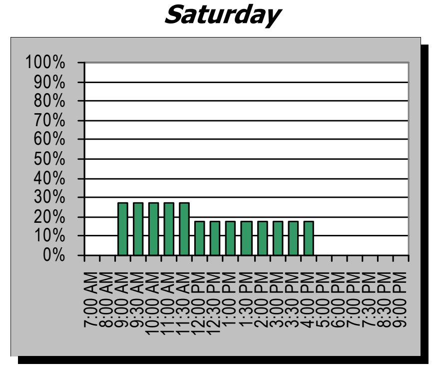
Tuesday



Thursday



Saturday



Appendix C - Classroom Utilization by Building

(Credit and Non-Credit Courses)

JOHNSON COUNTY COMMUNITY COLLEGE

Classroom Utilization Analysis by Building - Credit and Non-Credit Courses

Room Id	Space Use Code	Assignable Sq. Ft.	No. of Stations	Assignable Sq. Ft. Per Station	Average Enroll-ment	Weekly Student Contact Hours	Weekly Seat Hours	Weekly Room Hours	Hours in Use Student Station Occupancy %
Arts and Technology Building									***No. of Rooms = 10***
ATB 125	110	709	26	27	14	502	19.3	35.0	55%
ATB 127	110	730	30	24	14	358	11.9	24.0	50%
ATB 128	110	467	16	29	14	383	23.9	27.4	87%
ATB 129	110	691	24	29	15	490	20.4	33.6	61%
ATB 131	110	582	30	19	13	489	16.3	37.4	44%
ATB 132	110	582	30	19	21	549	18.3	25.5	72%
ATB 133	110	576	30	19	18	643	21.4	35.0	61%
ATB 134	110	576	30	19	18	745	24.8	33.6	74%
ATB 142	110	534	18	30	13	360	20.0	26.4	76%
ATB 164A	110	482	20	24	18	209	10.4	11.6	90%
Average		*593*	*25*	*24*	*16*		*18.6*	*29*	*65%*
Total		*5,929*	*254*			*4,728*		*290*	
Billington Library									***No. of Rooms = 3***
LIB 305	110	499	22	23	8	170	7.7	18.2	42%
LIB 352	110	632	26	24	22	660	25.4	30.0	85%
LIB 353B	110	760	26	29	17	505	19.4	30.1	65%
Average		*630*	*25*	*25*	*16*		*18.0*	*26*	*67%*
Total		*1,891*	*74*			*1,335*		*78*	
Carlsen Center									***No. of Rooms = 27***
CC 124	110	901	32	28	11	601	18.8	60.0	31%
CC 126A	110	890	39	23	25	957	24.5	39.0	63%
CC 126B	110	971	40	24	28	1,080	27.0	39.0	69%
CC 128	110	869	34	26	12	314	9.2	22.8	41%
CC 130	110	661	24	28	14	407	17.0	28.3	60%
CC 209	110	736	10	74	0	0	0.0	0.0	0%
CC 211	110	2,432	118	21	52	587	5.0	14.2	35%
CC 212	110	1,098	40	27	9	116	2.9	14.6	20%
CC 216	110	555	27	21	16	765	28.3	49.0	58%
CC 224	110	823	40	21	16	668	16.7	40.1	42%
CC 229	110	829	24	35	16	519	21.6	33.0	66%
CC 232	110	1,734	70	25	18	199	2.8	13.2	22%
CC 234	110	1,719	70	25	17	542	7.7	25.8	30%
CC 312	110	560	28	20	19	723	25.8	39.0	66%
CC 314	110	560	28	20	22	582	20.8	27.0	77%
CC 316	110	560	24	23	18	713	29.7	40.0	74%
CC 318	110	560	30	19	16	568	18.9	30.2	63%
CC 321	110	554	28	20	17	662	23.6	38.2	62%
CC 323	110	547	24	23	15	588	24.5	36.8	67%
CC 324	110	560	24	23	22	663	27.6	30.0	92%
CC 325	110	547	22	25	13	612	27.8	37.0	75%
CC 329	110	568	24	24	20	795	33.1	39.0	85%
CC 331	110	568	25	23	18	633	25.3	36.2	70%
CC 332	110	850	25	34	20	893	35.7	45.1	79%

Classroom Utilization Analysis by Building - Credit and Non-Credit Courses

Room Id	Space Use Code	Assignable Sq. Ft.	No. of Stations	Assignable Sq. Ft. Per Station	Average Enroll-ment	Weekly Student Contact Hours	Weekly Seat Hours	Weekly Room Hours	Hours in Use Student Station Occupancy %
CC 338	110	730	36	20	26	942	26.2	36.0	73%
CC 344	110	730	36	20	22	741	20.6	33.0	62%
CC 352	110	730	35	21	25	672	19.2	27.0	71%
Average		*846*	*35*	*26*	*19*		*17.3*	*32*	*62%*
Total		*22,842*	*957*			*16,541*		*874*	
Classroom Laboratory Building									***No. of Rooms = 11***
CLB 203	110	732	36	20	25	1,337	37.1	54.1	69%
CLB 205	110	724	36	20	24	1,171	32.5	49.5	66%
CLB 207	110	731	36	20	26	1,321	36.7	51.1	72%
CLB 211	110	718	35	21	25	1,104	31.5	45.0	70%
CLB 312	110	1,167	50	23	34	1,611	32.2	48.0	67%
CLB 314	110	758	34	22	26	708	20.8	27.0	77%
CLB 316	110	781	36	22	23	736	20.4	31.0	66%
CLB 402	110	672	25	27	19	835	33.4	43.8	76%
CLB 403	110	875	30	29	25	942	31.4	37.1	85%
CLB 405	110	954	24	40	19	487	20.3	26.0	78%
CLB 412	110	825	36	23	22	522	14.5	24.0	60%
Average		*812*	*34*	*24*	*24*		*28.5*	*40*	*71%*
Total		*8,937*	*378*			*10,774*		*437*	
College Commons Building									***No. of Rooms = 1***
COM 252	110	806	24	34	9	84	3.5	9.0	39%
Average		*806*	*24*	*34*	*9*		*3.5*	*9*	*39%*
Total		*806*	*24*			*84*		*9*	
Galileo's Pavilion									***No. of Rooms = 2***
GP 101	110	654	30	22	19	402	13.4	21.0	64%
GP 102	110	654	30	22	18	462	15.4	26.4	58%
Average		*654*	*30*	*22*	*19*		*14.4*	*24*	*61%*
Total		*1,308*	*60*			*864*		*47*	
General Education Building									***No. of Rooms = 23***
GEB 213	110	593	34	17	21	838	24.6	39.9	62%
GEB 215	110	581	30	19	10	448	14.9	46.7	32%
GEB 217	110	598	32	19	21	577	18.0	28.3	64%
GEB 238	110	593	26	23	14	317	12.2	21.8	56%
GEB 240	110	578	36	16	27	1,221	33.9	45.0	75%
GEB 242	110	608	29	21	20	573	19.8	28.5	69%
GEB 254	110	587	32	18	26	1,137	35.5	43.0	83%
GEB 256	110	592	30	20	22	657	21.9	30.0	73%
GEB 258	110	592	24	25	19	819	34.1	43.4	79%
GEB 279	110	576	32	18	21	882	27.6	42.0	66%
GEB 281	110	564	22	26	17	511	23.2	29.9	78%
GEB 311	110	515	28	18	12	490	17.5	43.8	40%

Classroom Utilization Analysis by Building - Credit and Non-Credit Courses

Room Id	Space Use Code	Assignable Sq. Ft.	No. of Stations	Assignable Sq. Ft. Per Station	Average Enroll-ment	Weekly Student Contact Hours	Weekly Seat Hours	Weekly Room Hours	Hours in Use Student Station Occupancy %
GEB 313	110	771	35	22	20	939	26.8	38.5	70%
GEB 315	110	790	35	23	18	1,004	28.7	44.2	65%
GEB 317	110	819	40	20	24	1,278	31.9	43.5	73%
GEB 338	110	774	36	22	28	1,080	30.0	39.0	77%
GEB 340	110	788	28	28	26	898	32.1	34.1	94%
GEB 342	110	822	40	21	18	914	22.9	40.8	56%
GEB 354	110	796	22	36	11	260	11.8	27.1	44%
GEB 361	110	530	18	29	12	109	6.1	10.4	58%
GEB 375	110	757	40	19	23	1,296	32.4	46.5	70%
GEB 377	110	753	40	19	30	1,437	35.9	48.0	75%
GEB 381	110	564	27	21	16	713	26.4	35.8	74%
Average		*658*	*31*	*22*	*20*		*25.7*	*37*	*67%*
Total		*15,141*	*716*			*18,399*		*850*	

Gymnasium — *No. of Rooms = 2*

Room Id	Space Use Code	Assignable Sq. Ft.	No. of Stations	Assignable Sq. Ft. Per Station	Average Enroll-ment	Weekly Student Contact Hours	Weekly Seat Hours	Weekly Room Hours	Hours in Use Student Station Occupancy %
GYM 013	110	606	24	25	21	407	17.0	19.0	89%
GYM 021	110	694	24	29	15	335	13.9	21.6	65%
Average		*650*	*24*	*27*	*18*		*15.4*	*20*	*76%*
Total		*1,300*	*48*			*742*		*41*	

Hiersteiner Child Development Center — *No. of Rooms = 1*

Room Id	Space Use Code	Assignable Sq. Ft.	No. of Stations	Assignable Sq. Ft. Per Station	Average Enroll-ment	Weekly Student Contact Hours	Weekly Seat Hours	Weekly Room Hours	Hours in Use Student Station Occupancy %
HCDC 128	110	991	38	26	14	199	5.2	14.0	37%
Average		*991*	*38*	*26*	*14*		*5.2*	*14*	*37%*
Total		*991*	*38*			*199*		*14*	

Hospitality & Culinary Academy — *No. of Rooms = 3*

Room Id	Space Use Code	Assignable Sq. Ft.	No. of Stations	Assignable Sq. Ft. Per Station	Average Enroll-ment	Weekly Student Contact Hours	Weekly Seat Hours	Weekly Room Hours	Hours in Use Student Station Occupancy %
HCA 117	110	712	26	27	21	375	14.4	18.0	80%
HCA 119	110	712	26	27	21	246	9.5	12.0	79%
HCA 145	110	2,221	74	30	25	418	5.6	17.6	32%
Average		*1,215*	*42*	*28*	*22*		*8.2*	*16*	*62%*
Total		*3,645*	*126*			*1,039*		*48*	

Industrial Technical Center — *No. of Rooms = 11*

Room Id	Space Use Code	Assignable Sq. Ft.	No. of Stations	Assignable Sq. Ft. Per Station	Average Enroll-ment	Weekly Student Contact Hours	Weekly Seat Hours	Weekly Room Hours	Hours in Use Student Station Occupancy %
ITC 104	110	734	20	37	11	186	9.3	17.6	53%
ITC 106	110	623	20	31	10	67	3.3	6.5	51%
ITC 108	110	622	20	31	12	253	12.6	19.8	64%
ITC 110	110	615	18	34	9	402	22.3	47.9	47%
ITC 114	110	624	20	31	9	49	2.5	3.6	68%
ITC 122	110	736	24	31	14	232	9.7	17.0	57%
ITC 181	110	723	22	33	18	343	15.6	19.1	82%
ITC 183	110	666	18	37	13	47	2.6	4.0	65%
ITC 185	110	659	18	37	0	0	0.0	0.0	0%
ITC 187	110	646	17	38	13	183	10.8	14.1	77%
ITC 188	110	674	26	26	11	171	6.6	14.6	45%

Classroom Utilization Analysis by Building - Credit and Non-Credit Courses

Room Id	Space Use Code	Assignable Sq. Ft.	No. of Stations	Assignable Sq. Ft. Per Station	Average Enroll-ment	Weekly Student Contact Hours	Weekly Seat Hours	Weekly Room Hours	Hours in Use Student Station Occupancy %
	Average	*666*	*20*	*33*	*11*		*8.7*	*15*	*58%*
	Total	*7,322*	*223*			*1,934*		*164*	
Nerman Museum of Contemporary Art									***No. of Rooms = 2***
NMOCA 212	110	764	24	32	12	2	0.1	0.2	50%
NMOCA 213	110	730	24	30	8	26	1.1	3.1	34%
	Average	*747*	*24*	*31*	*10*		*0.6*	*2*	*35%*
	Total	*1,494*	*48*			*28*		*3*	
Office and Classroom Building									***No. of Rooms = 6***
OCB 142	110	504	24	21	19	551	23.0	29.6	78%
OCB 144	110	538	26	21	19	764	29.4	39.5	74%
OCB 246	110	567	32	18	24	1,012	31.6	41.8	76%
OCB 248	110	605	32	19	26	1,015	31.7	38.7	82%
OCB 308	110	600	25	24	20	719	28.8	35.6	81%
OCB 332	110	559	30	19	22	759	25.3	33.9	75%
	Average	*562*	*28*	*20*	*22*		*28.5*	*37*	*77%*
	Total	*3,373*	*169*			*4,820*		*219*	
Police Academy									***No. of Rooms = 7***
PA 124	110	634	32	20	10	1,125	35.2	71.7	49%
PA 125	110	634	32	20	36	1,616	50.5	44.9	113%
PA 126	110	667	25	27	12	106	4.2	8.8	48%
PA 133	110	620	32	19	22	581	18.2	26.0	70%
PA 134	110	387	16	24	11	130	8.1	13.5	60%
PA 144	110	543	24	23	15	291	12.1	19.6	62%
PA 145	110	635	32	20	20	483	15.1	24.0	63%
	Average	*589*	*28*	*22*	*18*		*22.4*	*30*	*69%*
	Total	*4,120*	*193*			*4,332*		*209*	
Regnier Center									***No. of Rooms = 8***
RC 144	110	604	16	38	7	350	21.9	34.4	64%
RC 145	110	885	24	37	11	100	4.1	9.2	45%
RC 146	110	603	16	38	7	81	5.1	11.6	44%
RC 157	110	753	24	31	9	630	26.2	48.4	54%
RC 175	110	1,010	30	34	15	407	13.6	16.6	82%
RC 181	110	1,017	30	34	13	176	5.9	12.0	49%
RC 183	110	868	18	48	10	30	1.7	4.9	34%
RC 185	110	566	20	28	5	31	1.6	6.5	24%
	Average	*788*	*22*	*36*	*10*		*10.1*	*18*	*56%*
	Total	*6,306*	*178*			*1,805*		*144*	
Science Building									***No. of Rooms = 14***
SCI 101L	110	369	12	31	12	712	59.3	57.5	103%

JOHNSON COUNTY COMMUNITY COLLEGE

Classroom Utilization Analysis by Building - Credit and Non-Credit Courses

Room Id	Space Use Code	Assignable Sq. Ft.	No. of Stations	Assignable Sq. Ft. Per Station	Average Enroll-ment	Weekly Student Contact Hours	Weekly Seat Hours	Weekly Room Hours	Hours in Use Student Station Occupancy %
SCI 101M	110	422	12	35	13	752	62.6	57.5	109%
SCI 101N	110	486	12	41	14	764	63.6	57.5	111%
SCI 112	110	801	35	23	23	619	17.7	26.6	67%
SCI 114	110	801	35	23	22	877	25.1	39.6	63%
SCI 116	110	560	28	20	16	475	17.0	29.3	58%
SCI 118	110	371	24	15	23	684	28.5	30.0	95%
SCI 120	110	371	24	15	18	365	15.2	20.0	76%
SCI 122	110	560	28	20	18	501	17.9	28.6	63%
SCI 124	110	931	24	39	18	583	24.3	31.0	78%
SCI 212	110	2,055	84	24	36	1,766	21.0	48.8	43%
SCI 216	110	500	24	21	22	781	32.5	35.0	93%
SCI 218	110	391	24	16	18	501	20.9	26.0	80%
SCI 222	110	2,055	75	27	59	733	9.8	19.9	49%
Average		*762*	*32*	*25*	*22*		*22.9*	*36*	*82%*
Total		*10,673*	*441*			*10,113*		*507*	
Welding Lab Building and Outstructures									***No. of Rooms = 1***
WLB 102	110	822	16	51	14	360	22.5	24.4	92%
Average		*822*	*16*	*51*	*14*		*22.5*	*24*	*92%*
Total		*822*	*16*			*360*		*24*	
AVERAGE		**734**	**30**	**26**	**18**		**19.8**	**30**	**68%**
TOTAL		**96,900**	**3,943**			**78,095**		**3,957**	
NO. OF ROOMS		**132**							

Classroom Utilization Analysis by Building - Credit and Non-Credit Courses

Room Id	Space Use Code	Assignable Sq. Ft.	No. of Stations	Assignable Sq. Ft. Per Station	Average Enroll-ment	Weekly Student Contact Hours	Weekly Seat Hours	Weekly Room Hours	Hours in Use Student Station Occupancy %
Olathe Health Education Center									***No. of Rooms = 11***
OHEC 105	110	979	34	29	18	107	3.1	6.1	51%
OHEC 107	110	959	24	40	20	823	34.3	41.4	83%
OHEC 119	110	946	22	43	14	348	15.8	26.0	61%
OHEC 143	110	845	24	35	12	187	7.8	15.1	51%
OHEC 209	110	1,450	40	36	22	570	14.2	26.8	53%
OHEC 217	110	828	24	35	19	284	11.8	18.0	66%
OHEC 223	110	476	20	24	13	40	2.0	3.3	60%
OHEC 231	110	967	20	48	9	267	13.4	27.5	49%
OHEC 233	110	946	20	47	9	180	9.0	20.9	43%
OHEC 235	110	957	20	48	9	207	10.4	21.9	47%
OHEC 241	110	953	20	48	9	298	14.9	31.8	47%
	Average	*937*	*24*	*39*	*14*		*12.3*	*22*	*57%*
	Total	*10,306*	*268*			*3,309*		*239*	
	AVERAGE	**937**	**24**	**39**	**14**		**12.3**	**22**	**57%**
	TOTAL	**10,306**	**268**			**3,309**		**239**	
	NO. OF ROOMS	**11**							

Appendix D - Teaching Laboratory Utilization by Building (Credit and Non-Credit Courses)

JOHNSON COUNTY COMMUNITY COLLEGE

Teaching Laboratory Utilization Analysis by Building - Credit/Non-Credit Courses

Room Id	Space Use Code	Assignable Sq. Ft.	No. of Stations	Assignable Sq. Ft. Per Station	Average Enroll-ment	Weekly Student Contact Hours	Weekly Seat Hours	Weekly Room Hours	Hours in Use Student Station Occupancy %
Arts and Technology Building									***No. of Rooms = 21***
ATB 101	210	2,135	20	107	16	353	17.7	22.8	78%
ATB 109	210	1,369	22	62	17	765	34.8	45.7	76%
ATB 111	210	1,916	20	96	11	457	22.8	40.0	57%
ATB 115	210	2,010	18	112	11	520	28.9	45.2	64%
ATB 135	210	688	20	34	17	498	24.9	28.6	87%
ATB 139	210	640	20	32	17	111	5.5	6.5	85%
ATB 145D	210	593	30	20	8	46	1.5	5.7	27%
ATB 146	210	1,998	18	111	13	99	5.5	7.6	72%
ATB 147	210	369	18	21	14	308	17.1	22.8	75%
ATB 148	210	2,590	18	144	17	386	21.5	22.6	95%
ATB 150	210	1,891	15	126	10	451	30.1	44.7	67%
ATB 155	210	369	16	23	13	39	2.4	3.0	81%
ATB 164B	210	254	18	14	17	153	8.5	8.8	96%
ATB 168A	210	995	18	55	15	45	2.5	3.0	83%
ATB 168B	210	735	18	41	16	154	8.6	9.6	89%
ATB 168C	210	846	18	47	13	78	4.3	6.0	72%
ATB 182	210	575	18	32	14	192	10.7	13.5	79%
ATB 183	210	1,056	18	59	16	189	10.5	11.9	88%
ATB 185	210	1,056	15	70	13	138	9.2	10.6	87%
ATB 190	210	5,168	20	258	16	522	26.1	32.3	81%
ATB 192	210	1,400	12	117	12	123	10.3	10.7	96%
Average		*1,364*	*19*	*75*	*14*		*14.4*	*19*	*76%*
Total		*28,653*	*390*			*5,626*		*402*	
Billington Library									***No. of Rooms = 11***
LIB 303	210	411	14	29	7	51	3.6	7.1	51%
LIB 311	210	1,062	18	59	13	647	35.9	48.4	74%
LIB 312	210	490	21	23	14	704	33.5	51.4	65%
LIB 313	210	765	18	43	13	647	35.9	48.4	74%
LIB 314	210	491	18	27	14	779	43.3	55.1	78%
LIB 342	210	1,608	18	89	13	656	36.4	49.1	74%
LIB 344	210	402	18	22	13	656	36.4	49.1	74%
LIB 346	210	1,343	18	75	14	779	43.3	55.1	78%
LIB 357	210	881	24	37	19	693	28.9	36.0	80%
LIB 359	210	515	20	26	16	522	26.1	33.0	79%
LIB 373	210	413	14	30	7	21	1.5	3.0	50%
Average		*762*	*18*	*42*	*13*		*30.6*	*40*	*75%*
Total		*8,381*	*201*			*6,152*		*436*	
Carlsen Center									***No. of Rooms = 4***
CC 122	210	1,009	27	37	13	393	14.6	30.0	49%
CC 215	210	1,204	24	50	20	1,157	48.2	56.4	85%
CC 217	210	1,204	24	50	18	864	36.0	47.8	75%
CC 296	210	427	10	43	11	51	5.1	5.0	102%

Teaching Laboratory Utilization Analysis by Building - Credit/Non-Credit Courses

Room Id	Space Use Code	Assignable Sq. Ft.	No. of Stations	Assignable Sq. Ft. Per Station	Average Enroll-ment	Weekly Student Contact Hours	Weekly Seat Hours	Weekly Room Hours	Hours in Use Student Station Occupancy %
Average		*961*	*21*	*45*	*16*		*29.0*	*35*	*75%*
Total		*3,844*	*85*			*2,464*		*139*	
Classroom Laboratory Building									***No. of Rooms = 10***
CLB 111	210	1,156	22	53	18	330	15.0	18.3	82%
CLB 113	210	1,095	24	46	21	159	6.6	7.3	91%
CLB 209	210	736	28	26	20	946	33.8	47.1	72%
CLB 213	210	733	28	26	19	1,055	37.7	54.2	70%
CLB 303	210	1,155	24	48	19	280	11.7	25.9	45%
CLB 307	210	1,158	24	48	16	467	19.5	28.5	68%
CLB 309	210	1,155	24	48	21	1,156	48.2	52.0	93%
CLB 313	210	1,157	24	48	22	943	39.3	42.7	92%
CLB 407	210	1,145	24	48	20	752	31.3	35.8	88%
CLB 411	210	1,127	24	47	20	423	17.6	21.0	84%
Average		*1,062*	*25*	*44*	*20*		*26.5*	*33*	*78%*
Total		*10,617*	*246*			*6,510*		*333*	
General Education Building									***No. of Rooms = 7***
GEB 351A	210	861	17	51	12	245	14.4	18.8	77%
GEB 351B	210	976	12	81	8	130	10.9	14.8	73%
GEB 353A	210	995	18	55	8	116	6.4	14.2	45%
GEB 353B	210	987	18	55	10	152	8.4	16.6	51%
GEB 356	210	754	24	31	13	267	11.1	20.9	53%
GEB 363	210	745	20	37	17	529	26.4	32.5	81%
GEB 379	210	753	22	34	17	711	32.3	42.0	77%
Average		*867*	*19*	*49*	*12*		*16.4*	*23*	*69%*
Total		*6,071*	*131*			*2,149*		*160*	
Horticultural Science Center									***No. of Rooms = 2***
HSC 100	210	1,656	24	69	15	353	14.7	23.0	64%
HSC 121	210	1,652	24	69	19	573	23.9	29.0	82%
Average		*1,654*	*24*	*69*	*17*		*19.3*	*26*	*74%*
Total		*3,308*	*48*			*926*		*52*	
Hospitality & Culinary Academy									***No. of Rooms = 6***
HCA 115	210	722	26	28	18	643	24.7	40.0	62%
HCA 140	210	1,764	16	110	14	415	26.0	28.2	92%
HCA 142	210	1,714	16	107	11	202	12.6	14.7	86%
HCA 144	210	1,651	16	103	14	503	31.5	35.2	89%
HCA 146	210	1,670	16	104	13	91	5.7	7.0	81%
HCA 148	210	1,884	18	105	15	359	19.9	24.0	83%

Teaching Laboratory Utilization Analysis by Building - Credit/Non-Credit Courses

Room Id	Space Use Code	Assignable Sq. Ft.	No. of Stations	Assignable Sq. Ft. Per Station	Average Enroll-ment	Weekly Student Contact Hours	Weekly Seat Hours	Weekly Room Hours	Hours in Use Student Station Occupancy %
Average		*1,568*	*18*	*93*	*14*		*20.5*	*25*	*81%*
Total		*9,405*	*108*			*2,214*		*149*	
Industrial Technical Center									***No. of Rooms = 8***
ITC 124	210	1,650	26	63	15	277	10.7	18.5	58%
ITC 126	210	887	20	44	13	381	19.0	28.4	67%
ITC 128	210	903	15	60	15	145	9.7	10.0	97%
ITC 134	210	1,328	18	74	11	326	18.1	29.0	62%
ITC 184	210	1,491	23	65	13	263	11.4	21.1	54%
ITC 189	210	655	12	55	12	135	11.3	11.8	95%
ITC 191A	210	774	16	48	10	58	3.6	6.1	59%
ITC 191B	210	774	16	48	13	78	4.9	6.0	81%
Average		*1,058*	*18*	*57*	*13*		*11.4*	*16*	*68%*
Total		*8,462*	*146*			*1,663*		*131*	
Office and Classroom Building									***No. of Rooms = 6***
OCB 182	210	1,509	40	38	13	168	4.2	11.0	38%
OCB 192	210	1,147	35	33	19	311	8.9	17.6	50%
OCB 343A	210	838	12	70	9	411	34.3	48.6	71%
OCB 362	210	294	9	33	7	77	8.6	12.0	71%
OCB 364	210	858	12	72	11	444	37.0	39.2	94%
OCB 374	210	1,123	24	47	13	371	15.5	29.8	52%
Average		*962*	*22*	*49*	*12*		*13.5*	*26*	*69%*
Total		*5,769*	*132*			*1,783*		*158*	
Regnier Center									***No. of Rooms = 31***
RC 142	210	605	12	50	8	87	7.2	7.4	98%
RC 155	210	748	18	42	9	66	3.7	6.7	55%
RC 221	210	912	16	57	8	152	9.5	14.6	65%
RC 232	210	846	16	53	6	225	14.1	38.4	37%
RC 234	210	1,123	16	70	5	135	8.4	18.3	46%
RC 236	210	1,018	16	64	8	121	7.6	14.1	54%
RC 238	210	858	18	48	5	24	1.3	6.8	19%
RC 245	210	880	23	38	6	226	9.8	44.9	22%
RC 250	210	884	21	42	7	317	15.1	47.4	32%
RC 252	210	595	11	54	5	65	5.9	18.1	33%
RC 253	210	852	20	43	6	135	6.8	28.3	24%
RC 254	210	592	16	37	6	82	5.1	16.9	30%
RC 255	210	852	21	41	6	201	9.6	28.3	34%
RC 311	210	1,100	16	69	14	775	48.5	57.0	85%
RC 323	210	1,082	16	68	11	404	25.2	38.8	65%
RC 340	210	624	15	42	13	271	18.1	21.0	86%
RC 342	210	776	18	43	8	216	12.0	25.6	47%
RC 344	210	772	20	39	14	450	22.5	31.0	73%
RC 345	210	1,309	24	55	19	441	18.4	24.4	75%

JOHNSON COUNTY COMMUNITY COLLEGE

Teaching Laboratory Utilization Analysis by Building - Credit/Non-Credit Courses

Room Id	Space Use Code	Assignable Sq. Ft.	No. of Stations	Assignable Sq. Ft. Per Station	Average Enroll-ment	Weekly Student Contact Hours	Weekly Seat Hours	Weekly Room Hours	Hours in Use Student Station Occupancy %
RC 346	210	772	15	51	11	249	16.6	21.9	76%
RC 347	210	784	15	52	14	506	33.7	36.3	93%
RC 350	210	760	15	51	12	263	17.5	21.9	80%
RC 352	210	765	15	51	10	164	10.9	16.0	68%
RC 353	210	864	17	51	9	80	4.7	8.9	53%
RC 355	210	822	18	46	11	179	9.9	15.4	65%
RC 370	210	855	24	36	18	528	22.0	30.0	73%
RC 372	210	1,712	16	107	9	118	7.3	14.2	52%
RC 374	210	815	16	51	12	220	13.7	18.1	76%
RC 376	210	815	16	51	13	229	14.3	16.9	85%
RC 378	210	915	20	46	16	699	35.0	43.8	80%
RC 380	210	921	20	46	15	609	30.5	37.8	81%
Average		*878*	*17*	*51*	*10*		*15.3*	*25*	*60%*
Total		*27,228*	*540*			*8,236*		*769*	

Science Building									***No. of Rooms = 12***
SCI 103	210	1,103	24	46	19	1,286	53.6	57.9	93%
SCI 111	210	1,102	24	46	16	720	30.0	44.0	68%
SCI 113	210	1,102	24	46	20	732	30.5	36.0	85%
SCI 117	210	1,102	24	46	19	602	25.1	31.0	81%
SCI 121	210	1,102	24	46	21	484	20.2	23.0	88%
SCI 125	210	1,126	24	47	23	684	28.5	30.0	95%
SCI 201	210	2,970	40	74	27	831	20.8	31.7	66%
SCI 203	210	1,112	28	40	25	352	12.6	14.0	90%
SCI 207	210	1,096	28	39	25	688	24.6	27.8	88%
SCI 211	210	1,104	24	46	22	798	33.3	36.0	92%
SCI 213	210	1,104	24	46	18	609	25.4	33.0	77%
SCI 215	210	1,128	24	47	18	720	30.0	39.0	77%
Average		*1,263*	*26*	*47*	*21*		*27.3*	*34*	*83%*
Total		*15,151*	*312*			*8,506*		*403*	

Welding Lab Building and Outstructures									***No. of Rooms = 6***
WLB 110	210	2,319	16	145	13	291	18.2	22.4	81%
WLB 130	210	2,319	16	145	14	368	23.0	26.2	88%
WLB 150	210	9,356	16	585	14	322	20.1	22.4	90%
WLB 152	210	6,189	16	387	14	367	23.0	28.1	82%
WLB 154	210	3,382	16	211	12	64	4.0	5.6	72%
WLB 156	210	5,092	16	318	16	260	16.3	16.8	97%
Average		*4,776*	*16*	*299*	*14*		*17.4*	*20*	*86%*
Total		*28,657*	*96*			*1,673*		*122*	

JOHNSON COUNTY COMMUNITY COLLEGE

Teaching Laboratory Utilization Analysis by Building - Credit/Non-Credit Courses

Room Id	Space Use Code	Assignable Sq. Ft.	No. of Stations	Assignable Sq. Ft. Per Station	Average Enroll-ment	Weekly Student Contact Hours	Weekly Seat Hours	Weekly Room Hours	Hours in Use Student Statior Occupancy %
	AVERAGE	1,254	20	68	14		19.7	26	73%
	TOTAL	155,546	2,435			47,900		3,253	
	NO. OF ROOMS	124							

Teaching Laboratory Utilization Analysis by Building - Credit/Non-Credit Courses

Room Id	Space Use Code	Assignable Sq. Ft.	No. of Stations	Assignable Sq. Ft. Per Station	Average Enroll-ment	Weekly Student Contact Hours	Weekly Seat Hours	Weekly Room Hours	Hours in Use Student Station Occupancy %
Olathe Health Education Center									***No. of Rooms = 4***
OHEC 115	210	950	22	43	15	153	7.0	10.2	68%
OHEC 131	210	933	15	62	0	0	0.0	0.0	0%
OHEC 135	210	920	15	61	6	5	0.3	0.8	42%
OHEC 141	210	797	22	36	5	23	1.1	5.6	19%
Average		*900*	*19*	*51*	*6*		*2.4*	*4*	*50%*
Total		*3,600*	*74*			*181*		*17*	
AVERAGE		**900**	**19**	**51**	**6**		**2.4**	**4**	**50%**
TOTAL		**3,600**	**74**			**181**		**17**	
NO. OF ROOMS		**4**							

JOHNSON COUNTY COMMUNITY COLLEGE

Facility & Programmatic Recommendations For the Arts & Technology Building: Industrial Technology Programs

May 11, 2016

Prepared By:

NorthStar Consulting
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Executive Summary

Introduction

The purpose of this report is to offer recommendations about the programmatic and facility needs for the five industrial technology programs currently occupying 30,390 square feet in the Arts & Technology Building (ATB). The five programs are as follows: (1) Automotive Technology; (2) Automation Engineer Technology; (3) Electrical Technology; (4) Heating, Ventilation and Air Conditioning (HVAC); and (5) Metal Fabrication/Welding Technology. Recommendations are designed to guide Johnson County Community College (JCCC) leadership in making decisions about renovating ATB or embarking on new construction.

During the information gathering phase of this project, a variety of additional factors that affect facility decisions became apparent. As such, this report will also include facility and program recommendations associated with (1) integrating hands-on training opportunities offered by JCCC's Continuing Education Branch; (2) merging the JCCC and Burlington Northern Santa Fe (BNSF) general welding programs; (3) initiating new technical programs; and (4) developing targeted marketing strategies for career and technical education programs.

Between September, 2015 and April, 2016, information was gathered about program, facility, and workforce needs. NorthStar Consulting met with the JCCC industrial technology dean and department chairs, interviewed local employers, conducted a facility space analysis, reviewed institutional data, and analyzed occupational outlook data for the Kansas City Metropolitan Statistical Area (Kansas City MSA).

Summary of Findings

Workforce Trends:

Industrial technology programs offer exit points over various lengths of time, and course content is driven by workplace demands. As such, facility requirements for these kinds of programs are predominantly driven by the changing needs of the regional workforce.

In general, most employers, who were involved with this project, reported challenges in maintaining and growing their technical workforce. Johnson County Community College has an opportunity to play a significant role in regional workforce preparation. Curriculum enhancements, equipment acquisition, and technology integration will be critical to ensuring that programs are meeting employer needs.

Employment information for the five industrial technology program areas was gathered via employer forums and on-site employer interviews and through a review of employment projections developed by Economic Modeling Specialists International (EMSI). Based on available information, four of the five programs prepare students for moderate to significant employment opportunities.

At present, employment demand for automation engineer technicians is fairly well balanced with existing employment opportunities; however, the need for automotive, electrical, heating, ventilation and air conditioning, and welding technicians is greater than the availability of trained workers in the regional labor market. Data also indicate that significant demand for these four areas will continue for at least the next ten years.

Impact of Secondary Programs:

Secondary career and technical education (CTE) programs are vitally important to community college programs. These programs serve as a primary source for future program enrollment and offer students one of the first exposures to career opportunities.

Since 1990, through the Carl D. Perkins Vocational Education Act, both federal and state initiatives in education have encouraged collaboration between secondary and postsecondary programs. JCCC has invested heavily in developing connection points that facilitate awareness of CTE programs and create college credit options for high school students.

To gain a better understanding of current trends in secondary CTE programs in JCCC's service area, NorthStar Consulting conducted several on-site visits to secondary CTE programs. Sites were selected based on the variety of CTE programming options that were offered. Visits were made to the Olathe Advanced Technology Center (OATC), Eudora-De Soto Technical Education Center, Gardner Edgerton High School, and the Shawnee Mission School District.

Site visits and discussions with secondary CTE program representatives revealed that school districts in the JCCC service area are making significant investments in their CTE program offerings. The Olathe and Eudora-De Soto School Districts recently built new facilities for their CTE programs, and in February, 2016, the Gardener Edgerton School District passed a bond to build a 30,000 square foot facility to house their upgraded CTE programs. With these kinds of infrastructure investments, it is evident that CTE will continue to be an important curricular component of secondary programs. To ensure that students have seamless educational pathways, it will be important for JCCC to continue to work collaboratively with secondary CTE partners.

Arts & Technology Building Facility Assessment:

The current ATB facility was built in 1981 and has 63,810 square feet of enclosed space. Of the total square footage, the five industrial technology programs are currently utilizing 30,390 square feet. The remaining space is used by JCCC's Fine Arts Programs. Of the space that is dedicated to industrial technology, 20,139 square feet is used for laboratory instruction (66%), 5,099 square feet is used for classroom space (17%), 2,601 square feet is used for storage (9%) and 2,551 square feet is used for office space (8%).

For the last 35 years, the building has served its original design; however, it is quickly reaching the end of its useful service life. With regard to construction, the building no longer offers adequate electrical service, proper ventilation, or egress. In order to support curricular enhancements, technological changes, and current environmental and safety standards, significant upgrades and an estimated 27,463 square feet of additional space is needed. The following facility recommendation is based on an analysis of curriculum, workforce trend data, and enrollment data for the industrial technology programs (see Table 1):

- Acquire 27,463 square feet of additional space to accommodate the five industrial technology programs. If additional space cannot be obtained in the current facility, JCCC will need to construct a new building with 57,853 square feet.

Table 1 **Program Space Summary**	**Program Space Recommendation**
Automotive Technology	18,639
Electrical Technology	5,993
HVAC Technology	10,233
Metal Fabrication/Welding Technology	9,503
Continuing Education	9,602
Administration/Shared Space	3,883
Total Sq. Ft.	**57,853**

Continuing Education:

As Table 1 indicates, square footage was allocated to provide dedicated space for JCCC's continuing education courses. Johnson County Community College offers a diversified set of continuing education courses and programs, which lead to numerous certifications and licenses. In order to expand and enhance the depth of training courses and program offerings that require hands-on learning, the continuing education area needs access to dedicated laboratory space. Due to a lack of available space in ATB, scheduling courses between 6:00 p.m. and 10:00 presents a challenge.

Burlington Northern Santa Fe:

This report also examines the opportunity to combine the JCCC Metal Fabrication/Welding Technology Program with the BNSF general welding program. BNSF offers two types of welding programs. One program is highly specialized and designed to teach advanced welding techniques, and the other is a general welding program designed to teach foundational welding skills. JCCC's Metal Fabrication/Welding Technology Program more closely aligns with the BNSF general welding program, which serves approximately 1,200 BNSF employees each year.

The general welding program is currently offered to BNSF employees on the JCCC Campus, in a separate facility, with no connection to the JCCC welding program. During conversations, which were initiated as part of this project, BNSF and JCCC leadership agreed that both welding programs would benefit from being housed in an integrated facility. BNSF currently offers general welding programs at three other sites in the United States, and those programs are integrated with the host community college's welding program. Merging the JCCC welding program and the BNSF welding program would require approximately 36,080 square feet.

The BNSF welding program also has three specialty welding labs at the JCCC site: (1) Thermite lab; (2) Frog lab; and (3) Rail lab (see Figure 24). These welding labs are in need of upgrades and renovations, and the most urgent of these upgrades is the need to install an adequate mechanical ventilation system. Other upgrades include additional lighting, insulation of exterior walls, finish of interior walls, installation of a compressed air system, and installation of heating and air conditioning.

Facility Recommendations:

Based on available information, the recommendations are as follows:

- Construct a new facility with 48,350 square feet to house (1) Automotive Technology; (2) Electrical Technology; (3) HVAC Technology; and (4) JCCC continuing education courses.
- Merge the JCCC and BNSF general welding programs and locate them in the 30,390 square feet of vacated ATB space. The programs need 36,080 square feet, which will require acquisition of an additional 5,690 square feet in ATB.
- Conduct a joint program review to determine specific programmatic and facility needs for renovating 30,390 square feet and acquiring the additional 5,690 square feet of space in ATB.

Potential New Technical Programs:

In January 2016, Johnson County Community College engaged EMSI to conduct a regional program gap analysis. The goal of the gap analysis was to gain better insight into economic conditions and workforce trends in Johnson County and the Kansas City MSA. Thirty-six occupational growth areas were identified; however, only two areas appear to have potential for development:

- Electrical Power-Line Installers and Repairers; and
- Mobile Heavy Equipment Mechanics, Except Engines.

Before pursuing either area, JCCC should convene a group of industry related representatives to solicit input.

During data gathering and employer interviews, two additional programs were noted: auto collision technology and advanced manufacturing technology. At this time, based on available data, JCCC should not develop either of these programs.

Marketing CTE/Industrial Technology Programs:

During interaction with employers, both in forums and site visits, a common theme emerged. Generally, employers were unaware of the College's career and technical education programs. They were knowledgeable about JCCC's focus on transfer programs, but employers were surprised by the variety of certificate and degree options available for students interested in career programs.

Each career and technical education program may benefit from having industry-specific marketing strategies. Working collaboratively with the JCCC executive director, marketing/communications and utilizing CTE program advisory committee members will enable CTE department chairs to design targeted strategies to reach potential students and connect with employers.

Conclusion

With an identified skills gap and employer interest in growing the technical workforce, Johnson County Community College has a unique opportunity to become a regional leader in workforce development. Investing in state-of-the art facilities, curriculum, and equipment will enable JCCC to become a premier workforce training provider. Students will benefit from having a world class learning environment that prepares them for in-demand technical careers, and employers will benefit from having access to a highly trained talent pool.

Section 1: Introduction

The purpose of this report is to offer recommendations about the programmatic and facility needs for the five industrial technology programs currently occupying 30,390 square feet in the Arts & Technology Building (ATB). The five programs are as follows: (1) Automotive Technology; (2) Automation Engineer Technology; (3) Electrical Technology; (4) Heating, Ventilation and Air Conditioning (HVAC); and (5) Metal Fabrication/Welding Technology. Recommendations are designed to guide Johnson County Community College leadership in making decisions about renovating ATB or embarking on new construction.

During the information gathering phase of this project, a variety of additional factors that affect facility decisions became apparent. As such, this report will also include facility and program recommendations associated with (1) integrating hands-on training opportunities offered by JCCC's Continuing Education Branch; (2) merging JCCC/BNSF general welding programs; (3) initiating new technical programs; and (4) developing targeted marketing strategies for career and technical education programs.

Between September, 2015 and April, 2016, information was gathered about program, facility, and workforce needs. NorthStar Consulting met with the JCCC industrial technology dean and department chairs, interviewed local employers, conducted a facility space analysis, reviewed institutional data, and analyzed occupational outlook data for the Kansas City Metropolitan Statistical Area (Kansas City MSA).

This report aims to:

- Identify the facility challenges that exist in ATB;
- Offer industrial technology programmatic recommendations;
- Provide facility/space utilization recommendations; and
- Discuss workforce trends related to the five industrial technology program areas.

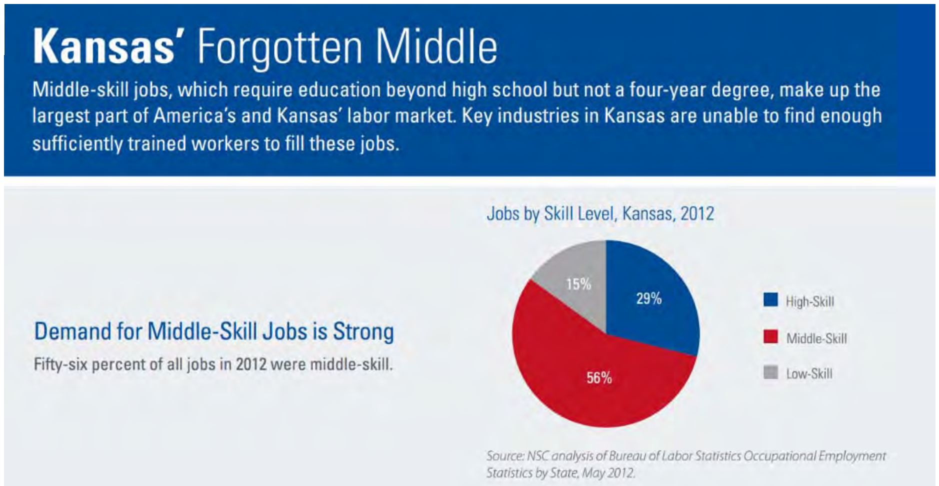
Industrial technology programs offer exit points over various lengths of time, and course content is driven by workplace demands. As such, facility requirements for these kinds of programs are predominantly driven by the changing needs of the regional workforce.

Conversations with Kansas City metropolitan area employers revealed they are experiencing increasing difficulty finding qualified workers for many skilled positions. According to employers, many available workers do not have strong technical and soft skills, proper training and certification, sufficient levels of education, and previous work experience needed for current positions. This is known as a "skills gap" and results from having strong demand for particular skill sets and a lack of available skilled talent. Significant skills gaps are commonly viewed as threats to regional economic growth and competitiveness.

Generally, most employers who shared their opinions were focused on filling middle skill jobs. These are the jobs in today's workplace that require more than a high school diploma but less than a four-year college degree. JCCC's industrial technology programs produce graduates with either one-year certificates or two-year associate degrees. These graduates are critically important to the middle skill job market in the Kansas City metropolitan area.

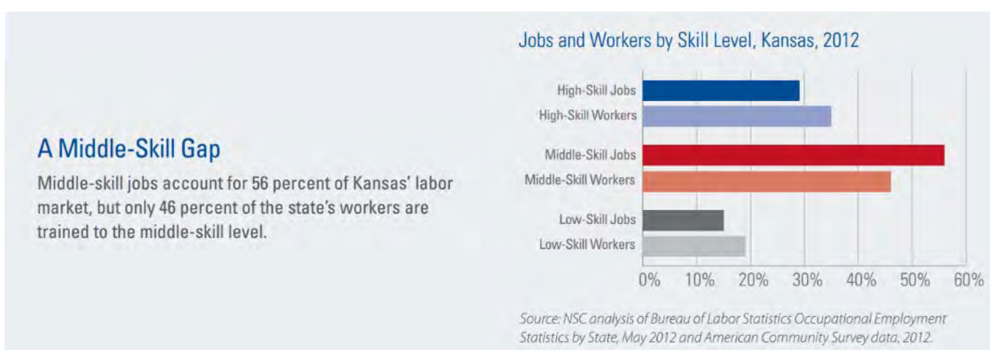
As shown in Figure 1, in 2012, Kansas had about 56% of its workforce in the middle skill job area. High skill jobs comprised 29%, and low skill jobs made-up only 15 percent. When

Figure 1



compared to demand, Figure 2 shows that low skill and high skill jobs have a surplus of workers. However, in Kansas, there is a deficit of available workers for middle skill jobs.

Figure 2



By ensuring that its career and technical education programs are cutting edge, Johnson County Community College can play a pivotal role in producing middle skill workers to fill this gap. It is essential to the regional workforce that the industrial technology programs have the capacity to produce graduates with skill sets designed to meet the local demand.

Section 2: Industry & Workforce Information

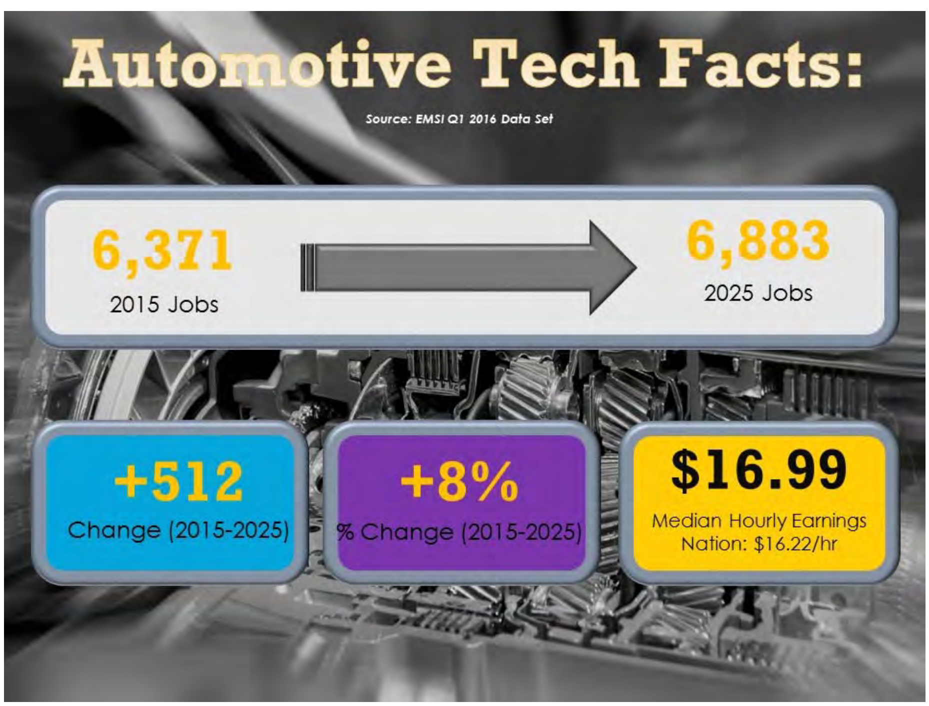
This section examines Kansas City MSA data related to industry demand and workforce needs for JCCC's five industrial technology program areas. Economic Modeling Specialists International (EMSI) occupational outlooks, which include information from 90 different federal and state level organizations, were used in the data analysis. The following sections summarize industry and workforce information.

Automotive Technology:

Over the next decade, the job outlook for an automotive technician is expected to be very good. Many automotive technicians are expected to retire and their positions will need to be replaced. Between 2015 and 2025, demand for automotive service technicians and mechanics is expected to grow about as fast as the average among all occupations. Automotive dealerships and independent automotive repair facilities will create the most job opportunities. The need for technicians will also increase with the number of vehicles on the road. Growth in the driving age population and the number of multi-car families will also increase the need for more technicians. In addition, because vehicles are lasting longer, more repairs and maintenance will be required.

The automotive technology industry continues to see steady job growth throughout the regional area. In 2015, data indicate there were approximately 6,371 jobs in the Kansas City MSA, and by 2025, the number of jobs will increase to 6,883. Median hourly earnings are above the national average at $16.99 per hour (Figure 3).

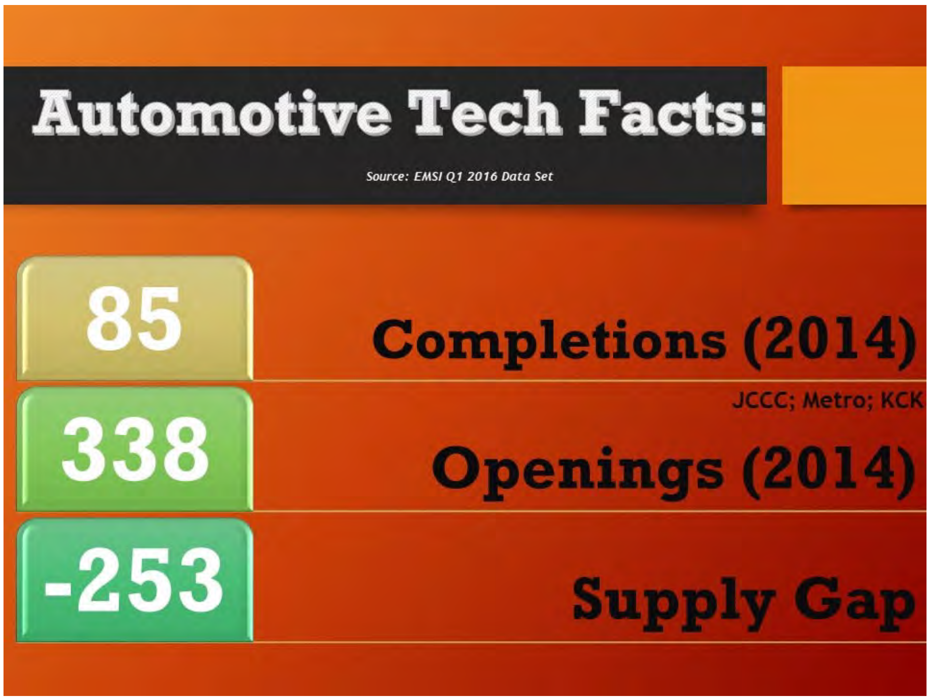
Figure 3



Based on available data, there appears to be a high demand for automotive technicians in the Kansas City MSA. In 2014, three institutions were producing automotive technology graduates: (1) Johnson County Community College; (2) Metropolitan Community College; and (3) Kansas City Kansas Community College. In 2014, these three institutions had 85 completions.

During the same time period, data indicate there were 338 job openings for graduates. The net result was a supply gap of 253 job openings (Figure 4). Based on this information,

Figure 4



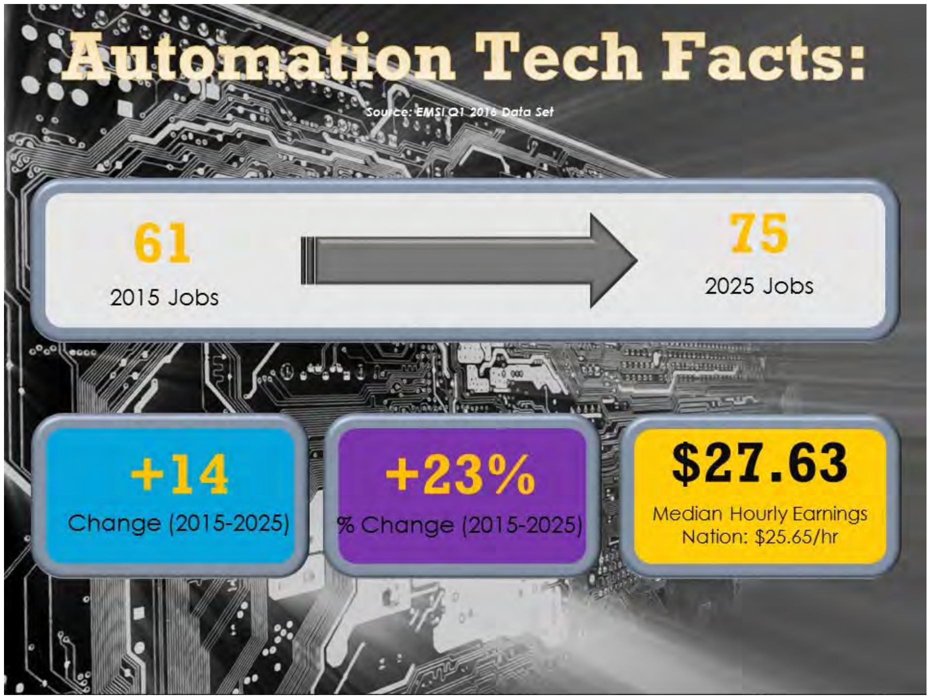
graduates of the Johnson County Community College Automotive Technology Program should continue to have significant employment opportunities.

<u>Automation Engineer Technology:</u>

Automation engineer technicians are generalists in technology, and their broad skill set will help sustain manufacturing related employment. As the need increases for engineers to design and build new equipment that utilizes computer numerical control technology, employers will likely seek automation technicians to help implement and maintain automated processes. Increasingly, the adoption of renewable energies, such as solar power and wind, will also contribute to an increased demand for automation engineer technicians.

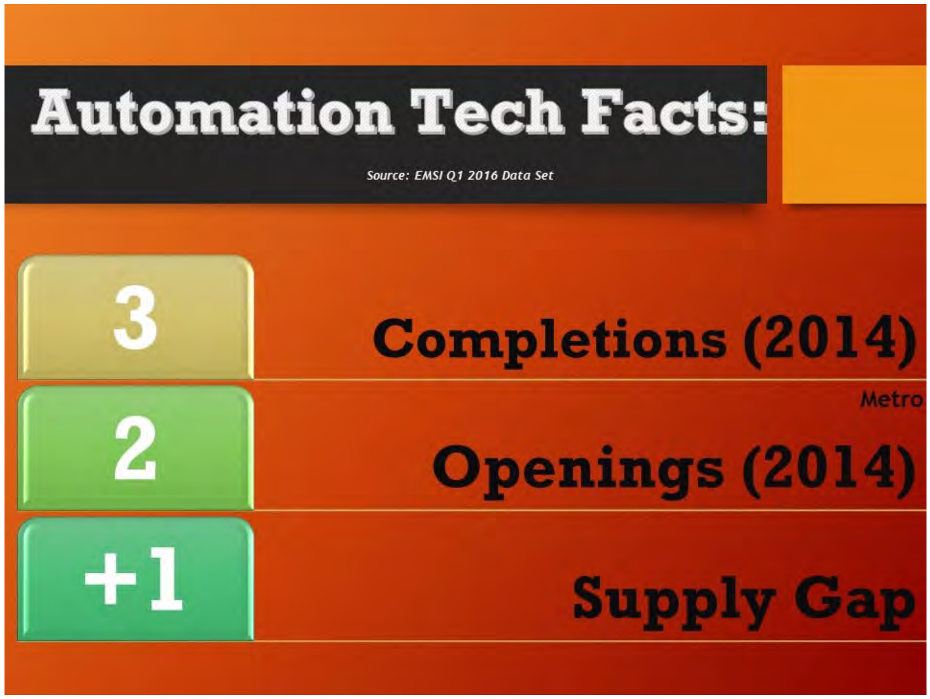
In the Kansas City MSA, from 2015 to 2025, employment of automation technicians is projected to increase slightly. In 2015, there were 61 jobs, and in 2025, there will be approximately 75 jobs. Automation technicians in the Kansas City MSA earn a median salary of $27.63 per hour (Figure 5).

Figure 5



Currently, there are two programs in the Kansas City MSA that produce graduates with the education necessary to be employed in these jobs: (1) Johnson County Community College and (2) Metropolitan Community College. In 2014, these two institutions had three graduates for an estimated two job openings in the Kansas City MSA. This resulted in a net surplus of one graduate for the 2014 academic year (Figure 6).

Figure 6



Based on the available information, it appears that the output of automation engineer technicians is balanced with workforce demand. As more manufacturing companies begin to use automated manufacturing technologies, the need for these technicians may increase.

Electrical Technology:

Employment of electricians is projected to grow much faster than the average for all occupations, and the job prospects for electricians should be very good. In addition to job growth, there are a large number of electricians approaching retirement age, which should produce more job openings in the coming decade.

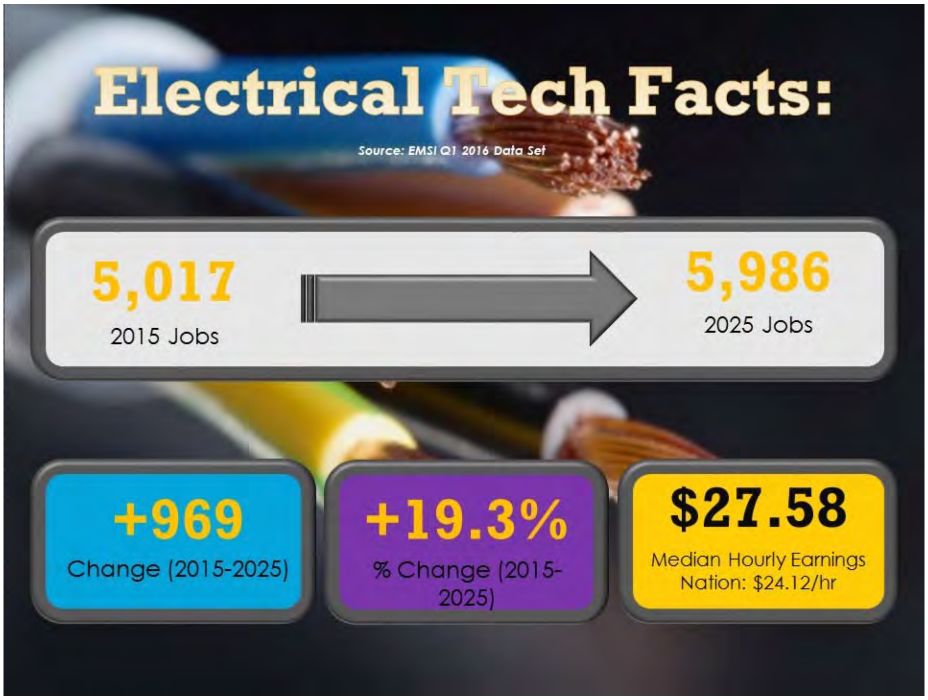
Alternative power generation, which includes solar and wind, is an emerging field that will require more electricians. Increasingly, electricians will be needed to link these alternative power sources to homes and power grids. As demand increases for the installation and maintenance of more efficient systems in manufacturing facilities, the need for electricians will also increase.

In the Kansas City MSA, of all industrial technology careers, demand for electricians will be the greatest. From 2015 to 2025, data indicate that job openings will grow by 969 positions. The median hourly earnings of electricians in the Kansas City MSA is $27.58 per hour (Figure 7). Electricians are one of the highest paid occupations in the industrial technology area.

Currently, there are three educational institutions in the Kansas City MSA that offer programs in electrical technology: (1) Johnson County Community College; (2) Kansas City

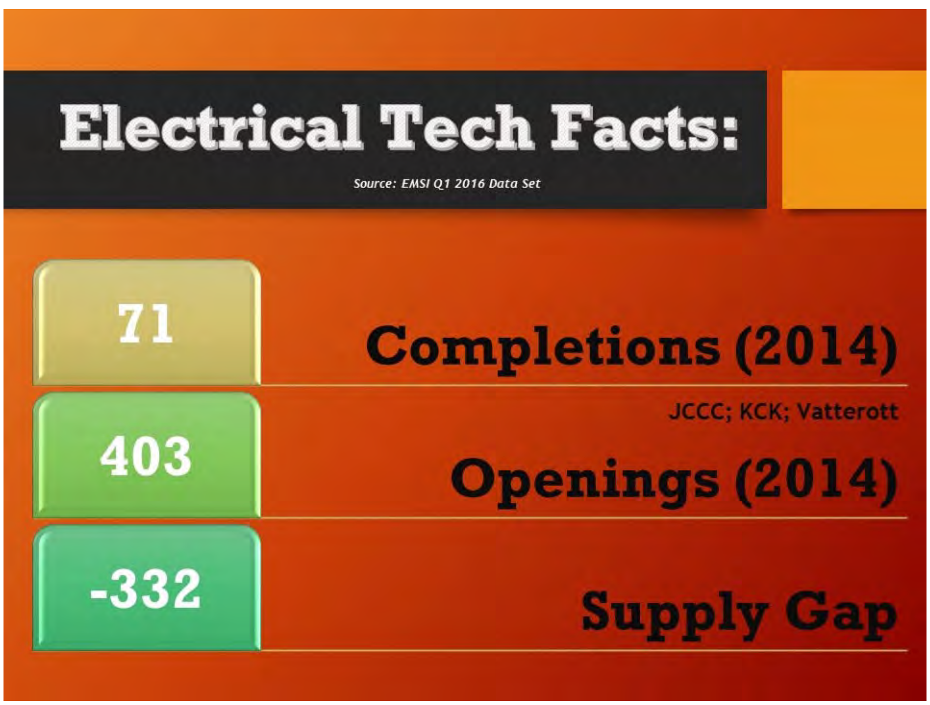
Kansas Community College; and (3) Vatterott College. In 2014, these institutions had a total of 71 completions.

Figure 7



In 2014, there were 403 projected position openings in the metro area, which left a supply gap of 332 job openings (Figure 8). Over the next ten years, in all areas of the electrical industry, Kansas City MSA data show a continuing shortage of electricians.

Figure 8



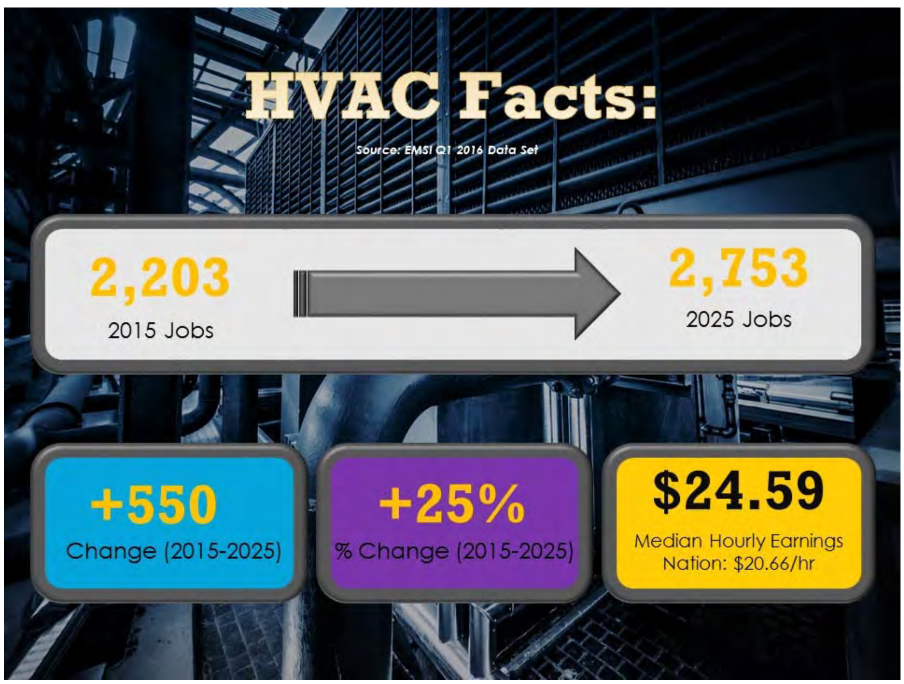
Heading, Ventilation & Air Conditioning Technology:

Employment opportunities for Heating, Ventilation and Air Conditioning mechanics and installers is projected to grow faster than the average for all occupations. Commercial and residential building construction and the growing number of sophisticated climate-control systems will require more qualified HVAC technicians.

Repairing and replacing HVAC systems is a large portion of a technician's job, and after 10 to 15 years, climate-control systems generally need replacing. In addition, regulations prohibiting the discharge and production of older types of refrigerant pollutants will result in the need to modify or replace many existing air conditioning systems. As climate-control systems are retrofitted, upgraded, or replaced, the growing emphasis on energy efficiency and pollution reduction is likely to increase the demand for HVAC technicians.

In the Kansas City MSA, the number of new jobs for HVAC technicians is projected to rise from 2,203 in 2015 to 2,753 in 2025, which is an increase of 550 jobs. The median hourly earnings for HVAC technicians is $24.59 per hour (Figure 9).

Figure 9



There are four educational institutions that offer HVAC Programs in the Kansas City MSA: (1) Johnson County Community College; (2) Kansas City Kansas Community College; (3) Pinnacle Career Institute; and (4) Vatterott College. In 2014, there were a total of 205 completions from these four institutions. In 2014, data indicate there were 151 job openings, which meant there was a surplus of 54 graduates (Figure 10).

While EMSI data indicate there is a surplus of available HVAC technicians in the area, employer interviews revealed that many are struggling to hire qualified HVAC technicians.

Figure 10

Both EMSI data and employer feedback indicate that the need for HVAC technicians is projected to increase.

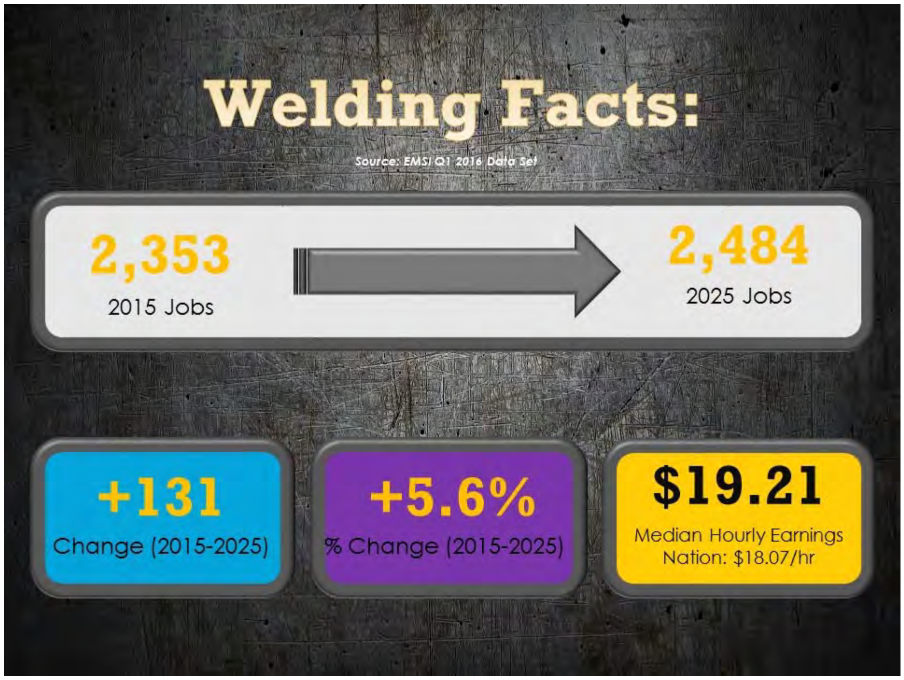
<u>Metal Fabrication/Welding Technology:</u>

Job opportunities in the area of welding have remained relatively steady. In the Kansas City MSA, due to the importance and versatility of welding as a manufacturing process, there is an on-going need for welders. Across industries, the basic skills for welding are similar, and welders can easily shift from one industry to another.

Many technical career areas utilize welding expertise. Maintaining the nation's aging bridges and highways, and building new infrastructure will require the expertise of welders. Construction of new power generation facilities and, specifically, pipelines that transport natural gas and oil, will also result in new jobs. The aging population, who will be retiring from welding related positions, will also create demand for welders.

In the Kansas City MSA, the number of welding jobs is predicted to rise from 2,353 in 2015 to 2,484 in 2025, which is an increase of 131 new jobs. The median hourly earnings for welders in the Kansas City MSA is $19.21 per hour (Figure 11).

Figure 11



There are a total of four educational institutions offering welding programs in the Kansas City MSA: (1) Johnson County Community College; (2) Metropolitan Community College; (3) Kansas City Kansas Community College; and (4) Vatterott College. In 2014, these four institutions produced a total of 93 graduates. Data indicate that in 2014, there were a total of 129 job openings for welders. This resulted in a net supply gap of 36 positions (Figure 12). Overall, during the next ten years, Kansas City MSA data indicate a steady demand for welders.

Figure 12

Employer Forums:

In addition to reviewing workforce and occupational data, information was gathered from business and industry representatives. In December, 2015, ten employer forums were held at Johnson County Community College. The forums were designed to offer industry representatives the opportunity to share information about their challenges in securing and maintaining employees in technical career areas.

Thirty industry representatives attended and were asked a series of guided questions to gather input about the following:

- Hiring difficulties;
- Anticipated changes in employment;
- Minimum level of education;
- Typical level of education desired;
- Technical skill expectations;
- Soft skill expectations;
- Documentation of skill attainment; and
- Industry recognized credentials.

Forums were conducted on the following dates:

December 7, 2015	1-3:30 p.m.	Automation Engineer Technology
December 9, 2015	8-10:30 a.m.	Computer-aided Drafting
December 9, 2015	1-3:30 p.m.	Construction Management
December 10, 2015	8-10:30 a.m.	Electrical Technology
December 11, 2015	8-10:30 a.m.	Electronics Technology
December 11, 2015	1-3:30 p.m.	Heating, Ventilation and Air Conditioning
December 14, 2015	1-3:30 p.m.	Metal Fabrication/Welding Technology
December 16, 2015	8-10:30 a.m.	Automotive Technology
December 16, 2015	1-3:30 p.m.	Auto Collision Technology
December 17, 2015	8-10:30 a.m.	Advanced Manufacturing

Industry Site Visits:

To further supplement the information gathered from the employer forums, a series of site visits were scheduled with the following businesses:

- Black & Veatch
- McGown Gordon Construction

- Simplex Grinnell
- JE Dunn
- SPX Cooling Technologies, Inc.
- Firestone
- Engenious Design
- Webco Manufacturing
- Global Ground Support
- Collis Crane Works
- DH Pace Company
- Temp-Con, Inc.
- Castle Creations, Inc.
- Logic, Inc.
- Elecsys Corporation
- Power Control Devices, Inc.

Overarching themes from the employer forums and site visits are as follows:

- Work ethic is highly prized;
- Concerns about replacing an aging workforce;
- Recognition of a growing skills gap;
- Technical skills need to be integrated with soft skills;
- Workforce demand is growing. The region is experiencing some reshoring of jobs back to the U.S.; and
- Employers are competing for employees because there is a shortage of skilled workers in the region.

Based on the themes that emerged, JCCC may want to work with individual program advisory committees to determine strategies that will begin to address employer concerns. Staying abreast of employer needs is an on-going challenge that presents the industrial technology program areas with considerable opportunities to interact and develop closer ties to local business and industry.

Section 3: Secondary Programs

Secondary career and technical education (CTE) programs are vitally important to community college programs. These programs serve as a primary source for future program enrollment and offer students one of the first exposures to career opportunities.

Since 1990, through the Carl D. Perkins Vocational Education Act, both federal and state initiatives in education have supplemented and encouraged collaboration between secondary and postsecondary programs. JCCC has invested heavily in developing connection points that facilitate awareness of CTE programs and create college credit options for high school students.

To gain a better understanding of current trends in secondary CTE programs in JCCC's service area, NorthStar Consulting conducted several on-site visits to secondary CTE programs. Sites were selected based on the variety of CTE programming options that were offered. Visits were made to the Olathe Advanced Technology Center (OATC), Eudora-De Soto Technical Education Center, Gardner Edgerton High School, and the Shawnee Mission School District.

The following section provides summaries and highlights of the CTE programs:

<u>Olathe Advanced Technology Center (OATC):</u>

Built in 2012, this new facility (Photo 1), located on the Olathe North High School Campus, houses three of the School District's 21st Century Programs: Automotive Technology, Auto

Photo 1

Collision Technology, and Welding Technology. The building is approximately 35,000 square feet.

According to *21st Century High School* program information, OATC describes its offerings as follows:

Auto Technology:

The auto technology program offers students the opportunity to discover the automotive industry through hands-on labs, unique partnerships, and competition. Students in this two-year career and technical program:

- Work with industry standard equipment;
- Develop skills through application of theory using modern electronic equipment;
- Have the opportunity to earn advanced standing credit at no cost from JCCC; and
- Have the opportunity to earn concurrent enrollment credit from JCCC in courses such as steering & suspension, engine repair, brake systems, and electrical.

Auto Collision:

The auto collision technology program prepares students for a variety of career opportunities in auto body repair and customization. Students learn through hands-on experiences with industry-standard equipment.

Students in this two-year career and technical education program:

- Gain industry knowledge to help assess and repair auto body damage;
- Learn to repair, reconstruct, and replace car components;
- Potentially earn I-Car certification;
- Acquire the skills needed to enter the workforce or to continue their education; and
- Have the opportunity to earn articulated credit at JCCC.

Welding Technology:

The welding technology program combines the skills of a craftsman, the dexterity of an artist, and the knowledge of a scientist through hands-on projects and classroom learning.

Students in this two-year career and technical education program:

- Work with industry standard equipment;
- Prepare for national entry-level certification;
- Learn to cut and join metals; build projects for school and community, create individual projects; and
- Have the opportunity to earn concurrent or articulated credit at JCCC.

When it comes to secondary career and technical education programs, this state-of-the-art facility is considered a model for the region. JCCC works closely with OATC to ensure that programs offered are closely linked with postsecondary opportunities.

During the site visit, several students were asked about continuing their education at JCCC. Nearly every student made a comment about the subpar condition of the JCCC industrial technology facilities. Based on the nature of the comments, it seems plausible to assume that due to the current condition of the JCCC facilities, at least some potential enrollment is being lost to other institutions.

Eudora-De Soto Technical Education Center:

The Eudora-De Soto Technical Education Center (Photo 2) brings an important component of technical training to students in both districts. Administered by Eudora Schools, the

Photo 2

programs teach practical skills that can be directly transferred to the workplace or used in the pursuit of postsecondary education.

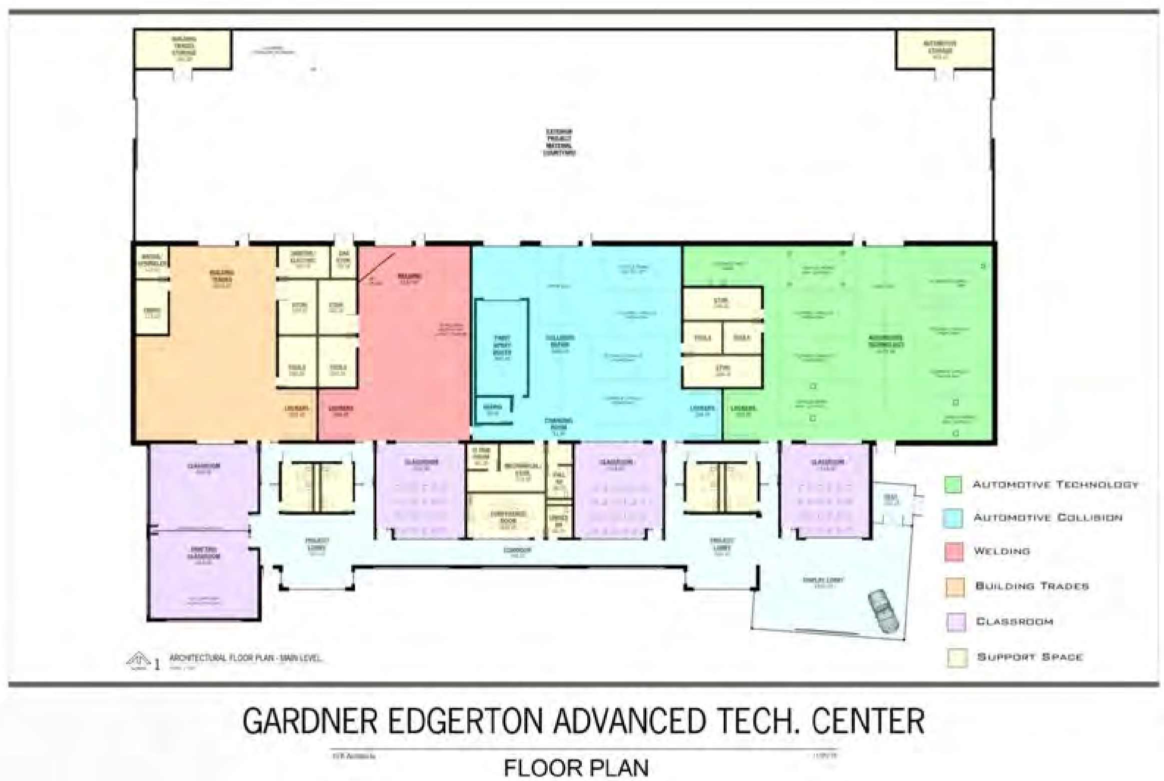
The Eudora-De Soto Technical Education Center consists of 20,000 square feet of instructional space. As part of the regular school day, students attend CTE classes at the newly constructed technical education center located at Eudora High School. Each program offers hands-on curriculum with application and laboratory instruction, which is taken along with academic courses that are available at each high school. CTE programs are offered in the following career areas:

- Agriculture;
- Auto collision technology;
- Culinary arts/hospitality services;
- Visual arts; and
- Health career sciences.

<u>Gardner Edgerton High School:</u>

Gardner Edgerton High School offers a wide variety of career and technical education courses. In February, 2016, the school district held a successful bond election that will fund construction of the new 30,000 square foot Gardner Edgerton Advanced Technical Center (Figure 13).

Figure 13



The center will offer the following programs:

- Automotive Technology;
- Auto Collision Technology;
- Building Trades; and
- Welding Technology.

Figure 14 includes a list of the industrial technology programs that are offered at Gardner Edgerton High School:

Figure 14

Industrial Technology Department

Construction & Design Pathway—Construction Strand

Introductory Level	Technical Level	Application Level
Intro to Industrial Tech HS (1/2)	Cabinetmaking & Furniture Des I (1)	Cabinetmaking & Furniture Des II (1) Remodel & Building Maintenance (1/2) Advanced Materials Technology (1)

Construction & Design Pathway—Design Strand

Introductory Level	Technical Level	Application Level
Intro to Industrial Tech HS (1/2)	Drafting/CAD (1) Architectural Design (1)	Research & Design for Pre-Construction (1)

Production Pathway

Introductory Level	Technical Level	Application Level
Intro to Industrial Tech HS (1/2)	Drafting/CAD (1) Power & Production (1)	Research & Des for Manufacturing (1) Advanced Drafting/CAD (1)

Mobile Equipment Maintenance Pathway

Introductory Level	Technical Level	Application Level
Intro to Industrial Tech HS (1/2) Business Essentials (1/2)	Automotive Technology I (1) Entrepreneurship (1/2)	Automotive Technology II (1) Automotive Technology III (1)

Currently, the Gardner Edgerton School District provides multiple opportunities for students to connect to programs at JCCC, and with the new advanced technology center, the opportunities are expected to increase.

Shawnee Mission School District:

The Shawnee Mission School District offers a wide variety of coursework in career and technical education. Shawnee Mission has developed specific plans of study that link their secondary courses to opportunities at JCCC. There are two specific plans of study that link directly with the industrial technology programs at JCCC: (1) Manufacturing—Production Career Pathway; and (2) Transportation—Automotive Career Pathway (See Figures 15 & 16). By participating in these career pathways, high school students in the Shawnee Mission School District are able to begin taking college courses at JCCC.

Figure 15

Individual Career and Academic Plan of Study for Manufacturing—Production (Woods and Welding)

SMSD Shawnee Mission School District

Shawnee Mission Schools **Name** ______________________________

GRADE	ENGLISH	MATH	SCIENCE	SOCIAL STUDIES	CTE PATHWAY COURSES	ADDITIONAL REQUIRED COURSES	RECOMMENDED ELECTIVES
8	English 8 English 8 Advanced	Math 8 Algebra 1 Geometry/H	Science/Health 8 Science/Health 8 Advanced	Social Studies 8 Social Studies 8 Advanced	Projects in Industrial Technology	Communications 8/ Reading/SEEK	Computer Dimensions 1 Computer Dimensions 2 GTT-Design and Modeling GTT-Automation and Robotics Projects in Industrial Technology
9	English 9/9H	Algebra 1 Geometry/H Consumer Math Algebra 2/2H	Biology 1/1H	World Regional Studies/H	Wood Design 1 Metal Production (West)	Foundations in Physical Education Health Computer Applications	World Language (2 years)
10	English 10/10H	Geometry/H Consumer Math Intermediate Algebra Algebra 2/H Stats H/P College Prep Math Pre-Calculus/H	Physical Science Chemistry 1 Physics 1/1H	European History H/AP Modern World History Social Studies (1/2 credit elective)	Wood Design 2* Introduction to Welding (West)	Physical Education Elective	Introduction to Computer-Aided Design* Computer-Aided Architectural Design 1* Computer-Aided Industrial Design
11	English 11/H/AP	Consumer Math Intermediate Algebra Algebra 2/H Stats H/P College Prep Math Pre-Calculus/H Calculus AB/BC	Chemistry 1 Physics 1/H Chemistry 2H/AP Biology 2H/AP	US History/H/AP	Wood Design and Fabrication * Welding 1* (West)		Introduction to Engineering Design* Introduction to Studio Art* Jewelry/Sculpture Studio* **Applies toward 1 unit of Fine Arts graduation credit.*
12	English 12/H/AP	Algebra 2/H Stats H/P College Prep Math Pre-Calculus/H Calculus AB/BC Calculus 3/Diff Eq	Chemistry 1 Physics 1/H Chemistry 2H/AP Biology 2H/AP	American Government/ H/AP	Computer-Aided Manufacturing (CAM) Welding 2 (West)		

KS Regents Qualified Admissions: The Qualified Admissions standard is a set of standards used by the six state universities to review applicants for undergraduate admissions. The universities that use qualified admissions are Emporia State University, Fort Hays State University, Kansas State University, Pittsburg State University, the University of Kansas, and Wichita State University. Students under the age of 21 graduating from an accredited Kansas high school must: (1) complete the precollege or Kansas Scholars curriculum with at least a 2.0 GPA; AND (2) achieve one of the following: ACT score of 21 or higher; OR SAT score of 980 or higher; OR Graduate in the top one-third of their class; AND (3) achieve a 2.0 GPA or higher on any college credit taken in high school. Student should see their counselor for more detailed information or consult the Regent's website: www.kansasregents.org. For **Kansas Scholars Curriculum information, visit the www.kansasregents.org site.** Designation is based on an index combining the ACT composite score and GPA and financial need.

CTSO: ❑ Skills USA ❑ Robotics	Occupations related to this career cluster: Automated Manufacturing Technician, Calibration Technician, Millwright, Pattern and Model Maker, Sheet Metal Worker, Solderer and Brazier, Tool and Die Maker, Welder
Grade 13 CTE Courses at JCCC	MFAB 124 Intro to Welding; MFAB 180 Blueprints & Symbol Reading for Welders; MFAB 240 Metallurgy; MFAB 128 Basic Machine Tool Technology; MFAB 131 Shielded Metal Arc Welding (SMAW) I; MFAB 133 Gas Metal Arc Welding (GMAW) I; MFAB 136 Gas Tungsten Arc Welding (GTAW) I
Links to JCCC Articulated Credit Pathway Information	**Manufacturing Metal Fabrication/Welding**: http://www.jccc.edu/files/pdf/career-pathways%20/agreements/metal-fab-welding-aas.pdf

Figure 16

Plan of Study for Transportation-Automotive Pathway

SMSD Shawnee Mission School District

Shawnee Mission High Schools **Name** ______________________________

GRADE	ENGLISH	MATH	SCIENCE	SOCIAL STUDIES	CTE COURSES	ADDITIONAL REQUIRED COURSES	RECOMMENDED ELECTIVE COURSES
8	English 8 English 8 Adv	Math 8 Algebra 1 Geometry/H	Science/Health 8 Science/Health 8 Advanced	Social Studies 8 Social Studies 8 Advanced		Communications 8/ Reading/SEEK	GTT-Design and Modeling GTT-Automation and Robotics Projects in Industrial Technology Computer Dimensions 1 and 2
9	English 9/9H	Algebra 1 Geometry/H Consumer Math Algebra 2/2H	Biology 1/1H	World Regional Studies/H	Introduction to Business	Physical Education Foundations Health Fine Arts Elective	World Language (2 years) Introduction to Engineering Design* Principles of Engineering
10	English 10/10H	Geometry/H Consumer Math Intermediate Algebra Algebra 2/H Stats H/P College Prep Math Pre-Calculus/H	Physical Science Chemistry 1 Physics 1/1H	European History H/AP Modern World History Social Studies (1/2 credit elective)	Automotive Essentials Entrepreneurship	Physical Education Elective Computer Applications	Introduction to Computer-Aided Design* Introduction to Studio Art* Drawing* Digital Design* Marketing 1
11	English 11/H/AP	Consumer Math Intermediate Algebra Algebra 2/H Stats H/P College Prep Math Pre-Calculus/H Calculus AB/BC	Chemistry 1 Physics 1/H Chemistry 2H/AP Biology 2H/AP	US History/H/AP	Automotive Technology 1	Fine Arts Elective	FTC Robotics Engineering Introduction to Welding Metal Production *Applies toward 1 unit of Fine Arts graduation credit.
12	English 12/H/AP	Algebra 2/H Stats H/P College Prep Math Pre-Calculus/H Calculus AB/BC Calculus 3/Diff Eq	Chemistry 1 Physics 1/H Chemistry 2H/AP Biology 2H/AP	American Government/ H/AP	Automotive Technology 2 Automotive Technology 3		

KS Regents Qualified Admissions: The Qualified Admissions standard is a set of standards used by the six state universities to review applicants for undergraduate admissions. The universities that use qualified admissions are Emporia State University, Fort Hays State University, Kansas State University, Pittsburg State University, the University of Kansas, and Wichita State University. Students under the age of 21 graduating from an accredited Kansas high school must: (1) complete the precollege or Kansas Scholars curriculum with at least a 2.0 GPA; AND (2) achieve one of the following: ACT score of 21 or higher; OR SAT score of 980 or higher; OR Graduate in the top one-third of their class; AND (3) achieve a 2.0 GPA or higher on any college credit taken in high school. Student should see their counselor for more detailed information or consult the Regent's website: www.kansasregents.org. For **Kansas Scholars Curriculum information, visit the www.kansasregents.org site.** Designation is based on an index combining the ACT composite score and GPA and financial need.

CTSOs: ❑ Skills USA ❑ Robotics	**Occupations:** Automotive Service Technician, Avionics Technician, Bus and Truck Mechanic, Collision Repair Technician, Diesel Engine Specialist, Motorboat Mechanic, Off-Road Equipment Technician, Rail Locomotive and Car Mechanic and Repairer, Service Manager, Service Writer, Ship Mechanic and Repairer
Grades 13/14 CTE Courses at JCCC	**Grade 13**: AUTO 125 Intro to Automotive Shop Practices; AUTO 129 Brakes I; AUTO 131 Brakes II; AUTO 156 Electrical I; AUTO 158 Steering and Suspension I; AUTO 159 Steering and Suspension II; AUTO 161 Engine Performance I; AUTO 165 Automotive Engine Repair; AUTO 166 Electrical II **Grade 14:** AUTO 205 Engine Performance II; AUTO 208 Electrical III; AUTO 209 Manual Drive Train and Axles; AUTO 215 Engine Performance III; AUTO 221 Heating and Air Conditioning; AUTO 250 Automatic Transmissions & Transaxles
Links to JCCC Articulated Credit/Pathway Information	Transportation: http://www.jccc.edu/files/pdf/career-pathways%20/agreements/automotive-tech-aas.pdf

JCCC Collaboration with Secondary Programs:

The following are a few examples of programs that enable JCCC to collaborate with secondary schools:

College Now:

This program serves high school sophomores, juniors, and seniors. Students enroll in selected college courses offered at and in cooperation with their high school. Students in the 9th grade with a Gifted Individual Educational Plan (IEP) are also eligible to participate in this program.

Quick Step:

Students who are sophomores, juniors or seniors, or 7th, 8th or 9th grade students with a Gifted IEP, may attend credit classes taught by JCCC instructors and earn college credit.

Career Pathways:

Students are eligible to take focused courses (tuition free) in a field of study that can be applied toward an associate's degree at JCCC. This program promotes the coordination of high school and postsecondary career programs.

In addition to these opportunities, the JCCC career pathways director organizes on-campus, student-centered activities and reaches out to local school districts to host activities and make classroom visits:

- High School Visits:
  - 2013-14 school year—presented to 300 students
  - 2014-15 school year—presented to 2,500 students

- 2013-15 school years—The Career Pathways Office hosted 10 events for students in grades 7-12, which served over 1,700 students.

- OATC Senior Day—100 seniors in Auto Tech, Collision, Welding, and Construction visit the JCCC campus.

The career pathways program allows students to earn advanced standing credit in a variety of career and technical education courses that are offered at their local high school. Table 1 provides a summary of the 187 articulated courses that are available for students:

Table 1

BALDWIN CITY HIGH SCHOOL COURSE	HIGH SCHOOL CREDIT	JOHNSON COUNTY COMMUNITY COLLEGE			2015-2016 KANSAS COMMON COURSE CODE(S)
		COURSE	TITLE	CREDIT	
Advanced Architectural Design	.5	DRAF 242	Topics in CAD II	2	38050
Cabinetmaking Technology I & II	.5/.5	DRAF 140	Topics in CAD I	2	17007
Introduction to Drafting	.5	DRAF 120	Introduction to Drafting	2	21102

BLUE VALLEY **HIGH SCHOOL COURSE**	**HIGH SCHOOL CREDIT**	**JOHNSON COUNTY COMMUNITY COLLEGE**			**2015-2016 KANSAS COMMON COURSE CODE(S)**
		COURSE	**TITLE**	**CREDIT**	
21st Century Journalism **AND** Digital Media Productions - Newspaper	.5/1	JOUR 122	Reporting for the Media	3	30100/30151
Accounting	.5/.5	ACCT 111	Small Business Accounting	3	12104
Advanced Web Design	.5	CWEB 115	Intermediate Web Pages: Dreamweaver	1	10201
Business Essentials	.5	BUS 121	Intro to Business	3	12050
Computer Applications **AND** Emerging Technologies	.5/.5	CPCA 128	PC Applications	3	10004
Design Studio I **AND** Design Studio II	.5/.5	FASH 123	Apparel Construction I *Contingent on department portfolio review*	4	30160
Digital Imaging	.5	CDTP 135	Desktop Photo Manipulation I: Photoshop	1	30105
Drafting I/CAD	1	DRAF 120 **AND** DRAF 130	Intro to Drafting **AND** Intro to CAD Concepts – AutoCAD	2/3	21107
Drafting III/Advanced CAD	1	DRAF 140	Topics in CAD I	2	21109
Entrepreneurship	.5	ENTR 120	Intro to Entrepreneurship	2	12053
Exploring Health Professions I and II	1/1	HC 101 **AND** HC 130	Intro to Healthcare Delivery **AND** Medical Terminology for Healthcare Professions *Students must take the JCCC final exam*	3/3	14001 **AND** 36154 14002 **AND** 14154
Graphic Design I	.5	CDTP 135	Desktop Photo Manipulation I: Photoshop	1	30102
Interior Design **AND** Design Studio II	.5/.5	ITMD 121	Interior Design I	3	22212/30160
Intro to Engineering Design	1	ENGR 121	Engineering Orientation	2	21006
Java Programming I	.5	CS 134	Programming Fundamentals	4	10155
Java Programming I **AND** Honors Java Programming II	.5/.5	CS 205	Concepts of Programming: Algorithms Using Java	4	10155
Marketing Management	1	MKT 121	Retail Management	3	12166

BLUE VALLEY (continued)	**HIGH SCHOOL CREDIT**	**JOHNSON COUNTY COMMUNITY COLLEGE**			**2015-2016 KANSAS COMMON COURSE CODE(S)**
		COURSE	**TITLE**	**CREDIT**	
Marketing Prod Dev and Branding **AND** Marketing Promo and Advertising	.5/.5	MKT 230	Marketing	3	12152
Media Production I **AND** Media Production II	.5/1	CIM 135	Digital Imaging and Video	3	30103
Principles of Engineering	1	ENGR 121	Engineering Orientation	2	21004
Software Development and Game Design I **AND** Software Development and Game Design II	.5/.5	CS 134	Programming Fundamentals	4	10152
Sports and Entertainment Marketing **AND** Marketing Promo and Advertising	.5/.5	MKT 240	Advertising and Promotion	3	12163/12152
Web Design	.5	CWEB 105	Intro to Web Pages: Dreamweaver	1	10201
Wood Technologies I and II	.5/1	DRAF 242	Topics in CAD II	2	17007

DE SOTO/MILL VALLEY **HIGH SCHOOL COURSE**	**HIGH SCHOOL CREDIT**	**JOHNSON COUNTY COMMUNITY COLLEGE**			**2015-2016 KANSAS COMMON COURSE CODE(S)**
		COURSE	**TITLE**	**CREDIT**	
Accounting	1	ACCT 111	Small Business Accounting	3	12104
Animation	1	ANI 123	Concept Art for Animation *Contingent on department portfolio review*	3	10210
Auto Collision Tech II	2	MFAB 124	Introduction to Welding	3	40310
Business Essentials	.5	BUS 121	Intro to Business	3	12050
Computer Apps I **AND** Computer Apps II	.5/.5	CPCA 128	PC Applications	3	10004
Drafting I/CAD	1	DRAF 120 **AND** DRAF 130	Introduction to Drafting **AND** Introduction to CAD Concepts - AutoCAD	2/3	21107
Entrepreneurship	.5	ENTR 120	Intro to Entrepreneurship	2	12053
Interior Design 2B	1	DRAF 242	Topics in CAD II	2	38212
Marketing	.5	MKT 230	Marketing	3	12152
Research and Design in Building Trades	1	DRAF 242	Topics in CAD II	2	17005
Residential Carpentry I	1	DRAF 140	Topics in CAD I	2	17002
Residential Carpentry II	1	DRAF 242	Topics in CAD II	2	38002
Sports and Entertainment Marketing **AND** Marketing Communications **AND** Integrated Marketing Apps	.5/.5/.5	MKT 240	Advertising and Promotion	3	12163/12168/12195
Web Page Design	1	CWEB 105 **AND** CWEB 115	Intro to Web Pages: Dreamweaver **AND** Intermediate Web Pages: Dreamweaver	1/1	10201

EUDORA **HIGH SCHOOL COURSE**	**HIGH SCHOOL CREDIT**	**JOHNSON COUNTY COMMUNITY COLLEGE**			**2015-2016 KANSAS COMMON COURSE CODE(S)**
		COURSE	**TITLE**	**CREDIT**	
21st Century Journalism **AND** Digital Media Technology	1/.5	JOUR 122	Reporting for the Media	3	30100/30104
Accounting I	1	ACCT 111	Small Business Accounting	3	12104
Architectural Drawing	1	DRAF 129	Interpreting Architectural Drawings	2	21103
Auto Collision II	1	MFAB 124	Introduction to Welding	3	43000
Cabinetmaking I	1	DRAF 140	Topics in CAD I	2	17007
CAD Drafting I	1	DRAF 120 **AND** DRAF 130	Introduction to Drafting **AND** Introduction to CAD Concepts – AutoCAD	2/3	21107
CAD Drafting II	1	DRAF 242	Topics in CAD II	2	21109
Entrepreneurship	.5	ENTR 120	Intro to Entrepreneurship	2	12053
Graphic Design Fundamentals **AND** Graphic Design I	.5/1	CDTP 135	Desktop Photo Manipulation I: Photoshop	1	30102 **AND** 11154
Health Careers I, Health Careers II **AND** Health Careers III	1/1/1	HC 101	Intro to Healthcare Delivery	3	14001 **AND** 14002
Horticulture **AND** Plant and Soil Science	1/1	HORT 115	Home Horticulture	2	18052/18058
Intro to Welding	1	MFAB 124	Introduction to Welding	3	39207
Marketing	1	MKT 230	Marketing	3	12152
Marketing Communications **AND** Integrated Marketing Apps	.5/.5	MKT 240	Advertising and Promotion	3	12168/12195
Mass Production I **AND** Mass Production II	1/1	MFAB 152	Manufacturing Materials/Process	3	13052/39052
Mechanical Drawing	.5	DRAF 120	Introduction to Drafting	2	21102
Medical Terminology	1	HC 130	Medical Terminology for Healthcare Professions *Students must take the JCCC final exam*	3	36154 OR 14154
Web Design	1	CWEB 110	XHTML and CSS	3	10201

LAWRENCE/FREE STATE HIGH SCHOOL COURSE	HIGH SCHOOL CREDIT	JOHNSON COUNTY COMMUNITY COLLEGE COURSE	TITLE	CREDIT	2015-2016 KANSAS COMMON COURSE CODE(S)
21st Century Journalism **AND** Digital Media - Design and Production (Newspaper) **OR** Digital Media - Design and Production (Yearbook)	.5/1 OR 1	JOUR 122	Reporting for the Media	3	30100/30151
Accounting I **AND** Accounting II	.5/.5	ACCT 111	Small Business Accounting	3	12104
Agriscience	1	HORT 115	Home Horticulture	2	18002
Auto I **AND** Auto II **AND** Auto III	.5/.5/1	AUTO 120	Basic Automobile Operation and Maintenance	3	40150/40152
Automated Systems	.5	MFAB 152	Manufacturing Materials and Processes	3	39010
Business Essentials	.5	BUS 121	Intro to Business	3	12050
Business Management	.5	BUS 141	Principles of Business Management	3	12052
Cabinetry I **AND** Cabinetry II	.5/.5	DRAF 140	Topics in CAD I	2	17007
CAD/Drafting II **AND** CAD/Drafting III	.5/.5	DRAF 130	Introduction to CAD Concepts – AutoCAD	3	21107
Civil Engineering **AND** Architecture I and II	.5/.5	DRAF 129	Interpreting Architectural Drawings	2	21012
Computer Apps I **AND** Computer Apps II	.5/.5	CPCA 128	PC Applications	3	10004
Computer Science AP	1	CS 134 **AND** CS 205	Programming Fundamentals **AND** Concepts of Programming: Algorithms Using Java	4/4	10157
Drafting (Architecture and Mechanical)	.5	DRAF 120	Introduction to Drafting	2	21102
Engineering Design	1	ENGR 121	Engineering Orientation	2	21006
Entrepreneurship	.5	ENTR 120	Intro to Entrepreneurship	2	12053
Graphic Design I	.5	CDTP 145	Desktop Illustration I: Illustrator	1	30102
Graphic Design II **AND** Digital Design	.5/.5	CDTP 140	Desktop Publishing: InDesign	1	05162
Interiors	.5	ITMD 121	Interior Design I	3	22212
Intro to Industrial Technology	.5	INDT 155	Workplace Skills	1	38001
Marketing I **AND** Marketing II	.5/.5	MKT 230	Marketing	3	12152
Marketing III/Marketing Management	1	MKT 121	Retail Management	3	12166

LAWRENCE/FREE STATE (continued)	HIGH SCHOOL CREDIT	JOHNSON COUNTY COMMUNITY COLLEGE COURSE	TITLE	CREDIT	2015-2016 KANSAS COMMON COURSE CODE(S)
Marketing III/Marketing Research	1	MKT 202	Consumer Behavior *Contingent on department portfolio review*	3	12196
Medical Terminology	1	HC 130	Medical Terminology for Healthcare Professions *Students must take the JCCC final exam*	3	36154 **OR** 14154
Photography I	.5	CDTP 135	Desktop Manipulation I: Photoshop	1	30105
Pre-Med I **AND** Pre-Med II **AND** Pre-Med III	.5/.5/.5	HC 101	Intro to Healthcare Delivery	3	14001 **AND** 14002
Research and Design for Preconstruction	.5	DRAF 242	Topics in CAD II	2	21109
Web Page Design	.5	CWEB 105 **AND** CWEB 115	Intro to Web Pages: Dreamweaver **AND** Intermediate Web Pages: Dreamweaver	1/1	10201
Welding I **AND** Welding II	.5/.5	MFAB 124	Introduction to Welding	3	39207

GARDNER EDGERTON HIGH SCHOOL COURSE	HIGH SCHOOL CREDIT	JOHNSON COUNTY COMMUNITY COLLEGE			2015-2016 KANSAS COMMON COURSE CODE(S)
		COURSE	TITLE	CREDIT	
21st Century Journalism **AND** Digital Media Technology	1/.5	JOUR 122	Reporting for the Media	3	30100/30104
Accounting I	.5/.5	ACCT 111	Small Business Accounting	3	12104
Advanced Drafting/CAD	.5/.5	DRAF 140	Topics in CAD I	2	21150
Auto Tech I	1	AUTO 120	Basic Automobile Operation and Maintenance	3	40150
Auto Tech II/Auto Tech III	1/1	AUTO 121	Small Engine Service	3	40152/40154
Business Essentials	.5	BUS 121	Intro to Business	3	12050
Cabinetmaking	.5/.5	DRAF 140	Topics in CAD I	2	17007
Computer Applications	.5/.5	CPCA 128	PC Applications	3	10004
Computer Science I **AND** Computer Science II	.5/.5/.5/.5	CS 134	Programming Fundamentals	4	10152/10165
Digital Photography I **AND** Digital Photography II	.5/.5	CDTP 135	Desktop Photo Manipulation: Photoshop	1	30105
Drafting/CAD	1	DRAF 120 **AND** DRAF 130	Introduction to Drafting **AND** Introduction to CAD Concepts – AutoCAD	2/3	21107
Entrepreneurship	.5	ENTR 120	Intro to Entrepreneurship	2	12053
Graphic Design I	.5/.5	CDTP 135	Desktop Photo Manipulation: Photoshop	1	11154
Marketing	.5/.5	MKT 230	Marketing	3	12152
Marketing/Management	.5/.5	MKT 121	Retail Management	3	12166
Mass Media I	.5	CIM 135	Digital Imaging and Video	3	30104
Research and Design for Manufacturing	.5/.5	DRAF 242	Topics in CAD II	2	13998
Research and Design for Preconstruction	.5/.5	DRAF 242	Topics in CAD II	2	21109
Trends in Interior Design	.5/.5	ITMD 121	Interior Design I	3	30111
Web Design I	.5/.5	ANI 123	Concept Art for Animation *Contingent on department portfolio review*	3	10210
Web Page Design II **AND** Web Design III	1/1	CWEB 105 **AND** CWEB 115	Intro to Web Pages: Dreamweaver **AND** Intermediate Web Pages: Dreamweaver	1/1	10201 **AND** 10248

LOUISBURG HIGH SCHOOL COURSE	HIGH SCHOOL CREDIT	JOHNSON COUNTY COMMUNITY COLLEGE			2015-2016 KANSAS COMMON COURSE CODE(S)
		COURSE	TITLE	CREDIT	
21st Century Journalism **AND** Digital Media Design and Production	.5/1	JOUR 122	Reporting for the Media	3	30100/30151
Accounting I **AND** Accounting II	1/1	ACCT 111	Small Business Accounting	3	12104
Architectural Design (IE1517)	.5	DRAF 140	Topics in CAD I	2	21150
Building Trades I	1	DRAF 140	Topics in CAD I	2	17002
Building Trades II	1	DRAF 242	Topics in CAD II	2	38002
Business Essentials	.5	BUS 121	Intro to Business	3	12050
Cabinetmaking and Furniture Design I	1	DRAF 140	Topics in CAD I	2	17007
Cabinetmaking and Furniture Design II	1	DRAF 242	Topics in CAD II	2	38007
CAD Design	.5	DRAF 120 **AND** DRAF 130	Introduction to Drafting **AND** Introduction to CAD Concepts – AutoCAD	2/3	21107
Drafting	.5	DRAF 120	Introduction to Drafting	2	21102
Entrepreneurship	.5	ENTR 120	Intro to Entrepreneurship	2	12053
Intro to Engineering Design	1	ENGR 121	Engineering Orientation	2	21006
Intro to Industrial Technology	.5	INDT 155	Workplace Skills	1	38001
Marketing	1	MKT 230	Marketing	3	12152
Principles of Engineering	1	ENGR 121	Engineering Orientation	2	21004
Small Engines	.5	AUTO 121	Small Engine Service	3	40212/40214
Web Design	.5	CWEB 110	XHTML and CSS	3	10201
Welding	1	MFAB 124	Introduction to Welding	3	13207

OLATHE **HIGH SCHOOL COURSE**	**HIGH SCHOOL CREDIT**	**JOHNSON COUNTY COMMUNITY COLLEGE**			**2015-2016 KANSAS COMMON COURSE CODE(S)**
		COURSE	**TITLE**	**CREDIT**	
Accounting I **AND** Advanced Accounting	.5/.5	ACCT 111	Small Business Accounting	3	12104
Advanced Biotechnology: Cellular and Molecular Biology	2	BIOT 160	Intro to Biotechnology	2	36992
Advanced Biotechnology: Cellular and Molecular Biology	2	BIOT 165	Biotechnology Lab Safety	1	30352
Advanced Marketing	.5	MKT 230	Marketing	3	12152
Animation Essentials I	1	ANI 123	Concept Art for Animation	3	10210
Business Essentials	.5	BUS 121	Intro to Business	3	12050
Computer Apps **AND** Publications and Presentations	.5/.5	CPCA 128	PC Applications	3	10004
Digital Photo Journalism	.5	CDTP 135	Desktop Photo Manipulation 1: Photoshop	1	30105
Drafting/CAD	1	DRAF 120	Introduction to Drafting	2	21107
e9	.5/.5	CDTP 135	Desktop Photo Manipulation 1: Photoshop	1	30102
Entrepreneurship	.5	ENTR 120	Intro to Entrepreneurship	2	12053
Exploring Health Careers, Foundations of Sports Medicine (Sports Med I) **AND** Prevention, Treatment and Advanced Application of Sports Medicine (Sports Med III)	.5/.5/1/1	HC 101	Intro to Healthcare Delivery	3	14001 **AND** 14002
Functions and Early Childhood Development **AND** Applications in Early Childhood Education	1/1/1/1	EDUC 130	Foundations of Early Childhood Education	3	19051 **AND** 19052 **AND** 19098
Fundamentals of Programming	.5	CS 134	Programming Fundamentals	4	10155
Graphic Design Essentials	1	CDTP 135	Desktop Photo Manipulation 1: Photoshop	1	10202
Interior Design Studio	.5/.5	ITMD 121	Interior Design I	3	22212
Marketing Management A **AND** Marketing Management B	.5/.5	MKT 121	Retail Management	3	12166
Medical Terminology	1	HC 130	Medical Terminology for Healthcare Professions *Students must take the JCCC final exam*	3	36154 OR 14154
Pre-Engineering/CAD I **AND** Engineering Drawing/CAD II	.5/.5	DRAF 120 **AND** DRAF 130	Introduction to Drafting **AND** Introduction to CAD Concepts - AutoCAD	2/3	21107

OLATHE (continued)	**HIGH SCHOOL CREDIT**	**JOHNSON COUNTY COMMUNITY COLLEGE**			**2015-2016 KANSAS COMMON COURSE CODE(S)**
		COURSE	**TITLE**	**CREDIT**	
Research and Design for Manufacturing	.5/.5	DRAF 242	Topics in CAD II	2	13988
Textile Studio 1 **AND** Textile Studio 2	1	FASH 123	Apparel Construction I	4	30101
Web Design I **AND** Web Design II	1	CWEB 110	XHTML and CSS	3	10201

OLATHE ADVANCED TECHNICAL CENTER **HIGH SCHOOL COURSE**	**HIGH SCHOOL CREDIT**	**JOHNSON COUNTY COMMUNITY COLLEGE**			**2015-2016 KANSAS COMMON COURSE CODE(S)**
		COURSE	**TITLE**	**CREDIT**	
Auto Chassis 1 and 2 **AND** Auto Elec 1 and 2	6	AUTO 125 **AND** AUTO 129 **AND** AUTO 131 **AND** AUTO 145 **AND** AUTO 156 **AND** AUTO 161	Introduction to Shop Practices **AND** Brakes I **AND** Brakes II **AND** Automotive Steering and Suspension **AND** Electrical I **AND** Engine Performance I	17	40204/40206/ 40226/40224/ 40200/40202/ 40220/40222
Auto Collision 1 and 2	6	AUTO 120 **AND** MFAB 124	Basic Automobile Operation and Maintenance **AND** Introduction to Welding	6	40300/40310/ 40228/40250/ 40314/40302/ 40312/40315/ 40200
Welding Technology I	.5/.5/.5/ .5/.5/.5	MFAB 152 **AND** MFAB 124	Manufacturing Materials and Processes **AND** Intro to Welding	6	13002/39207/13052
Welding Technology II	.5/.5/.5/ .5/.5/.5	DRAF 242	Topics in CAD II	2	39052/39208/13998

SPRING HILL HIGH SCHOOL COURSE	**HIGH SCHOOL CREDIT**	**JOHNSON COUNTY COMMUNITY COLLEGE**			**2015-2016 KANSAS COMMON COURSE CODE(S)**
		COURSE	**TITLE**	**CREDIT**	
21st Century Journalism **AND** Digital Media Design and Production	.5/1	JOUR 122	Reporting for the Media	3	30100/30151
Accounting **AND** Advanced Accounting	1/1	ACCT 111	Small Business Accounting	3	12104
Business Essentials	.5	BUS 121	Intro to Business	3	12050
CAD I **AND** CAD II	1/1	DRAF 120 **AND** DRAF 130	Intro to Drafting **AND** Intro to CAD Concepts – AutoCAD	2/3	21107
CAD III	1	DRAF 242	Topics in CAD II	2	21109
Computer Apps I **AND** Computer Apps II	.5/.5	CPCA 128	PC Applications	3	10004
Entrepreneurship	.5	ENTR 120	Intro to Entrepreneurship	2	12053
Graphic Design Fundamentals **AND** Graphic Design I	.5/1	CDTP 135	Desktop Photo Manipulation I: Photoshop	1	30102 **AND** 05162
Horticulture I **AND** Horticulture II	1/1	HORT 115	Home Horticulture	2	18052/18053
Marketing	1	MKT 230	Marketing	3	12152
Small Gas Engine	1	AUTO 121	Small Engine Service	3	18410
Teaching as a Career	1	EDUC 121	Introduction to Teaching	3	19151
Trends in Interior Design	.5/1	ITMD 121	Interior Design I	3	30110/30160

SHAWNEE MISSION HIGH SCHOOL COURSE	**HIGH SCHOOL CREDIT**	**JOHNSON COUNTY COMMUNITY COLLEGE**			**2015-2016 KANSAS COMMON COURSE CODE(S)**
		COURSE	**TITLE**	**CREDIT**	
21st Century Journalism **AND** Digital Media Productions - Newspaper	.5/1	JOUR 122	Reporting for the Media	3	30100/30151
2D Animation	1	ANI 123	Concept Art for Animation	3	10210
Accounting	1	ACCT 111	Small Business Accounting	3	12104
Apparel Construction **AND** Textiles 1 **AND** Textiles 2	1	FASH 123	Apparel Construction I	4	19201
Applied Business Development	1	BUS 141	Principles of Business Management	3	12052
Auto Tech 1	1	AUTO 120	Basic Auto Operation and Maintenance	3	40150
Auto Tech II/Auto Tech III	1/1	AUTO 121	Small Engine Service	3	40152/40154
Biotechnology I	1	BIOT 160	Intro to Biotechnology	2	03053
Biotechnology II	2	BIOT 165	Biotechnology Lab Safety	1	03053
Business Essentials	.5	BUS 121	Intro to Business	3	12050
Business Management	.5	BUS 141	Principles of Business Management	3	12052
CAD and Architectural Design II	1	DRAF 242	Topics in CAD II	2	21109
Digital Design Studio	1	CDTP 135	Desktop Photo Manipulation I: Photoshop	1	11154
Digital Photo Media	.5	CDTP 135	Desktop Photo Manipulation I: Photoshop	1	30105
Entrepreneurship I	.5	ENTR 120	Intro to Entrepreneurship	2	12053
Game Design and Development	1	GAME 105	Beginning Game Creation *Contingent upon portfolio checked by Game Development department*	3	10165
Interior Design Studio	.5	ITMD 121	Interior Design I	3	30160
Intro to CAD	1	DRAF 120 **AND** DRAF 130	Intro to Drafting **AND** Intro to CAD Concepts - AutoCAD	2/3	21107
Intro to Welding	.5	MFAB 124	Introduction to Welding	3	13207
Introduction to Engineering Design	1	ENGR 121	Engineering Orientation	2	21006

SHAWNEE MISSION (continued)	HIGH SCHOOL CREDIT	JOHNSON COUNTY COMMUNITY COLLEGE			2015-2016 KANSAS COMMON COURSE CODE(S)
		COURSE	TITLE	CREDIT	
Marketing I	.5	MKT 230	Marketing	3	12152
Marketing II	1	MKT 121	Retail Management	3	12166
Marketing Research	1	MKT 202	Consumer Behavior *Contingent on department portfolio review*	3	12196
Medical Health Science 1 and 2	4	HC 101	Intro to Healthcare Delivery	3	14001 **AND** 14002
Medical Health Science Careers 1 and 2	2.5	HC 101	Intro to Healthcare Delivery	3	14001 **AND** 14002
Medical Terminology	1	HC 130	Medical Terminology for Healthcare Professions *Students must take the JCCC final exam*	3	36154 OR 14154
Principles of Engineering	1	ENGR 121	Engineering Orientation	2	21004
Web Design	1	CWEB 105 **AND** CWEB 115	Intro to Web Pages: Dreamweaver **AND** Intermediate Web Pages: Dreamweaver	1/1	10201
Welding I	1	MFAB 124	Introduction to Welding	3	39207
Wood Design I	1	DRAF 140	Topics in CAD I	2	17007

Site visits and discussions with secondary CTE program representatives revealed that school districts in the JCCC service area are making significant investments in their CTE program offerings. The Olathe and Eudora-De Soto School Districts recently built new facilities for their CTE programs, and in February, 2016, the Gardener Edgerton School District passed a bond to build a 30,000 square foot facility to house their upgraded CTE programs. With these kinds of infrastructure investments, it is evident that CTE will continue to be an important curricular component of secondary programs. To ensure that students have seamless educational pathways, it will be important for JCCC to continue to work collaboratively with secondary CTE programs.

Excel in CTE Initiative (S.B. 155):

The Governor's CTE Initiative, also known as "S.B. 155," has created a significant increase in high school students taking college level CTE courses. Essentially, S.B. 155 enables high school students to take college level CTE courses tuition free. While S.B. 155 has only been in place since July, 2012, it appears that it is driving an increased interest in CTE at both the secondary and postsecondary levels. As Figure 17 indicates, in the 2013-2014 school year, across the State of Kansas, an additional 20,372 high school students enrolled in CTE courses.

As Figure 18 indicates, between 2013 and 2015, the number of high school students taking college level CTE courses increased by 68 percent. The College enjoys positive relationships with secondary partners throughout the region, and as JCCC makes decisions about industrial technology facilities, it will be important to seek their input.

Figure 17

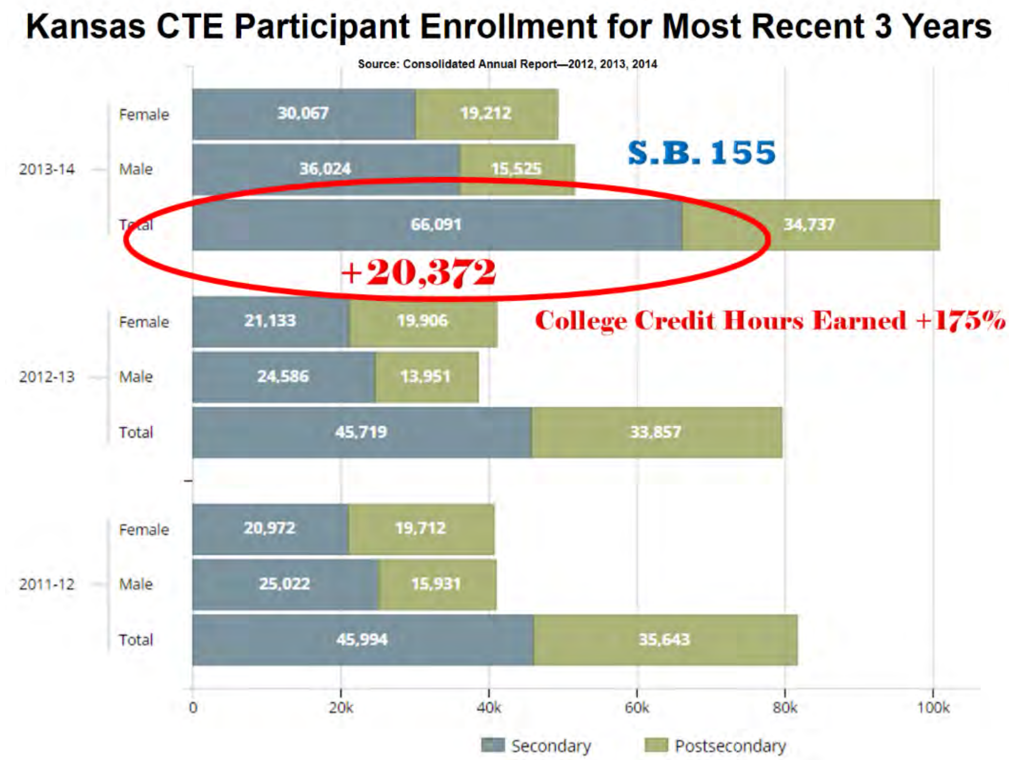
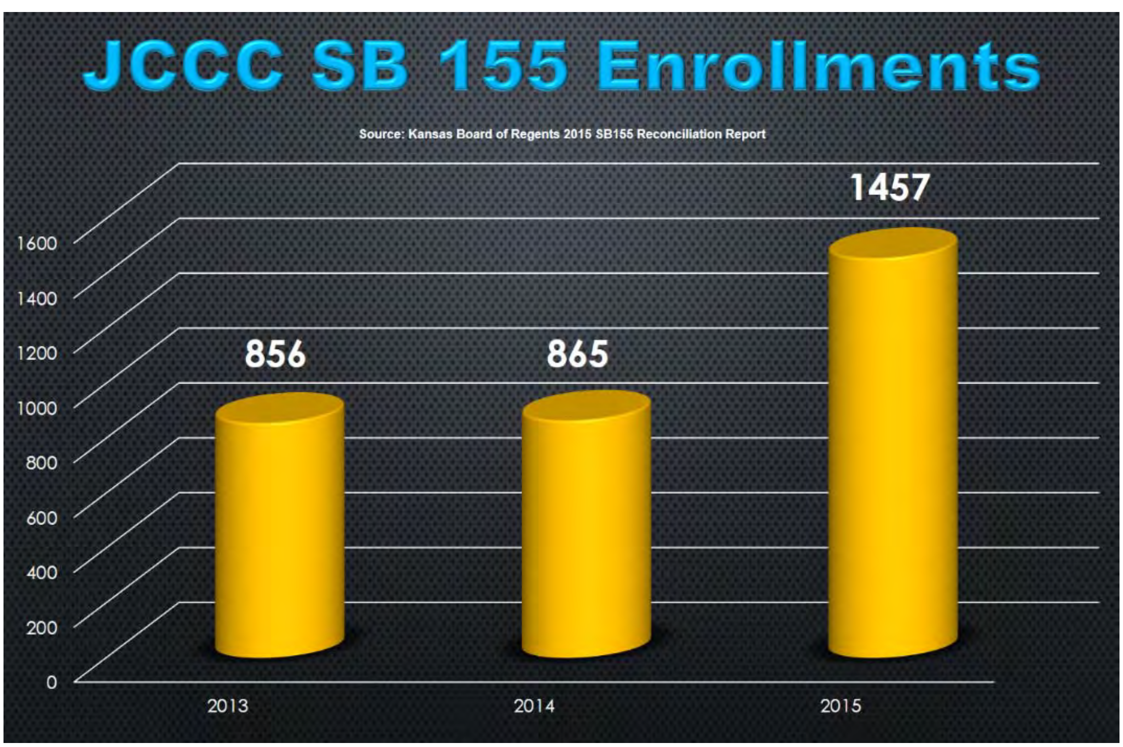


Figure 18



Section 4: Arts & Technology Building Facility Recommendations

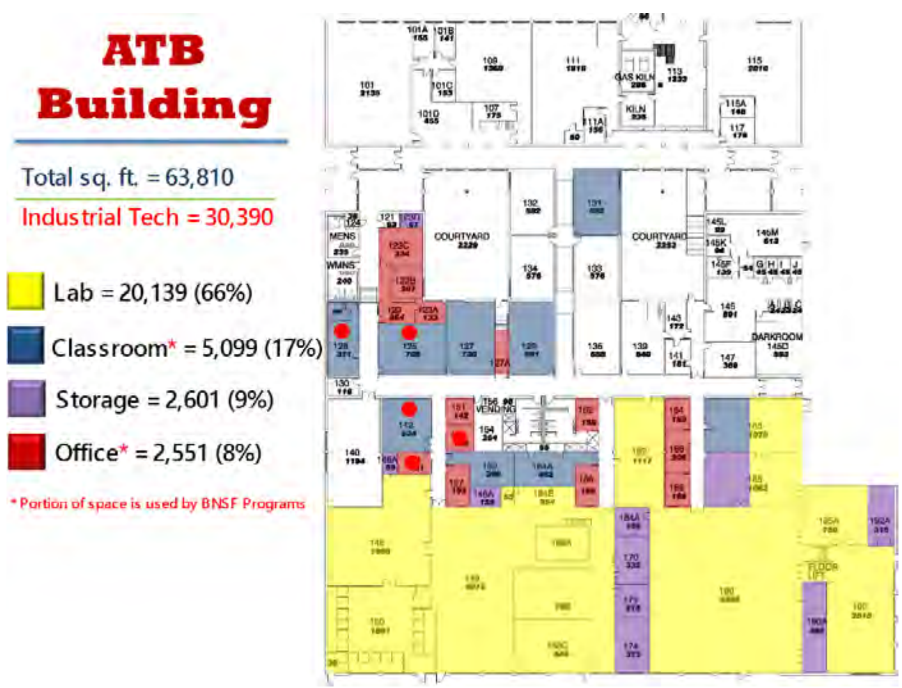
Section 4 will provide an analysis of current space and outline facility recommendations for each of the industrial technology programs. This analysis includes information presented in Section 2 of this report and examines institutional data comprised of the following: (1) total enrollment; (2) individual course enrollment; (3) attempted credit hours; (4) retention; and (5) graduation rates.

<u>Overview of Arts & Technology Building (ATB) Facility:</u>

The current ATB facility was built in 1981 and has 63,810 square feet of enclosed space (See Figure 19). Of the total square footage, the five industrial technology programs are currently occupying 30,390 square feet. The remaining space is used by JCCC's Fine Arts Programs.

Of the space that is dedicated to industrial technology, 20,139 square feet is used for laboratory instruction (66%); 5,099 square feet is used for classroom space (17%); 2,601 square feet is used for storage (9%); and 2,551 square feet is used for office space (8%).

Figure 19



For the last 35 years, the building has served its original design; however, it is quickly reaching the end of its useful service life. With regard to construction, the building no longer offers adequate electrical service, proper ventilation, or egress. In order to support curricular enhancements, technological changes, and current environmental and safety standards, the building needs to be renovated or replaced. In the following section, space needs for each of the five industrial technology programs will be discussed.

Automotive Technology:

The Automotive Technology Program is the largest of the programs currently being offered in the Arts and Technology Building. According to the JCCC Office of Institutional Effectiveness, Planning and Research, in the 2014-2015 academic year, students enrolled in 2,125 credit hours, and courses had an average of 13 students.

Of students with a declared major in Automotive Technology, 73% are 18-23 years old; 11% are 24-29 years old; 11% are 30-39 years old; 3% are 40-49 years old; and 2% are over 50 years old. Each year, approximately 20 students graduate from the program.

When the original Arts and Technology Building was opened in 1981, the facility was adequate for the technology that was associated with automobiles that were being manufactured (See Photo 3). As program enrollment grew, in 2007, there was an expansion of the automotive facility to alleviate overcrowding in the laboratories. However, due to the unique topography of the current site, the additional space was built on a lower elevation. Having the facility on two different elevations creates complications in moving equipment and materials from one laboratory to the other.

Photo 3

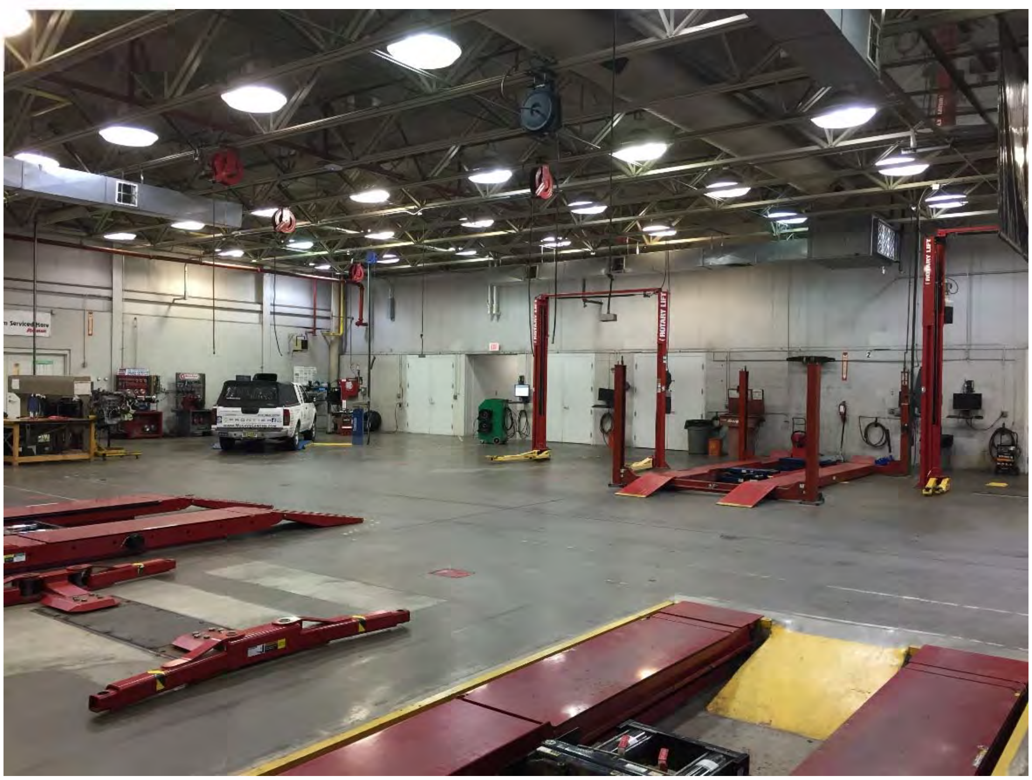


Table 2 provides an inventory of the existing space that is being utilized by the Automotive Technology Program.

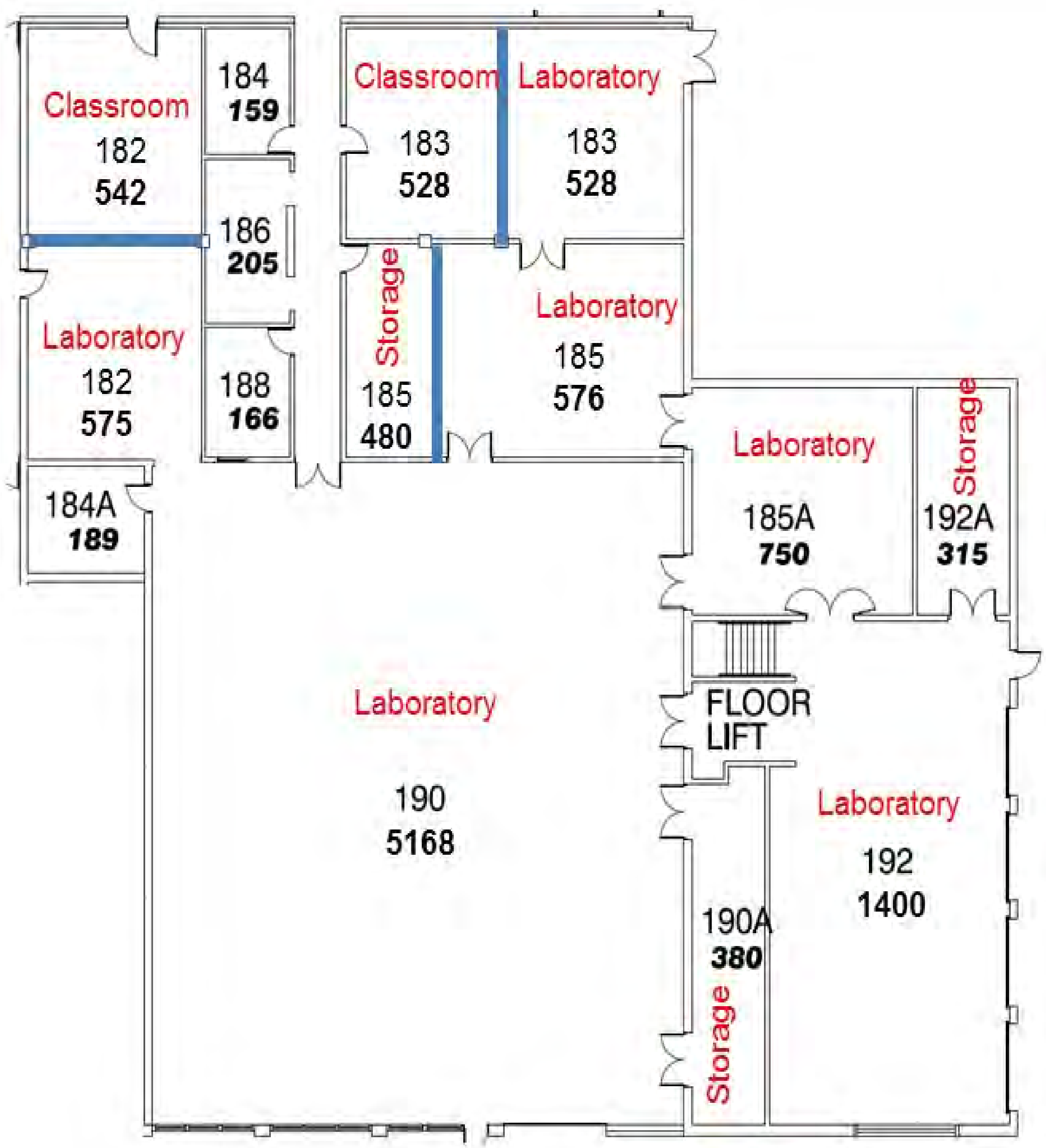
Table 2 Automotive Technology	**Current Space**					
Room/Room Description	**Lab Space**	**Classroom Space**	**Office Space**	**Storage Space**	**Computer Space**	**Outdoor Space**
190: Auto Lab	5,168					
190A: Auto				380		
192: Auto Lab	1,400					
185A: Auto Lab	750					
192A				315		
185(1): Engine Repair Lab	576					
185(2): Storage/Tool Room				480		
183(1): Auto Lab (Small Engines)	528					
183(2): Classroom		528				
188: Office			166			
186(1): Auto Computers Lab					83	
186(2) Auto Office			83			
184: Auto Office			159			
182(1): Transmission Lab	575					
182(2): Transmission Lab Classroom		542				
Vehicle Storage Yard						
184(A): Auto Storage				189		
Totals:	**8,997**	**1,070**	**408**	**1,364**	**83**	
					Total Space	**11,922**

Over the years, some of the laboratory facilities have been modified to more efficiently utilize the available space (Figure 20). For example, in rooms 182, 183, and 185, each space was originally designed to serve as an individual lab. However, due to instructional needs, the individual lab spaces were reconfigured to provide additional classroom space and tool storage.

For the most part, the space that is available between 8:00 a.m. and 5:00 p.m. is marginally adequate to accommodate enrollment. The most significant overcrowding takes place during the evening hours from 6:00 p.m. to 10:00 p.m. Since these programs are career based programs, many students work during the day and take their course work in the evenings. As a result, there is a significantly higher proportion of the total student load trying to complete their course work in the evening hours.

The increased technological advances in today's modern vehicles require a much more extensive array of electronic and diagnostic equipment to teach students the skills they need to become employable. Due to continued enrollment growth and facility limitations, there is a need to provide additional space for the program.

Figure 20



Classroom
182
542
184
159
186
205
Laboratory
182
575
188
166
184A
189
Classroom
183
528
Laboratory
183
528
Storage
185
480
Laboratory
185
576
Laboratory
185A
750
Storage
192A
315
Laboratory
190
5168
FLOOR
LIFT
190A
380
Storage
Laboratory
192
1400

Based on the existing facility usage, current enrollment, and projected enrollment, Table 3 provides suggested space allocations for the Automotive Technology Program.

Table 3 Automotive Technology	**Proposed Space**					
Room/Room Description	**Lab Space**	**Classroom Space**	**Office Space**	**Storage Space**	**Computer Space**	**Outdoor Space**
Lab 1: Auto Bays	8,832					
Lab 1: Tool Room				309		
Lab 1: Storage				662		
Lab 2: Engine Overhaul	1,032					
Lab 2: Tool Room				191		
Lab 2: Storage				320		
Lab 3: Transmission Lab	1,032					
Lab 3: Storage				320		
Lab 4: Small Engine/Motorcycle	1,008					
Lab 4: Storage				312		
Classroom 1		696				
Classroom 1 Storage				167		
Classroom 2		696				
Classroom 2 Storage				167		
Classroom 3		696				
Classroom 3 Storage				167		
Office Space/Faculty Work Space			1,095			
Computer Lab					936	
Exterior Vehicle Storage						7,500
Totals:	**11,904**	**2,088**	**1,095**	**2,616**	**936**	**7,500***
**Outdoor space not included in total.*				**Total Space**		**18,639**

Based on available information, the recommendations are as follows:

- Allocate 18,639 square feet of space for the Automotive Technology Program. This increases the total laboratory space for the program from 8,997 square feet to 11,904 square feet. This increase is based on an average class size of 24 students. Although the space allocation is based on an average class size of 24, due to the way instruction occurs in automotive programs, it is fairly common for at least two classes, and many times three classes, to be simultaneously working in the automotive laboratories. At any point, 28 to 42 students may be utilizing the same space.
- Dedicate three classrooms to the automotive technology area. While this will not satisfy all of the classroom space that may be needed on a typical day, through collaborative scheduling with other industrial technology programs, adequate space can be accessed.

- Install a computer lab in the automotive technology area. Due to the technological nature of today's vehicles, much of the learning requires computer technology and accessing the Internet to find reference and technical information for vehicles. Like classroom space, with collaborative scheduling, the computer lab would also be available for use by other industrial technology programs.
- Allocate 2,616 square feet of storage space for the automotive technology area. Based on the instructional methodology, significant space is needed for laboratory and classroom storage. Much of the instruction involves the use of full-size visual aids. As compared to the typical academic classroom, these instructional aids require an increased amount of storage.
- Allocate at least 7,500 square feet of outside space, in close proximity to the main building, to facilitate efficient and safe vehicle storage. A unique aspect of the Automotive Technology Program is the storage and movement of the vehicles that students use for learning experiences. A typical automotive program will have from 12-20 vehicles that will need to be stored and then retrieved at various times during the day. If budget and space allow, ideally, vehicles would be stored in a fenced and secured area.

Automation Engineer Technology:

In 2014, JCCC initiated the development of the Automation Engineer Technology Program, which was based on existing course work in the former Industrial Maintenance Program. The new program was initiated as a result of inquiries JCCC received from local employers. They were seeking employees with skill sets more specialized than those gained in the Industrial Maintenance Program.

In 2014, the Industrial Maintenance Program, which was developed in 2002, was scheduled to be brought into curricular alignment through a process required by the Kansas Board of Regents (KBOR). Based on local employer input gained through the KBOR alignment process, JCCC determined that the Industrial Maintenance Program should be modified to become an Automation Engineer Technology Program.

The new courses for this program were approved by the JCCC Educational Affairs Committee in November, 2014 and approved by KBOR in February, 2015. The first courses for the Automation Engineer Technology Program were offered in the fall, 2015 semester. Additional program courses were offered in the spring, 2016 semester.

The department chair for the Electrical Technology Program oversees the Automation Engineer Technology Program, and instruction is provided by two adjunct faculty members with relevant industry experience.

Recently, new equipment for the program was purchased with institutional funding and a KBOR Innovative Technology grant. The program shares laboratory space with the Electrical Technology Program and the Electronics Program in the Industrial Training

Center (ITC) Building. Some of the laboratory space in the Electrical Technology Program has been converted to classroom space that also houses some of the recently funded equipment.

Institutional data for the program indicate there is currently an unduplicated headcount of 29 students who have attempted a total of 75 credit hours. Of those students with a declared major in Automation Engineer Technology, 22% are 18-23 years old; 34% are 24-29 years old; 22% are 30-39 years old; and 22% are over 50 years old.

For the spring, 2016 semester, there are currently a total of 20 students enrolled in three different courses (Industrial Fluid Power, Industrial Robotics, and Programmable Logic Controllers II).

Table 4 provides a current summary of the space being utilized by the program.

Table 4 Automation	**Current Space**				
Room/Room Description	**Lab Space**	**Classroom Space**	**Office Space**	**Storage Space**	**Outdoor Space**
ATB: 166 (Included with ELET)			189		
ATB: 164A & 164B (Shared with HVAC)		675		100	
168A (Included with ELET)	900				
ITC PLC Lab (Included with ELET)	810				
ATB: 172 (Included with ELET)				215	
Totals:	**0**	**0**	**0**	**0**	
				Total Space	**0**

(Totals are zero because space is accounted for in the Electrical Technology Program).

As discussed on pages 4-6, the overall demand for the next 10 years is relatively small for Automation engineer technicians in the Kansas City MSA. Data indicate that by 2025 there will be a total of 75 job openings. Below, Table 5 shows the completions and openings for the last five years for Automation Engineer Technicians:

Table 5 Automation Engineer Technology: Completions & Openings 2010-2014 Source: EMSI		
Year	**Completions**	**Openings**
2014	3	2
2013	5	3
2012	1	5
2011	4	3
2010	0	3
Total	**13**	**16**

As Table 5 indicates, in the last five years, there have been 13 completions and only 16 openings for graduates. Based on available data, the current industry supply and demand ratio is fairly well-balanced.

Typically, when managers in industry seek to hire for these kinds of positions, they normally hire from within. The person selected to fill the position is usually then provided with company sponsored education/training to learn the requisite skills necessary for the job. Generally, this education/training is provided to the employee through non-credit instruction and industry sponsored training opportunities.

Automation engineer technology is similar to industrial maintenance, and EMSI data show there is a strong demand in the Kansas City MSA for graduates from industrial maintenance programs. Available data indicate there are currently 3,021 jobs in the region for industrial maintenance technicians, and by 2025, employment projections indicate an increase of 501 available jobs. The median hourly earnings for industrial maintenance technicians is $24.15.

Per EMSI, as of 2014, JCCC had the only industrial maintenance program in the Kansas City MSA. The program produced two graduates, and there were a total of 166 job openings. This would indicate a fairly large supply gap for industrial maintenance technicians. It is possible that this industry is in a transitional phase in terms of how it is employing automation engineer technicians and industrial maintenance technicians. Industries that require these occupations may be using them interchangeably, thus making it difficult for JCCC to determine an exact curriculum that best suits workplace needs.

Based on available information, the recommendations are as follows:

- JCCC should continue to explore and more clearly define the specific industry needs in this occupational area. Research should begin with the identification of 20-25 major employers of automation engineers and industrial maintenance technicians. Once identified, these employers should be convened so that college representatives can solicit input about workplace needs. This process would allow the College to identify a specific curriculum that would produce graduates who can meet the growing workforce demands.
- Until curriculum needs are defined, JCCC should continue to offer the Automation Engineer Technology Program using shared space and resources in the Electrical Technology Program.

Electrical Technology:

Of the five industrial technology programs, the JCCC Electrical Technology Program has the smallest amount of dedicated space. This is due, in part, to the fact that these kinds of programs do not require as much equipment and space to create an optimum learning environment. However, the program is currently being offered in a space that is too small to meets its needs.

According to institutional data, in the 2014-2015 academic year, students enrolled in 1,034 credit hours. Of those students with a declared major in electrical technology, 33% of the students were 18-23 years old; 27% of the students were 24-29 years old; 24% of the students were 30-39 years old; 9% were 40-49 years old; and 7% were 50 years and older. Over the last three academic years, enrollment data indicate that courses had an average of 14 students.

There is a strong demand for electrical technology graduates. Based on the data analysis, this program could easily place 40-50 graduates per year and still not meet the demand.

Table 6 provides an inventory of the existing space that is being utilized by the Electrical Technology Program.

Table 6 Electrical Technology	**Current Space**				
Room/Room Description	**Lab Space**	**Classroom Space**	**Office Space**	**Storage Space**	**Outdoor Space**
ATB: 166			189		
ATB: 168A	900				
ATB: 168B	735				
ATB: 164A & 164B (Shared with HVAC)		675		100	
ITC: PLC Lab	810				
ATB: 172				215	
Solar Panels & Exterior Projects					800
Outside Storage				384	
Totals:	**2,445**	**675**	**189**	**699**	**800***
**Outdoor space not included in total.*			**Total Space**		**4,008**

Currently, the Electrical Technology Program occupies a total of 4,008 square feet and primarily uses room 168B. Of the total square footage, only 2,445 square feet is available for laboratory activities. Like the area utilized by automotive technology, over the years, space in the electrical technology area has been modified (Figure 21). Originally, there was a replica of a wooden framed house in room 168A. While the house was a great way to give students experience in actual job site conditions, it was not the most efficient way to use the available space. Recently, the house was taken down so that the new Automation Engineer Technology Program would have its own laboratory space. While learning stations have been added, and the space has been maximized to simulate job site materials and conditions (Photo 4), it does not adequately meet program needs.

Figure 21

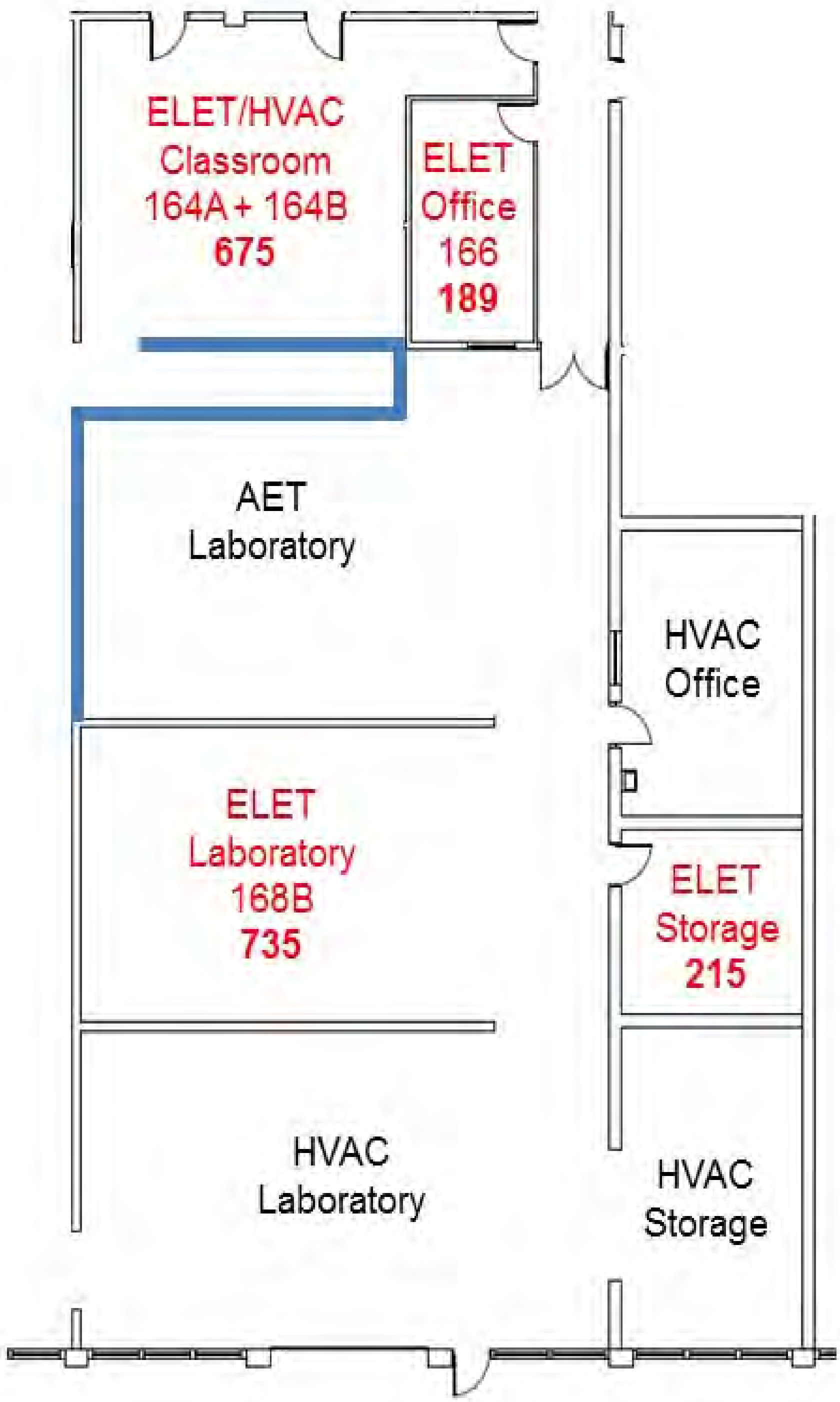

ELET/HVAC
Classroom
164A + 164B
675
ELET
Office
166
189
AET
Laboratory
HVAC
Office
ELET
Laboratory
168B
735
ELET
Storage
215
HVAC
Laboratory
HVAC
Storage

Photo 4

Based on the current facility as well as workforce information and program enrollment data, Table 7 provides suggested space allocations for the Electrical Technology Program.

Table 7 **Electrical Technology**	**Proposed Space**				
Room/Room Description	**Lab Space**	**Classroom Space**	**Office Space**	**Storage Space**	**Outdoor Space**
Lab 1: Industrial; Residential; Low Voltage	2,340				
Lab 1 Storage				655	
Lab 2: Clean Lab (PLC; Motor Controls; etc.)	1,368				
Lab 2 Storage				383	
Classroom		684			
Classroom Storage				157	
Electrical Technology Office (3)			405		
Outdoor Classroom Space					1,000
Totals:	**3,708**	**684**	**405**	**1,196**	**1,000***
**Outdoor space not included in total.*				**Total Space**	**5,993**

Based on available information, the recommendations are as follows:

- Allocate 5,993 square feet of space for the Electrical Technology Program. The square footage recommendation assumes an average of 18 students per class. This amount of space would provide for additional growth in class size as well as create much needed laboratory space to house learning stations that are consistent with industry trends.
- Dedicate 1,196 square feet of storage space for the laboratories and classrooms. Much of the instruction in the Electrical Technology Program involves the use of actual full-size visual aids. These instructional aids require an increased amount of storage.
- Dedicate one indoor classroom and one outdoor learning space to the Electrical Technology Program. In order to accommodate learning needs associated with solar technology, an outdoor space has been identified that may be utilized for solar power grids.

Heating, Ventilation and Air Conditioning Technology:

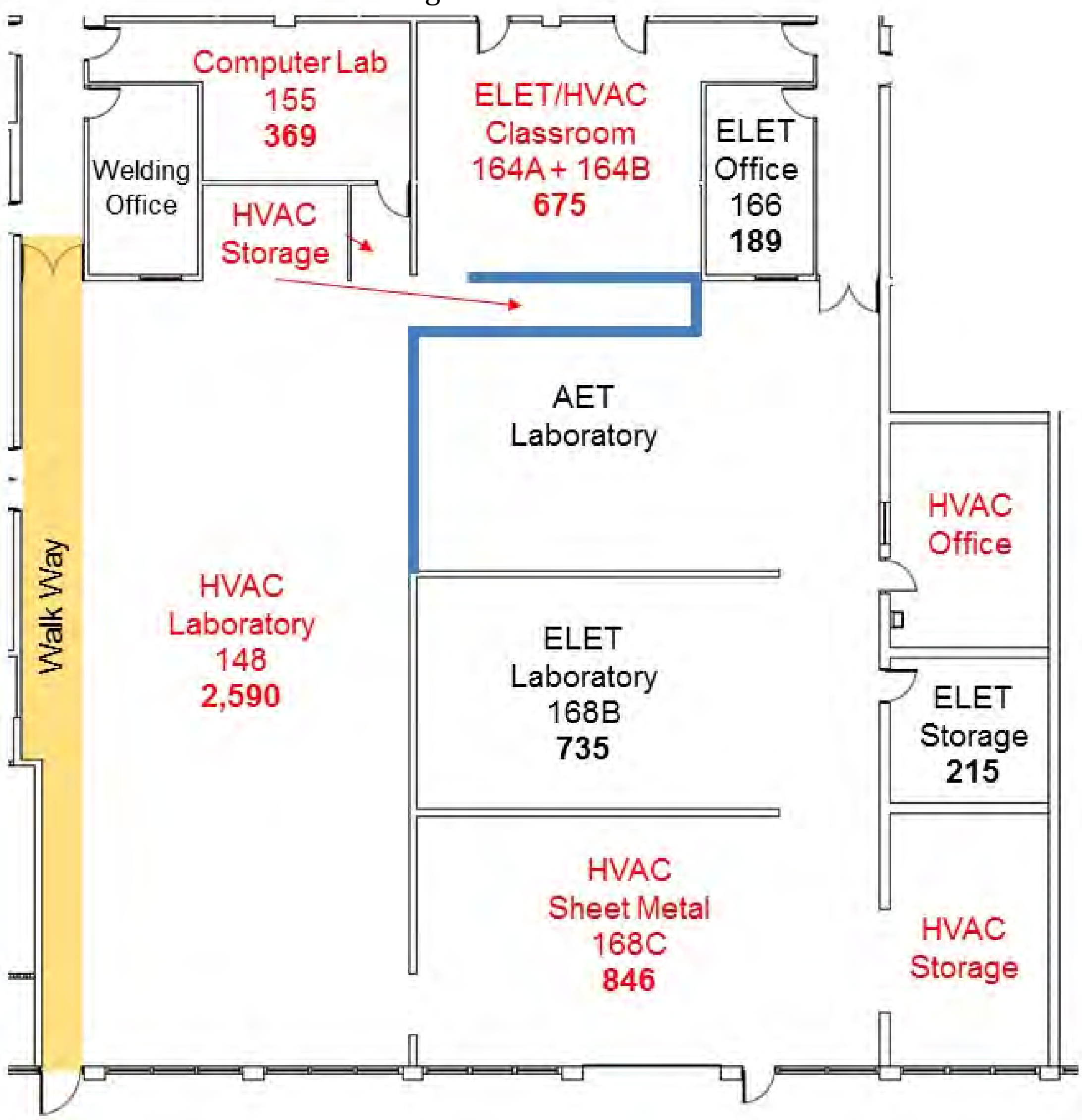
The HVAC Program is a moderately sized program, and according to institutional data, in the 2014-2015 academic year, students enrolled in 1,638 total credit hours. Of those students with a declared major in HVAC, 30% were 18-23 years old; 23% were 24-29 years old; 23% were 30-39 years old; and the remaining 24% of students were 49 years of age and older. Over the last three academic years, enrollment data indicate that most courses had an average of 11 students.

Table 8 provides an inventory of the space currently being utilized by the HVAC Program.

Table 8 HVAC	Current Space				
Room/Room Description	**Lab Space**	**Classroom Space**	**Office Space**	**Storage Space**	**Outdoor Space**
ATB: 151			142		
ATB: 170			332		
ATB: 148 (HVAC Lab)	2,590				
ATB: 168C (Sheet Metal Lab)	846				
ATB: 174 (Storage)				373	
ATB: 148A (Storage)				129	
ATB: 148 X (Converted Space)				176	
ATB: 164A & 164B (Shared with ELET & AET)		675			
ATB: 127 (Classroom)		730			
ATB: 155 (Shared Computer Lab)					
Exterior Covered Space for Roof Top Units					-
Outdoor Storage				384	
Totals:	**3,436**	**1,405**	**474**	**1,062**	**-**
				Total Space	**6,377**

Currently, the HVAC Program occupies a total of 6,377 square feet. Of the total square footage, 3,436 square feet is available for laboratory activities. Like other program facilities, over the years, the space that the HVAC Program uses has been modified (Figure 22). As previously discussed, there was a replica of a wooden framed house in room 168A. While the house was a great way to give students experience in actual job site conditions, it was not the most efficient way to use the minimal space available. Recently, the house was taken down so that the new Automation Engineer Technology Program would have its own laboratory space.

Figure 22



One of the most concerning aspects in the HVAC laboratory is the walk way that runs the full length of the facility (Photo 5). This walk way provides a path for the Burlington Northern Santa Fe (BNSF) students to travel to and from the welding laboratories that are directly adjacent to the HVAC lab. When JCCC instructors are teaching in the HVAC laboratory and BNSF students are moving through the space, this creates a significant distraction in the learning environment.

Photo 5

Based on the current facility as well as workforce information and program enrollment data, Table 9 provides suggested space allocations for the HVAC Program.

Table 9 HVAC	Recommended Space				
Room/Room Description	**Lab Space**	**Classroom Space**	**Office Space**	**Storage Space**	**Outdoor Space**
HVAC Residential Lab/Inside Lab House	1,710				
HVAC Residential Lab Storage				428	
HVAC Basic Lab Space	1,710				
HVAC Basic Lab Space Storage				428	
Sheet Metal Lab	1,116				
Sheet Metal Lab Storage				290	
Plumbing Lab (Shared with Continuing Ed)	1,530				
Plumbing Lab Storage				275	
HVAC Classroom 1 & Storage		684		192	
HVAC Classroom 2 & Storage		684		192	
HVAC Outdoor Instruction Area (Roof Top Units)					1,500
HVAC Office (5)			595		
HVAC Outside Storage				400	
Totals:	**6,066**	**1,368**	**595**	**2,204**	**1,500***
**Outdoor space not included in total.*				**Total Space**	**10,233**

Based on available information, the recommendations are as follows:

- Allocate 10,233 square feet for the HVAC Program. The square footage recommendation assumes an average of 18 students per class. This amount of space would allow for additional growth in class size and much needed laboratory space. In order to accommodate learning needs associated with commercial HVAC learning experiences, an outdoor space has been identified that may be utilized for roof top units.
- Add two courses to the HVAC Program that focus on teaching basic plumbing skills. EMSI data, employers who participated in the forums, and HVAC advisory committee members support this recommendation. To accommodate the plumbing coursework, a 1,530 square foot laboratory space was included in the total square footage. The inclusion of this space would also allow the Continuing Education Branch to offer non-credit plumbing courses. Currently, the Continuing Education Branch offers some plumbing courses and utilizes space that is not technically designed for that purpose.
- Dedicate two classrooms for the HVAC Program.

- Dedicate 1,804 square feet of storage space for the laboratories and classrooms. Much of the instruction in the Electrical Technology Program involves the use of full-size visual aids that require an increased amount of storage.
- Dedicate 400 square feet of outdoor storage space for instructional supplies and materials.

Metal Fabrication/Welding Technology:

According to institutional data, in the 2014-2015 academic year, students enrolled in 1,512 credit hours in Metal Fabrication/Welding Technology. Fifty-nine percent of the students were ages 18-23; 22% were ages 24-29, 14% were ages 30-39; and the remaining 5% of students were ages 40-49 years old. Enrollment data over the last three academic years indicate that most courses have an average of 11 students per class.

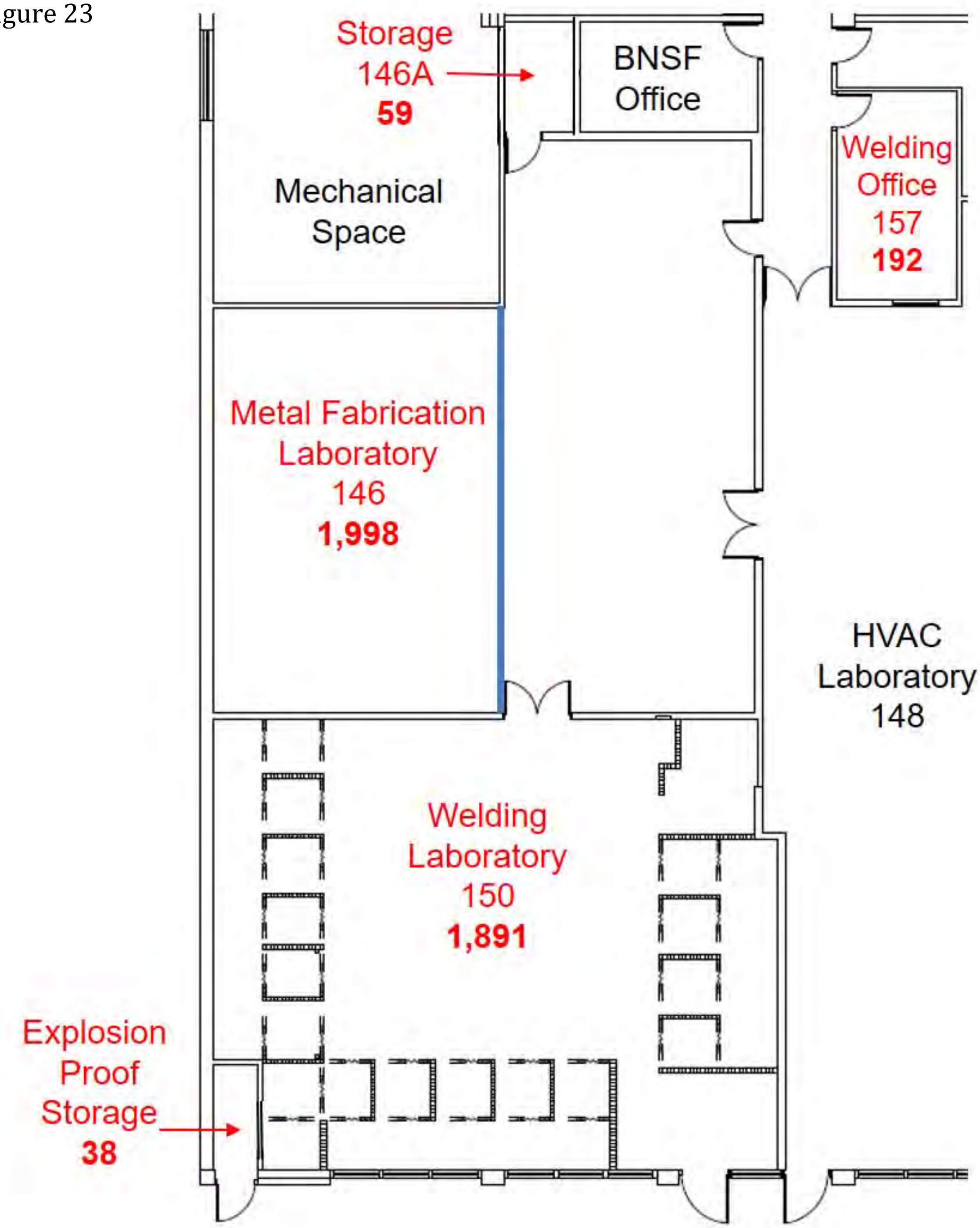
Table 10 provides an inventory of the space currently being utilized by the Welding Program.

Table 10 Metal Fabrication/Welding Technology	Current Space				
Room/Room Description	**Lab Space**	**Classroom Space**	**Office Space**	**Storage Space**	**Outdoor Space**
ATB: 157 (Office)			96		
ATB: 146 (Metal Fabrication Lab)	1,998				
ATB: 150 (Welding Lab)	1,891				
ATB: 146A (Storage)				59	
ATB: 150X (Acetylene Storage)				38	
Classroom (Shared)		630			
Outdoor Storage					384*
Totals:	**3,889**	**630**	**96**	**97**	**384**
**Outdoor space not included in total.*				**Total Space**	**4,712**

Currently, the Metal Fabrication/Welding Technology Program occupies a total of 4,712 square feet. Of the total square footage, 3,889 square feet is laboratory space. The laboratory space is divided into two separate labs. The metal fabrication laboratory consists of 1,998 square feet, and the welding laboratory consists of 1,891 square feet. The welding portion of the program uses approximately 1,053 square feet of the metal fabrication space (Figure 23).

The welding portion of the program utilizes part of the metal fabrication space to complete destructive and non-destructive testing, and it serves as a quasi-metallurgy laboratory. The program also uses some classroom space that is shared with the other industrial technology programs. Ideally, there should be dedicated classroom space allocated to the Metal Fabrication/Welding Technology Program.

Figure 23



Welding programs are somewhat unique, in that, the instructional process consumes large amounts of steel for demonstrating and practicing welding techniques. Receiving, processing, and storing this metal requires additional space and specialized equipment.

Due to the close proximity of the BNSF welding buildings that were constructed after the ATB facility, it is very difficult to get a vehicle, which carries metal, backed into the proper position to unload (see Photo 6). Once the vehicle is finally in position, there is virtually no room on either side to use a forklift to unload the metal. Because there is no overhead door connected to the welding laboratory, the metal has to be hand carried through a walk-through door. Currently, the only available overhead door is in the HVAC laboratory. Having deliveries made there creates logistical issues and learning environment interruptions.

Photo 6

Once the metal is unloaded into the facility, it must be cut to size and then stored until needed for classroom use. The facility is not adequate for cutting and storing the metal. Oftentimes, the learning environment is interrupted or inhibited in order to receive and process the metal.

Another important factor related to facility design, which is critical to ensuring a safe learning environment, is ventilation. The welding process joins materials together by melting the base metal with a filler metal to form the welded joint. During this welding process, visible smoke and fumes, which contain harmful metal and gas by-products, are produced. The composition and quantity of fumes and gases are dependent on the metal being joined, the type of welding process and consumables being used, the coating on the base metal, and the contaminants in the atmosphere.

Given the potential health hazards associated with the welding process, it is imperative that proper ventilation be installed to ensure acceptable air quality. Complying with air quality standards, as prescribed by the Occupational Safety and Health Administration (OSHA) is paramount to maintaining a safe learning environment.

Given that welding processes are conducted in an enclosed interior space, special consideration must be given to provide mechanical extraction of the fumes and gasses so that human exposures are below the Permissible Exposure Limits (PEL) specified by OSHA in 29 CFR 1910.1000. In addition, the American Welding Society (AWS) and the American National Standards Institute (ANSI) have established a nationally recognized set of industry standards specifically related to welding safety. Section 5 of ANSI Z49.1:2012 is the most recent version of the standard and provides specific guidance on appropriate ventilation for welding operations.

According to OSHA, ventilation (natural or mechanical) is adequate if it maintains or reduces personal exposures below the PELs referenced above. Specific ventilation requirements, including minimum flow rates, are specified in 29 CFR 1910.252(c).

Ventilation needed in specific applications is dependent on the following factors:

1) Volume and configuration of the space in which operations occur;
2) Number and type of operations generating contaminants;
3) Allowable levels of specific toxic or flammable contaminants being generated;
4) Natural air flow rate and general atmospheric conditions where work is being conducted; and
5) Location of the welders' and other persons' breathing zones in relation to the contaminants or sources.

Further consideration must be given when mechanical collection of welding fumes is carried out with regard to how and where these fumes are exhausted. Depending on the exact chemical make-up of the fumes, careful consideration must be given to where they are exhausted so as to not contaminate the air quality of the surrounding atmosphere. If the contaminants cannot be safely exhausted into the atmosphere, they must be collected through a filtering process.

To determine air quality needs and ensure that regulations are being met, the College should conduct an air quality study. Air monitoring studies can be performed by a certified industrial hygienist or other technically qualified consultant. In addition, every state has an OSHA funded safety consultation service that can offer guidance.

In the welding laboratory, fire safety is also important. When students work in the welding lab, they must remove any extra clothing and put on protective clothing to avoid a fire hazard. Currently, there is a small area for student lockers; however, the number and size of lockers is inadequate.

In addition to focusing on safety needs, there is an opportunity to consider curriculum changes. In the Metal Fabrication/Welding Program, there is an option for students to take 6-15 elective credit hours in machine tool technology and manufacturing fabrication. Current industry demand for welders does not require the manufacturing component, and it would be more beneficial for students to participate in additional advanced welding courses. Eliminating the machine tool courses would create additional space for the welding portion of the program.

Based on the current Metal Fabrication/Welding Technology facility as well as workforce information and program enrollment data, Table 11 provides suggested space allocations for a modified welding technology program.

Table 11 Welding	**Proposed Space: JCCC Welding Program Only**				
Room/Room Description	**Lab Space**	**Classroom Space**	**Office Space**	**Storage Space**	**Outdoor Space**
Welding Lab 1: MIG/TIG	1,404				
Welding Lab 1: MIG/TIG Storage				432	
Welding Lab 1: MIG/TIG Tool Room				234	
Welding Lab 1: MIG/TIG Student Lockers				198	
Welding Lab 2: SMAW/OA	1,404				
Welding Lab 2: SMAW/OA Storage				432	
Welding Lab 2: SMAW/OA Tool Room				234	
Welding Lab 2: SMAW/OA Student Lockers				198	
Metallurgy Lab	936				
Welding Grinding & Air Arc	450				
Robotic & Special Processes	990				
Welding Lab Material Prep.	576				
Welding Material Receiving	468				
Welding Classroom		702			
Welding Classroom Storage				240	
Welding Office (2)			405		
Welding Explosion Proof Gas Storage				80	
Welding Inert Gas Storage				120	
Exterior Metal Storage					1,500*
Totals:	**6,228**	**702**	**405**	**2,168**	**-**
**Outdoor space not included in total.*				**Total Space**	**9,503**

Based on available information, the recommendations are as follows:

- Allocate 9,503 square feet of space for the modified welding program. The square footage recommendation assumes 18 student stations. This amount of space would allow for enrollment growth.
- Allocate 4,734 square feet of laboratory space, which would be divided into four specific laboratory areas:
    - MIG/TIG Lab (1,404 sq. ft.)
    - SMAW/OA Lab (1,404 sq. ft.)
    - Metallurgy Lab (936 sq. ft.)
    - Robotic & Special Process Lab (990 sq. ft.)

    The metallurgy lab would have dedicated space so that instruction can occur without being inhibited or interrupted by activities in the two main welding laboratories. The robotic and special process laboratory would provide students with experiences in industry specific welding processes.

- Allocate 1,044 square feet for receiving and processing raw metal into coupons for classroom use.
- Allocate space for one grinding station for every four welding booths. This eliminates the amount of time students must wait to prepare their welds and contributes to a more efficient learning environment.
- Allocate one dedicated classroom space for the modified welding program.
- Allocate 2,168 square feet for additional indoor storage space to house inert shielding gases, consumable materials, instructional supplies, tool storage, and explosion proof storage for combustible gases.
- Allocate 1,500 square feet of outdoor storage space for materials and objects that are too large to be stored inside the main welding facility.
- Conduct air quality/monitoring studies of the welding program areas to determine the appropriate design of a mechanical air collection system to ensure compliance with current OSHA regulations and AWS/ANSI standards.
- Eliminate the metal fabrication portion of the curriculum and allocate space for specialized welding processes to be added to the current welding curriculum.

See Section 5 (p. 53) for recommendations that include merging the JCCC and BNSF general welding programs.

Administration/Shared Program Space:

Currently, the space designated for administrative functions is adequate; however, there is not enough space available for faculty to collaborate and prepare for instruction. In addition, there is limited access to computer technology. Having only one computer lab is not adequate to accommodate scheduling requests for all programs.

As noted throughout the report, the industrial technology programs are highly specialized and career opportunities are industry specific. Students often struggle with understanding the nuances, requirements, and benefits of completing their studies with a certificate or degree. Creating a space for a career advisor to work in the building where courses are being offered would enable students to have ready access to much needed program information, regional workforce opportunities, and career planning.

Table 12 provides a summary of the administrative and shared space that is currently used by the industrial technology programs and the classroom space used for some of the BNSF programs.

Table 12 Administration/Shared Space	Current Space				
Room/Room Description	**Classroom Space**	**Office Space**	**Storage Space**	**BNSF Space**	**Computer Space**
123: Admin. Office		254			
123 A: Admin. Office		133			
123 B: Dean's Office		207			
123 C: Faculty Work Space		334			
123 D: Admin. Office Storage			67		
125: BNSF Day/INDT Night				709	
127: Shared by all INDT	730				
128: BNSF Day/INDT Night				467	
129: Shared by all INDT	691				
131: Shared by all INDT	582				
142: BNSF Day/INDT Night				534	
144: BNSF Office (2)				151	
153: BNSF Office (2)				142	
155: Computer Lab; All INDT					369
162: BNSF Office (2)				138	
Totals	2,003	928	67	2,141	369
				Total Space	**5,508**
				Total BNSF Space	**2,141**
				Total JCCC Space	**3,367**

Table 13 provides a summary of the proposed space recommendations for administration and shared spaces for the industrial technology programs.

Table 13 Administration/Shared Space	**Proposed Space Recommendations**				
Room/Room Description	**Classroom Space**	**Office Space**	**Storage Space**	**BNSF Space**	**Computer Space**
Administration Offices (3)		456			
Administration Office Storage			195		
Adjunct Faculty Prep Room		620			
Adjunct Faculty Break Room		380			
Career Advisor Office		152			
Computer Lab 1					960
Computer Lab 1 Storage			80		
Computer Lab 2					960
Computer Lab 2 Storage			80		
Totals:	-	**1,608**	**355**		**1,920**
		Total Space			**3,883**

Based on available information, the recommendations are as follows:

- Allocate space for adjunct faculty members to collaborate with other faculty members and prepare for their courses. At any given time, approximately 26 adjunct faculty members are teaching in the industrial technology programs.
- Allocate space for two computer labs (one for instructional use and one for student use). The current facility has one computer lab consisting of 369 square feet. When the original facility was constructed in the early 1980's, computer technology was not an essential part of the industrial technology curriculum. Today, every program requires the use of a computer lab. Two computer labs will allow for greater scheduling flexibility and provide students with more access to the technology they need to complete assignments and collaborate with peers.
- Allocate space for a career advisor to assist students with information about certificates, degrees, and industrial technology employment opportunities.

Integrating Continuing Education:

Johnson County Community College is home to a large Continuing Education Branch that offers a diversified set of courses and programs which lead to numerous certifications and licenses. In order to expand and enhance the depth of training courses and program offerings that require hands-on learning, the Continuing Education Branch needs access to laboratory space. During evening hours, finding available space in ATB presents a challenge. Table 14 provides a list of space recommendations for the Continuing Education Branch to offer on-campus courses and programs.

Table 14 Continuing Education	Proposed Space				
Room/Room Description	**Flex Space**	**Classroom Space**	**Office Space**	**Storage Space**	**Outdoor Space**
Lab 1	2,856				
Lab 1 Storage				696	
Lab 2	2,380				
Lab 2 Storage				580	
Classroom 1		936			
Classroom 1 Storage				384	
Classroom 2		780			
Classroom 2 Storage				320	
Office Space (5)			670		
Totals:	**5,236**	**1,716**	**670**	**1,980**	
				Total Space	**9,602**

Based on available information, the recommendations are as follows:

- Allocate 5,236 square feet for two flex spaces that can be configured in such a way that a variety of educational offerings can be hosted in the facility.
- Allocate 1,980 square feet of storage space to allow multiple users to use the space simultaneously.
- Allocate two dedicated classroom spaces that can be used in conjunction with the flex spaces.
- Allocate office space so that continuing education staff can collaborate with faculty and meet with industry partners.

JCCC Industrial Technology (ATB) Facility Recommendation:

Currently, the Automotive Technology, Automation Engineer Technology, Electrical Technology, Heating, Ventilation & Air Conditioning, and Metal Fabrication/Welding Technology Programs are housed in 30,390 square feet. Technological advances, enrollment growth, curriculum enhancements, and industry needs require significant upgrades and an estimated 27,463 square feet of additional space.

The following facility recommendation is based on an analysis of curriculum, workforce trends, and enrollment data for the five industrial technology programs:

- Acquire 27,463 square feet of additional space to accommodate the five industrial technology programs. If additional space cannot be obtained in the current facility, JCCC should construct a new building with 57,853 square feet.

Table 15 provides a comprehensive summary of the space recommendations for the industrial technology programs:

Table 15 Program	Program Space Recommendation
Automotive*	18,639
Electrical Technology*	5,993
HVAC*	10,233
Welding*	9,503
Continuing Education*	9,602
Administration/Shared Space*	3,883
Total Sq. Ft.	**57,853**

* *Includes only assignable square footage. Gross square footage of building will increase due to the addition of ancillary and unassigned space requirements.*

Table 16 provides a summary of the space allocation by category of spaces for the industrial technology programs.

Table 16	Space Summary By Category					
Program	**Lab Space**	**Classroom Space**	**Office Space**	**Storage Space**	**Computer Space**	**Total Space**
Administration/Share Space	-	-	1,608	355	1,920	3,883
Automotive	11,904	2,088	1,095	2,616	936	18,639
Continuing Education	5,236	1,716	670	1,980	-	9,602
Electrical Technology	3,708	684	405	1,196	-	5,993
HVAC	6,066	1,368	595	2,204	-	10,233
Welding	6,228	702	405	2,168	-	9,503
Totals:	**33,142**	**6,558**	**4,778**	**10,518**	**2,856**	**57,852**
Percent of Total Space:	**57.3%**	**11.3%**	**8.3%**	**18.2%**	**4.9%**	**100%**

Section 5: Merging JCCC/BNSF Welding Programs

While researching facility needs in the Arts & Technology Building, some additional programming opportunities and facility needs that involve BNSF were discovered. Section 5 includes an overview of the BNSF Welding Program and recommendations for a program merger as well as suggested renovations and upgrades to the facilities that house the BNSF specialty welding programs.

BNSF General Welding Program:

BNSF offers two types of welding programs. One program is highly specialized and designed to teach advanced welding techniques, and the other is a general welding program designed to teach foundational welding skills. JCCC's Metal Fabrication/Welding Technology Program more closely aligns with the BNSF general welding program, which serves approximately 1,200 BNSF employees each year.

The general welding program is currently offered to BNSF employees on the JCCC campus, in a separate facility, with no connection to the JCCC welding program. During conversations, which were initiated as part of this project, BNSF and JCCC leadership agreed that both welding programs would benefit from being housed in an integrated facility. BNSF currently offers general welding programs at three other sites in the United States, and those programs are integrated with the host community college's welding program.

JCCC Industrial Technology (ATB) & BNSF Merged Facility Recommendations:

If the BNSF general welding program were to be integrated into the JCCC welding program, additional square footage would need to be added to the facility footprint. According to Rick Bell, BNSF, the inclusion of an additional 1,200 students would require adding 80 welding booths. JCCC would also need to account for space/accommodations for classroom space, office space, material storage, material preparation, grinding stations, and material receiving allowances.

The welding facility square footage would increase from approximately 9,503 square feet to 36,080 square feet, which is a total increase of 26,577 square feet (Table 17). This square footage does not include ancillary space needed for hallways, restrooms, and general mechanical space.

Table 17 Welding	Space Recommendations: JCCC & BNSF Combined Welding Program				
Room/Room Description	**Lab Space**	**Classroom Space**	**Office Space**	**Storage Space**	**Outdoor Space**
Welding Lab 1: MIG/TIG	8,330				
Welding Lab 1: MIG/TIG Storage				1,166	
Welding Lab 1: MIG/TIG Tool Room				583	
Welding Lab 1: MIG/TIG Student Lockers				490	
Welding Lab 2: SMAW/OA	8,330				
Welding Lab 2: SMAW/OA Storage				1,166	
Welding Lab 2: SMAW/OA Tool Room				583	
Welding Lab 2: SMAW/OA Student Lockers				490	
Welding Grinding & Air Arc	1,499				
Robotic & Special Processes	1,008				
Welding Lab Material Prep.	1,550				
Welding Material Receiving	1,078				
Welding Classroom (6)		4,116			
Welding Classroom Storage (6)				1,358	
Welding Office (18)			2,088		
Welding Explosion Proof Gas Storage				450	
Welding Inert Gas Storage				520	
Exterior Metal Storage					3,500*
Metallurgy Lab	1,274				
Totals:	**23,069**	**4,116**	**2,088**	**6,807**	**0**
* Outdoor storage not included in total.				**Total Space**	**36,080**

Table 18 provides a summary of space needs if the JCCC and BNSF welding programs are merged together.

Table 18 Program	Program Space Recommendation
Automotive*	18,639
Electrical Technology*	5,993
HVAC*	10,233
Welding*	9,503
Continuing Education*	9,602
Administration/Shared Space*	3,883
Total Sq. Ft.	**57,853**

Option: JCCC & BNSF Combined Welding*	
Industrial Tech Renovation/Build Without Welding Sq. Ft.	48,350

Renovate ATB for JCCC & BNSF Combined Welding Program	
Sq. Ft. Required for JCCC & BNSF Combined Welding Program	36,080

* *Includes only assignable square footage. Gross square footage of building will increase due to the addition of ancillary and unassigned space requirements.*

JCCC and BNSF leadership are highly supportive of a merger. To ensure that both programs are able to achieve their desired outcomes and objectives, representatives from JCCC and BNSF should conduct a joint program review and work together to create an action plan and timeline.

Based on available information, the recommendations are as follows:

- Construct a new facility with 48,349 square feet to house (1) Automotive Technology; (2) Electrical Technology; 3) HVAC; and (4) Continuing Education courses.
- Merge the JCCC and BNSF general welding programs and locate them in the 30,390 square feet of vacated ATB space. The programs need 36,080 square feet, which will require acquisition of an additional 5,690 square feet in ATB.
- Conduct a joint JCCC/BNSF program review process to determine specific programmatic and facility needs for renovating ATB.
- Conduct air quality/monitoring studies of the welding program areas to determine the appropriate design of a mechanical air collection system to ensure compliance with current OSHA regulations and AWS/ANSI standards.

BNSF Specialty Welding Programs:

The BNSF welding program also has three specialty welding labs at the JCCC site: (1) Thermite lab; (2) Frog lab; and (3) Rail lab (see Figure 24). These welding labs are in need of upgrades and renovations, and the most urgent of these upgrades is the need to install an adequate mechanical ventilation system. As discussed earlier in this report (pp. 45-46), adequate ventilation is required by OSHA and critical to student safety. Other upgrades include additional lighting, insulation of exterior walls, finish of interior walls, installation of a compressed air system, and installation of heating and air conditioning.

Based on available information, the recommendations are as follows:

Frog lab (Welding Lab Building 150):

The frog lab has approximately 9,356 gross square feet and is used to teach the techniques necessary to weld switches. A frog is a switch component that is made of rail and has a manganese insert. The purpose of the switch is to transfer trains from one track to another. The switches are very heavy and must be moved with a forklift or hoist.

Recommended Facility Upgrades:

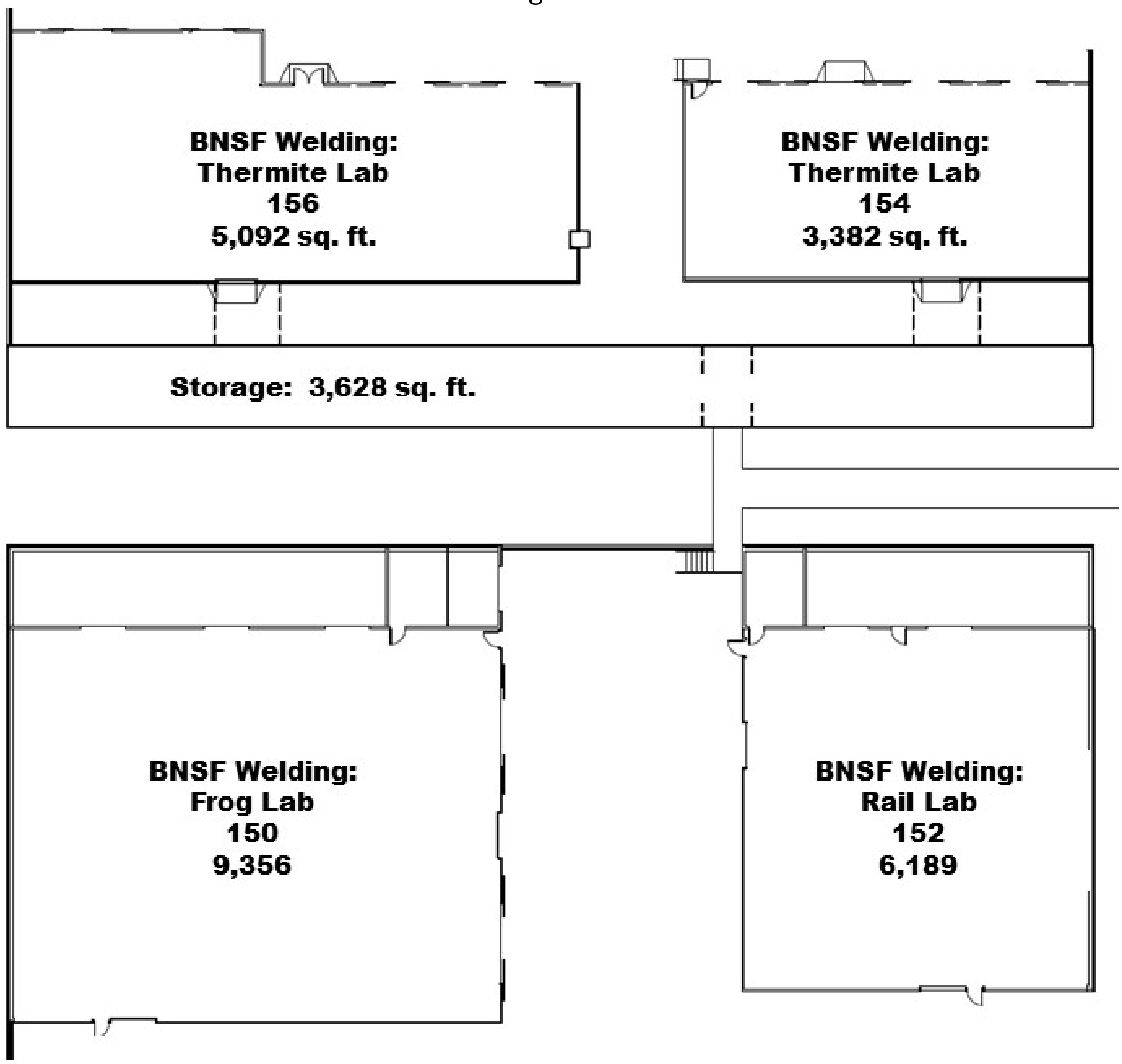
- Conduct air quality/monitoring studies of the welding program areas to determine the appropriate design of a mechanical air collection system to ensure compliance with current OSHA regulations and AWS/ANSI standards.
- Install mechanical ventilation system based on the results of the air quality/monitoring studies.
- Install additional lighting, insulate exterior walls, and finish interior walls.
- Install compressed air system.
- Install heat and air conditioning.

Rail Lab (WLB 152):

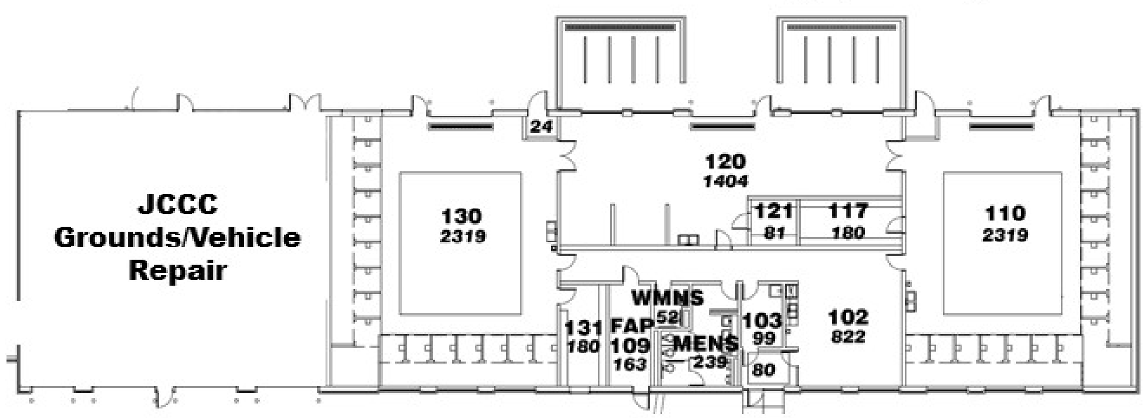
The rail lab has approximately 6,189 gross square feet and is designed to teach welding techniques for rebuilding worn switch components. These switch components are located on the rail end of the track that is joined together with metal bars. The switch point, which is made of a piece of rail that is specifically milled for this purpose, moves trains from one track to another.

To simulate work site conditions, the lab must be able to accommodate 40 foot sections of rail, which have to be taken in and out of the lab on a regular basis.

Figure 24



WLB Building (BNSF)



Recommended Facility Upgrades:

- Conduct air quality/monitoring studies of the welding program areas to determine the appropriate design of a mechanical air collection system to ensure compliance with current OSHA regulations and AWS/ANSI standards.
- Install mechanical ventilation system based on the results of the air quality/monitoring studies.
- Install additional lighting, insulate exterior walls, and finish interior walls.
- Install compressed air system.
- Install heat and air conditioning.
- Redesign layout of welding booths along walls so that two classes can be conducted in the lab simultaneously.
- Build grinding and air arc booths.

Thermite Labs (WLB 154 & 156):

Thermite lab 154 has approximately 3,382 gross square feet, and thermite lab 156 has approximately 5,092 gross square feet. In addition, there is a building behind these two labs that offers 3,628 gross square footage of storage space.

The two labs are designed to teach students to weld rail together. Thermite welding is a casting process that uses molten metal to permanently join two pieces of rail. The process involves the use of an exothermic reaction of a thermite composition to heat the metal and requires no external source of heat or electrical current.

To simulate work site conditions, the lab must be able to accommodate 40 foot sections of rail, which have to be taken in and out of the lab on a regular basis. As noted on p. 45, this lab and the JCCC welding lab in ATB, are in close proximity and do not allow for efficient transportation of metal and rail components into the facility.

Recommended Facility Upgrades:

- Conduct air quality/monitoring studies of the welding program areas to determine the appropriate design of a mechanical air collection system to ensure compliance with current OSHA regulations and AWS/ANSI standards.
- Install mechanical ventilation system based on the results of the air quality/monitoring studies.
- Install additional lighting, insulate exterior walls, and finish interior walls.
- Install compressed air system.
- Install heat and air conditioning.
- Install heat in east thermite storage area so materials can be stored.
- Increase outdoor storage space by 3,000 square feet.

WLB Building (110, 130, 120, 102, 121, 117, 131, 103):

The Welding Lab Building has two labs that are used to teach general welding courses for BNSF. The welding program in this building has approximately 7,858 square feet of assignable space. The remainder of the building is used by JCCC Grounds and Maintenance.

As noted on pp. 53-55, a recommendation was made to combine the welding labs in WLB with the JCCC welding program and move them into renovated space in ATB. This would create excess space in WLB that could be reconfigured to replace the thermite labs which are currently located in BNSF 154/156. It would also create additional storage space.

The thermite labs in BNSF 154/156 and the adjacent storage facility encompass 12,102 gross square feet. Including the space utilized by JCCC Grounds and Maintenance, WLB has 12,270 gross square feet. In order to house the thermite labs in the WLB, it would be necessary to acquire the JCCC Grounds and Maintenance portion of the building. If the original thermite labs were dismantled and moved from the current location, this would alleviate access concerns related to material delivery/unloading.

Recommended Facility Upgrades:

- Conduct air quality/monitoring studies of the welding program to determine the appropriate design of a mechanical air collection system to ensure compliance with current OSHA regulations and AWS/ANSI standards.
- Install mechanical ventilation system based on the results of the air quality/monitoring studies.
- Install additional lighting, insulate exterior walls, and finish interior walls.
- Install compressed air system.
- Install heat and air conditioning.
- Enclose grinding/air arc booths with access from WLB without going outside.

Section 6: Potential New Technical Programs

EMSI Gap Analysis Information:

In January 2016, Johnson County Community College engaged EMSI to conduct a regional program gap analysis. The goal of the gap analysis was to gain better insight into economic conditions and workforce trends in Johnson County and the Kansas City MSA.

Gap analysis is a technique used to assess the supply and demand of skilled workers and identify the educational programs that are needed to fill existing or projected employment gaps. To determine whether an oversupply or an undersupply of skilled workers exists, the analysis weighs the educational output of JCCC and other regional institutions against the number of job openings related to the institutions' program offerings. The gap analysis provides relevant data and information that can be used when reviewing and making decisions about current and future program development.

The regional backdrop used in this report is defined as the JCCC Economic Region and consists of Platte (MO), Clinton (MO), Clay (MO), Caldwell (MO), Ray (MO), Jackson (MO), Lafayette (MO), Cass (MO), Bates (MO), Leavenworth (KS), Wyandotte (KS), Johnson (KS), Miami (KS), Douglas (KS), and Linn (KS) counties. Disaggregated data for Johnson County were also included in the analysis.

In addition to providing information about the way JCCC's technical programs are serving the regional labor market, the gap analysis also included information about opportunities to create new program offerings. Table 19 contains a list of 36 programmatic areas where gaps exist in the labor market.

Table 19 highlights specific occupations; however, in many instances, a program could be designed to prepare individuals for multiple occupations. When grouped with other similar occupations, the actual workforce gap may be larger. Table 19 also includes educational requirements and median hourly earnings.

Table 19: Programmatic Areas of Opportunity for JCCC Economic Region

SOC	SOC Title	Average Annual Openings	Average Annual Completers	Gap	Median Hourly Earnings	Education Level
53-3032	Heavy and Tractor-Trailer Truck Drivers	380	0	380	$19.52	Certificate
49-9071	Maintenance and Repair Workers, General	247	5	242	$17.01	Certificate
47-2031	Carpenters	231	6	225	$18.34	Certificate
53-3033	Light Truck or Delivery Services Drivers	182	0	182	$15.05	Certificate
33-9032	Security Guards	178	2	176	$12.33	Certificate
47-2152	Plumbers, Pipefitters, and Steamfitters	125	0	125	$27.99	Certificate
53-3022	Bus Drivers, School or Special Client	107	0	107	$13.99	Certificate
47-2073	Operating Engineers and Other Construction Equipment Operators	99	0	99	$23.29	Certificate

51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	92	0	92	$21.22	Certificate
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	86	0	86	$27.72	Certificate
51-9111	Packaging and Filling Machine Operators and Tenders	78	0	78	$13.23	Certificate
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	57	1	55	$19.97	Certificate
33-3012	Correctional Officers and Jailers	53	3	50	$15.83	Certificate
33-9099	Protective Service Workers, All Other	48	1	47	$11.14	Certificate
49-9051	Electrical Power-Line Installers and Repairers	47	0	47	$35.57	Certificate
51-2099	Assemblers and Fabricators, All Other	44	0	44	$13.32	Certificate
49-3042	Mobile Heavy Equipment Mechanics, Except Engines	44	0	44	$22.41	Certificate
47-2021	Brick Masons and Block Masons	44	0	44	$27.60	Certificate
51-4041	Machinists	54	14	40	$18.31	Certificate
51-2041	Structural Metal Fabricators and Fitters	42	3	39	$24.93	Certificate
51-2022	Electrical and Electronic Equipment Assemblers	35	0	35	$13.66	Certificate
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	38	5	34	$17.40	Certificate
49-9052	Telecommunications Line Installers and Repairers	31	0	31	$25.35	Certificate
49-3093	Tire Repairers and Changers	31	0	31	$11.10	Certificate
51-9023	Mixing and Blending Machine Setters, Operators, and Tenders	31	0	31	$18.51	Certificate
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	31	0	31	$19.65	Certificate
31-9097	Phlebotomists	32	2	31	$13.86	Certificate
25-4031	Library Technicians	23	0	23	$13.82	Certificate
49-9062	Medical Equipment Repairers	26	0	26	$22.36	Associates
43-4161	Human Resources Assistants, Except Payroll and Timekeeping	22	0	22	$19.24	Associates
29-2031	Cardiovascular Technologists and Technicians	16	0	16	$24.41	Associates
29-2032	Diagnostic Medical Sonographers	16	0	16	$34.97	Associates
29-2034	Radiologic Technologists	42	29	13	$25.23	Associates
17-3027	Mechanical Engineering Technicians	13	0	12	$22.55	Associates
19-4031	Chemical Technicians	12	0	12	$18.67	Associates
29-2057	Ophthalmic Medical Technicians	11	0	11	$19.15	Associates

Source: EMSI Gap Analysis Model

Of the 36 potential growth areas, Table 20 provides a brief analysis of occupational areas that are somewhat related to the current industrial technology offerings. Only two occupational areas appear to have potential for development:

- Electrical Power-Line Installers and Repairers; and
- Mobile Heavy Equipment Mechanics, Except Engines.

Before pursuing either area, JCCC should convene a group of industry related representatives to solicit input.

Table 20: Programmatic Area of Opportunity for JCCC's Economic Region (Analysis)

SOC	SOC Title	Analysis
53-3032	Heavy and Tractor-Trailer Truck Drivers	JCCC Continuing Education offers opportunities for attainment of a CDL. Often, private trucking companies offer this training and those numbers would not be reported in this data.
49-9071	Maintenance and Repair Workers, General	The current automation engineering technician program graduates would meet some of the demand for employment in this occupational area.
47-2031	Carpenters	Generally, these employment positions are supplied by a union. In Kansas City, The St. Louis – Kansas City Carpenters Regional Council.
53-3033	Light Truck or Delivery Services Drivers	The low hourly wage for this occupational area would not meet the threshold for initiating a program.
47-2152	Plumbers, Pipefitters, and Steamfitters	Opportunity to address this need has been built into the HVAC program through the addition of a plumbing laboratory. There is also a union for this occupational area in Kansas City. Plumbers Union—Local #8 & Pipefitters Union—Local 533.
47-2073	Operating Engineers and Other Construction Equipment Operators	Generally, these employment positions are supplied by a union. In Kansas City, Local 101 (Kansas City—International Union of Operating Engineers)
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	The current automation engineer technician program graduates would meet some of the demand for employment in this occupational area.
51-9111	Packaging and Filling Machine Operators and Tenders	Most employers fill these jobs with workers with a high school diploma.
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	Some of these openings could be filled by graduates from the automotive technology program.
49-9051	Electrical Power-Line Installers and Repairers	Has good potential as a new program; High median wage of over $35 per hour; Approximately 47 openings per year; Currently no providers in the Kansas City MSA.
51-2099	Assemblers and Fabricators, All Other	Most employers fill these jobs with workers with a high school diploma.
49-3042	Mobile Heavy Equipment Mechanics, Except Engines	Has good potential as a new program; however, projected to have only about 44 job openings per year.
51-4041	Machinists	JCCC Metal Fabrication program would meet some of the demand for this occupational area.
51-2041	Structural Metal Fabricators and Fitters	JCCC Welding program would meet the demand for this occupational area.
51-2022	Electrical and Electronic Equipment Assemblers	JCCC Electronics program would meet the demand for this occupational area.
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	JCCC Metal Fabrication program would meet the demand for this occupational area.

Overall, JCCC has a comprehensive set of programs related to the industrial technology occupational areas. If JCCC chooses to pursue any of the remaining 34 occupational areas discussed here, coursework could be developed within an existing industrial technology program area.

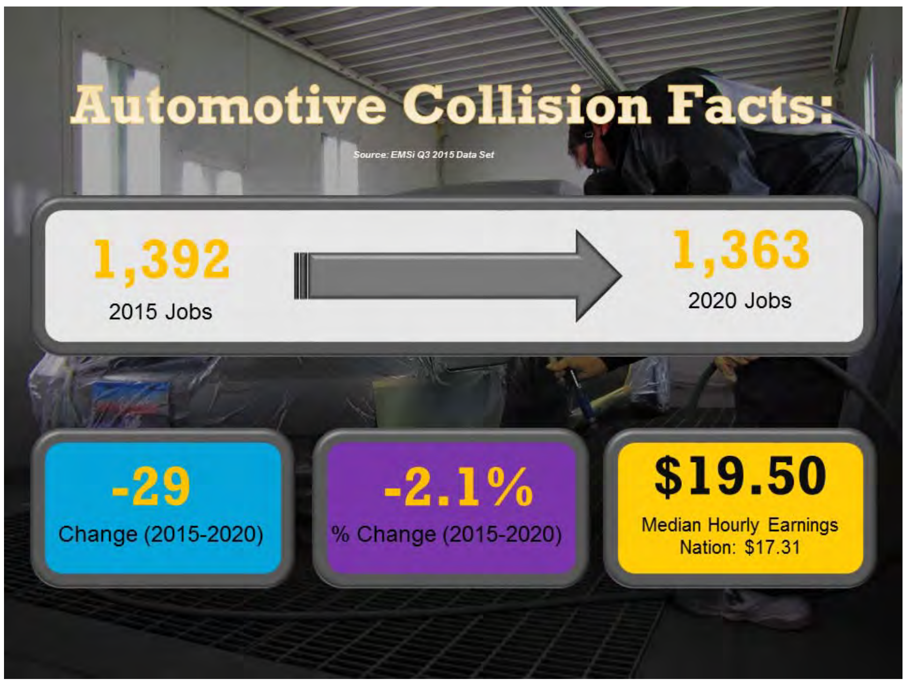
During data gathering and employer interviews, two additional programs for consideration were mentioned: auto collision technology and advanced manufacturing technology.

Auto Collision Technology:

JCCC received input from secondary partners and local employers about the need to offer an auto collision technology program; however, EMSI data suggest otherwise. Over the next five years, job opportunities are projected to decrease.

In the Kansas City MSA, data indicate that total jobs in automotive collision will decrease by about 29 jobs from a total of 1,392 in 2015 to 1,363 positions in 2020. Compensation for automotive collision in the regional area is $19.50 per hour, which is higher than the national median wage (Figure 25).

Figure 25



Currently, in the Kansas City MSA, Kansas City Kansas Community College is the only institution that provides certificate and associate degree options in automotive collision. In 2014, there were 52 openings in automotive collision in the Kansas City MSA, and there were 24 completions through Kansas City Kansas Community College, which left a supply gap of 28 job openings (Figure 26).

There are two automotive collision programs operating in local secondary schools and another will begin within the next two years. Combined, these three programs will have

Figure 26

approximately 90 students per year, who have taken at least three courses related to the automotive collision career area. Employers, who attended the auto collision forum, indicated there was a fairly significant shortage of qualified workers with relevant educational credentials. However, it was unclear whether the difficulty in hiring was due to the lack of qualified applicants or the wages being offered.

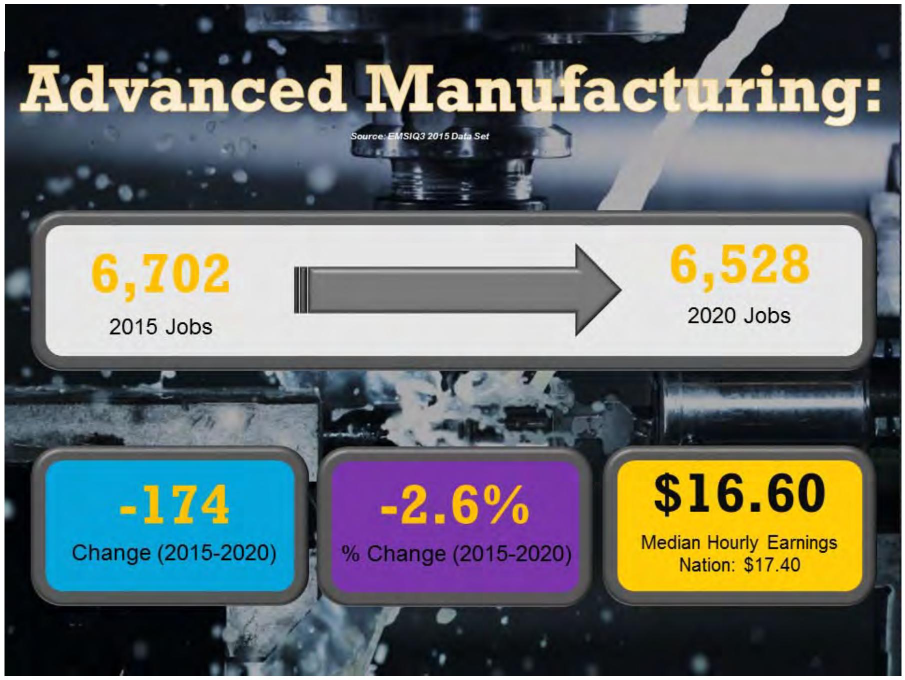
Ultimately, the decision to start a new program should be well-supported by job demand. EMSI data indicate that supply and demand are nearly balanced; however, opinions differ from industry representatives and those adding secondary auto collision programs. Given current workforce data, costly equipment investment, and potential concerns about meeting state and federal environmental protection regulations, at this time, JCCC should not pursue developing an auto collision technology program.

Advanced Manufacturing & Robotic Technologies:

Advanced manufacturing is comprised of a variety of specialized skill sets. Despite improvements in technologies such as computer numerically controlled (CNC) machine tools, autoloaders, high-speed machining, robotics and lights-out manufacturing, workers are needed to set-up, monitor, and maintain these automated systems.

In addition, employers will continue to need workers who have a wide range of skills and are capable of using a variety of modern production techniques and equipment. As manufacturers invest in new equipment, modify production techniques, and implement product design changes more rapidly, they will continue to rely heavily on experienced workers with a diverse set of knowledge, skills, and abilities. In the Kansas City MSA, from 2015 to 2020, the number of advanced manufacturing jobs is projected to decline by 174 jobs from 6,702 to 6,528 positions (See Figure 27). In the region, the median hourly

Figure 27



earnings are $16.60 an hour. In 2014, there were 336 openings in advanced manufacturing in the Kansas City MSA.

Currently, Metropolitan Community College and Kansas City Kansas Community College offer certificate and associate degree programs in advanced manufacturing. In 2014, there were 69 completions from these two programs, which left a supply gap of 267 positions (See Figure 28).

Figure 28

In December 2015, local employers were invited to attend a forum for advanced manufacturing. None of the local employers chose to attend this forum. It is not clear whether the poor turnout was due to scheduling factors or a lack of interest in advanced manufacturing.

Site visits were made to two local industries (Webco & Global Ground Support). These companies employ workers with advanced manufacturing skills. When looking to fill positions, both are able to draw from a qualified pool of workers.

JCCC should continue to explore and more clearly define the specific industry needs in this occupational area. Research should begin with the identification of 20-25 major employers of advanced manufacturing technicians. Once identified, these employers should be convened so that college representatives can solicit input to help identify workplace needs.

Based on available workforce data and limited input from industry representatives, at this time, JCCC should not initiate an advanced manufacturing program.

Marketing CTE/Industrial Technology Programs:

During interaction with employers, both in forums and site visits, a common theme emerged. Generally, employers were unaware of the College's career and technical education programs. They were knowledgeable about JCCC's focus on transfer programs, but employers were surprised about the variety of certificate and degree options that exist for students interested in career programs.

Much like JCCC has admissions recruiters who work in the Kansas City MSA, JCCC may benefit from having a dedicated CTE program recruiter/marketing liaison with significant industry/economic and marketing background that would work with CTE programs to do the following:

- Collaborate with the JCCC executive director of marketing/communications and a CTE marketing advisory committee to create targeted marketing campaigns;
- Assist in marketing CTE programs to businesses;
- Assist in marketing CTE programs to students; and
- Recruit businesses to offer internship opportunities for JCCC students and faculty.

Each career and technical education program may benefit from having industry specific marketing strategies. Working collaboratively with the JCCC executive director, marketing/communications and utilizing program advisory committee members will enable CTE department chairs to design targeted strategies to reach potential students and employers.

Conclusion

With an identified skills gap and employer interest in growing the technical workforce, Johnson County Community College has an opportunity to become a regional leader in workforce development. Investing in state-of-the art facilities, curriculum, and equipment will enable JCCC to become a premier workforce training provider. Students will benefit from having a world class learning environment that prepares them for in-demand technical careers, and employers will benefit from having access to a highly trained talent pool.

Academic Spaces Committee Report

May 12, 2016

The academic spaces committee was tasked with gathering information from across the disciplines at JCCC for the purposes of contributing to the design of the next generation of classrooms. The committee was formed in the Fall of 2015. Larry Reynolds and David Davis acted as co-chairs of the committee. The committee consisted of Robyn Albano, Andrea Broomfield, Darla Green, Rob Grondahl, Rex Hays, Barry Herron, Vincent Miller, Mary O'Sullivan, Daniel Stout and John McNally with input from faculty association president Ron Palcic.

Design Philosophy

Flexibility is the overriding philosophy that guided the recommendations of this committee. While some institutions impose a top down pedagogy for how all classes must be taught regardless of discipline or individual instructional needs, thankfully that is not the case at Johnson County Community College. The committee recognizes the widespread diversity of teaching styles across campus, not only between different disciplines, but even from one moment to the next within the same class. No two professors teach alike and no two students learn alike. Research has consistently shown that a variety of learning experiences within a given class gives the greatest opportunity to reach every student. Understanding this, the committee has focused on designing a room that can be quickly reconfigured to meet the needs of different instructors or even different learning outcomes within an individual class period.

Classroom Types

The committee determined there are fundamentally two types of classrooms: "Traditional" classrooms and "Lab" style classrooms. Given the very specific needs of different disciplines in the lab space, the committee focused on the "traditional" classroom where lecture, discussion, composition and small group collaboration take place. The committee focused on "Traditional" classrooms as these classrooms could be easily replicated for each department and/or program on campus.

Information Gathering

In addition to committee members soliciting input from their individual departments, information was gathered from a variety of other sources. A meeting was held where faculty who teach in our existing learning studios discussed what works and what doesn't in those spaces. Information was also gathered from three outside institutions: Blue Valley's CAPS building, Humber College in Toronto and the Olathe school district's new high school. Blue Valley's Center for Advanced Professional Studies brings students from around the area to work in a technologically advanced learning environment. Olathe's new high school is under construction and is applying innovative design and technology. Humber College in Toronto has undergone a four year designing and implementation program for new classroom spaces. A delegation from the committee visited Humber in March.

Design Summary

The classroom would have both monitors and whiteboards on three walls to allow a variety of presentation and collaboration activities. The monitors would be configured to allow a single presentation to be shown on all monitors, or individual presentations on each monitor. The room should be set up to allow wireless access to the monitors from student devices (notebook computers, tablets, cell phones, etc.). The furniture would be easily movable to allow for fluidity in classroom configuration. Power outlets would be spread throughout the room, both floor and wall outlets, to accommodate the needs of portable electronic devices. To facilitate student viewing of presentations, lighting should be controllable including any sources of natural light (room darkening blinds).

Classroom background finishes:

Floors: One of the lessons the committee learned from our visit to Humber College in Toronto is that movable furniture, students and hard flooring are a bad mix. The ease of movement on a hard surface can be distracting for students. Therefore, the committee recommends carpet tile in all classrooms.

Walls: Another lesson learned from both Humber and JCCC's own experiments with learning studios is that wall color is an important factor in the learning environment. If the color is too neutral, students find the room off-putting, and if the colors are too bold, students and faculty find them distracting. The committee recommends a toned down color palette that it is not distracting but invigorating. Possibly a neutralized tone on 2-3 walls and an accent color of the proper tone on the wall behind the instructor. Vivid color palettes should be used throughout public spaces of the facility.

Ceilings: Acoustical tile is acceptable. It will help with sound absorption and is easy to install and maintain.

Lighting:

Natural lighting: Natural lighting is hard to control. When considering natural light, it must be diffused so as not to create glare issues. Light shelves on the interior and exterior of the window as well as luminous shades would help diffuse light.

Artificial lighting: Indirect lighting is preferred. LED up lighting is preferred. It would give an even plane of light at the desktop level without creating glare issues. Equally important would be the mechanisms to control these lights. Separate switching within a classroom is needed so that PowerPoint imagery can be projected and seen.

Lighting of interior classrooms: if at all possible, windows placed high on the wall to allow some sense of natural light into the interior of the building.

Instructor Space:

An instructor station with a networked computer (consider moveable – tablet or laptop maybe to take us into the next 30 years) connected to the classroom network. There also needs to be space for books and notes as well as space for storage of re-used items: markers, display items, etc.

The room must also provide space to move about the classroom and facilitate group activities as well as move about during lecture.

Student Space:

Students need space for their own devices (laptop, tablet, phone) as well as for backpacks, books and paper. A flexible classroom must also provide space for the furniture to be easily moved about the room. Various studies over the last twenty years have recommended between 42 and 54 square feet per student. The committee recommends targeting 50 square feet per student to optimize the learning environment.

Flexibility of furnishings

Instructor:

Height adjustable, mobile platform for computer as well as books and notes (preferred that it is not powered as this then requires the platform to be static)

Student:

Flexible seating: Comfortable height adjustable chairs on casters.

Flexible desks: height adjustable work surface, movable (not tethered by power cords) allowing many different configurations within the same space.

Desk size was widely debated: The two preferred desk sizes were a one person and a two person style.

No lounge seating: it has been noted that students who choose this type of seating statistically do not perform well in class. Seating should be comfortable yet help the student stay engaged in the classroom activities.

NO tablet arm chairs – not enough work space for any discipline.

Flexibility of technology

Equipment:

While the committee understands that providing students with wireless access to a classroom network is problematic given the variety of devices students bring to class, it has quickly become apparent that the technological paradigm has changed from installed classroom computing to portable, student owned computers (BYOD: Bring Your Own Device). Accordingly, we would request wireless projection from mobile faculty and student devices be supported in the future. Students are living in a world were they can wirelessly sync their tablet, computer and phone to each other as well as their car stereo and their televisions. They expect the same technology in the classroom.

The classroom network needs to be easy to connect to, use and understand without extensive training. All technology in the classroom needs to be reliable and easy to operate. If it is too complex or requires ongoing support this interrupts learning time. It needs to be wireless to cut down on cords and allow flexible classroom configuration.

The prevalence of student devices requires ubiquitous outlets for student equipment: possibly a raised floor situation so that in any configuration power can be accessed.

Pilot classroom

The committee resolved that a pilot classroom should be implemented to test these ideas as soon as possible. This was perhaps the biggest lesson brought back from Humber. That college had gone through several iterations of their new classroom design. Each was changed based on feedback form instructors and students. No matter how well planned a classroom may be, to actually know what works and what doesn't requires regular teaching in the newly designed room. The most recurring complaint about current learning studios is they are too small to easily rearrange the furniture. Accordingly, the committee suggests the pilot classroom provide 40 square feet per student. Feedback from faculty and students will determine if that is sufficient. Ideally, a single classroom would be constructed over the summer of 2016 and classes from a variety of disciplines scheduled for Fall 2016. This would provide feedback before a larger launch of the new design in 2017.

The committee concluded that training on how to use these types of classrooms would be critical. A protocol for use would need to be established and training of faculty and staff would allow the room to be used as is intended. A "manual" for classroom use should be created for future reference.

Need for coordination with various disciplines

It is essential that before the classrooms are widely constructed, each department on campus be involved in their construction. While the general layout of the classroom is effective for a variety of disciplines, there are very real differences between divisional needs. Class size varies by subject matter. It would be inefficient to create classes that are too big for half the classes or too small for the other half. Likewise, classroom location is essential. Currently, many programs have established sequences that place students in back to back classrooms across campus from each other. A student's inability to get from one class to the other in the allowed passing time detracts from the amount of time learning can take place in the classroom.

Continued budgeted support

The committee wants to stress the need for the budget to include not just the initial construction costs but also the cost of sustained support. Additional technologies require additional support. This includes training for faculty on any new hardware or software introduce into the teaching space. For new designs to be effective, both faculty and students need to be educated in their use. This training requires budgeted resources: time, space and monetary cost.