SUNY Canton
Facilities Master Plan
SUCF Project No. 23822

September 2011

ASSESSMENT OF CONDITIONS

2

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Credits

State University of New York

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Introduction

The State University Construction Fund (Fund or SUCF) engaged Architectural Resources, along with a team of consultants, to conduct a Facilities Master Plan (FMP) for the College's 380-acre campus. The team commenced the project in late August 2010 and has collected and analyzed a wide array of information to gain a full understanding of the College's academics, facilities, community and culture.

The full FMP document will consist of the following five phases:

- Campus Profile
- Assessment of Conditions
- Analysis of Space Needs
- Facilities Master Plan Concept Alternatives
- Facilities Master Plan Final Recommendation

The intent of the document is to provide guidelines for future campus improvements and developments that support SUNY Canton's academic mission and strategic plan. It will also identify, prioritize, and structure future project requests for capital funding. This report, Phase 2 of the FMP, presents the Assessment of Conditions.

A. LAND USE

Regional Location

SUNY Canton is located in the northern-most part of New York State, within close proximity of the Thousand Islands, Adirondacks, Fort Drum Army base, Vermont and Canada. In addition, Clarkson University, St. Lawrence University and SUNY Potsdam are within a fifteen mile radius from SUNY Canton. The proximity of the Grasse River and the St. Lawrence River afford the SUNY Canton community both academic and recreational amenities. The quality of life provided by the diverse regional context and high concentration of public/private colleges differentiate SUNY Canton from other institutions.

Regional Context

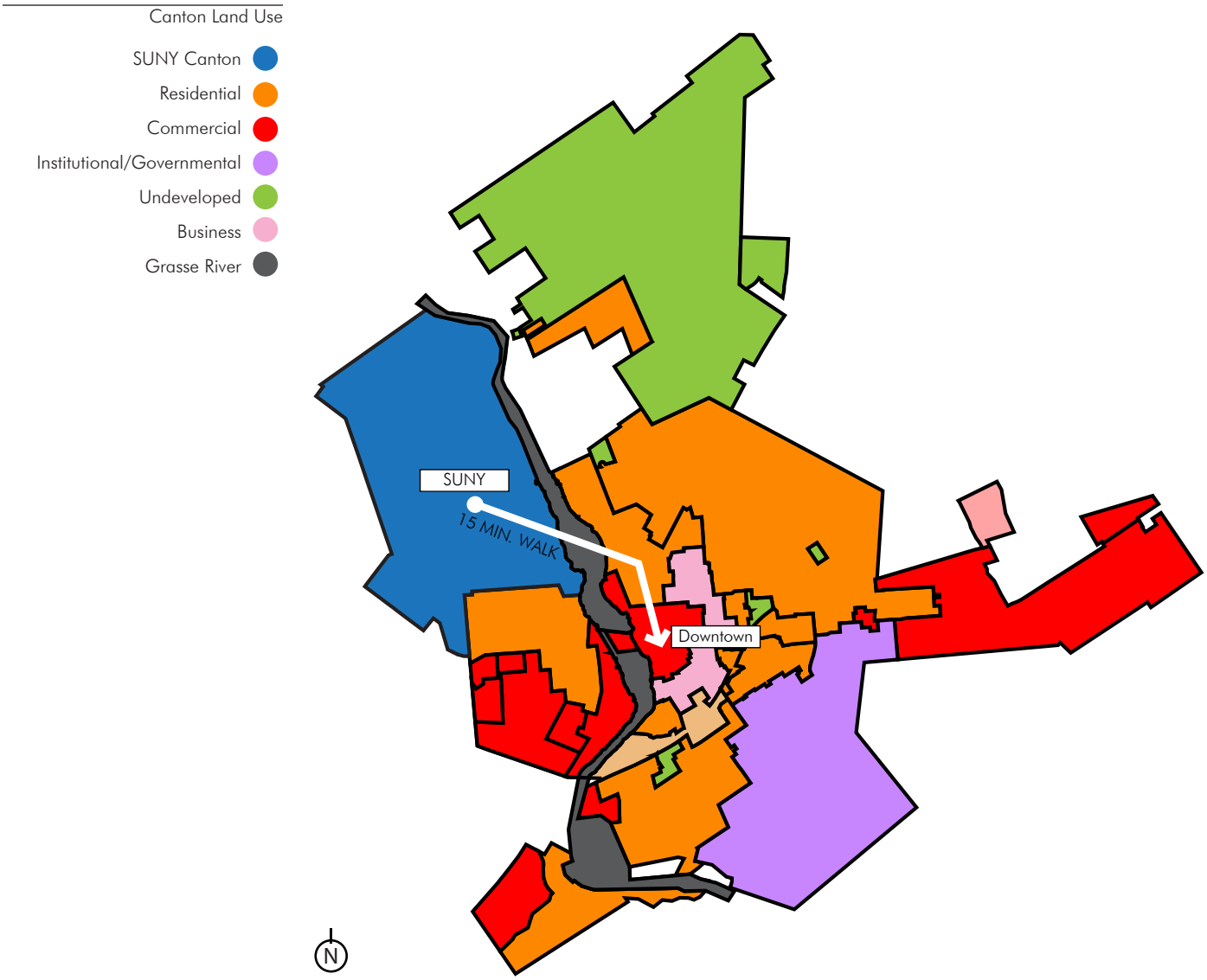
Neighboring/Community Land Uses

The SUNY Canton campus is located off New York State Route 68, an east-west state highway located entirely within St. Lawrence County. NYS Route 68 overlaps U.S. Route 11, a north-south highway that passes through the heart of the Village of Canton and across the Eastern United States extending 1,645 miles.

The campus is primarily surrounded by residential areas, both single and multi-family dwellings. To the immediate south, residential areas are mixed with some commercial and public service parcels. This area is generally bounded by the SUNY Canton campus and the Grasse River.

To the east of the campus, separated from the Village by the Grasse River, a mixture of land uses exist including residential, business and commercial areas. A walking path leads from the campus, across footbridges over the Grasse River to downtown Canton. The campus is also neighbored by several educational institutions. St. Lawrence University is the campus' primary neighbor to the south, and the Canton Central School District (K-12) is located to the east of SUNY Canton.

SUNY Canton is located wholly within the Village of Canton and the property is zoned University (U-2). Though State land is not subject to local zoning rules, it is State policy to conform whenever possible.



Campus Boundaries

SUNY Canton's campus, a total of 380 acres is owned and controlled by the State University of New York (SUNY) with the active involvement of both the State University Construction Fund and the Dormitory Authority of the State of New York.

The Grasse River shapes the east and north sides of the campus. The south and west side of the campus is adjacent to a residential zone (R-1) and New York State Route 68, the location of the campus main entry. The New York State Power Authority (NYPA) power lines bisect the campus athletic fields. Discussions with NYPA to relocate or raise the lines are underway.

Campus Boundaries

Campus Zones

The total campus footprint of 380 acres can be divided into five zones based on physical boundaries and uses.

Academic

The academic zone includes seven buildings that extend north and south of the student services core area. Payson, Cook, Nevaldine North and South were constructed in 1967 as part of the original campus design. Two additional buildings, Wicks and the Faculty Office Building, were constructed in 1972. In 2003, the Newell Vet Tech building was added as the first new academic building on campus.

Student Services

Serving as the link to the academic core, the student services zone houses French Hall, the Miller Campus Center, the Roselle Academic Plaza and Southworth Library. French Hall houses

Campus Zones

financial aid, career services, the registrar and admissions. The Campus Center, including the new Addition in 2002, provides student activity spaces, the campus store, Kingston Theater and a recreational gymnasium.

Residential

The eastern portion of the campus, bordered by the Grasse River, houses the original dorms on the campus. This area also contains the campus's main dining hall (Chaney), centrally located between the dorms and along a shared walkway. The newly constructed Grasse River Residence Hall (2011), located at the south side of the campus and separated by Cornell Drive, will provide an apartment-style living experience for upper class students.

Support

The physical plant, grounds, building services and University Police are located south of Cornell Drive and adjacent to both the main entry to the campus and the new Grasse River Residence Hall project.

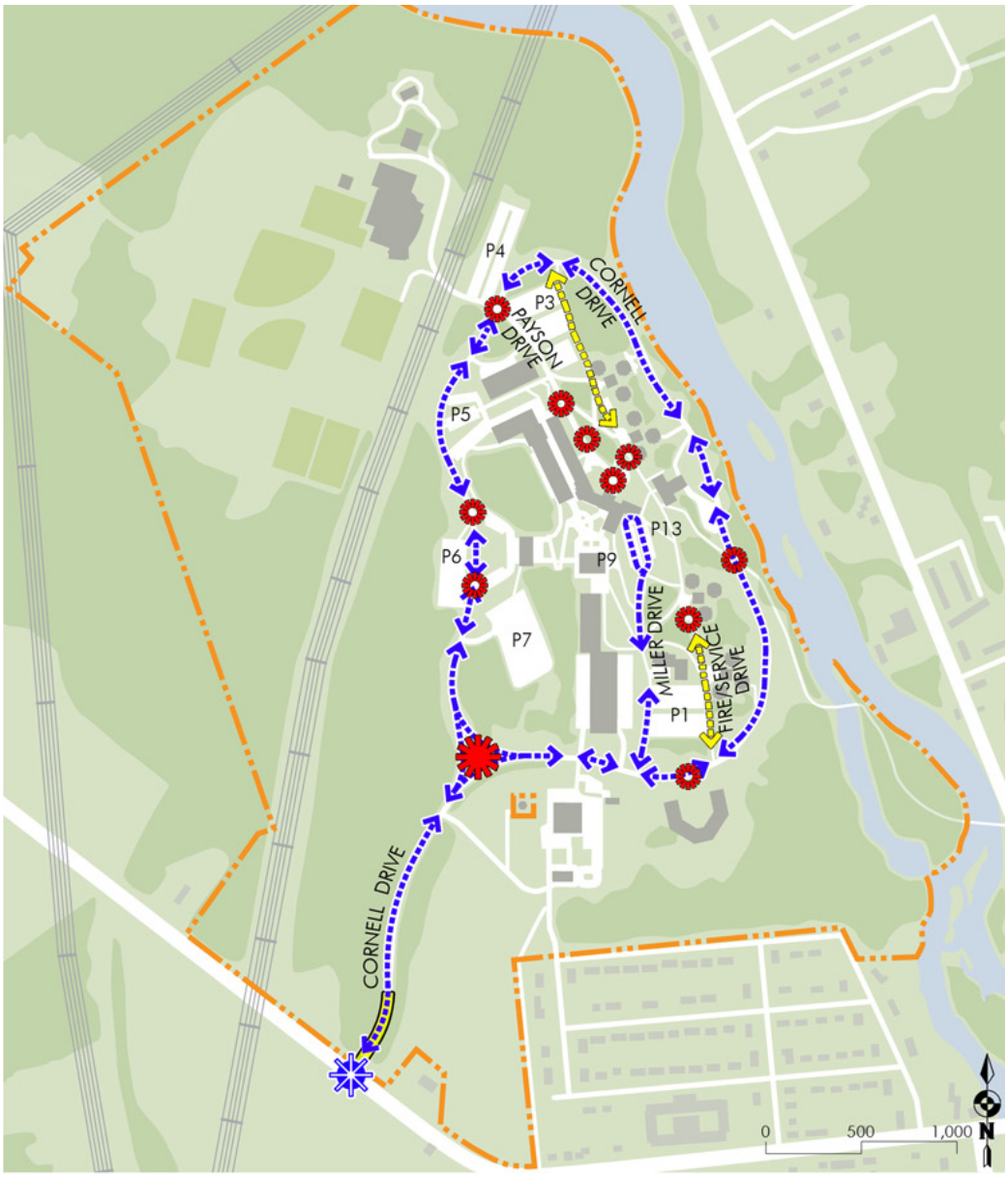
Athletics

As the largest zone on campus, the area is dominated by various athletic fields and a new Convocation Athletic Recreation Center (CARC) housing a field house, ice rink, lap pool, fitness center, athletic offices and support space. The CARC complex will be complete in 2011. The sports zone is located north west of the campus, across Cornell Drive.

B. CIRCULATION

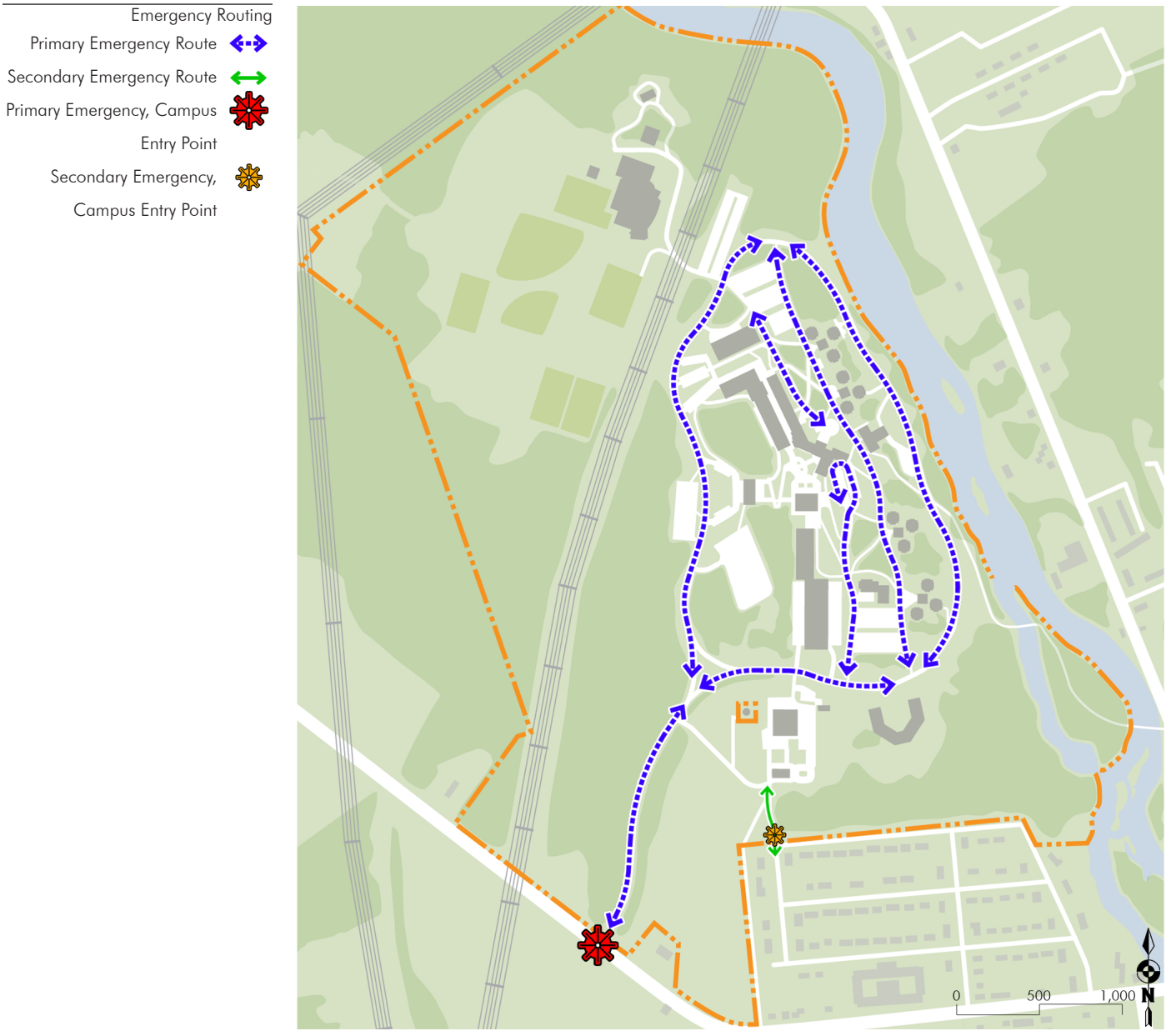
Vehicular Circulation

The sense of arrival, as well as easy navigation with clear way finding, is critical to the first time visitor's experience. The campus entry sign provides the initial welcome as one enters the campus from New York State Route 68 onto Cornell Drive. As visitors drive up the mature tree-lined Cornell Drive, they approach the 'Y' intersection that connects the loop road section of Cornell Drive to the entry drive. It is at this point drivers have to decide which direction to turn. Because of the geometry of this intersection, most first time visitors tend to veer to the right towards the residential zone in lieu of heading towards admissions and other visitor facilities to the left.



Vehicular Circulation
- Primary Vehicular Drive
- Secondary Vehicular Drive
- "Y" Intersection
- Campus Entry
- Pedestrian/Vehicular Conflict
- Vehicular Stacking Issue

The campus loop road meanders around the entire campus allowing vehicles access to various parking lots, loading docks and service drives. At the south side of campus there is an intersection connecting the loop road to Miller Drive. This drive provides access to parking lots 9 and 13. The layout of the loop road is an ideal condition because it limits the amount of vehicular and pedestrian conflicts. Emergency vehicles access the campus using the same entry and navigate around the campus using the Cornell Drive loop road. The loop road provides emergency vehicles access to the exterior Miller and Payson Drive provide access to many of the inner buildings. In the event that Cornell Drive is not accessible during an emergency, emergency vehicles can access the campus by using the secondary access drive behind the Cooper Service building.



Service and Loading Access

One issue that the College struggles with is the location and visibility of unsightly service areas. One example of this is at the Campus Center. The service drive is located on the eastern side of the building and is accessed from parking lot 3. This long service drive intersects multiple walkways creating an unsafe condition for pedestrians. Another issue with this service zone is the location of the dumpsters. As pedestrians travel through campus (primarily students who live in Heritage and Rushton Hall) the dumpsters can be seen from all directions. The dumpster at the back of French Hall is also unsightly, and very visible. The service areas for residence halls are also an area of concern. The service areas for the dorms are located at the back of the buildings, accessed from the eastern side of the loop road. As a driver travels around the loop road, nice views of the river can be captured to the east. Unfortunately, looking toward the dorms and into the campus, undesirable views of the service areas are apparent.

Bicycle Circulation

Currently, there are no bicycle lanes on the campus roadways nor designated paths on campus. Those who bike on campus share the pedestrian walkways and vehicular roadways. Students have indicated that if covered bicycle parking structures are provided, they would be more inclined to bike to campus.

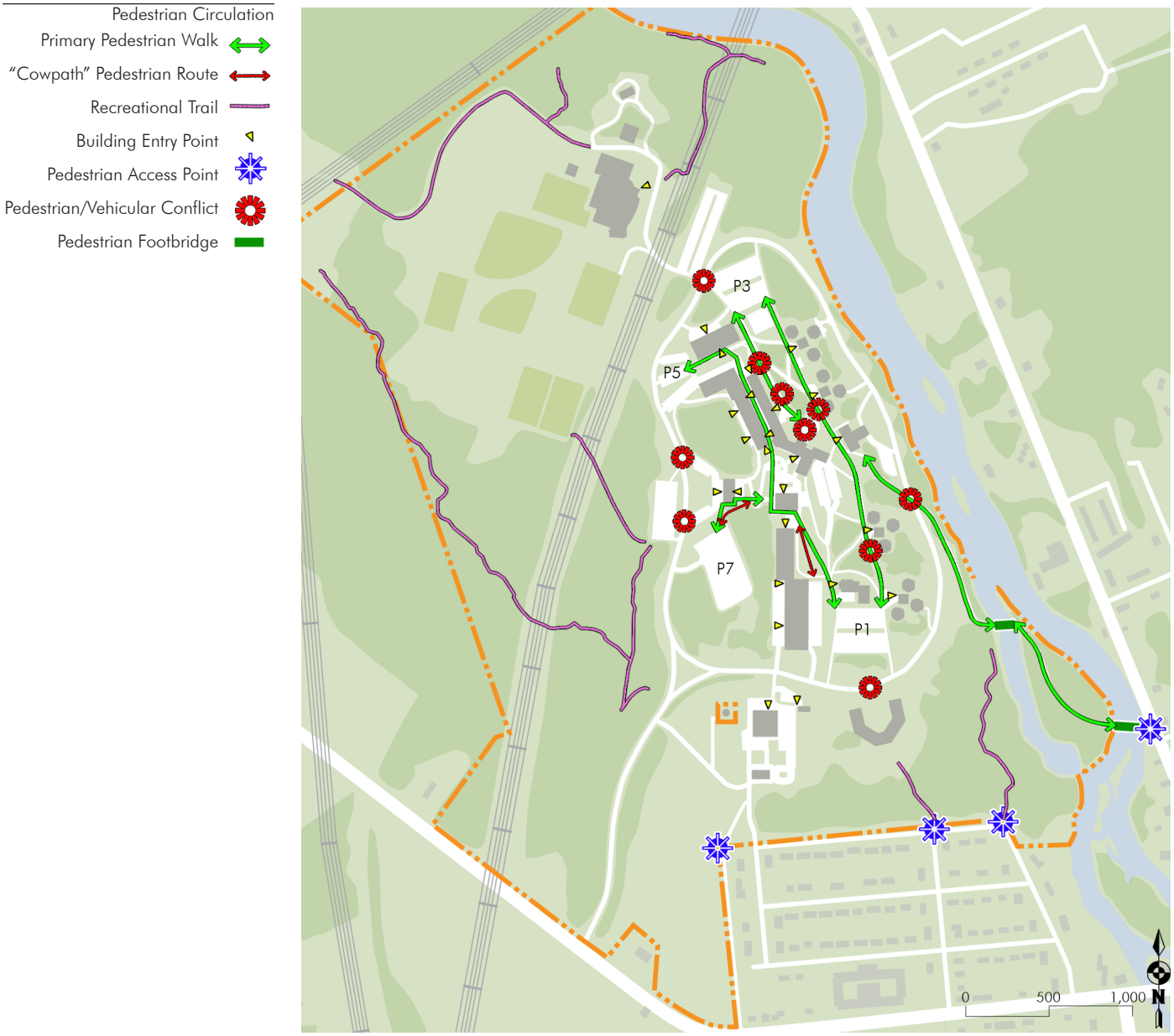
Pedestrian Circulation

The existing pedestrian circulation on campus appears to serve the students well. The primary pedestrian routes within the campus core run in the north south direction. The majority of the students and visitors park in lots 1, 3, 5 and 7. From these parking lots pedestrians funnel into the campus using the walks identified as “primary walks” on the Pedestrian Circulation diagram. The primary walks in front of the dorms, at both the north and south end of campus, also function as an emergency vehicle and dorm drop off drive. At the end of each of these walk/drives is a cul-de-sac which allows vehicles to turn around and exit the core campus. The walk in front of Chaney Dining Center connects to the two cul-de-sacs and provides continuous pedestrian and emergency vehicle routes through campus. To discourage students and visitors from driving on this link, mountable curbs were installed around the cul-de-sacs. The College has stressed that although the mountable curb helps control the vehicular traffic, additional traffic control amenities should be considered in this area to improve pedestrian safety. The primary walks in the core of the campus are generally in good condition while the secondary walks throughout the campus particularly between the dorms and Payson Hall are in poor condition and in need of repairs. Pedestrians coming to and from the surrounding community can access the campus in a few locations. Many students use the two footbridges at the Grasse River to walk to the Village of Canton. In addition to the footbridges, there are three pedestrian connections to the residential area south of the campus as indicated on the Pedestrian Circulation diagram. Recreational trails run through the fields and forest allowing

pedestrians to occupy these spaces rather than just have a passing awareness of their proximity. The trails are also used by the community as well as St. Lawrence's Cross-Country team for practice and the 'ring road' is used by many joggers. This feature offers the SUNY Canton community a greater appreciation of the campus setting as well as the mental and physical benefits associated with being in a natural environment.

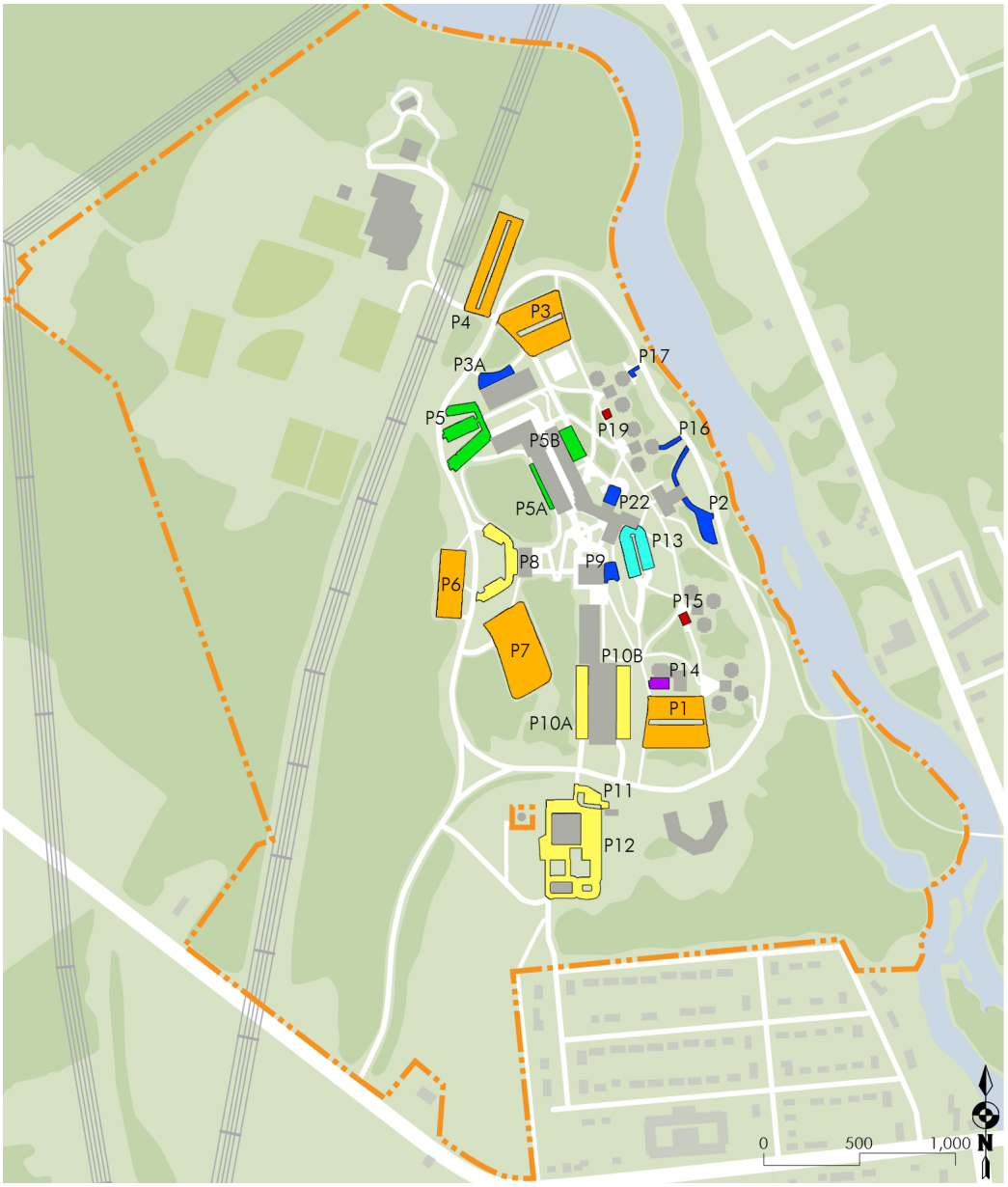
Building Entrances

The primary building entrances are identified on the Pedestrian Circulation diagram. In general, the entrances to the buildings are easily identified and the primary walks on campus lead pedestrians directly to them.



Parking

Parking lots pose an interesting dilemma for colleges. They are visually unattractive and take up valuable real estate, but are functionally essential. SUNY Canton has done an admirable job strategically placing parking lots around the perimeter of campus with only a few located internally. This approach creates a pedestrian friendly campus allowing pedestrians to walk throughout the campus with limited interference from vehicles.



Parking
- Student/Visitor
- Staff/Visitor
- Faculty/Staff
- Staff/Commuter/Visitor
- Staff Only
- Visitor Only
- ADA Only

P# Parking Lot Number

The previous master plan indicates that parking at the majority of the primary parking lots on campus was functioning at capacity and at peak times, parking is available in overflow lots 4, 6 and 7. The majority of the parking lots, except for lot 4 and 6, are located inside the loop road, limiting vehicles/pedestrian conflicts and providing safe routes for pedestrians.

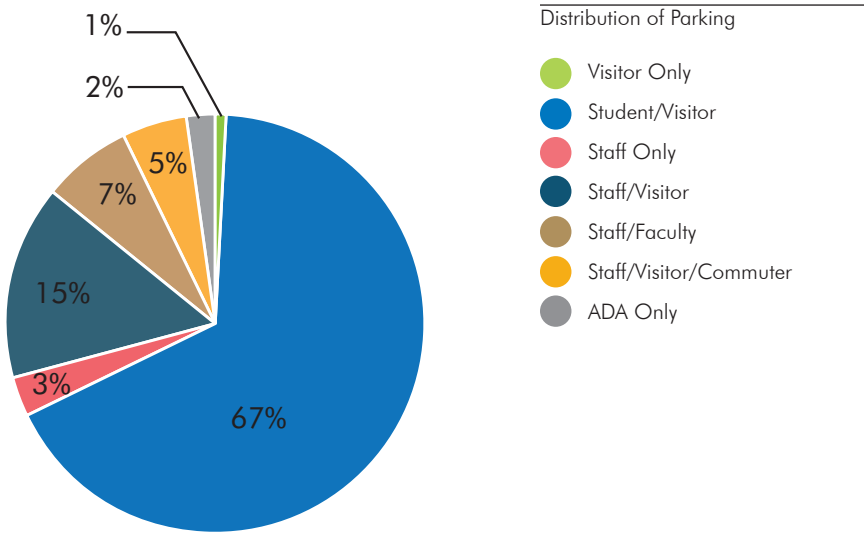
One special vehicular/parking need focuses around the college's desire to provide an area established as an Emergency Vehicle Obstacle Course (EVOC) for driver training. A small training course currently exists in parking lot 7. However, EVOC needs a paved area approximately 200' x 700' in size. A new parking area for the Convocation Athletic Recreation Center (and overflow parking) can be designed to serve as an EVOC.

Distribution of Parking

Parking Lot #	Total Spaces	ADA	Student/ Visitor	Faculty/ Staff	Staff/ Visitor	Visitor Only	Commuter	# of Additional ADA Spaces Required
1	234	2	228	4	0	0	0	4
2	37	2	0	35	0	0	0	0
3	200	2	198	0	0	0	0	4
3A	14	2	0	12	0	0	0	0
4	214	0	214	0	0	0	0	0
5	110	7	0	100	0	3	0	0
5A	24	5	0	19	0	0	0	0
5B	11	1	0	10	0	0	0	0
6	142	0	142	0	0	0	0	0
7	364	2	362	0	0	0	0	0
8	65	3	0	0	62	0	0	0
9	7	1	0	6	0	0	0	0
10A	40	2	38	38	0	0	0	0
10B	65	0	65	65	0	0	0	3
11	17	0	0	0	17	0	0	1
12	83	0	0	0	83	0	0	4
13	85	5	0	16	0	22	42	0
14	9	1	0	0	0	8	0	0
15	6	0	0	6	0	0	0	0
16	2	0	0	2	0	0	0	0
17	2	2	0	0	0	0	0	0
19	2	2	0	0	0	0	0	0
20	2	2	0	0	0	0	0	0
21	3	0	0	3	0	0	0	0
22	5	0	0	5	0	0	0	0
Total	**1743**	**41**	**1247**	**321**	**162**	**33**	**42**	**16**

SUNY Canton currently has approximately 1,248,178 square feet of paved surfaces; the completion of the new Athletic Facility will add approximately 50,000 square feet and the Grasse River dormitory will add another 62,000 square feet for a total of approximately 1,359,378 square feet. Slight progress has been made to address the pavement concerns identified in the previous master plan and it is clear that the campus would benefit, both functionally and financially, from a pavement maintenance plan. The physical conditions of the parking lots vary from poor to excellent. Parking lots 1, 3, 3A, 5, 10A, 10B, 11, 12, 16 and 17 are in the most deteriorated shape and categorized as poor condition. These lots contain signs of structural failure including numerous pavement cracks and multiple pot holes. Lots 2, 4, 5A, 6, 7 and 8 are in fair condition with large areas containing multiple cracks and potholes. The remaining lots 5B, 9, 13, 14, 15, 19, 20 and 22 are in good condition with limited small cracks. The Ring Road is in serviceable condition with no obvious pavement breaks or potholes. However, a standard highway maintenance effort should be implemented to fill cracks and seal/re-stripe the surface. This will extend its useful life and hold off more intensive restoration and/or replacement.

In August 2010, the College developed "A Model Plan for Pavement Preservation" report. This document outlines the importance of a pavement maintenance plan, evaluates the conditions and provides recommendations for the existing pavements throughout the campus. This insightful report has sound findings, is supported, and should be reviewed as part of this master plan study.



Wayfinding

Campus signs should provide identification, orientation and direction on campus in a way that is easy to read and incorporates a logical priority in the presentation of information. Existing campus wayfinding signage is limited to a campus directory sign off of Cornell Drive at the entry and a directional sign at the "Y" intersection. There are also other identification signs around campus, but are in need of updating. The campus is lacking a cohesive signage plan and sign standards. The campus image and wayfinding would benefit from a cohesive campus signage plan and signage standards.

Campus Directory Sign

Directional Sign

Existing Identification Sign

Opportunities and Challenges

Opportunities

The College has taken advantage of the natural surroundings by providing a network of recreational trails for student and faculty use. The College should continue to expand the trail system for athletic, recreational and educational experiences.

As the college continues to expand, so does the amount of events and activities on campus. To better inform students, visitors and the community of activities/events, the College should consider adding an electronic programmable sign at the entry off Cornell Drive. This sign could provide information regarding, but not limited to, athletic events, class cancellations, holidays, current events, commencement and concerts. This sign could be a component of a campus wide upgrade as previously noted.

Challenges

Similar to other college campuses, students tend to find shortcuts when walking from one destination to the next. These shortcuts cause lawn areas to deteriorate into dirt paths or "cowpaths". The photo below shows an example of the "cowpath". This also occurs at numerous walk intersections when pedestrians cut the corners of the intersections. Recently the College has been adding decorative landscape stones to some of the walks and intersections to improve the condition of pathways.

"Cowpath" and Rock Lined Walks

Various campus destinations exist outside of the loop road. Crossing the loop road may lead to vehicular/pedestrian conflicts. Some of the destinations include; various parking lots, athletic fields and links to the surrounding community. These conflicts are indicated on the Pedestrian Circulation diagram and described below.

- Two crosswalks at parking lot 6
- One crosswalk between parking lots 4 and 3
- One crosswalk leading to the footbridge
- Crosswalks leading students from the new dorms to campus

Although the existing crosswalks are located at these crossings, they are lacking signage that notifies drivers that a crosswalk is ahead. The addition of other amenities such as tactile strips, lighting and audible alarms would create a safer environment for pedestrians.

As previously stated the geometry of the "Y" intersection causes most first time visitors to veer to the right towards the residential zone in lieu of heading towards French Hall (admissions) and other visitor facilities to the left. There is land available to explore options for this intersection. Maintaining safe and steady traffic circulation should be the primary goal while keeping the campus image and sense of arrival in mind.

The College is currently coordinating with the New York State Department of Transportation (NYSDOT) to install a left turn-in lane and traffic signal. This will be a significant safety and traffic flow improvement. However, there is a back up in the flow of traffic exiting the campus due to a short right turn lane. Vehicles waiting to turn left block the access to the right turn lane at peak times.

C. LANDSCAPE

In general the campus landscape is in fair condition and reasonably well maintained. The landscape around the campus varies from natural woodlands, manicured lawns, tree lined roads, memorial gardens, accent plantings around buildings, and urban-like plazas.

Natural Landscape

Natural woodlands are found around the perimeter of the campus, including the river's edge as well as a few internal areas of the campus. The woodlands outside of the campus provide a solid buffer between adjacent properties while offering recreational opportunities such as nature trails. The woodland areas within the campus core add natural buffers which can define spaces and lessen winds. Although the woodlands are a naturalistic appearance, the understory brush and dead materials appear untidy and at times hinder views.

Natural Woodlands

Lawn Areas

Vast areas of well maintained lawn exist throughout the campus. Although, the manicured lawns look pristine, they require enormous maintenance efforts. The campus spends countless hours mowing, as well as resources and money. In a few locations extremely steep sloped lawn areas have also proven to be challenging to maintain.

Lawn Areas

Plazas and Gathering Areas

The majority of these spaces are contained within the Academic and Services Zones. Roselle Academic Plaza is located in front of the Campus Center at the heart of the campus. It consists of various planting beds, picnic tables and vast hardscape paver areas for assembly events. A large rock with a plaque dedicating this plaza to Gerald Roselle is located at the center of the plaza. This plaza can be easily accessed from any point on campus. The paving materials and planting bed design concept at Roselle Academic Plaza extends around Southworth Library into a small plaza area between the library and Nevaldine. This space also includes a small gazebo to encourage student congregation.

A larger plaza space, with a gazebo, exists on the east side of French Hall. As with the other plaza spaces on campus, this plaza would benefit from additional planting areas to soften the concrete appearance. Although this space is primarily used by administrators working in French Hall, it could be transformed into an assembly area for College functions. Small gazebos are located in front of all the dorms. Unfortunately the gazebos do not appear to be well utilized.

Roselle Academic Plaza and Gazebo at French Hall

The corridor between Payson Hall and Dana Hall is nicely landscaped with ornamental grasses, small columnar oak trees, lilies and vigorous ground cover. Other amenities include pavers, granite curbs, benches and light bollards. The existing ground cover presents maintenance issues for the College and this plant material should be reconsidered. In general this space is successful in both function and aesthetics.

Circulation Corridor

Assembly Areas

The indoor assembly spaces are dispersed throughout the academic core of the campus and consist of lecture, dining, theater and recreation spaces. Additional assembly areas include dining space (Chaney) located to the east near the Grasse River and the new athletic complex (CARC) located to the north outside Cornell Drive. Outdoor assembly spaces are located primarily at the north end of campus serving as programmed athletic areas. An additional outdoor assembly area (Roselle Academic Plaza) serves as connective open space to the academic core. The routes between indoor assembly spaces and associated outdoor assembly spaces correlate to one another providing a physical and visual connection.

Open Space Types

- Outdoor Assembly Space
- Indoor Assembly Space

Memorials and Sculpture

A few dedicated/memorial areas exist on campus. To the north of French Hall there is the Peace Garden. This space is ideal for a gathering space and garden. It is located at the highest elevation and provides panoramic views of the campus and surroundings. This space currently contains a small garden surrounded by various tree plantings and benches. If desired, this quaint space could be enhanced to become an outdoor classroom and successful gathering space. Recently, a small planting and covered seating area near the entry of Cook Hall was dedicated to President Joseph Kennedy. This area is reportedly popular with students and staff.

Peace Garden

Site Amenities

Elements such as benches, bollards, trash/recycling bins, and lights vary in style throughout the campus. The condition of these amenities range from fair to good, but the inconsistent appearance throughout the campus weakens any sense of campus image and identity. Establishing campus standards for site amenities should be considered to help provide consistency among all the site amenities.

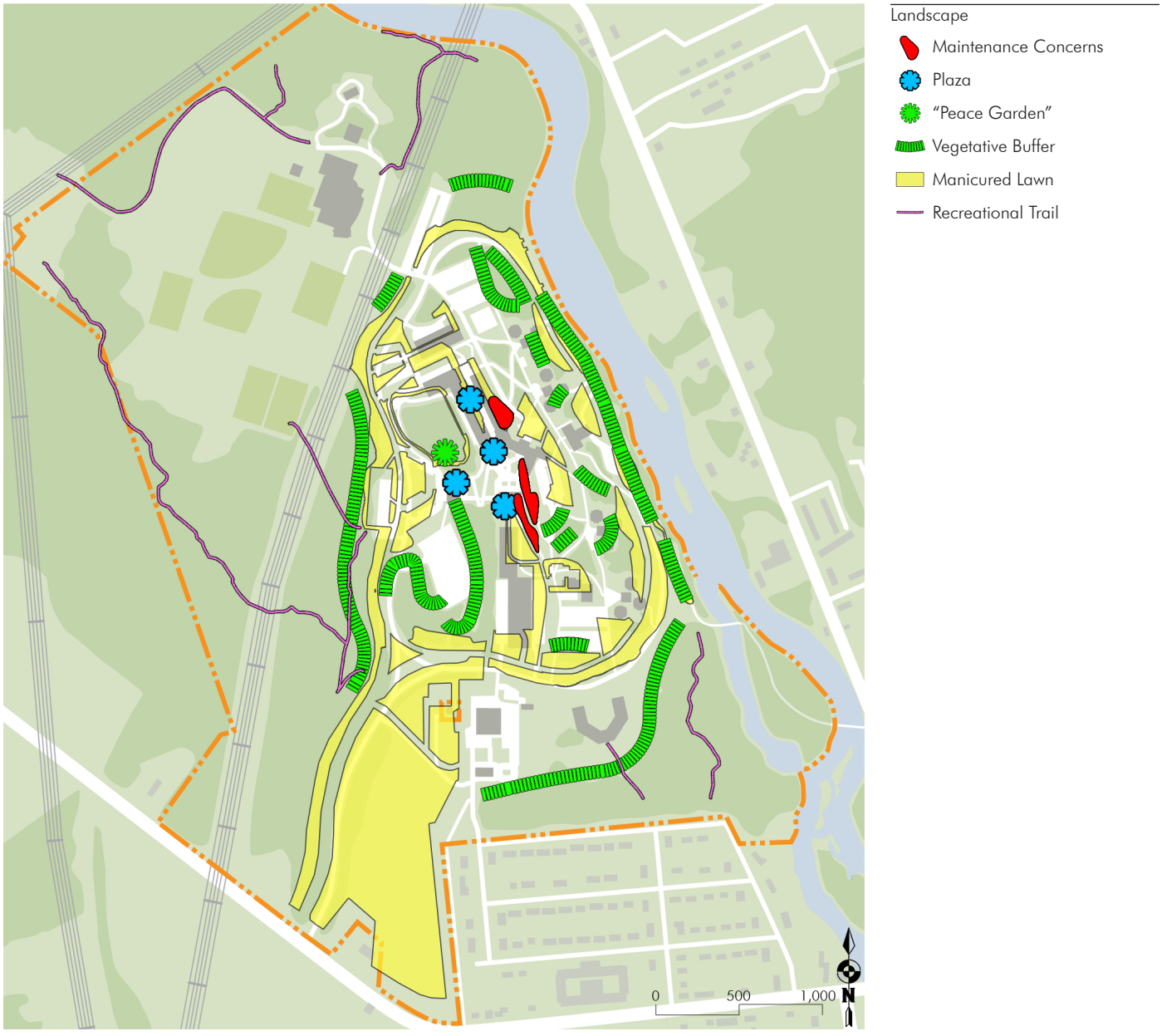
Athletic Fields and Courts

In 2006 the College made immense improvements to their athletic facilities. This effort resulted in a new synthetic turf field for soccer and lacrosse events. This facility is equipped with a

Athletic Fields

bleacher system and field lights. This effort also resulted in a new natural turf baseball field. Other existing fields consist of a softball field, soccer field and various practice fields. All of the fields, both new and old, are well maintained and are in good condition.

A set of basketball and tennis courts sit at the north end of the campus core. The courts and fencing are both in fair condition and require some maintenance. Numerous courts are located behind the CARC, but due to age, lack of maintenance, and the fact that the area is currently being used as a construction staging location for the CARC project, they are in poor condition.



Opportunities and Challenges

Opportunities

Although the large hardscape areas are valuable for assembly functions, the site could benefit from additional plantings to soften the space. The 2006 National Trends in Campus Preservation Study has shown that 62% of high school seniors choose a college based on the appearance of the campus buildings and grounds. Therefore, it is important for any college to enrich a visitor's experience on campus. One major aspect that influences a visitor's experience on campus is the appearance of the overall landscape. Colorful plantings, gardens, pristine greenspace, and comfortable plazas all contribute to a memorable campus visit. SUNY Canton provides various opportunities for landscape improvements. One way of beautifying the campus is to enhance the existing landscape areas by adding colorful plantings for spring and fall interest. Another is to create new landscape accent points strategically around the campus. The campus could also benefit from developing a campus vocabulary for all site and landscape amenities. This would establish the standard for all materials and provide cohesiveness to the campus. Enhancements and/or relocation of the gazebos should also be discussed to increase their utilization.

The campus has significant river frontage along the Grasse River, which is underutilized. Much of the understory brush could be removed and plantings could be added to frame views of the river. Outdoor classroom, picnic and gathering areas, and recreational spaces should be considered for this space as well. The College also owns a small island on the Grasse River. This island can be further developed to enhance educational and recreational opportunities.

Challenges

The maple tree-lined Cornell Drive provides a picturesque arrival to the campus. Due to some harsh winters, the health of some of the trees is declining. The campus would benefit from a landscape plan that will ensure the future of this dramatic sense of arrival.

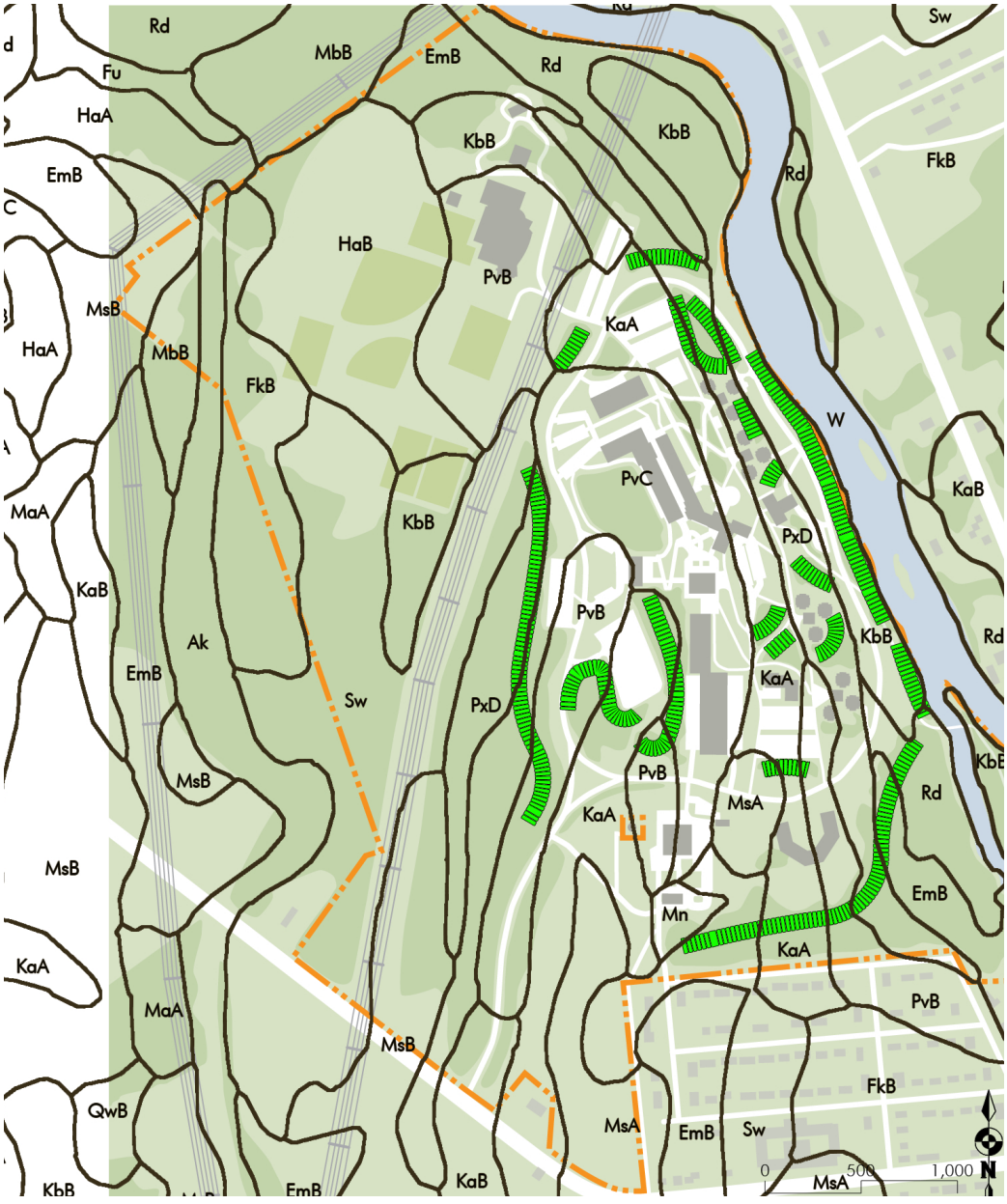
The maintenance staff has reported that they spend numerous hours weeding all of the planting beds around campus. Although the existing bark mulch looks nice and natural, the College is seeking options to reduce the amount of weeds, even if that means replacing the bark mulch with another material.

The steep slope between the Library and the Campus Center parking lot is a difficult space to maintain and is visually unpleasant. Recent plantings have not been successful and this area is currently full of weeds and unattractive. With creative planning this space can be redesigned to reduce maintenance and become an attractive space.

D. GEOGRAPHY

Soil Types

The campus soil survey, as provided by the Natural Resources Conservation Services (NRCS), is primarily identified as a fine sandy loam with a more stone type condition along the banks of the Grasse River. The depth to ground water varies from two feet nearest the floodplain of the Grasse River to greater than six feet at the higher elevations of the campus. Depth to bedrock is greater than six feet.



Soil Types

Soil Type Delineation Line

Vegetative Buffer

Ak, Adjidaumo Silty Clay

EmB, Elmwood Fine Sandy Loam

FkB, Flackville Loamy Fine Sand

HaB, Hailesboro Silt Loam

KaA, 0-3% Slope
Kalurah Fine Sandy Loam

KaB, 3-8% Slope
Kalurah Fine Sandy Loam

KbB, Kalurah/Pyrities Soils

MbB, Malone Loam

Mn, Munuscong Mucky Fine Sandy Loam

MsA, 0-2% Slope
Muskellunge Silty Clay Loam

MsB, 2-6% Slope
Muskellunge Silty Clay Loam

PvB, Pyrities Fine Sandy Loam

PvC, 3-8% Slope
Pyrities Fine Sandy Loam

PxD, 8-15% Slope
Pyrities Fine Sandy Loam

Rd, 15-20% Slope
Redwater Fine Sandy Loam

Sw, Swanton Fine Sandy Loam

Slopes and Wetlands

The SUNY Canton campus benefits from its existing geographic features, which include the sloping topography, dense forested areas, and the Grasse River running at the east of the campus. These elements combine to give the College an identity unique amongst other colleges in the SUNY system. The geographic features of the campus have shaped how this campus has developed over the years. The existing topography of the campus has had the largest influence in shaping the campus. Parking lots, plaza and athletic fields need to be placed in generally flat areas; therefore, in many ways the topography dictates where elements are located. Due to the significant slopes, both existing and future buildings are designed to compensate for the grade changes. The Grasse River runs adjacent to the Residential Zone and borders the eastern, and part of the northern, side of campus and provides a natural buffer to the surround. Multiple wetland areas are scattered around the northern and eastern borders of the campus.

Steep Slopes and Wetlands

Slopes Greater Than 10%

NYSDEC Wetland

NWI Wetland

NWI Wetland Codes

PSS1E

System: Palustrine

Class: Scrub-Shrub

Subclass: Broad-Leaved Deciduous

Water Regine: Seasonally Flooded/ Saturated

R3UBH

System: Riverine

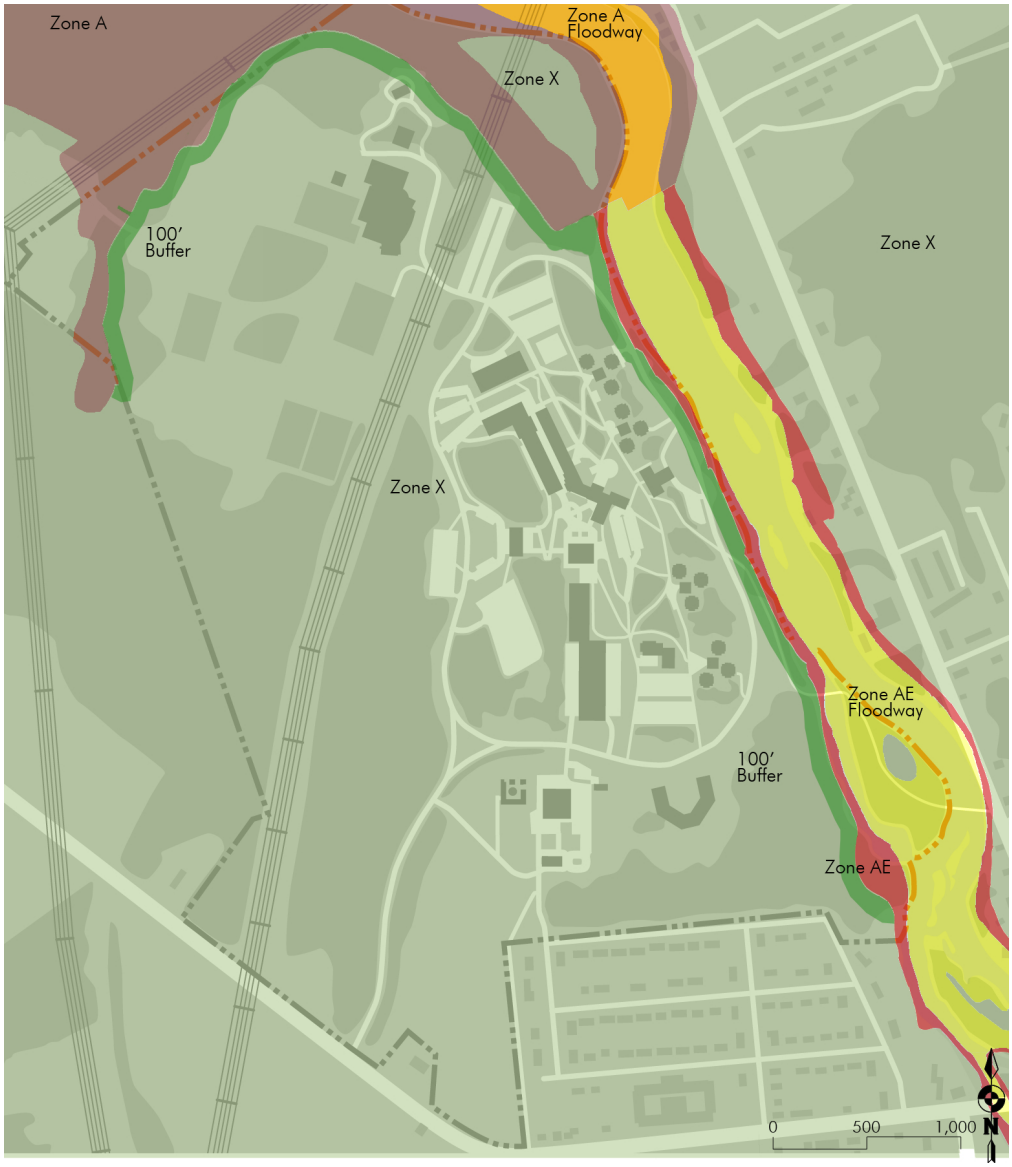
Class: Unconsolidated Bottom

Subclass: Upper Perennial

Water Regine: Permanently Flooded

Floodplains

SUNY Canton abuts the Grasse River which flows north along the eastern and northern side of the campus. The 100 year floodplain, as established by the Federal Emergency Management Agency (FEMA), encroaches upon the east loop of Cornell Drive. However, it does not reach the lowest occupied structures on the campus including the original residence halls. The shoreline is heavily wooded and the trail that leads to the pedestrian bridge across the Grasse River is properly maintained. There is interest in opening up the shoreline for ease of access and improved views with the potential for landscaped gathering areas. This would be reviewed with the Town Planning Board to address concerns regarding the removal of the natural brush along the rivers edge. Canoeing, kayaking and community fishing are currently taking place and encouraged along the river.



Flood Zones

- Zone A - Special Flood Hazard Area Inundated by 100-Year Flood, No Base Flood Elevations Determined
- Zone AE - Special Flood Hazard Area Inundated by 100-Year Flood, Base Flood Elevations Determined
- Zone A - Floodway Area, No Base Flood Elevations Determined
- Zone AE - Floodway Area, Base Flood Elevations Determined
- Zone X - Areas of 500-Year Flood; 100-Year Flood with Average Depths of Less than 1ft or with Drainage Areas Less than 1sq.mi.; Areas Protected by Levees from 100-Year Flood; or Areas Outside of 500-Year Floodplain
- 100' Floodplain Buffer

E. SECURITY

Condition of Existing Security Systems

SUNY Canton utilizes access control, Closed Circuit Video (CCTV), emergency phone, and mass notification systems for their campus security systems. There is currently no integration between these systems. At the present time, all buildings on campus are safe and function within the campus requirements. They do however, require some modernization of security door hardware and software upgrades for the security system in order to keep the campus running smoothly and for expected future growth. The installed security systems seem to be in good operating condition and are well maintained. The expansion of the CCTV system and software will allow for future growth to provide additional visual coverage for the University Police. By incorporating additional access portals to expand the access control system, the University Police will have greater control of the buildings on campus. This will provide them with additional information to determine if doors are locked, unlocked, or if a breach occurred at a specific area.

College Police

The College strives to provide a safe environment for the students, visitors, faculty and staff. To that end, the University Police department operates 24 hours a day, seven days a week, from a central station in the University Police building next to the Cooper Services complex. The Public Safety/University Police building is a residential style structure that is not suited for the current use. The law enforcement unit consists of eight sworn personnel: the Chief of University Police, an Assistant Chief, and six Patrol Officers. The University Police officers have full arrest powers and are responsible for enforcing all state, federal and local laws, as well as the rules and regulations of the College. Sworn officers of the University Police receive their law enforcement authority from the New York Criminal Procedure Law. Officers receive their training at the New York State Municipal Police Academy.

The patrol officers provide physical security by patrolling campus grounds on a 24 hour basis, 7 days per week, and 365 days per year. Officers patrol both residence halls and academic buildings. In addition to mobile and foot patrols, bicycle patrol is also utilized when weather permits. Due to the size of the campus and 24 hour monitoring, there is not enough staff to perform all the required functions including system administration, reporting of incidents, information seminars, patrolling of the campus and others.

There are three dedicated telephone lines available for communication at the main control area within the building. The telephone recording equipment is also located in this area and a separate line for radio dispatch has also been implemented. In addition, the University Police department provides a number of other services, including but not limited to, medical emergency assistance, crisis intervention, crime prevention, locating missing/wanted persons,

University Police - Security Console

University Police - Security Console

Access Control System

Lenel/Stanley Basis System Server

and providing speakers on topics related to law enforcement. The department also coordinates the campus escort service and the emergency/blue-light phone systems. The University Police operate a safety escort service to provide added measures of safety for students traveling at night. On campus Officers are available to walk with members of the college community each night during the academic year upon request.

The University Police department maintains a close working relationship with neighboring law enforcement such as: the Canton Police Department and the St. Lawrence County Sheriff Department. These agencies, along with the New York State Police, help to ensure the safety and well being of all members of the campus community. To assist and educate the college community on campus safety, the University Police and offices within the Division of Student Affairs hold educational programs each year on a variety of topics. The Personal Safety Advisory Committee is composed of faculty, staff and students. This group reviews campus personal safety issues and recommends ways to enhance personal safety, especially through educational and student-life programs. This committee meets once a month to discuss relevant campus issues dealing with the safety of faculty and student body. The committee sends a written report to the president every year.

Access Control System

All of the residence halls are locked on a 24-hour basis and use a card access system that ensures doors remain locked at all times. If the door remains open longer than approximately 10 seconds, the Lenel/Stanley Basis system will activate an audible sounder to alert students in the building that there is a door propped open. The valid and invalid card access log attempts are reported to the University Police Lenel/Stanley Basis head end workstation. All transactions for the system are logged in at the server. The campus access control and CCTV security are currently independent of each other and other systems on the campus. System connectivity at the head end security server is located in the Southworth Library Data Center Room #020. In addition to the main server location, the system can be monitored from three locations on the campus. The residential life area is responsible for maintaining

the database for the residence halls and the Facility/Shared Services (lock shop) location for day to day input and basic system administration for the campus. The main monitoring location is at University Police which has a monitor display for viewing alarms and notifications. In cooperation with the IT department, the ability to log into the system via a secure VPN line is available only to select persons.

Lenel/Stanley Basis System Panel

The entrance to Southworth Library and the residence hall main entries are controlled via the access control system. The perimeter/fire exit doors at these locations are not currently connected to the Lenel/Stanley Basis access control system. There are thirty-three locations around the campus that have a stand alone type access control locking mechanism. These areas should be incorporated into the Lenel/Stanley Basis access system for online monitoring and control.

CCTV Camera

Closed Circuit Television System

The Video Management System (VMS) provided to manage the CCTV system is manufactured by OnSSI. The system is currently equipped to handle the existing thirteen cameras and supplies all of the functionality required for video processing, including storage and display options. As the CCTV system on campus expands, the OnSSI system will require additional camera licenses as well as some additional storage space for archiving digital video. The OnSSI server is located in Data Room #020 of Southworth Library. The CCTV system is monitored only from the University Police location, within the Control Room, using one monitor display. All of the camera locations are state of the art PoE (Power over Ethernet) type cameras which connect to the campus network infrastructure.

CCTV System

# of Cameras	Building
2	Heritage
2	Rushton
2	Mohawk
2	Smith
3	Southworth
2	Campus Center

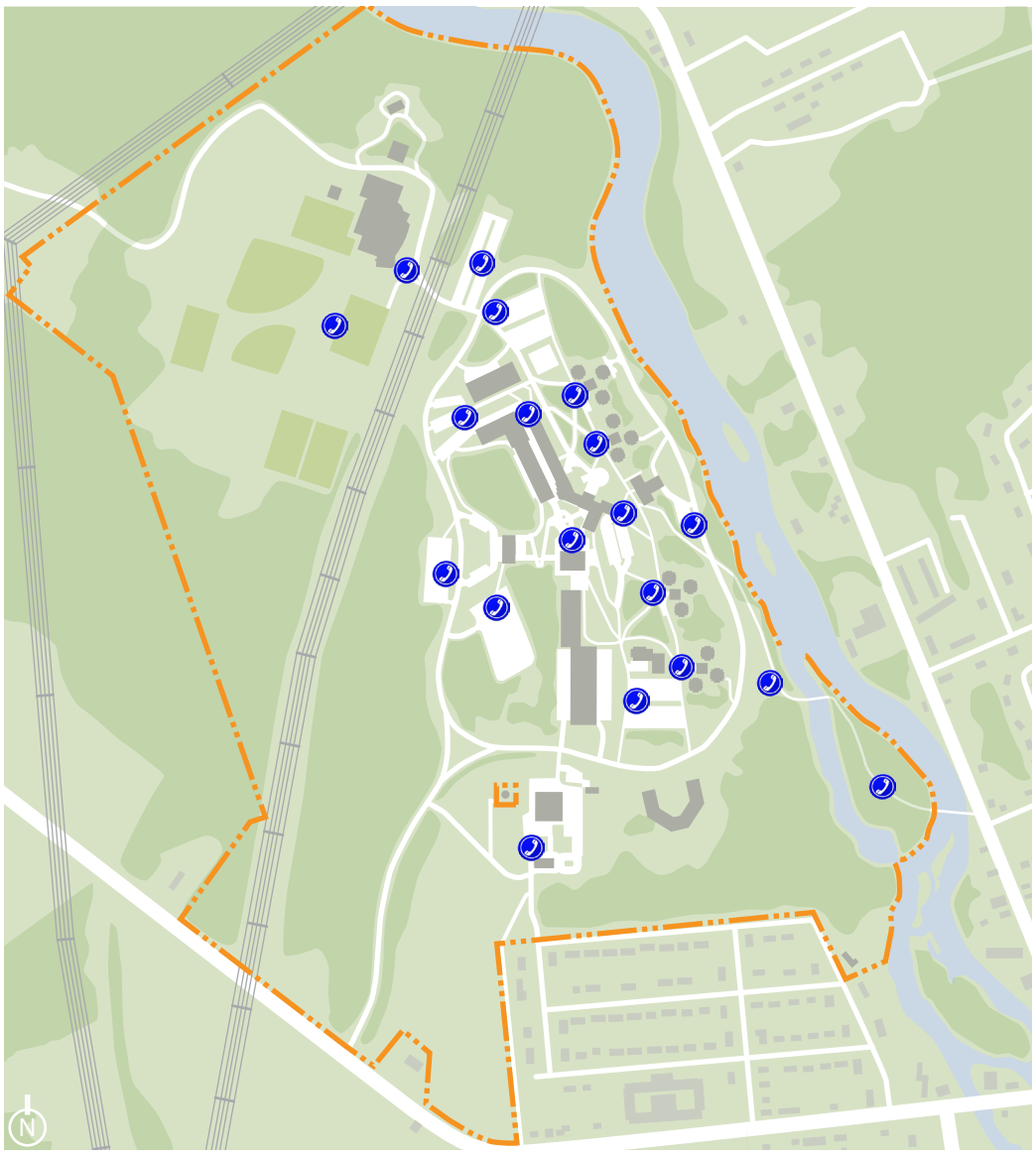
There is an ATM machine located at the Campus Center. The CCTV for this is monitored via the bank network. The College does not have any monitoring for this area. There is currently no integration between the access control and Closed Circuit Television systems. The College Association provides a CCTV system for monitoring the food service area, the game room in the Campus Center, the Campus Store, Mail Room and text book center. This is a stand alone system and is not interfaced with the University Police location for any monitoring.

OnSSI System Server

Emergency Call System

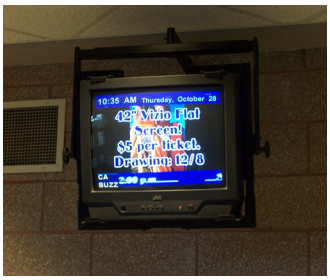
The emergency call system, also known as the "Blue Light System", includes nineteen locations throughout the campus. These blue lights are near campus roadways, sidewalks, parking lots and residence halls. A blue light atop the pole makes each phone easy to recognize. These emergency phones are connected directly to the University Police. Upon lifting the receiver, the University Police know the location of the emergency phone and will dispatch an officer for assistance. Telecommunications also manages the blue light system. The telecommunications group, designs the projects and makes provisions for the conduit routing. Blue light signals are carried over the campus (copper) phone system. The University Police regularly test these locations for proper operation.

Campus Bluephones
'Blue Light' Locations



Mass Notification System

The mass notification system used on campus is a combination of various means and methods to alert students and faculty to an event that is unfolding. In keeping with best practices, the college has multiple systems of various technologies used for this purpose, some of which are outlined below:



Campus Alert/Information System

Campus Alert and Information System - Emergency messages and campus information are displayed on television screens located throughout the campus. At the present time, there are twenty locations.

# of Locations	Building
2	French
1	Cooper Service
3	Nevaldine
2	Southworth
2	Cook
2	Faculty Office Building
1	Wicks
2	Dana
5	Campus Center

Campus Alert/Information System

Text/Electronic Messaging (SUNY NY Alert) - Text messaging allows emergency messages to be sent directly to a student's mobile device. Student and faculty on-file contact numbers are automatically registered to receive this service. Students and faculty may log on to manage their accounts and add additional phone numbers. The SUNY NY Alert system is capable of sending e-mail messages, recorded voice messages and text messages to multiple addresses and phone numbers.

Emergency Voice Communications – The voice evacuation system, which is part of the fire alarm system, can and will be used for all emergency communications in buildings that have this feature built into the newer/updated fire systems. Currently, the Faculty Office Building is equipped with this feature. As other buildings on the campus receive upgrades to the fire alarm system, this feature will be incorporated.

Campus Lighting

E-mail List - The University e-mail list is used during emergency situations to provide updates and critical information via a student e-mail list. This is accomplished from within the College e-mail system.

Emergency Response and Evacuation Plans

Upon notification of an emergency incident, SUNY Canton first responders, University Police and Emergency Management staff shall follow the guidelines set forth in the College manuals for the response and management of all emergency incidents. SUNY Canton conducts evacuation drills in every campus

Campus Lighting

building (academic and residential) a minimum of four times per academic year. These drills are conducted in cooperation with the University Police and the Facilities Department. SUNY Canton does not have an office of Environmental Health and Safety. These duties are divided among the University Police, Facilities and other cooperating departments to develop and enhance evacuation plans as required.

Campus Lighting

The University Police provide lighting assessments on a yearly basis. This assessment helps to determine campus needs and future plans for the expansion of outdoor lighting. The use of exterior lighting in parking lots, along pedestrian walkways, and in areas around buildings helps to promote campus safety. The light poles are numbered to facilitate the reporting of any problems to University Police. The lighting at pole locations is controlled by a timing circuit and others are controlled by a light sensitive photo electric eye. This determines when the lights should turn on and off. The lighting circuitry does not allow for control of individual lights. Instead, the lights are grouped in clusters and controlled as a single unit. If the lighting is turned off in one location, an entire area along a path or walkway may be darker than normal and will limit visibility in that area. The light sensitive photo electric eye type will make it more difficult to deploy exterior CCTV surveillance coverage for the campus in the future. The power for the camera, installed on the pole, will be powered on and off in conjunction with the photo electric eye circuit. Before the campus could use the poles as a location for expanding the CCTV viewing capability, a major wiring overhaul or reconfiguration of the photo electric eyes would be required.

Automatic External Defibrillator

Automatic External Defibrillators (AED)

The College has AED devices in various locations in its facilities. In total, twenty-seven AED devices are distributed throughout various locations. The University Police check each of the AED locations for signs of tampering and proper functionality on a monthly basis. These units are not monitored via the CCTV system, nor is there any notification for the University Police that an AED unit is being utilized.

Opportunities and Challenges

Opportunities

To continue and expand the existing systems already in place will help to enhance the security of the campus in the future. A fully integrated security management system, made up of all the sub-system components, will help to provide a safer environment for students and faculty, in a centralized police command setting. Fully interfaced system architecture will greatly help the University Police monitor and allow for more control of the systems on campus. This will also facilitate their response, providing more accurate and timely information to the University Police, thereby enabling them to be better prepared before being dispatched to an alarmed area.

Challenges

- A chemical safe room exists in Cook Hall which may require access control hardware.
- If any type of disturbance occurs within the Student Health Center exam rooms, the only way to signal for help is by telephone. Duress monitoring of some type may be required.
- If any type of disturbance occurs within the Student Counseling Center, the only way to signal for help is by telephone. Duress monitoring of some type may be required.
- Staff and faculty have stated an interest in providing a lock-down feature in classroom spaces throughout campus.
- The Financial Aid area, within French Hall, requires some security measures as money is handled on a daily basis.
- The controlled substance room, within the Newell Vet Tech building, is locked with a key only. An access control portal at this location would provide an audit trail for persons entering/exiting.

F. PHYSICAL CONDITIONS

Infrastructure Conditions

Water

Prominent for its location near the entrance to the campus, a Village water tank supplies the daily needs of the Village and the campus. The water meter and associated piping is original, and the valves are not used and believed to be non-functional. A ten inch water main is the single source for campus domestic and fire fighting water. It was noted that the Village's water supply is a well field and the transmission main from the field to the Village is over one hundred years old. The campus staff has urged the Village to replace the main to eliminate the potential for a catastrophic leak or break. A second ten inch main, perhaps located east of Cooper Service, is a desired option in case the tank is down or the main now serving the site is under repair. The campus has been aggressive in its reduction of water consumption through the use of water conserving fixtures and elimination of system leaks, even as the student population continues to grow. It was pointed out, however, that fire hydrants are original and should be replaced with modern units with appropriate fire hose connections.

Electricity

The campus is presently supplied power from National Grid at 22,900 volts by over head lines that terminate at the campus substation. This substation is owned by the College. At the substation the incoming voltage is transformed down to 4,160 volts by two transformers (T1 & T2) each rated 2,500 KVA. Each transformer supplies a 400 amp medium voltage circuit breaker. These circuit breakers supply the two circuits for the campus by means of an underground ductbank system in a radial distribution scheme. This underground ductbank system consists of two 4" concrete encased conduits and manholes for each circuit. This results in one active and one spare conduit for each circuit. The circuits do not share manholes. While the transformers have grounded wye secondaries the neutrals are not distributed to the campus. The neutrals are grounded at the transformers through grounding resistors to limit ground fault currents. The primary distribution cable consists of three 500KCM, 5kV shielded cables per circuit. There is a mix of Type MV90 and MV105 rated cables. MV90 cable has a capacity of 470 amps and MV105 cable has a capacity of 505 amps based on National Electrical Code Table 310.77 for one circuit configuration. Each building, with the exception of the Campus Center is connected to each of the two campus circuits. These circuits terminate at selector switches in each building that are keyed to allow only one circuit to be connected to the building at a time. In the event of a transformer or distribution cable failure, these switches can be operated to connect the building to the energized circuit. There is a project currently in construction to upgrade the campus electrical distribution system. This includes new substation circuit breakers, two 1250 KVA diesel powered generators, and two additional primary distribution circuits. The two generators will supply limited power to the campus during

a utility outage.

Sanitary Sewer

The collection system of pipes and laterals continues to function as originally designed. However, the campus staff has indicated a prudent desire to televise the complete system to search for root intrusion, leaks, and to identify pipe that requires replacement or maintenance. An infiltration-inflow analysis that would further identify any cross connections (storm sewers connected to the sanitary sewer) or leaking manholes during times of heavy rainfall/snow melt would complete the analysis. As the campus grows and student population increases, the sanitary sewer system should be reviewed for adequate capacity.

Storm Drainage

The campus was designed to provide for sheet runoff from almost all of the hard (paved and roof areas) surfaces. Runoff is collected in swales and sloped surfaces, enters manholes and inlet structures at the east loop of Cornell Drive, discharging directly to the Grasse River. There are no known chronic areas of flooding on campus, but the Grasse River does, on occasion rise to flood stage and the island between the pedestrian bridges becomes submerged. The buildings and grounds staff has indicated a desire to inspect each drainage structure and pipe to determine its condition, capacity and whether repairs or replacement are necessary. Any new construction, including complete reconstruction of parking lots that disturbs more than one acre would have to comply with current state and federal guidelines for storm water control and treatment.

Natural Gas

The St. Lawrence Gas Company supplies natural gas to the Canton campus and has been the gas distributor to the area since 1962. The majority of the gas mains on campus are cathodic protected steel lines with some plastic pipe services. As such, these lines typically have a useful life of 100 years when properly maintained. The college owns the distribution system past the master meter (located southeast of the campus near the footbridge over the Grasse River) and the gas company maintains the lines, valves and regulators for the college. The gas distribution system was established with future expansion in mind and the system is maintained at a pressure of approximately 60 psi. There are no known problem areas within the system and all buildings are heated by natural gas. Similar to the sanitary sewer system, the gas distribution piping/delivery system should be reviewed with the supplier as the campus grows.

Site Conditions

The following map documents surface and sub-surface conditions, walkway and road condtions, and potential parking, walkway and landscape opportunities.

SUNY CANTON

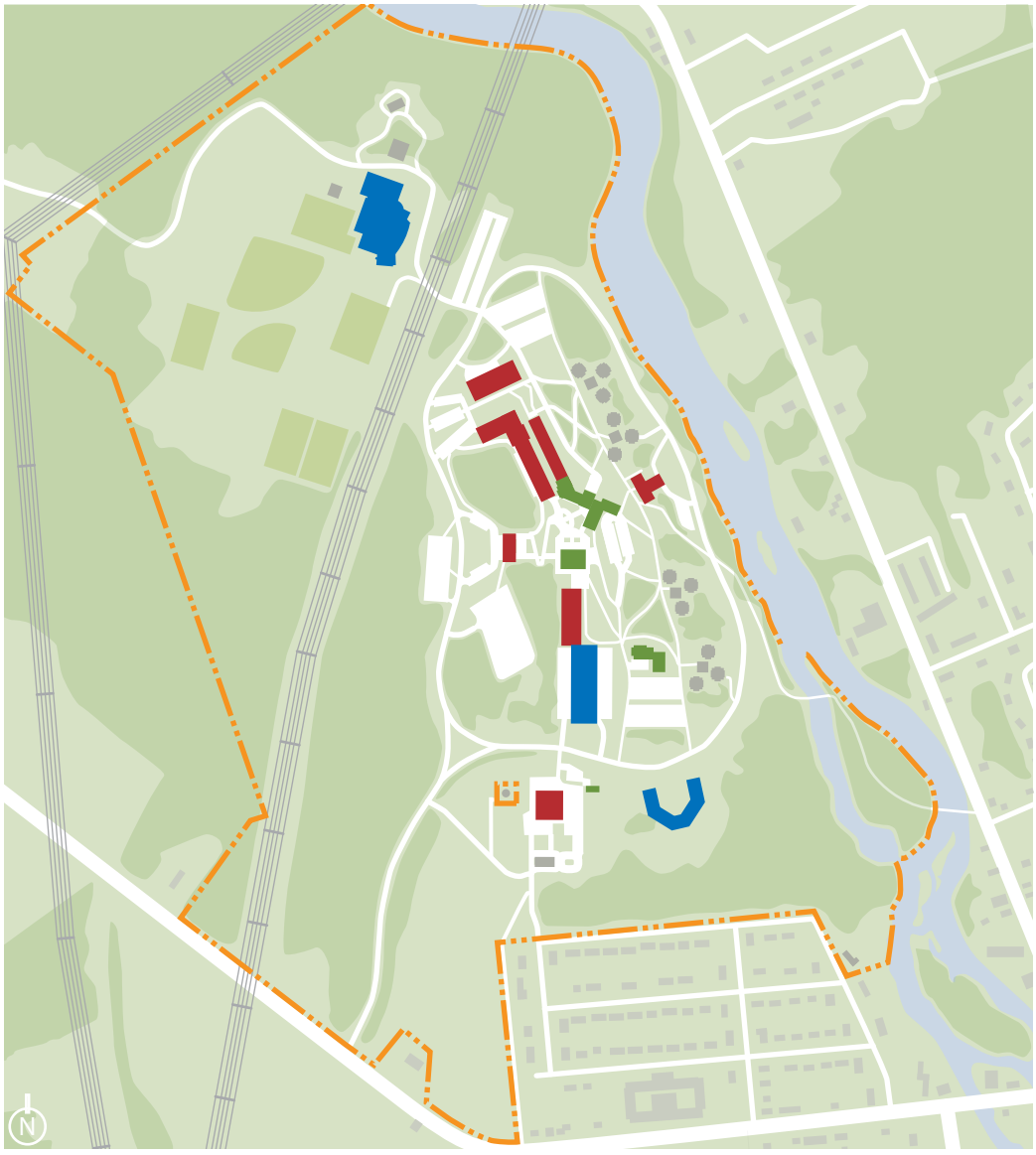
SITE CONDITIONS & POTENTIAL IMPROVEMENTS

NOVEMBER, 2010

Building Condition Assessment Survey

Our verification explored four buildings in depth to examine the veracity of the 2007 Building Condition Assessment Survey (BCAS). These buildings: Dana Hall, Cook Hall, Chaney Dining Center and French Hall were chosen by the campus. They were identified as the buildings where the least amount of construction/repair activity has been done since the BCAS. Additionally, Dana Hall, the previous athletic building, is vacant. A structural wood beam repair project is currently underway.

Based on the verification, the BCAS was determined to be reasonably accurate. The differences noted between the 2007 assessment and the 2010 verification are due to repairs and/or renovations, or unforseen conditions.



Building Condition Assessment
- Unsatisfactory Condition
- Satisfactory Condition
- New Construction/Renovation
- Not in the Scope of FMP

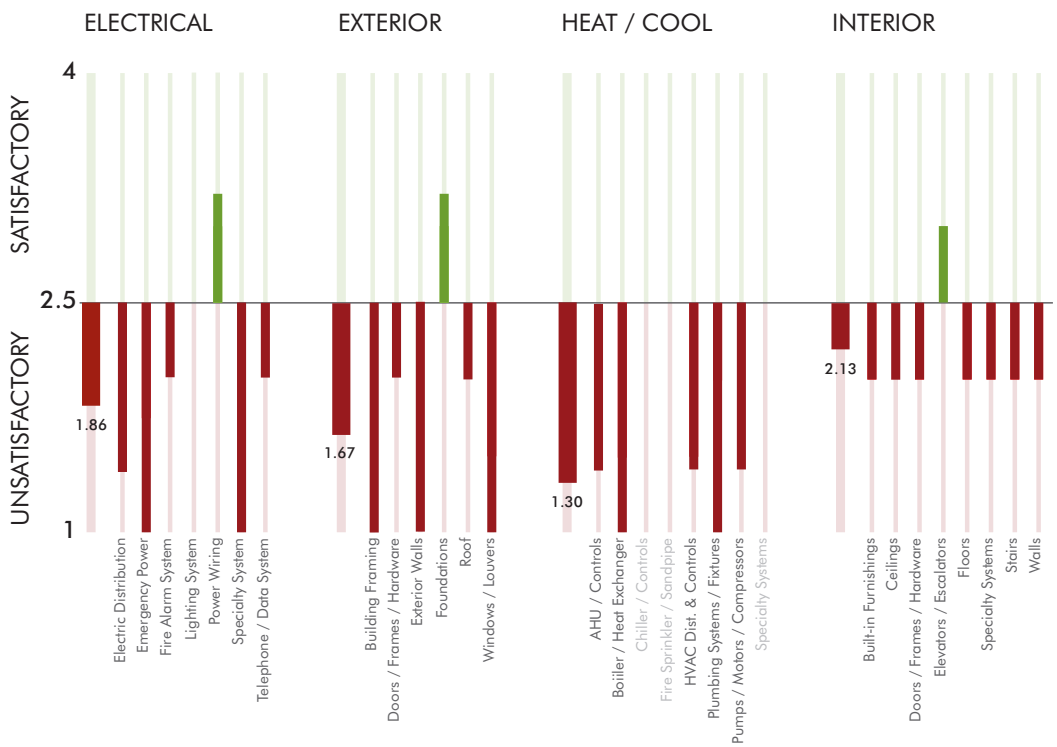
Building Name, Location and Number

Building Condition Assessment Verification - Dana Hall

Since the BCAS assessment, Dana Hall has been vacated and is currently under construction to repair the structural wood beams of the building. As a result of the construction project, walls, ceilngs, doors and frames are not in as good condition as noted in the BCAS. Additionally, the exterior doors, frames and hardware were judged to not be in as good of quality as the BCAS indicated. The gymnasium, in comparison to the remainder of the building, is in good condition. Protective measures to preserve the wood basketball court and bleachers during the rehabilitation project are in place.

General issues:

- Complete roof replacement
- Window replacement - single pane windows throughout building
- Exterior shake shingles in poor condition - replacement recommended
- Replace aged doors (interior and exterior), frames and hardware
- Building not fully accessible (i.e. toilet rooms, elevators including visible signals, car dimensions, control buttons, etc., door widths, clearances, door hardware, etc.)
- Mechanical, electrical and plumbing equipment is original and requires replacement
- No fire protection system



Building Condition Assessment Verification, 2010 - Dana Hall

Dana Hall

HVAC System Evaluation:

- All equipment in Dana Hall is from the original 1967 construction.
- A 250 BHP Cleaver-Books Model CB760-250 steam boiler provides low pressure steam for the building. The boiler is served by a duplex condensate return set with 2 HP pumps. A steam to water heat exchanger with parallel 3/4 HP end suction, base mounted Taco pumps rated at 27 GPM and 25 ft. hd. provides heating water for a limited amount of perimeter fin radiation.
- There is no cooling equipment in Dana Hall.
- The Gym is served by air handling units V-1 thru V-4. The units are McQuay Model XHD-111-V vertical units (Serial #72608-P-1) with steam preheat and reheat coil, rated for 5,500 cfm at 1-3/4" S.P. and a 3 HP supply fan. The units are located in the Gym, and are noisy and difficult to access.
- Storage Room 116 is served by air handling unit V-5, which is a McQuay horizontal draw-thru air handling unit with a steam heating coil. Unit has no outside air capabilities and is rated for 1,550 cfm at 1" S.P. with a 3/4 HP supply fan.
- The Fitness Room is served by air handling unit V-6, which is a 100% outside air McQuay horizontal draw-thru unit Model XHD-228H unit, with steam preheat and reheat coils. The unit is located over Room 208. The unit is rated for 17,400 cfm at 1-1/2" S.P. with a 10 HP supply fan. The associated exhaust fan EF-1 is a Clarage size 4120, rated at 17,400 cfm at 1/2" S.P. with a 5 HP motor.
- The Office/Locker Room is served by air handling unit V-7, which is a 100% outside air McQuay horizontal draw-thru unit Model XHD-228H unit, with steam preheat and reheat coils. The unit is located over Room 226. The unit is rated for 15,445 cfm at 1-1/4" S.P. with a 7.5 HP supply fan. The associated exhaust fan EF-2 is a Clarage SA, size 66, Class I, rated at 16,290 cfm at 1/2" S.P. with a 7.5 HP motor.
- The former Nurse Health Center Area is served by air handling unit V-8, which is a 100%

outside air McQuay horizontal draw-thru unit Model XHD-104H unit, with steam preheat and reheat coils. The unit is located over Room 224. The unit is rated for 1450 cfm at 1-1/2" S.P. with a 3/4 HP supply fan. The associated exhaust fan EF-3 is a Clarage Multi-therm, rated at 1450 cfm at 1/2" S.P. with a 1/2 HP motor.

Electrical System Evaluation:

Power

- Building supplied primary power from two (2) 4,160 volt underground circuits with interlocked medium voltage switches. These switches supply a 300 KVA, 480/277 volt transformer and main distribution panel. All equipment is GE, building original and in very poor condition. Equipment is located below grade and exposed to numerous water leaks. As a result the equipment is extremely rusty. The equipment is also obsolete with very limited parts/circuit breaker availability.
- 120/208 volt power is supplied by dry type step down transformers.
- The majority of the branch circuit panels are also building original and are full. These panels are obsolete and circuit breakers are not readily available.
- Feeders, branch circuit wiring and dry type transformers are in good shape.

Emergency Power

- Emergency power supplied by two Chloride battery inverter units.
- Emergency lighting fixtures for egress lighting are located throughout the building and are only activated upon normal power failure. LED exit lights are also connected to the battery inverter system.

Lighting

- Gymnasium and weight room utilize 400 watt metal halide fixtures and multipurpose room uses 175 metal halide fixtures. Lighting in the rest of the building is T8 fluorescent with electronic ballast.
- All lighting operates at 277 volts.
- There are no automated lighting controls.
- All lighting levels appear adequate.

Fire Alarm

- 1999 Simplex 4120 point addressable system with voice notification system connected to campus loop.
- All areas appear to have adequate coverage.

Plumbing System Evaluation:

- A combined water/fire service to the building is provided by one (1) 3-inch ductile iron main that enters the building in the Mechanical Equipment Room on the lower level. This combined domestic/fire service splits to (1) 3-inch potable water main and one (1) 3-inch sprinkler main immediately upon entering into the building.
- The interior building cold water main consists of a 3-inch copper main. There is no water meter or backflow preventer at the service entrance into the building. All of the observed piping and valves appear to be original except where modifications have occurred over the years. The piping appeared to be in fair condition. Valves of this age are generally in poor condition. Maintenance reports the valves to be non functional.
- There is an additional 3-inch water service that serves exterior wall hydrants and lawn sprinkler system. This service is located on the west side of the building. There is no water meter or backflow preventer at the service entrance into the building.
- Pipe and equipment insulation is original and is in poor condition. Portions of the insulation are worn or completely missing in areas where it is exposed and subject to damage such as in the Boiler Room.
- Domestic hot water is provided by one (1) gas fired Patterson-Kelley #PK-231-5 water heater constructed in 1966. The heater is original to the building and is in need of replacement. The interior hot water main consists of a 2 1/2-inch copper main. All of the observed piping and valves appear to be original except where modifications have occurred over the years. The piping appeared to be in fair condition.
- The building has a conventional storm system with roof drains and internal storm water conductors. All observed piping is in fair condition. There is one (1) 10-inch building storm drain and two (2) 8-inch building drains exiting the building on the south side.
- The building has a conventional sanitary, waste and vent system. All observed piping is in poor condition. There is one (1) 6-inch building sanitary drain serving locker and toilet rooms. This drain exits the building below the lower level floor on the south side of the building.
- The natural gas service entrance is located on the south side of the building where it is metered and regulated to the building distribution pressure. Gas is supplied to the heating boilers and water heaters. The piping is in fair condition.
- In regards to the piping systems, it should be understood that an accurate assessment of the condition of all the plumbing piping systems is difficult to make until the piping is at or near the point of failure, since corrosion and degradation continue to occur unseen on the pipe interior until exterior wall failure occurs. Based on the age of the piping system, all piping is near the end of its useful life.
- The observed plumbing fixtures and trim are in poor condition and in some cases inoperable due to age and being out of service for some time. The majority of the water closets and flush valves in the building are the older type and are not the water conserving type. Shower valves and heads are in poor condition.
- The pool was removed from service in 1997.

•The fire protection system for the building consists of a partial sprinkler system located around the open stairwell between the lower and upper levels. The system is supplied by a 2-inch main connected to the 4-inch combined water/fire service located in the lower level Mechanical Room. There is no backflow device. All piping is original.

Recommendations - Dana Hall

HVAC:

•Replace the existing steam boiler plant with a hot water boiler plant, utilizing multiple high efficiency boilers, new stainless steel double wall flue and combustion air ducting, and primary/secondary hot water loop pumping. The secondary pumping system will be a two pump lead/backup system with VFD's on both pumps. A separate glycol heat exchanger and pumps will be provided to serve all air handling unit heating coils as required by SUCF design directives.
•A possible alternative boiler plant has been discussed briefly with the campus, consisting of a separate freestanding satellite boiler plant to serve Dana Hall, Wicks Hall and the Faculty Office Building. This alternative will be greatly dependent upon the timing of the individual building renovation projects.
•Provide an air cooled chiller plant, consisting of an outdoor air cooled chiller with a remote indoor chilled water barrel. The chilled water pumping system will be a two pump lead/backup system. It is assumed that Dana Hall will be fully cooled, as the building is planned to be very flexible in use, and may be used for swing space while other buildings are under renovation.
•All piping will be replaced, and will be insulated as required by the 2010 NYS Energy Code.
•All air handling units will be replaced with new units consisting of the following sections: mixing box with angled 2" thick MERV-8 pre-filters, filter section with 12" thick MERV-13 final filters, glycol heating water coil, access section, chilled water coil, and supply air fan. A separate inline centrifugal return fan will be provided.
•A new mechanical room is proposed to be constructed above the storage rooms at the west end of the gym. This mechanical room is proposed to house two constant volume gym air handling units, which will serve an exposed round supply air duct system in the gym.
•New mechanical room space will need to be created for other air handling units, in order to allow for proper access and maintainability. The existing air handling units, other than the gym units, are located on platforms above ceilings and are difficult to access. It is proposed that a mechanical room be built in the spectator viewing area at the west side of the former Fitness Center. New air handling systems serving areas other than the gym, are anticipated to be variable volume systems with VAV/reheat terminal units.
•All supply, return and exhaust ductwork will be replaced. All new supply ductwork will be insulated as required by the 2010 NYS Energy Code.

- All existing exhaust fans and related ductwork systems will be replaced.
- All equipment will be fully controlled by the existing campus-wide Siemens DDC system. All damper and valve actuators will be low voltage electric type. Water, gas and electric consumption will be metered, and monitored by the DDC system.

Electrical:

- Replace medium voltage switches, provide new 750 KVA, 480 volt main dry type transformer and 1,200 amp main distribution panel. Main distribution panel to include power metering capable of data network connection. Due to water problems do not locate new equipment in existing electrical equipment room.
- Replace branch circuit panels with new and add additional.
- Replace metal halide lighting with T5HO fluorescent.
- Add occupancy sensor lighting control in all areas.

Plumbing:

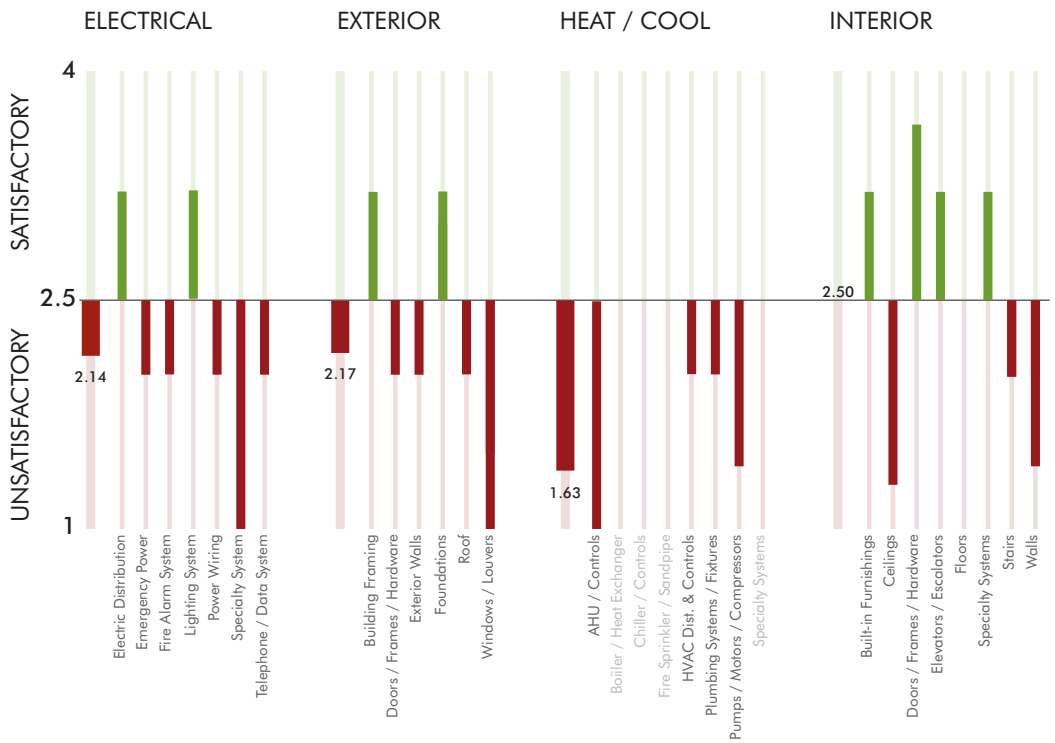
- Replace the interior water system piping. Provide water meter and backflow preventer at service entrance. Provide duplex backflow preventer in duplex arrangement at water service entrance to the building at grade level. Locate backflow device at grade level to permit the backflow emergency relief to discharge to an exterior location above grade.
- Provide all new pipe insulation for domestic water and storm water drain piping.
- Replace the domestic water heating system with energy efficient gas fired condensing type heaters and a hot water storage tank. The tank will store water at 140 deg F. A master mixing valve will temper water to 110 deg F for distribution to the remainder of the building.
- Replace the entire building sanitary drain and vent system. All the existing underground piping 4 inch and larger shall be hydro-flushed and inspected by video camera. Reuse underground piping where inspection confirms piping is acceptable.
- Replace all storm water drain piping and roof drains. All the existing underground piping 4 inch and larger shall be hydro-flushed and inspected by video camera. Reuse underground piping where inspection confirms piping is acceptable. Provide a secondary storm drain system.
- Replace all gas piping and shutoff valves.
- Replace all plumbing fixtures with the water conserving type fixtures. All faucets and flush valves will be the electronic type powered by batteries.
- Provide a complete automatic fire sprinkler system for all spaces of the building. Provide backflow prevention on fire service.

Building Condition Assessment Verification - Cook Hall

Since the BCAS assessment, minor changes have occurred.

General issues:

- Complete roof replacement
- Window replacement - single pane windows throughout building
- Exterior stucco panel system is cracking and requires repair
- Enhance integrated building signage on front facade
- Building not fully accessible (i.e. toilet rooms, elevators including visible signals, car dimensions, control buttons, etc., door widths, clearances, door hardware, etc.)
- Ceilings at second floor have deteriorated
- Main distribution panel and branch circuit panels are full and original to the building
- No fire protection system



Building Condition Assessment Verification, 2010 - Cook Hall

Cook Hall

HVAC System Evaluation:

•Steam is supplied to Cook Hall underground from nearby Payson Hall. The steam and condensate lines were replaced in 2000. Chilled water is supplied from the adjacent Faculty Office Building chilled water plant.

•Air handling unit V-2 is a 40 HP 19,860 cfm Nesbitt Model HD-65 horizontal draw-thru air handling unit serves the building, and is sized for ventilation air only. The unit has a variable speed drive but is run at 100% fan speed at all times. Building heating is accomplished thru the perimeter fin radiation system. The unit was installed in the original building construction. The original humidifier is disconnected. The unit has two (2) main steam reheat coils, one for the 1st floor (7,800 cfm) and one for 2nd floor (12,000 cfm). A glycol run around heat recovery system was installed in 1990 and reportedly does not perform adequately. Ventilation system upgrades were also done in 1990 consisting of installation of supply and exhaust VAV boxes in miscellaneous Lab spaces. There is no cooling on the first floor of the building. Cooling is only available on the 2nd floor of the building due to a 2nd floor duct main chilled water coil installation in 1997. As part of the same project, 14 ducted chilled water fan coil units were installed in various classrooms and labs. Additionally there were 5 zone duct chilled water coils installed.

•An Armstrong steam to water heat exchanger is used to create heating water to serve duct mounted reheat coils and VAV box reheat coils. Two Armstrong 7-1/2 HP inline pumps rated for 165 gpm at 72 ft. hd. serve the reheat water loop.

•The perimeter fin radiation system is served by an Armstrong steam to water heat exchanger. The radiation system is pumped by Two Armstrong 5 HP inline pumps rated for 117 gpm at 80 ft. hd. serve the reheat water loop.

•A run-around coil heat recovery loop with a 10 HP Armstrong Model 4030 pump rated for 249 GPM at 89 ft. hd. currently serves AHU-V2. The system was installed in 1990. The

loop is piped incorrectly. The discharge air temperature of unit AHU V-2 is too low. AHU V-2 coil is size for –20°F EAT and 18.1°F LAT. Roof mounted heat recovery exhaust unit is rated for 11,850 cfm at 2" S.P. and 10 HP. The exhaust glycol heat recovery coil is sized for 75°F EAT and 35.6°F LAT at a 50% glycol solution.

- The Lab fume hood system is a constant volume bypass style system with Landis and Gyr Powers fume hood controllers. There are four hoods per each of the two Chemistry Labs, and a single fume hood in each of the Two Biology Labs.
- Air handling unit V-1 is a 15 HP 12,150 cfm 100% outside air VAV (unit has vortex dampers) make-up air rooftop unit serving Chemistry Labs 0200/0201, Classroom 0202 and Mortician Science Lab 0114. Unit has a glycol face and bypass heating coil and provides make-up air for the lab fume hoods.
- Air handling unit AC-1 is currently not used. The unit is a 100% outside air constant volume heat recovery rooftop unit with a glycol heating coil and 4 ton DX cooling coil. The supply fan is rated for 1,500 cfm at 2-1/2" S.P. and 2 HP. The exhaust fan is rated for 1,500 cfm at 2" S.P. and 1-1/2 HP. Unit serves the Animal Care Center Room 0100.
- As part of the 2000 ventilation upgrade project, eleven lab exhaust fans were installed.
- All HVAC equipment appears to be controlled by the Siemens DDC system, although most damper and control valve actuators are still pneumatically actuated.
- A Landis and Gyr duplex 10 HP air compressor with a refrigerated air dryer provides pneumatic control air for the building.

Electrical System Evaluation:

Power

- Building supplied power from a 600 amp 480 volt feed from Payson Hall. 120/208 volt power is provided by dry type step down transformers.
- Westinghouse main distribution panel is building original and is full. Panel is obsolete and circuit breakers are not readily available.
- The majority of the branch circuit panels are Westinghouse building original and are full. These panels are obsolete and circuit breakers are not readily available.
- Feeders, branch circuit wiring and dry type transformers are in good shape.

Emergency Power

- Emergency power supplied by a 1.5KW Chloride battery inverter unit installed in 1995.
- Emergency lighting fixtures for egress lighting are located throughout the building and are only activated upon normal power failure. LED exit lights are also connected to the battery inverter system.

Lighting

- Lighting is supplied at 277 volts and utilizes T8 fluorescent lamps with electronic ballast.
- There are no automated lighting controls.
- All lighting levels appear adequate.

Fire Alarm System

- 1999 Simplex point addressable connected to the Payson Hall Fire Alarm control panel. All areas appear to have adequate coverage

Plumbing System Evaluation:

- Domestic water to the building is provided by one (1) 4-inch ductile iron main that enters the building in the Mechanical Equipment Room on the lower level.
- The interior building cold water main consists of a 4-inch copper main. There is no water meter or backflow preventer at the service entrance into the building. All of the observed piping and valves appear to be original except where modifications have occurred over the years. The piping appeared to be in fair condition. Valves of this age are generally in poor condition. Maintenance reports the valves to be non functional.
- Pipe and equipment insulation is original and is generally in good condition. Portions of the insulation are worn in areas where it is exposed and subject to damage such as in the Mechanical Room.
- Domestic hot water is provided by two (2) Lochinvar "Armor" condensing style water heaters located in the mechanical room of the adjacent Payson Building. These water heaters are new and in excellent condition. Hot water is stored within a 120 gallon hot water tank and piped to the Cook Building.
- The building has a conventional storm system with roof drains and internal storm water conductors. There are two (2) 8-inch building storm drains that exit the east side of the building. All observed piping is in fair condition. There is no secondary storm drainage system.
- The building has a conventional sanitary, waste and vent system. All observed piping is in fair condition. The main 5-inch sanitary building drain serving the toilet rooms exits on the north end of the building.
- The building has an acid waste and vent system within the chemistry rooms. This system consists of glass piping. All piping is original and is in fair condition. A 5-inch acid waste building drain exits on the north end of the building to a neutralizing basin. The effluent from the basin discharges to the site sanitary system.
- The natural gas service entrance is located on the west side of the building where it is regulated to the building distribution pressure. Gas is supplied to the chemistry labs. An automatic gas shutoff valve is located at the service entrance. There is no gas meter on the service to the building. The piping is in fair condition.

•In regards to the piping systems, it should be understood that an accurate assessment of the condition of all the plumbing piping systems is difficult to make until the piping is at or near the point of failure, since corrosion and degradation continue to occur unseen on the pipe interior until exterior wall failure occurs. Based on the age of the piping system, all piping is near the end of its useful life.
•The observed plumbing fixtures and trim are in fair condition. A majority of the water closets and flush valves in the building are the older type and are not the water conserving type. Lab faucets and fittings within the science rooms are in poor condition. Emergency shower and eyewash stations within the science rooms are in poor condition.
•Piping for sanitary, water and gas to the Biology and Anatomy Labs was upgraded during 1999 and is in good condition.
•There is no fire protection system.

Recommendations - Cook Hall

HVAC:

•Steam will continue to be supplied from Payson Hall.
•A new steam to water heat exchanger and pumps will be provided to serve the new building perimeter fin radiation and VAV terminal reheat coil systems. A separate glycol heat exchanger and pumps will be provided to serve the air handling unit heating coil as required by SUCF design directives.
•Chilled water is currently supplied from the Faculty Office Building chiller plant by a pair of 6" chilled water lines. The existing 325 ton chiller and cooling tower in the Faculty Office Building however, does not have adequate capacity to support the additional cooling load of the first floor of the building, coupled with the lab ventilation loads which are currently picked up by a separate DX cooled rooftop unit.
•All building piping will be replaced, and will be insulated as required by the 2010 NYS Energy Code. All building perimeter fin radiation will be replaced.
•The main building air handling unit will be replaced with a new custom variable volume air handling unit consisting of the following sections: mixing box with angled 2" thick MERV-8 pre-filters, filter section with 12" thick MERV-13 final filters, glycol heating water coil, access section, chilled water coil, and supply air fan. A separate inline centrifugal return fan will be provided. Air-to-air or coil run around heat recovery will be incorporated.
•All supply, return and exhaust ductwork will be replaced. All new ductwork will be insulated as required by NYS Energy Code.
•The entire building will be served by a variable air volume terminal reheat system served by a single air handling unit. The VAV/reheat terminal unit controls will be interlocked with the space lighting occupancy sensors, for unoccupied space setback of the VAV terminal unit minimum airflows.
•All Lab exhaust hoods will be replaced with variable volume hoods and controls. The variable volume supply and exhaust for each Lab will be accomplished by the use of

pressure independent venturi valves (Phoenix or equal) for precise airflow control.

- All existing exhaust fans and related ductwork systems will be replaced.
- All equipment will be fully controlled by the existing campus-wide Siemens DDC system. All damper and valve actuators will be low voltage electric type. Water, gas and electric consumption will be metered, and monitored by the DDC system.

Electrical:

- Replace 600 amp main distribution panel with new to include power metering capable of data network connection.
- Replace obsolete branch circuit panels with new and add additional.
- Add occupancy sensor lighting control as indicated in energy study.

Plumbing:

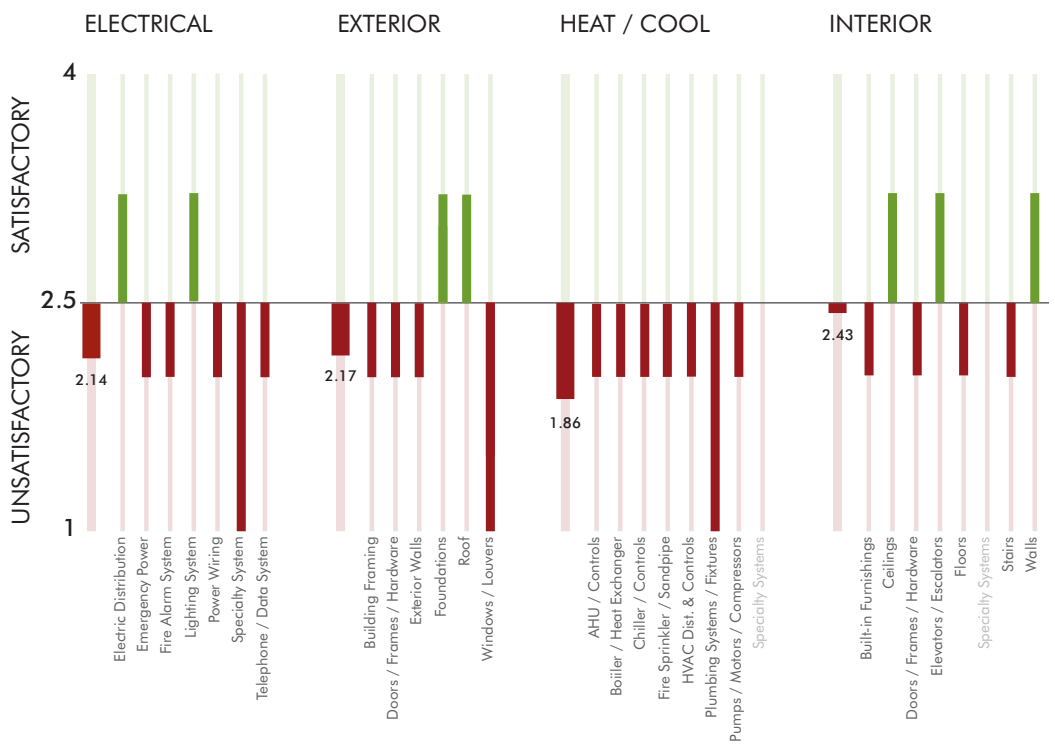
- Replace the interior water system piping. Provide water meter and backflow preventer at service entrance. Provide duplex backflow preventer in duplex arrangement at water service entrance to the building at grade level. Locate backflow device at grade level to permit the backflow emergency relief to discharge to an exterior location above grade.
- Provide all new pipe insulation for domestic water and storm water drain piping.
- Replace the entire building sanitary drain and vent system. All the existing underground piping 4 inch and larger shall be hydro-flushed and inspected by video camera. Reuse underground piping where inspection confirms piping is in good condition.
- Replace the entire building acid waste drain and vent system. All the existing underground piping 4 inch and larger shall be hydro-flushed and inspected by video camera. Reuse underground piping where inspection confirms piping is acceptable. Replace existing acid neutralization trap located on the exterior of the building.
- Replace all storm water drain piping and roof drains. All the existing underground piping 4 inch and larger shall be hydro-flushed and inspected by video camera. Reuse underground piping where inspection confirms piping is acceptable. Provide a secondary storm drain system.
- Replace all gas piping and shutoff valves. Provide a gas meter.
- Replace all plumbing fixtures with the water conserving type fixtures. All faucets and flush valves will be the electronic type powered by batteries.
- Replace all emergency shower and eyewash stations within labs. Replace all lab faucets and gas fittings.
- Provide a complete automatic fire sprinkler system for all spaces of the building. Provide backflow prevention on fire service.

Building Condition Assessment Verification - Chaney Dining Center

Chaney is similar to Dana as both were designed with a structural wood beam system that is visible from within the buildings. Some water infiltration is evident at certain areas of the wood structure which may be caused by leaks in the roof system. Although the BCAS states a sprinkler system is 'not applicable', there is a partial sprinkler system located in the lower level only. Since the BCAS, the ceilings have deteriorated. As most buildings on campus, the exterior stucco panels are in need of repair. The food service/kitchen/dining space is antiquated and would benefit from a complete renovation.

General Issues:

- Complete roof replacement
- Windows need replacement - single pane windows throughout building
- Enhance integrated building signage on front facade
- Building not fully accessible (i.e. toilet rooms, elevators including visible signals, car dimensions, control buttons, etc., door widths, clearances, door hardware, etc.)
- Replace steam boiler with new hot water boiler
- Replace all kitchen equipment with gas fired and electric based equipment
- Replace lighting in dining area
- Provide fire protection system throughout building



Building Condition Assessment Verification, 2010 - Chaney Dining Center

Chaney Dining Center

HVAC System Evaluation:

- Three 107 BHP Cleaver Brooks M4P-700 boilers installed in 2000, provide high pressure steam at a supply pressure of 50 psi in the summer and 60 psi in the winter. A single boiler runs during the summer at a very low load, to serve domestic hot water and kitchen cooking equipment needs. Two boilers run in the winter, with the third boiler serving as backup. The steam pressure is reduced initially from 60 psi to 15 psi, and then again further from 15 psi to 5 psi. The associated pressure reducing stations, in-floor duplex condensate return lift station, boiler feed pumps, etc. were all installed in 2000.
- A 220 lb/hr steam to water heat exchanger installed in 2000 utilizes the 15 psi steam, to create heating water for use by the building perimeter fin radiation system. Two constant speed heating water pumps (one lead/one backup) serve the building perimeter fin radiation system. A second steam to water heat exchanger size creates domestic hot water utilizing 15 psi steam. A 900 lb/hr clean steam generator using the high pressure steam, produces clean steam as required for kitchen cooking equipment.
- Five original air handling units serve the building, and had steam coil replacements as part of the 2000 boiler replacement project. All AC units have DX cooling coils served by dedicated R-22 Carrier chillers with water cooled condensers. The condenser water system is a central glycol system with 2 pumps, with heat rejection accomplished thru a Baltimore Air Coil forced draft model F1463-P evaporative cooler, which operates with a drained spray pump basin in the winter. This condenser water system also provides for heat rejection from the kitchen coolers and freezers.
- Air handling units AC-1 and AC-2 are located in a lower level mechanical room, and serve the north and south portions of the dining area, respectively. The existing air handling units are Carrier Model #50BA034400 packaged water-cooled units, and each rated for 10,500 cfm. The steam pre-heat and re-heat coils were all replaced in 2000. The supply ductwork runs below the dining area floor, and discharges at the perimeter wall thru floor mounted supply grilles.

•Air handling unit AC-3 is located above a ceiling and serves the Upper Lobby. The unit was installed in 2000 with a complete new above ceiling supply duct system. The air handling unit is a Trane packaged water-cooled unit sized for 10,000 cfm, and has a steam heating coil.
•Air handling unit AC-5 is located in a kitchen level mechanical room, and serves the Goolden Room. This unit was a replacement for the original Carrier packaged water-cooled unit. The unit is rated for 2000 cfm and has a steam heating coil.
•Air handling unit V-1 is a 100% outside air unit, with steam heating and no cooling. Unit V1 provides 3800 cfm of ventilation makeup air to the Basement, and has a steam pre-heat and a steam re-heat coil.
•Unit V-2 is a 100% outside air heating unit, with a steam heating coil only, no supply fan, and face and bypass damper control. The steam coil was replaced in 2000. Unit V2 is sized to provide 12,000 cfm of 75 degree air to the Kitchen area for exhaust hood makeup.
•Unit V-3 is a 100% outside air heating unit, with a steam heating coil only, no supply fan, and face and bypass damper control. The steam coil was replaced in 2000. Unit V2 is sized to provide 12,000 cfm of 75 degree air to the Bakery area for exhaust hood makeup.
•Unit V-4 is a 100% outside air heating unit, with a steam heating coil only, no supply fan, and face and bypass damper control. The steam coil was replaced in 2000. Unit V2 is sized to provide 12,000 cfm of 75 degree air to the Food Lab area for exhaust hood makeup.
•There are approximately 12 existing exhaust fans of varying ages. The 4 main kitchen hood exhaust fans were replaced as part of the 2000 upgrade project.
•All HVAC equipment appears to be controlled by the Siemens DDC system, although most damper and control valve actuators are still pneumatically actuated.
•A Quincy duplex air compressor with a refrigerated air dryer provides pneumatic control air for the building. The compressor appears to be a reasonably recent replacement.

Electrical System Evaluation:

Power

•Building supplied primary power from two 4,160 volt underground circuits with interlocked medium voltage switches. These switches supply a 750 KVA, 120/208 volt transformer and main distribution panel. All equipment is Westinghouse and building original.
•Medium voltage switches and transformer are in good physical and working condition.
•2,500 amp main distribution panel is full with disconnect switches mounted on it. Panel requires an external fan to cool the circuit breaker for AC units #1 & #2. Panel is obsolete and circuit breakers are not readily available.
•Westinghouse branch circuit panels throughout the building are building original and lack circuit space. Panels are obsolete and circuit breakers are not readily available. There are some newer Cutler Hammer panels located in the Mechanical Room.

- Feeders and branch circuit wiring are in good shape.

Emergency Power

- Emergency power supplied by two (2) 1KW Chloride battery inverter units approximately 10 years old.
- Emergency lighting fixtures for egress lighting are located throughout the building and are only activated upon normal power failure. LED exit lights are also connected to the battery inverter system.

Lighting

- Dining area lighting is provided by 175W and 400W metal halide pendent light fixtures.
- Remainder of building utilizes T8 fluorescent lamps with electronic ballast.
- There are no automated lighting controls.
- All lighting levels appear adequate.

Fire Alarm System

- 1999 Simplex 4120 panel reports alarms to campus loop. Panel is zone addressable.
- Manual pull stations are provided at all exits. There are two hood fire suppression systems but no smoke detectors in the main dining area (assembly space).
- Alarm notification is provided by bell/strobe units.

Plumbing System Evaluation:

- Domestic water to the building is provided by one (1) 4-inch ductile iron main that enters the building in the Boiler Room on the lower level.
- The interior building cold water main consists of a 4-inch copper main. There is no water meter or backflow preventer at the service entrance into the building. All of the observed piping and valves appear to be original except where modifications have occurred over the years. The piping appeared to be in fair condition. Valves of this age are generally in poor condition. Maintenance reports the valves to be non functional.
- Pipe and equipment insulation is original and is generally in good condition. Portions of the insulation are worn in areas where it is exposed and subject to damage such as in the Boiler Room and Kitchen.
- Domestic hot water is provided by two (2) semi-instantaneous steam heat exchangers. These heaters are not original to the building. Both are in poor to fair condition. Domestic cold water makeup to the water heaters is supplied through water softeners that were replaced in 1996. The softeners are a twin system utilizing brine as the regenerative media. The system is in good condition. The interior hot water main consists of a 2-inch copper main. All of the observed piping and valves appear to be original except where

modifications have occurred over the years. The piping appeared to be in fair condition.

- The building has a conventional storm system with roof drains and internal storm water conductors. All observed piping is in fair condition. There are two (2) 8-inch building storm drains. One drain exits the building on the north while the remaining drain exits to the south side of the building. Footing drains are connected to each storm building drain through sand interceptors located in the lower level floor. There is no secondary storm drainage system.
- The building has a conventional sanitary, waste and vent system. All observed piping is in fair condition. There is a separate kitchen waste sanitary building drain. This 5-inch drain serves only the kitchen equipment and exits the building below the intermediate floor level. All grease interception occurs at grease traps located at grease producing equipment. The grease traps observed were in poor condition or abandoned in place.
- The original main 4-inch building sanitary drain serving toilet rooms and floor drains exits the building to the north below the lower level floor. Since the original building construction a 6-inch building drain was added to serve equipment on the intermediate level. This drain was replaced in 1996 and exits the building on the east side of the loading dock area towards the north.
- The natural gas service entrance is located on the east side of the building where it is metered and regulated to the building distribution pressure. Gas is supplied to the heating boilers and kitchen equipment. The piping is in fair condition.
- In regards to the piping systems, it should be understood that an accurate assessment of the condition of all the plumbing piping systems is difficult to make until the piping is at or near the point of failure, since corrosion and degradation continue to occur unseen on the pipe interior until exterior wall failure occurs. Based on the age of the piping system, all piping is near the end of its useful life.
- The observed plumbing fixtures and trim are in fair condition. A majority of the water closets and flush valves in the building are the older type and are not the water conserving type.
- The fire protection system for the building consists of a partial sprinkler system located on the lower level. The system is supplied by a 4-inch main that enters the building in the Food Storage room on the lower level. The fire riser consists of an alarm check valve with flow switch and shutoff. There is no backflow device. All piping is original.

Recommendations - Chaney Dining Center

HVAC:

- Replace the existing steam boiler plant with a hot water boiler plant, utilizing multiple high efficiency boilers, new stainless steel double wall flue and combustion air ducting, and primary/secondary hot water loop pumping. The secondary pumping system will be a two pump lead/backup system with VFD's on both pumps. A separate glycol heat exchanger and pumps will be provided to serve all air handling unit heating coils as

required by SUCF design directives.

- Since steam will no longer be available for kitchen cooking equipment, all kitchen equipment is proposed to be replaced with gas fired and electric based equipment. Additionally, all kitchen cooler and freezer equipment will be replaced with air cooled equipment, with the condensers located at grade adjacent to the building.
- Replace the existing cooling plant equipment with a new air cooled chiller plant, consisting of an outdoor air cooled chiller with a remote indoor chilled water barrel. The chilled water pumping system will be a two pump lead/backup system.
- A new mechanical room is proposed to be located in a portion of the current Temporary Fitness Center located underneath the Dining Room. This is proposed to house a single new AHU to serve the Dining Room. The Dining Room supply ductwork currently runs beneath the Dining Room floor. The existing mechanical room housing the current dining room AHU's, can be converted to storage.
- All air handling units will be replaced with new units consisting of the following sections: mixing box with angled 2" thick MERV-8 pre-filters, filter section with 12" thick MERV-13 final filters, glycol heating water coil, access section, chilled water coil, and supply air fan. A separate inline centrifugal return fan will be provided. A single air handling unit will replace the 2 units currently serving the Dining Room. The Goolden Room unit will be replaced in its current location.
- All piping will be replaced, and will be insulated as required by the 2010 NYS Energy Code.
- All supply, return and exhaust ductwork will be replaced. All new supply ductwork will be insulated as required by the 2010 NYS Energy Code.
- All kitchen hoods will be replaced with compensating style hoods with 90% of the supply air required to match the exhaust air quantity, being ducted directly to the hood. The hoods will be served by new exhaust fans, and natural gas direct fired makeup air units. A variable speed hood control package will be provided utilizing multiple hood temperature sensors, and supply and exhaust fan variable frequency drives to vary the airflow based upon cooking activity. The system will run at a 20% fan speed reduction (equating to a 48% fan energy cost reduction) until a hood mounted temperature sensor sees a temperature rise to a level that indicates cooking equipment has been energized.
- All existing exhaust fans and related ductwork systems will be replaced.
- All equipment will be fully controlled by the existing campus-wide Siemens DDC system. All damper and valve actuators will be low voltage electric type. Water, gas and electric consumption will be metered, and monitored by the DDC system.

Electrical:

- Provide new 1000 KVA, 480 volt dry type main transformer and 1,400 amp main distribution panel. Main distribution panel to include power metering capable of data network connection. Provide 300 KVA, 120/208 volt dry type transformer and 1,000 amp distribution panel to supply the building's branch circuit panels.

- Replace branch circuit panels and add additional.
- Replace metal halide lighting in dining area with T5HO fluorescent as indicated in energy study.
- Add occupancy sensor lighting control as indicated in energy study.
- Add smoke detectors to dining hall. Replace all initiation devices with point addressable units. Remove bell/strobe units and provide voice notification system with speaker/strobe units.

Plumbing:

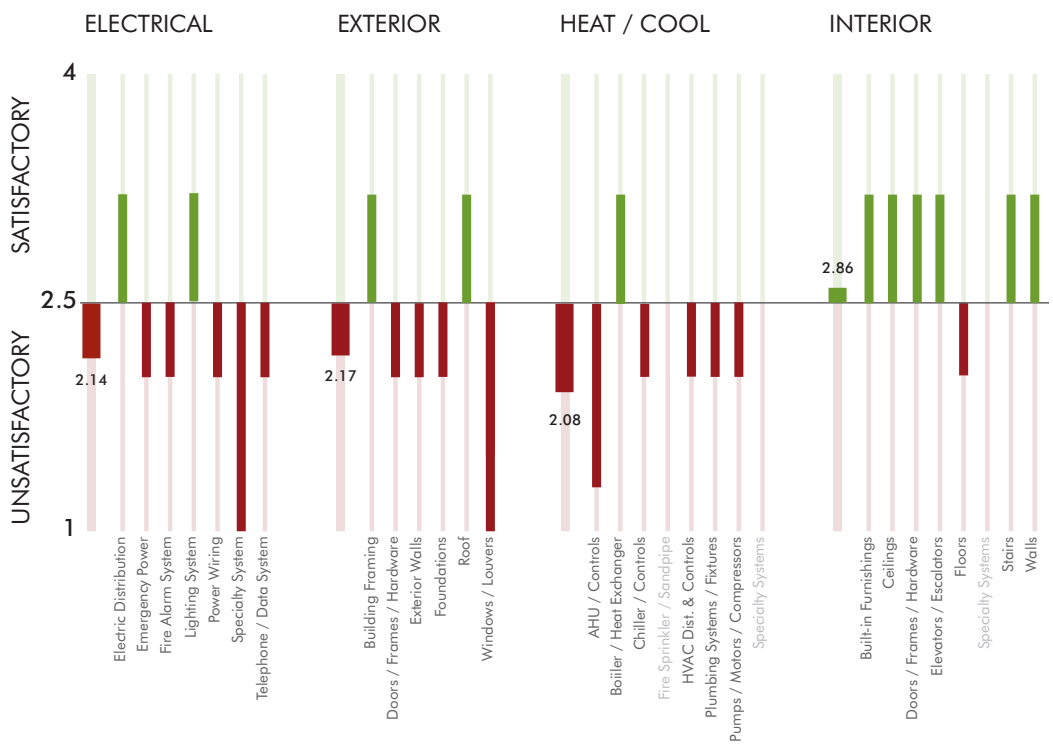
- Replace the interior water system piping. Provide water meter and backflow preventer at service entrance. Provide duplex backflow preventer in duplex arrangement at water service entrance to the building at grade level. Locate backflow device at grade level to permit the backflow emergency relief to discharge to an exterior location above grade.
- Provide all new pipe insulation for domestic water and storm water drain piping.
- Replace the domestic water heating system with energy efficient gas fired condensing type heaters and a hot water storage tank. The tank will store water at 140 deg F. Provide 140 deg F water to the kitchen area. A master mixing valve will temper water to 110 deg F for distribution to the remainder of the building. Provide hot water circulating pumps for each temperature system.
- Replace the entire building sanitary drain and vent system. All the existing underground piping 4 inch and larger shall be hydro-flushed and inspected by video camera. Reuse underground piping where inspection confirms piping is in good condition. Provide a separate grease waste drainage system for the kitchen drains. All kitchen drains will drain through a grease trap except for the garbage disposals. The grease trap will be located on the exterior of the building.
- Replace all storm water drain piping and roof drains. Relocate footing drain sump pit from food storage area. All the existing underground piping 4 inch and larger shall be hydro-flushed and inspected by video camera. Reuse underground piping where inspection confirms piping is in good condition. Provide a secondary storm drain system.
- Replace all gas piping and shutoff valves.
- Replace all plumbing fixtures with the water conserving type fixtures. All faucets and flush valves will be the electronic type powered by batteries.
- Provide a complete automatic fire sprinkler system for all spaces of the building. Provide backflow prevention on fire service.

Building Condition Assessment Verification - French Hall

Although the BCAS states a sprinkler system is 'not applicable', there is a partial sprinkler system located in the lobby area. Since the BCAS, the roof has deteriorated and a large amount of 'ponding' is evident on the roof's surface. The ceilings have also seen additional wear and an acoustical spline ceiling, most likely asbestos containing material, exists throughout the main lobby, vestibule and second floor offices. Building name signage integrated on the facade is in disrepair. A project is currently underway to improve this prominent building feature.

General Issues:

- Complete roof replacement
- Windows need replacement - single pane windows throughout building
- Building not fully accessible (i.e. toilet rooms, elevators including visible signals, car dimensions, control buttons, etc., door widths, clearances, door hardware, etc.)
- Replace existing steam boiler with hot water boiler
- Replace all ductwork
- Main distribution panel and branch circuit panels are full and original to the building
- Provide fire protection system throughout building



Building Condition Assessment Verification, 2010 - French Hall

French Hall

HVAC System Evaluation:

•A 60 BHP Cleaver Brooks M4S-200 low pressure steam boiler was installed in 2006. There is currently no backup boiler. A steam to water heat exchanger provides heating water for the two pipe HW/CW fan coil unit system. Three 5 HP Bell and Gossett Series 1510 base mounted pumps at 95 gpm and 100 ft. hd. serve the two pipe fan coil system for both heating and cooling mode. One of the 3 pumps is a standby pump.

•A 1967 80 ton R-22 Carrier model number 30HR-J80D-600 water cooled reciprocating chiller produces the chilled water for the fan coil system. The chiller is served by a 1999 Baltimore Air Coil model VTO-102-KMC cooling tower located at grade outside the mechanical room. The condenser water pump is a 7.5 HP Bell and Gossett Series 1510 base mounted pump at 300 gpm and 80 ft. hd.

•The existing fan coil unit piping system is a two pipe system, with manual changeover from heating to cooling. The Trane fan coil units are original from 1966 and have been retrofitted with DDC controls.

•The original 1967 air handling units are 100% outside air with steam preheat and reheat coils, and chilled water coils. The units are sized based upon ventilation air requirements only, with the space heating and cooling loads being picked up by the fan coil unit system. Unit V-1 is a 1560 cfm unit, and serves the Lower Level of the building. Unit AC-1 is a 6370 cfm unit, serves the Upper Level of the building, and is located in a mezzanine space above the Lower Level East Vestibule.

•The building exhaust fans are utility set type fans, and are all original.

•A 1998 Liebert Challenger 4 ton unit provides cooling for the TeleCom Room. This unit is not currently monitored by the DDC system. Monitoring of the Liebert unit alarm contact should be added.

•All HVAC equipment appears to be controlled by the Siemens DDC system, although most damper and control valve actuators are still pneumatically actuated.
•A 2 HP duplex air compressor with a refrigerated air dryer provides pneumatic control air for the building.

Electrical System Evaluation:

Power

•Building supplied power from a 600 amp 480 volt feed from Nevaldine Hall. 120/208 volt power is provided by step down transformers.
•Federal Pacific main distribution panel is building original and has no spaces left. Panel is obsolete but some circuit breakers manufactured by Bryant will fit this panel.
•Branch circuit panels are Federal Pacific and building original and have no spaces left. These panels are in the same situation as the main distribution panel.
•Feeders, branch circuit wiring and dry type transformers are in good shape.

Emergency Power

•A 1980's Onan 25 KW natural gas fired emergency generator with 445 hours provides back-up power for the telephone system.
•Emergency power for egress and exit lighting is supplied by a 1 KW Chloride battery inverter unit.
•Emergency lighting fixtures for egress lighting are located throughout the building and are only activated upon normal power failure. LED exit lights are also connected to the battery inverter system.

Lighting

•Lighting is supplied at 277 volts and utilizes T8 fluorescent lamps with electronic ballasts.
•There are no automated lighting controls.
•All lighting levels appear adequate.

Fire Alarm System

•1999 Simplex 4020 point addressable reports alarms to campus loop.
•Some pullstation locations may exceed travel distance requirements.

Plumbing System Evaluation:

•A combined water/fire service to the building is provided by one (1) 4-inch ductile iron main that enters the building in the Mechanical Equipment Room on the lower level. This

combined domestic/fire service splits to (1) 3-inch potable water main and one (1) 3-inch sprinkler main immediately upon entering into the building.

- The interior building cold water main consists of a 3-inch copper main. There is no water meter or backflow preventer at the service entrance into the building. All of the observed piping and valves appear to be original. The piping appeared to be in fair condition. Valves of this age are generally in poor condition. Maintenance reports the valves to be non functional.
- Pipe and equipment insulation is original and is generally in good condition. Portions of the insulation are worn in areas where it is exposed and subject to damage such as in the Mechanical Room.
- Domestic hot water is provided by one (1) gas fired atmospheric tank style water heater located in the lower level Mechanical Room. The heater is an AO Smith Model BTC-120 with a 75 gallon capacity. It is not the original water heater and is in fair condition. The interior hot water main consists of a 1-inch copper main. All of the observed piping and valves appear to be original except where modifications have occurred over the years. The piping appeared to be in fair condition.
- The building has a conventional storm system with roof drains and internal storm water conductors. All observed piping is in fair condition. A 10-inch building storm drain exits the building on the below the lower level floor on the south side of the building. There is no secondary storm drainage system.
- The building has a conventional sanitary, waste and vent system. All observed piping is in fair condition. The 4-inch building sanitary drain serving toilet rooms and floor drains exits the building below the lower level floor on the south side of the building.
- The natural gas service entrance is located on the north side of the building where it is metered and regulated to the building distribution pressure. Gas is supplied to the heating boilers and water heater. The piping is original and in fair condition.
- In regards to the piping systems, it should be understood that an accurate assessment of the condition of all the plumbing piping systems is difficult to make until the piping is at or near the point of failure, since corrosion and degradation continue to occur unseen on the pipe interior until exterior wall failure occurs. Based on the age of the piping system, all piping is near the end of its useful life.
- The observed plumbing fixtures and trim are in fair condition. A majority of the water closets and flush valves in the building are the older type and are not the water conserving type.
- The fire protection system for the building consists of a partial sprinkler system located in the lobby area. The system is supplied by a 3-inch main connected to the 4-inch combined water service located in the lower level Mechanical Room. There is no backflow device. All piping is original.

Recommendations - French Hall

HVAC:

- Convert the existing boiler from steam to hot water. Replace the existing boiler flue and combustion air intake system. Provide new heating water pumping consisting of a two pump lead/backup system. A separate glycol heat exchanger and pumps will be provided to serve air handling unit heating coils as required by SUCF design directives.
- Replace the existing chiller plant equipment with a new air cooled chiller plant, consisting of an indoor condenser-less chiller with a remote outdoor air cooled condenser. The chilled water pumping system will be a two pump lead/backup system.
- Provide new 4 pipe chilled water fan coil units to replace the existing 2 pipe fan coil system. Rework the fan coil unit condensate drain system, as the current system drains into the slab.
- All piping will be replaced, and will be insulated as required by the 2010 NYS Energy Code.
- The two existing air handling units will be replaced with new units consisting of the following sections: mixing box with angled 2" thick MERV-8 pre-filters, filter section with 12" thick MERV-13 final filters, glycol heating water coil, access section, chilled water coil, and supply air fan. The units will be sized for ventilation air requirements only, and will be operated with 100% outside air. Note that on the second floor, an acceptable location will need to be found to create a new mechanical room, due to the current AHU location being unmanageable for proper access and maintenance. Air-to-air or coil run around heat recovery will be incorporated.
- All supply, return and exhaust ductwork will be replaced. All new supply ductwork will be insulated as required by the 2010 NYS Energy Code.
- All existing exhaust fans and related ductwork systems will be replaced.
- All equipment will be fully controlled by the existing campus-wide Siemens DDC system. All damper and valve actuators will be low voltage electric type. Water, gas and electric consumption will be metered, and monitored by the DDC system.

Electrical:

- Replace 600 amp main distribution panel with new to include power metering capable of data network connection.
- Replace branch circuit panels with new and add additional.
- Remove emergency generator and provide 25 KW UPS unit with 15 minutes of battery backup for telephone system.
- Add occupancy sensor lighting control as indicated in energy study.

Plumbing:

- Replace the interior water system piping. Provide water meter and backflow preventer at service entrance. Provide duplex backflow preventer in duplex arrangement at water service entrance to the building at grade level. Locate backflow device at grade level to permit the backflow emergency relief to discharge to an exterior location above grade. Provide backflow preventer, reduced pressure type, at HVAC make-up water location.
- Provide all new pipe insulation for domestic water and storm water drain piping.
- Replace the domestic water heating system with energy efficient gas fired condensing type heaters and a hot water storage tank mounted within a single cabinet. The tank will store water at 140 deg F. A master mixing valve will temper water to 110 deg F for distribution to the remainder of the building. Provide hot water circulating pump to maintain an acceptable hot water temperature at the fixtures.
- Replace the entire building sanitary drain and vent system. All the existing underground piping 4 inch and larger shall be hydro-flushed and inspected by video camera. Reuse underground piping where inspection confirms piping is in good condition.
- Replace all storm water drain piping and roof drains. All the existing underground piping 4 inch and larger shall be hydro-flushed and inspected by video camera. Reuse underground piping where inspection confirms piping is in good condition.
- Replace all gas piping and shutoff valves.
- Replace all plumbing fixtures with the water conserving type fixtures. All faucets and flush valves will be the electronic type powered by batteries.
- Provide a complete automatic fire sprinkler system for all spaces of the building. Provide backflow prevention on fire service.

Building Condition Assessment Verification - Other Buildings

The remainder of buildings on campus were reviewed against the 2007 Building Condition Assessment Survey. As previously stated, the BCAS was determined to be reasonably accurate. The differences noted between the 2007 assessment and the 2010 verification are due to repairs and/or renovations, or unforseen conditions.

Payson Hall (Bldg. No. 3)

This building was constructed in 1967 and has had some interior space renovations to accommodate program needs. The BCAS accurately identifies many of the systems as being at the end of their useful service life. The building shell, windows and doors are original, the mechanical systems are in need of upgrade and/or replacement and many of the spaces are not suited for their current use.

Campus Center (Bldg. No. 5)

This building was constructed in 1967 and has received many interior space renovations to accommodate program needs. The BCAS accurately identifies many of the systems as being at the end of their useful service life. The building shell and windows and some mechanical systems are in need of upgrade and/or replacement.

Campus Center Addition (Bldg. No 5A)

This building was constructed in 2002 as an addition to the original Campus Center building. and is in overall good condition. Many of the spaces are not suited for their current use and do not meet necessary student activity space.

Nevaldine Hall North (Bldg. No 6A)

This building was constructed in 1967 and has had few renovations. The BCAS accurately identifies many of the systems as being at the end of their useful service life. The building shell, windows and doors are original, the mechanical systems are in need of upgrade and/or replacement. The roof is original built up asphalt and many of the spaces are not suited for their current use.

Nevaldine Hall South (Bldg. No. 6B)

This building was constructed in 1967. It was remodeled in 2010 to meet new program needs and is in overall good condition. The gas, oil and water lines in Lab 101 S need replacement.

Cooper Services (Bldg. No. 7)

This building was constructed in 1967 and is marginally capable of meeting campus needs. The BCAS accurately identifies many of the systems as being at the end of their useful service life. The building shell, windows and doors are original, the mechanical systems are in need of upgrade and/or replacement and many of the spaces are not suited for their current use. In addition, the service center lacks a sand/salt storage shed, there are inadequate warehousing facilities and lacks a vehicle wash bay. The fuel storage tanks and dispensing systems are in need of replacement.

Southworth Library (Bldg. No. 8)

This building was constructed in 1967 and has had an addition constructed in 1989. The building shell, windows and doors are original and the mechanical systems are in need of upgrade and/or replacement. The campus IT server room was relocated to this building in 2008 including a complete basement renovation for the College's Information Technology department and a new display/archive room.

Alumni House (Bldg. No. 13)

This facility provides meeting space and public relations for the campus and is in overall good condition.

Faculty Office Building (Bldg. No. 15)

This building was constructed in 1972 and has had few renovations. The BCAS accurately identifies many of the systems as being at the end of their useful service life. The building shell, windows and doors are original, the mechanical systems are in need of upgrade and/or replacement and many of the spaces are not suited for their current use.

Wicks Hall (Bldg. No. 16)

This building was constructed in 1972 and has had many interior space renovations to accommodate program needs. Renovations were provided in 2003 and 2009 including classroom reconstruction, new nursing lab/lecture space and redesigned corridors with window and wall features to enhance the quality of the space. The building shell, windows and doors are original, the mechanical systems are in need of upgrade and/or replacement.

Storage Facilities (Bldg. No. 17 & 54)

The CA and Maintenance Storage (Bldg. No. 17) building, constructed in 1972, is a wood frame pole barn located in the wooded area north east of the athletic fields and approximately 3,360 gsf. The building is is poor condition and needs to be replaced. The Service Building Storage (Bldg. No. 54), constructed in 1979, is a wood frame building used for grounds/ maintenance storage and is approximately 3,056 gsf. The building is in poor condition and needs to be replaced. A Cold Storage facility was constructed in 2004 for the storage of waste materials, portable generator, custodial storage and Student Cooperative Alliance storage. The building is approximately 2,400 gsf and in good condition. Current storage facilities are inadequate to support the needs of the campus. Additional storage needs include the following:

- Road salt/sand storage (clear span shed)
- Campus equipment storage (garage); i.e. chairs, staging, ice floor, tables and special use items
- Grounds equipment storage (open air shed); i.e. plows and seasonal equipment
- Receiving storage; i.e. paper goods inventory
- Exterior construction material storage (open air shed)
- Outdoor athletic storage (press box)

Public Safety Building (Bldg. No. 18)

This building is a residential style structure that is not suited for the current use.

Newell Vet Tech Building (Bldg. No. 26)

This building was constructed in 2003 and is in overall good condition. The growth of the program has identified additional future space needs and several HVAC problems have been found that have a negative effect on the overall functionality of the building in terms of meeting animal care standards.

Convocation, Athletic Recreation Center

This building completed construction in Summer 2011 and is the new athletic facility on campus. This building was not included in the 2007 Building Condition Assessment Verification and is in excellent condition.

G. LIFE SAFETY

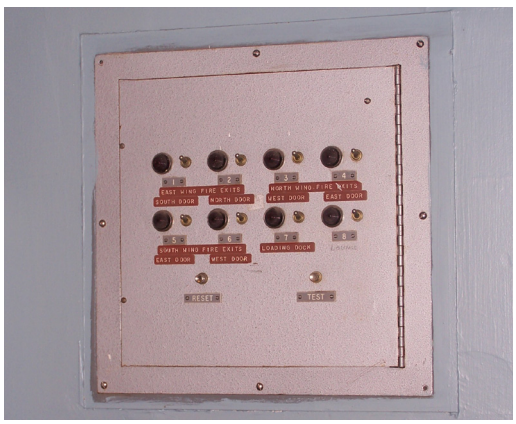
Life Safety on Campus

The SUNY Canton campus is generally a safe place. The College has installed security access telephones outside the main entrances of each residence hall. Guests, visitors and/or delivery persons may call students to let them know someone is waiting outside the hall. Residents are responsible for meeting such callers and escorting them while they are within building.

The University Police regularly test the emergency phones and "blue light" locations that are connected directly to the University Police call center. The University Police also recommend the trimming of shrubbery for safety reasons and to keep the CCTV camera views unobstructed. The University Police also conduct periodic campus lighting surveys. Officers report the need for replacement or repair of lights and any other physical hazards that may be apparent.

In terms of meteorological and geological safety, Canton is a relatively quiet town. Other than the minor possibility of flood, storm or earthquake, the campus faces no obvious threats from natural phenomenon. The campus has a mass notification system in place alerting students, faculty and staff of emergencies, important events, weather alerts, etc.

Residence Hall Security Access Telephone

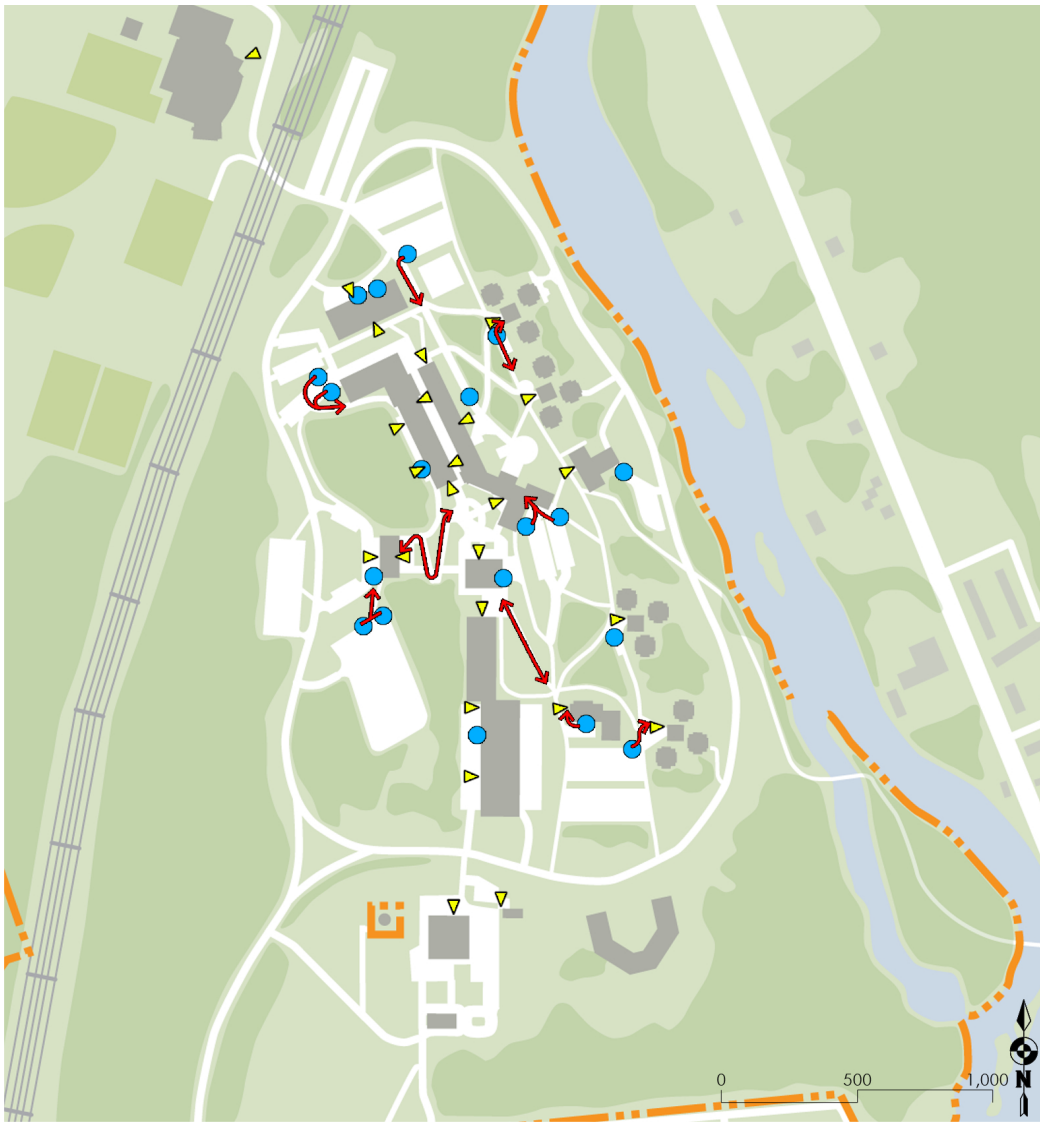


Residence Hall Door Monitoring System

H. ACCESSIBILITY

Accessible Circulation Routes

Given the extreme grade changes on campus, the College has done a commendable job in providing accessible routes to each of the buildings. Although not identified with signage, accessible routes are provided to and from the designated accessible parking to each building. Likewise, accessible routes are also provided to and from each of the buildings. However, there is currently no accessible route to/from Chaney Dining Hall and the Campus Center. The existing walkway can be unsafe when conditions are wet, icy or snowy. In two different areas, ramp systems are used to help a person with disabilities navigate through the campus. One of these ramps is located between French Hall and the Roselle Academic Plaza. The other large ramp leads pedestrians to and from Newell Vet Tech to Southworth Library.



Accessibility

- ADA Designated Parking
- Accessible Route
- Building Entry Point

Accessible Parking

Many of the parking lots on campus provide accessible parking, but a handful of them do not supply the required amount. Furthermore, many of the designated accessible parking spaces do not meet ADA standards. The campus is required to meet the minimum number of accessible parking spaces within the individual parking lots. Addressing these deficiencies can be part of a campus wide strategy.

Parking Lots Required to Provide Additional ADA Parking Spaces

Parking Lot #	Total Parking (not incl. ADA)	# of ADA Spaces Provided	# of ADA Spaces Required
1	232	2	6
3	198	2	6
10B	65	0	3
11	17	0	1

ADA Parking Space

I. ENVIRONMENTAL ISSUES

Site Considerations

Architecture, topography, site layout, solar orientation, prevailing winds and vegetation all work in concert to affect a site's microclimate, and should be considered when analyzing its effectiveness.

Solar Orientation

While it is not always achievable, it is beneficial to orientate a building to take full advantage of the sun's natural heat. Solar orientation also plays a major role when it comes to athletic fields. For an athletic field to be successful, the relationship between the field of play and the sun is critical. Field orientation varies depending on the sport. The recommended field layouts are listed below.

Sport	Field Orientation
•Soccer and Lacrosse	North to South or Northwest to Southeast along the long axis
•Baseball and Softball	North to Northeast from home plate to second base
•Court Games	North to South along the long axis

All the existing fields and courts are orientated in the recommended direction with the exception of the softball field.

Views and Vistas

Site topography, along with the Grasse River and vegetation, play major roles in creating opportunities for views/vistas and their associated framing. Vistas can be naturally found along the Grasse River and other views can be captured when observing from the Roselle Academic Plaza towards the river. Another view can be captured at the 'Y' intersection looking to the South. Smaller scaled views also exist throughout campus as buildings, woodlands and plantings begin to frame the various campus landscapes. One of these views can be found from the peace garden looking at the Roselle Academic Plaza. Additionally, in the winter months the campus is visible from the western approach to the Village of Canton from U.S. Route 11.

Roselle Academic Plaza

Prevailing Winds

Winds play a major role in the comfort of any user in an outdoor space, especially in upstate New York where winter winds can be powerful. The College's natural woodland network proves a positive influence upon the entire campus by providing wind buffers and shade to the various open space areas.

Campus Sustainability Efforts

The campus is making great strides to provide a more sustainable campus. The College has established a Sustainability Task Force to identify, evaluate and coordinate sustainable initiatives. The Green Campus Committee, including both faculty and students, work together

towards recycling efforts on campus. The College is also considering to provide space for recycling containers. Other sustainability programs on campus include Habitat for Humanity, the Student Athletic Advisory Committee (SAAC) Recycling Project, Student Environmental Awareness Society, and Alternative and Renewable Energy Degreen Program.

Daylighting is a key component in the new buildings on campus. The collection of grey water is provided in the new Convocation Athletic Recreation Center. In addition, a new cogen plant and biodigester project are underway. Other efforts include compliance with Executive Order 111 for all new construction (mandating LEED Silver qualification), and LEED Silver qualified renovations where possible. From a landscape design and maintenance perspective, staff has stressed their interest in developing meadow/wild flower areas in lieu of manicured lawns; saving on labor, fuel and equipment time. The campus has also considered leaving some hardscape areas around the Roselle Academic Plaza and Southworth Library unshoveled.

J. TECHNOLOGY

Technology Administration

A formal "Telecom Design Standards" document for all new construction projects has never been formally developed. Cabling specifications are provided to Consulting Engineers responsible for designing cabling within any new facilities. Documentation such as network maps, copper and fiber optic cable infrastructure diagrams are readily on-hand to be referenced as needed.

Incoming Services

The telephone incoming service demarcation (demarc) is located in French Hall Room #114 and is also home of the voice Main Distribution Frame (copper cable) and campus telephone switch (PBX). Telephone services are provided to the campus as follows:

- Verizon - Two Primary Rate Interface (PRI) circuits that support DID service, outbound local calls and overflow from AT&T's long distance service
- AT&T (delivered over Verizon's local loop) - One PRI circuit supporting long distance service, overflow from Verizon's service as well as incoming toll free traffic
- One additional PRI is provided for videoconferencing applications

The Demarc Room is very warm and cohabitates with a large waste pipe running across the room. Both issues should be rectified if possible. The data incoming service demarc is located in Wicks Hall Room #214. Data services are provided to the campus as follows:

- Time Warner – 100 Megabits-per-second (Mbps) Metro-Ethernet service, scalable up to one Gigabit-per-second (Gbps).

Time Warner also provides CATV service to the residence halls; each student has the option to subscribe to its "Roadrunner" service.

Campus Data System

The campus Data Center resides in the basement of Southworth Library (Room #020). It was originally located in Wicks Hall (Room #214 – current data demarc. location) before being relocated to the new and improved facility. Coincidentally, a smaller redundant site Data Center is planned to be constructed on the second floor of Wicks Hall. The Southworth Library Data Center handles core business functions, houses student records, and provides internet access throughout the entire campus.

The Data Center is also home to the fiber optic Main Distribution Frame (MDF) serving as the data backbone to all buildings on campus. Two computer room air conditioner units (CRAC)

cool the room. These units are upflow style models (supply cold air through grills mounted high) with return air grilles mounted low. The raised floor system is not used for HVAC distribution. A ducted hot-air return system, coupled with a hot/cold-aisle cabinet layout, would assist with room cooling. This may become more of an issue over time as higher power density cabinets are deployed.

Data Center - Southworth Library

Fire protection is provided by a Sapphire® gaseous fire suppression system.

Electrical receptacles are distributed via a StarLine track busway system mounted to the structure above. Adjacent sections of center-spline cable tray supports cabling connections within the room. Both systems are mounted low enough that they require any new cabinets being deployed in the room to be tilted at a low angle in order to roll past. The room is in generally good shape with available space for equipment expansion as necessary. All data backup is accomplished by disk-to-disk, tape cassette backup stored in a fireproof safe in the basement of Wicks Hall. This location stores approximately one-month of backup data.

Inter-building backbone network speeds are typically 10 Gbps (Gigabits per second) Ethernet running over singlemode fiber optic cable; intra-building backbones are typically 1 Gbps running over 62.5 micron multimode fiber optic cable. Desktop network connections are a mixture of 1 Gbps and 100 Mbps (Megabits per second). All desktop connections are being transitioned to 1 Gbps.

Intermediate Distribution Frame (IDF) rooms are located throughout all buildings as required and serve as the distribution location for station cabling on each floor. Most IDF rooms appear to be in relatively good condition. However, some rooms could benefit from an improved cable management system. Patch cords are not properly managed and supported between wall terminations and free-standing equipment racks, and within the racks themselves. Some IDF rooms are not provided with sufficient equipment cooling systems for various reasons, but are functional despite this issue.

Campus Voice System

Located in French Hall Room #114, a Nortel CS100 hybrid digital/IP telephone switch (PBX) provides analog, digital, and VoIP (Voice-over-IP) voice services for the campus. This switch was upgraded in 2008. Most connections on campus are either analog or digital, with VoIP being deployed where the College deems appropriate. As an example, the new Grasse River Residence Hall will be provided with digital voice service in lieu of VoIP. The Nortel switch currently provides service for between 1200 and 1300 active lines, with a current expansion capability of 1400 lines, which can be increased even more by the addition of expansion cabinets.

Telephone Switch Room - French Hall

High-pair count copper cable is run between the main switch and each building on campus for the analog and digital connections only, with VoIP lines riding on the data network's fiber optic backbone. Based on information provided by the Telecommunications group, there is a sufficient amount of copper cable installed between the French Hall Voice MDF and most buildings on campus. The only exceptions are the Cooper Service Complex, Southworth Library, Chaney Dining Center, and University Police, where the quantity of cable pairs in-use almost equals the total amount installed in each building. Dana Hall should also be considered for additional cable pairs once its current renovations are completed (only 2 lines are currently in-use during these construction activities). Much like other campuses in the SUNY system, phone service in the dorms is not being utilized as much as it had been in previous years, due

to student's reliance on their personal cellular telephones.

Backup Power for Technology Systems

The campus telephone switch is supported by a battery backup and standby emergency generator. The Data Center systems are supported by a UPS (Uninterruptible Power Supply) capable of 45 minutes runtime, and the building's standby emergency generator. The IT group stated that the generator started up around 8 to 10 times last year as was necessitated by various construction activities on campus. At other locations, UPS units support the Building Distribution Frames (BDFs) (or main IDFs) in each building coupled with extended battery packs providing an estimated two to four hours of runtime capacity. A mixture of the remaining IDF rooms on campus have UPSs, but not all. Eventually, all rooms supporting VoIP service will require UPS backup. Data switches deliver Power-over-Ethernet (PoE) to Wireless LAN access points and CCTV IP cameras on the University Police Public Spaces surveillance system.

Campus Backbone Pathways

The campus has an extensive fiber optic backbone cable distribution system running through an existing buried signal conduit and manhole system. Copper cable supporting the telephone network runs within this conduit system as well. A fully redundant fiber ring is being planned for connections between core network switches; implementation of satellite rings are also in the planning stages. The campus ultimately wants to implement a ring between core and distribution switches as well. Route diversity along the backbone pathways could be improved over the current conditions.

Campus Cabling System

Station cabling throughout campus is mostly Category 3 UTP (unshielded twisted pair) cable for voice transmission and Category 5 or 5e for data transmission, with some Category 6 installed as well. The College is looking to install, as a minimum, Category 5e for voice and Category 6 cable for data within all new construction projects, along with removal of older cable in favor of Category 6 in some existing locations. The Cat. 3 voice cable is split; 2-pairs between USOC-style voice jacks. Splitting pairs is no longer a "standards-compliant" method to terminate cable, although the campus is still implementing it. Voice cable is terminated on wall-mounted 66-style termination blocks and data cable is terminated on rack-mounted patch panels. All conference rooms, administrative areas, and dormitory rooms have at least one Cat. 3 voice jack, as well as most classrooms. Data jacks are also installed within all areas as required. Inter-building backbone connections are carried over singlemode fiber optic cable; intra-building backbones run over 62.5 micron multimode fiber optic cable. The campus has recently increased the quantity of fiber optic cable run to all new IDF Rooms from 12-strands multimode/24-strands singlemode to 24-strands multimode/24-strands singlemode. The CATV system uses an older RG11 coaxial cable that lacks the proper shielding to effectively

shield the transmission signal from unwanted external noise.

Wireless Systems

Wireless LAN coverage throughout campus was estimated to be at around 30-40% of full campus coverage. Some buildings including Southworth Library and Nevaldine are 100% covered. Wireless access points are Enterasys "HiPath" series delivering 802.11b/g and /n compliant network speeds. Verizon wireless and other major carriers cover approximately 95% of the campus, with the exception being the basement of Wicks Hall where service can only be described as marginal.

Technology Convergence

The campus fire alarm system utilizes the inter-building copper, and separate fiber optic cables, as the pathway for its fire alarm loop network which is outside of the campus data network. The energy management system is run over the data network but segmented on a separate VLAN (Virtual LAN); the same holds true for the Access Control security network. CCTV surveillance is performed by IP-enabled cameras connected to the data network but also on a separate VLAN.

Opportunities and Challenges

SUNY Canton's IT group faces some issues with their existing networks as follows:

Strengths

- IT maintains extremely detailed records and documentation of the entire data/voice network topology and physical infrastructure.
- The telephone network is served by a relatively new digital telephone switch (PBX) which is highly-reliable, a proven technology, and has a large amount of spare capacity that can be expanded.
- Cabling systems are properly labeled within most IDF Rooms and the Data Center

Weaknesses

- Barriers to deployment of Voice-over-IP technology will need to be addressed:
  - IDF Rooms are not all supported by UPS power feeds; only main building rooms and Data Center.
  - Some IDF rooms may require a cooling system upgrade to support PoE enabled switches.
  - Voice station cabling in some of the older buildings is below current industry standards (ANSI/TIA) for minimal compliancy (i.e. Category 3, split pairs)
- Intra-building data network backbone route diversity and redundancy has not been fully implemented
- Wireless LAN network coverage is not ubiquitous throughout the entire Campus.

K. SUITABILITY

Suitability of Existing Buildings

Student Activity

Suitability: Marginally Suitable
Size: 22,686nsf
Major Uses: Student Activity
Rendezvous Dining Center

This building is one of the original buildings in Canton's facility portfolio that was the College's Campus Center, but is now used for student activity spaces, multi-purpose meeting rooms and dining center.

Campus Center

Suitability: Marginally Suitable
Size: 44,974nsf
Major Uses: Gymnasium
Kingston Theater
Campus Store

This building was the first new addition on campus since 1975. The building, however, has drawbacks including the lack of a 'student center', limited club space and is primarily filled with offices/conference space. The Health Center, at the ground level, is not ADA accessible.

Chaney Dining Center

Suitability: Suitable
Size: 29,352nsf
Major Uses: Food Services

This building is currently one of two main dining areas on campus, and it is well suited for this purpose. It, however, would benefit from a renovation including an updated food service/ dining space. The existing dining area could potentially be utilized as study space and/or gathering space for student activities.

Cook Hall

Suitability:	Marginally Suitable
Size:	33,483nsf
Major Uses:	Science
	Health
	Criminal Justice

This building is one of the original buildings in Canton's facility portfolio and is generally suitable for its current program. However, lab space is limited and current classroom layouts do not support an informal learning environment. The building would benefit from a renovation providing building-wide updates and flexible learning environments.

Cooper Service Complex

Suitability:	Marginally Suitable
Size:	22,015nsf
Major Uses:	Facilities Services

The facilities building layout is segmented and many spaces are marginally suitable for their current use. Storage/warehouse space is also limited. While the building is serviceable as the Facilities Office, it is in need of a renovation to rationalize the space.

Dana Hall

Suitability:	N/A
Size:	37,339nsf
Major Uses:	Currently Under Construction

Faculty Office Building

Suitability:	Marginally Suitable
Size:	37,339nsf
Major Uses:	Business
	Liberal Arts
	Administrative and President's Office

The Faculty Office Building is generally suitable for its current programming. It, however, could benefit from better connections to the accounting lab and space provisions for more small-group instruction. Faculty offices would be better suited in a separate location.

French Hall

Suitability:	Marginally Suitable
Size:	17,743nsf
Major Uses:	Admissions
	Foundation/Business Offices
	Humans Resources
	Student Services

French Hall is the main administrative building on campus and one of the original buildings in Canton's facility portfolio. Space is limited and the current configurations are confusing to visitors. Signage/way-finding is lacking and privacy between programmed areas is limited.

Nevaldine North

Suitability:	Marginally Suitable
Size:	28,166nsf
Major Uses:	Engineering
	Information Technology

Nevaldine North is one of the original buildings in Canton's facility portfolio and although class sizes continue to increase, current classroom spaces cannot accommodate the growth. Often students are sitting on the floor during a class session due to insufficient seating. This building has had few updates and would benefit from a renovation.

Nevaldine South

Suitability:	Suitable
Size:	53,157nsf
Major Uses:	Automotive
	Motor Sports
	Building Trades

This building was recently renovated and is suitable for a wide variety of instructional space.

Newell Vet Tech

Suitability: Suitable
Size: 12,050nsf
Major Uses: Veterinary Science

This building was the first new build project on campus and although suitable, the growth of the program forsees additional space needs.

Payson Hall

Suitability: Marginally Suitable
Size: 33,669nsf
Major Uses: Criminal Justice
Emergency Management

This building is one of the original buildings in Canton's facility portfolio and is generally suitable for its current program. Previous interior space renovations accommodate existing program requirements. However, the building would benefit from a renovation providing building-wide updates including exterior rehabilitation and systems replacement.

Public Safety

Suitability: Not Suitable
Size: 3,515nsf
Major Uses: College Police

This building was constructed in 1975 and orginally designed as a residential style structure. The space does not adequately support the current function.

Southworth Library

Suitability: Suitable
Size: 30,434nsf
Major Uses: Library Services
Information Services

The building was recently renovated for the Information Technology department and the campus server room. Additional renovations at the mezzanine level have proven successful. The library is often used as a gathering space for students and a stand-alone student union could alleviate some of that additional demand. The building is well suited for its function.

Wicks Hall

Suitability:	Suitable
Size:	38,525nsf
Major Uses:	Nursing
	Physical Therapy
	Liberal Arts

This building is one of the original buildings in Canton's facility portfolio and is suitable for its current program. The building has had several interior renovations accomodating both the Nursing and Physical Therapy program needs.