





Pappas Rehabilitation Hospital for Children

EHS2301: Facility & Program Existing Conditions Assessment

September 27, 2023

Prepared for:

DIVISION OF CAPITAL ASSET MANAGEMENT & MAINTENANCE

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INTRODUCTION

EXECUTIVE SUMMARY

PAPPAS REHABILITATION HOSPITAL FOR CHILDREN
FACILITIES AND PROGRAM ASSESSMENT



PHOTO: Bradford Building south facade.

Project Objectives

The purpose of this study is to assess the Pappas Rehabilitation Hospital for Children (PRHC) in Canton, MA:

- To evaluate site infrastructure and building systems.
- To ensure applicable standards are met in an appropriate rehabilitate setting for the existing programs.
- To analyze space usage efficiency in critical buildings, and identify existing buildings that are best positioned for campus improvement in the short and long term.

The analysis is based on the current conditions of the buildings as well as to what extent they meet the space needs for existing programs. This may also inform future needs and programs on campus.

Multiple stakeholder groups were included in the conversations to discuss how current facilities align with the mission of the Hospital. These discussions focused on the determination of the required program, physical support systems, resilience, and overall mission and vision.

This study was prepared for the Office of Planning, Division of Capital Asset Management and Maintenance (DCAMM), Executive Office of Human and Health Services (EOHHS), the Department of Mental Health (DMH), and Pappas Rehabilitation Hospital for Children (PRHC).

Report Findings Overview

The following are an overview of high-level findings from this study. For additional details, by-building breakdowns, and items for further study – please review the "Campus Assessment," "Buildings Assessments," and "Future Investigations" sections, respectively, of this study report.

Utilization

Of the 166 acres of available land on campus, Pappas Rehabilitation Hospital for Children has approximately 110 acres of undeveloped wooded and open land. These acres could be considered for future studies on potential redevelopment opportunities.

Thirty-three of the 35 buildings on campus are in use, indicating there are ongoing program or campus support activities. However, of the 33 in-use buildings, approximately 15% of spaces within them are currently vacant. Another 10% of the occupied buildings, such as the Donovan building, are highly underutilized due to most staff choosing to engage in remote or hybrid office work. Additionally, approximately 2% of campus space could be freed up by removing old mechanical equipment and stockpiles of dated hospital equipment and records.

Overall Campus Access

The covered walkways that connect main campus buildings do not extend to the ancillary recreational programs, such as the barn and stables buildings, Boathouse, and waterfront trails. Additionally, there is no wheelchair accessibility to these areas. In inclement weather, access to barn programs is not possible for most patients.

The walkways are mostly in good condition, although some instances do not fully meet ADA codes. In general, wayfinding signage and site lighting on campus are limited and ineffective. Access to the residential cottages for patients using wheelchairs or other mobility device is only available via the walkways. Furthermore, site amenities aiding wheelchair transition from vehicles are in poor condition. These are, however, general observations. Exterior grounds accessibility assessments were outside the scope of this study.



PHOTO: Covered walkway area near Ross Cottage.



PHOTO: Aerial view of Nelson and Bradford Buildings from roof of the Administration Building.

Residential Units

The living units on campus have significant deficiencies with respect to compliance with building codes, FGI guidelines, and ADA requirements. If space-use deficiencies are addressed according to codes and guidelines across all the current areas dedicated to patient bedrooms, the total bed count would be approximately 74.

Most of the patient residential buildings (Nelson, Gates, and the Cottages) are Type IB construction, featuring uninsulated brick and CMU (concrete masonry unit) bearing walls. The original uninsulated glazing has been updated to insulated glazing in most areas. The construction type of the cottages (Ross, Ellis, and Baylies) could not be verified during this study and should be confirmed with a more in-depth study involving structural review. Refer to the "Future Investigation" section for more details.

Other building facilities on campus have uninsulated glazing. Many campus buildings show evidence of rust jacking caused by embedded steel lintels and angles in the masonry walls. The damages in these locations are significant. Additionally, building roofs, woodwork and campus steam tunnels require significant repair.

Significant portions of living unit finish materials are not suitable for healthcare environments due to deteriorating conditions, infection control and prevention concerns. A refresh of finishes including flooring, walls, ceilings, handrails, and furnishing materials is recommended for most patient living areas to meet facility infection control standards and industry best practice.

All living units have adequate fire suppression systems in good working order. Other buildings on campus (such as the Finnegan Gym/Pool Complex) do not have fire suppression systems but would be required by contemporary codes to have fire suppression systems. If these buildings are to undergo major renovation or change of use, code-required fire suppression systems will need to be installed. Additionally, the Finnegan Gym/Pool Complex has an insufficient number of egress discharge locations. Please refer to ARUP, Pristine Engineers, and Code Red Consultant's reports in Appendix A for additional details.

Mechanical, Electrical & Plumbing Systems

Residential cottage buildings do not have mechanical ventilation systems except in the toilet and bathing room. Mini-split units do not provide adequate code-required ventilation throughout. Most areas rely on passive ventilation using open windows for air change in warmer months, leading to energy loss when windows are open, and have minimal access to fresh air in the colder months. Other buildings observed – such as Finnegan, Nelson, Bradford, and Administration – have mechanical ventilation, however most of these systems are past life expectancy.

Only about 60% of buildings observed or 38% of buildings by gross square foot (GSF) are connected to the campus Building Management System (BMS) system. Finnegan's pool water and air temperature increases to a level in the summer months that render the pool unusable. AC in the lower levels of Bradford and Nelson are ineffective. The staff rely on portable units to keep cool, which leads to further energy use inefficiencies.

The central kitchen, located in the Administration Building, currently runs on gas appliances and has an outdated exhaust system. Upgrading the appliances and equipment to more up-to-date systems and relocating the central kitchen closer to the living units would improve efficiency and provide decarbonization opportunities. Most of the campus's plumbing fixtures

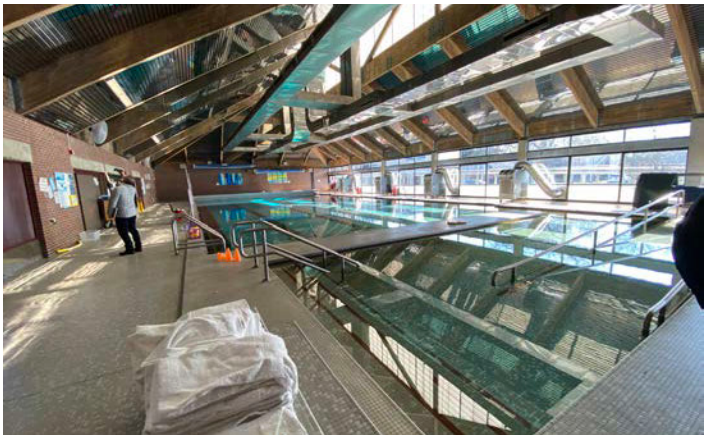


PHOTO: Pool in Finnegan Gym/Pool Complex.



PHOTO: Patient bedroom in Nelson Building.

are inefficient models that do not meet current water use reduction standards.

Electrical Power distribution and controls in most campus buildings are in poor condition. While dedicated emergency power generators are available to all the living units, patient rooms lack emergency power outlets, and emergency lighting based on observation throughout these units. A significant portion of lighting fixtures on campus have been retrofitted with LED fixtures and are in good to excellent condition. However, there are still many areas using fluorescent lamps that could be retrofitted for further energy efficiency and decarbonization opportunities.

Other Technologies

[redacted] Wi-Fi reception is poor throughout most of the campus, which creates significant limitations to the children's education programs.

Programmatic Overview

PAPPAS REHABILITATION HOSPITAL FOR CHILDREN

= 2 people

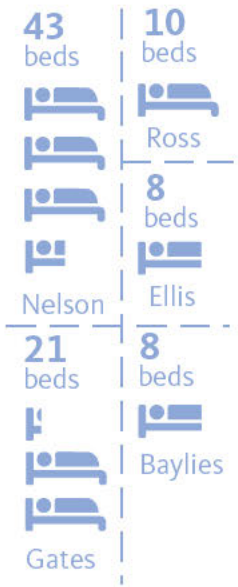
= 10 beds

CHILDREN'S LONG-TERM REHAB.

PRHC Residential Units

Nelson Building, Gates Unit & Baylies, Ross & Ellis Cottages

Joint Commission accredited pediatric rehabilitation hospital in five residential units.
Operated by the Department of Public Health (DPH)
Adolescent Boys & Girls
7-22 years old



90 beds capacity
48 occupied (9/2023)

CLINICAL & REHAB. SUPPORT SERVICES

PRHC Clinical Services

Bradford Building

Nursing, occupational therapy (OT), physical therapy (PT), behavioral health, speech therapy, alternative medicine, & outpatient medical services including optometry, orthopedics, psychiatry, podiatry, & pulmonology.

Tufts Dental Clinic

Bradford Building

Oupatient dental services operated by Tufts University School of Dental Medicine, serving adults & children with developmental disabilities - including PRHC campus patients & outside patients.

Rehabilitation Engineering

Industrial Building/ New Rehab. Engineering Building

Industrial workshops that custom design, fabricate, and modify equipment & assistive technology devices to accommodate the needs of PRHC patients.

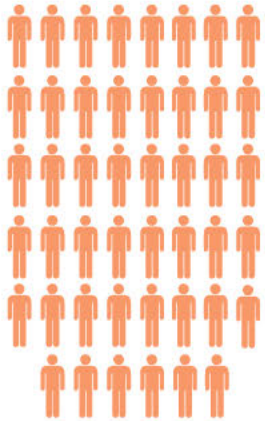
EDUCATION PROGRAMS

Brayton & Elementary Schools

Brayton High School & Elementary School

Academic instruction for patients who reside at PRHC, offering access and training for alternative communication systems, assistive technology, computer-based learning, and independent living skills. Facilities include art room, music room, science room, other academic teaching classrooms, library, auditorium, and bathing/ changing rooms.

Adolescent Boys & Girls
7-22 years old



90 students capacity
48 current students (9/2023)

RECREATIONAL PROGRAMS

Athletic & Recreational Programs

Finnegan Gym/ Pool Complex, Boathouse Pavillion/ Dock & Nature Lodge

Indoor programs/ facilities include gymnasium facilities, swimming pool, bowling alley, electronic gaming room, bathing & changing facilities. Outdoor programs include water & boating activities at the Reservoir Pond; walking, hiking activities at nearby natural trails; track & field activities at the open field.

Barns & Stables

Indoor Riding Arena, New Barn & Old Barn

Animal barns & stables offering animal therapy & educational programming for PRHC residents.

Greenhouses

Greenhouses around Campus

Horticultural programs & nature-based therapy.

Easter Seals Massachusetts

Throughout Campus

External agency that provides staff such as barn & stable aides, lifeguards, water exercise instructors, & transitional living skills support staff for various PRHC education & recreational programs.

ADMINISTRATIVE PROGRAMS

PRHC Administration

Administration Building

PRHC Administration offices including clinical, education, facilities, & administration support staff.

External State Agencies

Donovan Building

Various DPH & DMH agencies not related to PRHC operations, including Metro Boston Regional Health, Bureau of Family Health & Nutrition, Bureau of Environmental Health, Bureau of Community Health Access & Promotion, Bureau of Substance Abuse Services, Office of Preparedness & Emergency Management, & Bureau of Public Health Facilities, DMH Metro Suburban Area & Southwest Suburban Site Offices.

CAMPUS OVERVIEW

PAPPAS REHABILITATION HOSPITAL FOR CHILDREN

Name:	Pappas Rehabilitation Hospital for Children
Location:	3 Randolph Street, Canton, MA 02021
Agency:	Department of Public Health
CAMIS ID:	DPH 02 [1]
Facility Type:	Residential - Pediatric Hospital/Rehabilitative Care [1]
Originally Constructed:	1907 [1]
Acreage:	165.8 [1]
Total # of Buildings:	35 (including greenhouses, pavilions, and sheds) [2]
Buildings in Use:	33 [2]
Buildings Vacant:	2 (Superintendent House, Superintendent Garage) [2]
Buildings Total GSF:	457,080 GSF (gross square feet) [1]
Current Staff FTE:	214 (as of July 2023) [3]
Current Admitted Patients:	48 (As of July 2023) [3]

1. Data sourced from DPH Mass Hospital School Facility Inventory Form 2009.

2. Data sourced from on-site assessments and staff interviews conducted from November 2022 to January 2023. “In Use” buildings indicate there are at least some program or campus support activities taking place in the building. However, some of these buildings are partially vacant or significantly underutilized. This report provides an overview of utilization levels.

3. Data sourced from email with Fatima Watt (CEO) on July 14, 2023.



PHOTO: Aerial view of Pappas Rehabilitation Hospital for Children from Google Earth, looking north.

CAMPUS OVERVIEW

PAPPAS REHABILITATION HOSPITAL FOR CHILDREN **CAMPUS MAP (FULL PROPERTY)**

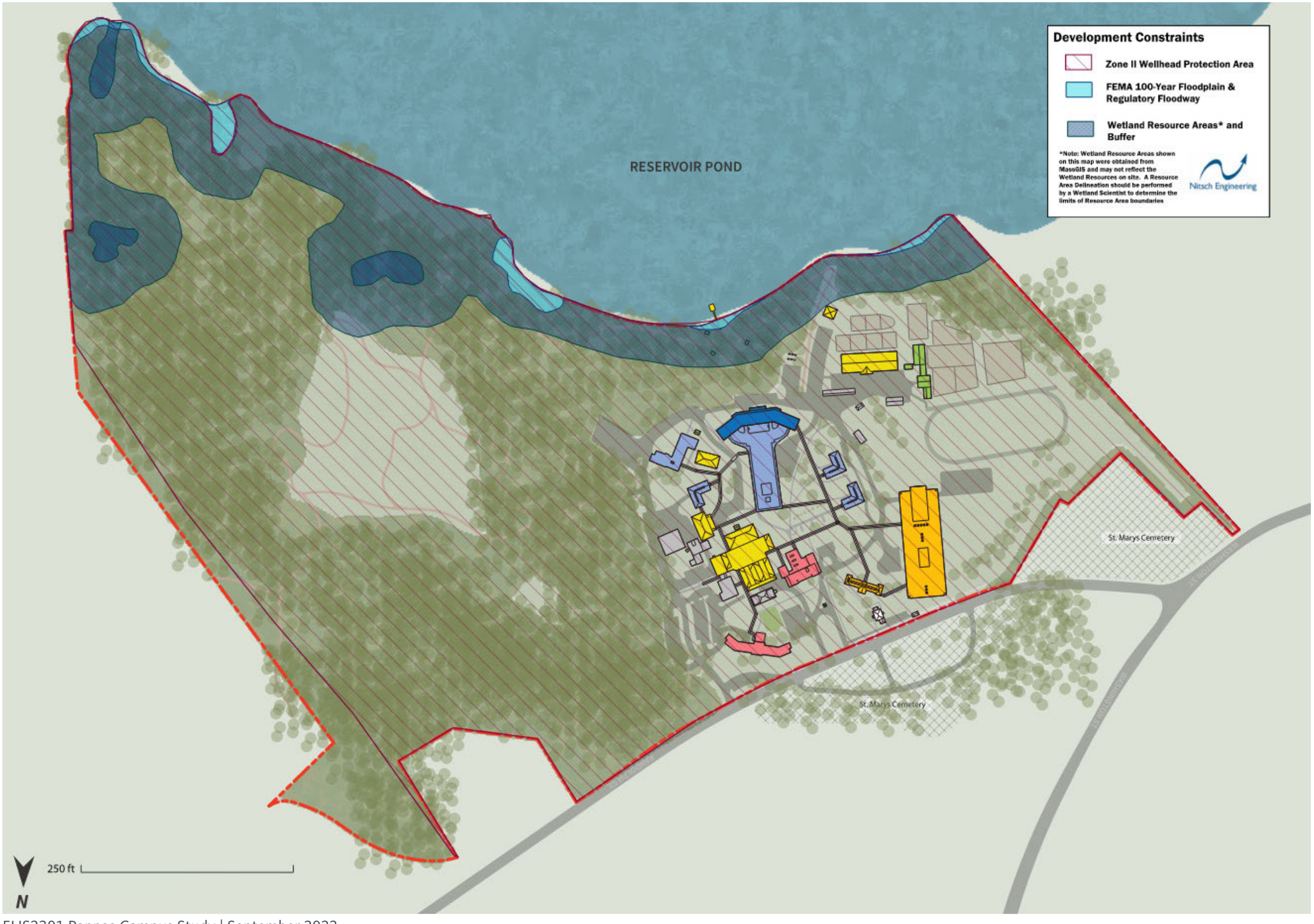


Campus Map (Zoomed-In)

- LONG-TERM/ RESIDENTIAL
- CLINICAL SERVICES/ OUTPATIENT
- ADMINISTRATIVE
- CAMPUS FACILITIES
- GREENHOUSES/ FARM FACILITIES
- RECREATION
- EDUCATION
- VACANT/ ABANDONED
- OPEN GRASS/FIELD AREAS
- FORESTED AREAS
- PAVED AREAS
- FARM FIELDS/ ANIMAL PENS
- WATER
- FENCES
- PROPERTY LINE

CAMPUS OVERVIEW

PAPPAS REHABILITATION HOSPITAL FOR CHILDREN **CAMPUS MAP (DEVELOPMENT CONSTRAINTS)**



NOTES:

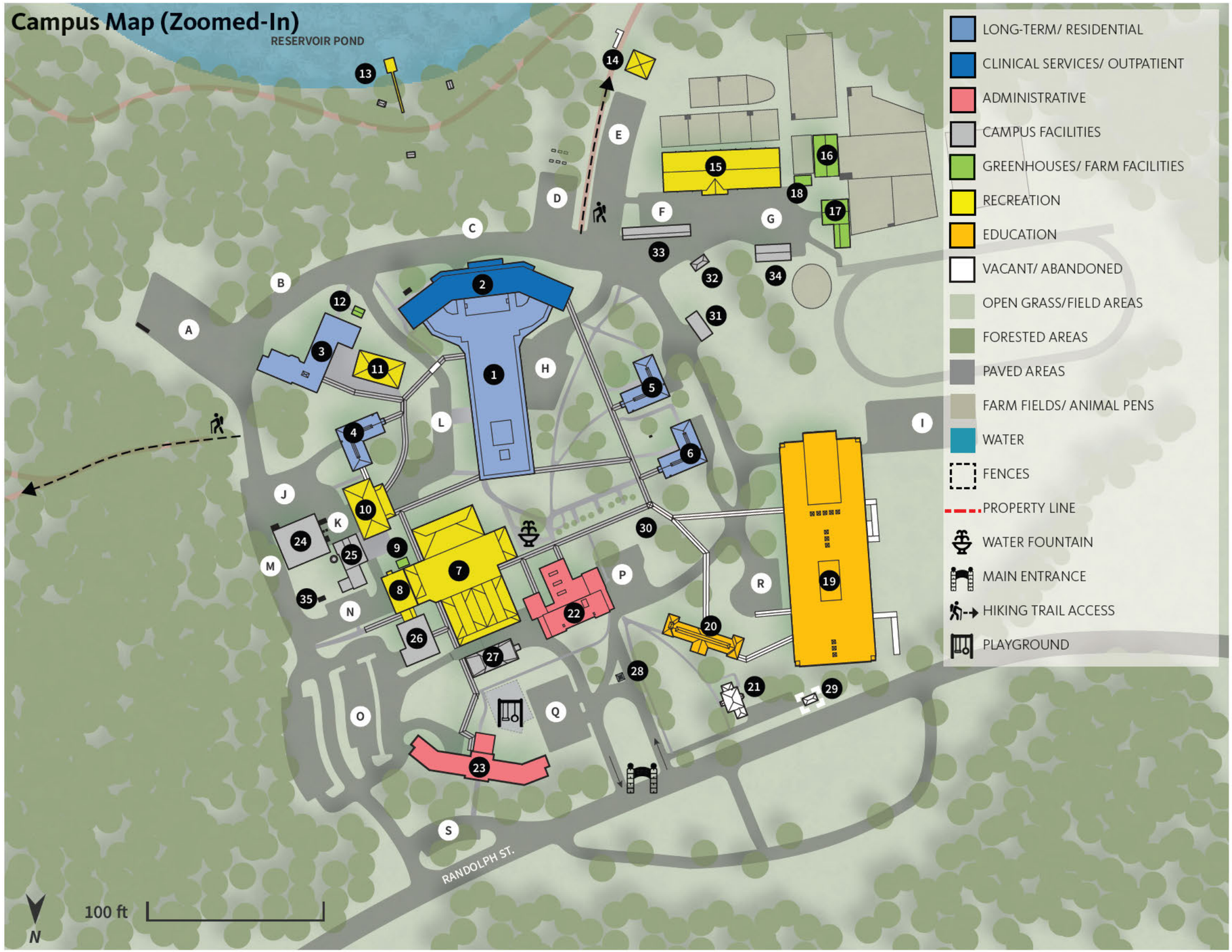
1) Activity and Use Limitation (AUL) investigations into this is not in the scope of this study.

2) The DEP Zone II wellhead protection district does not outright prohibit development, but should be considered if a development review is conducted.

CAMPUS OVERVIEW

PAPPAS REHABILITATION HOSPITAL FOR CHILDREN **CAMPUS MAP (ZOOMED-IN)**

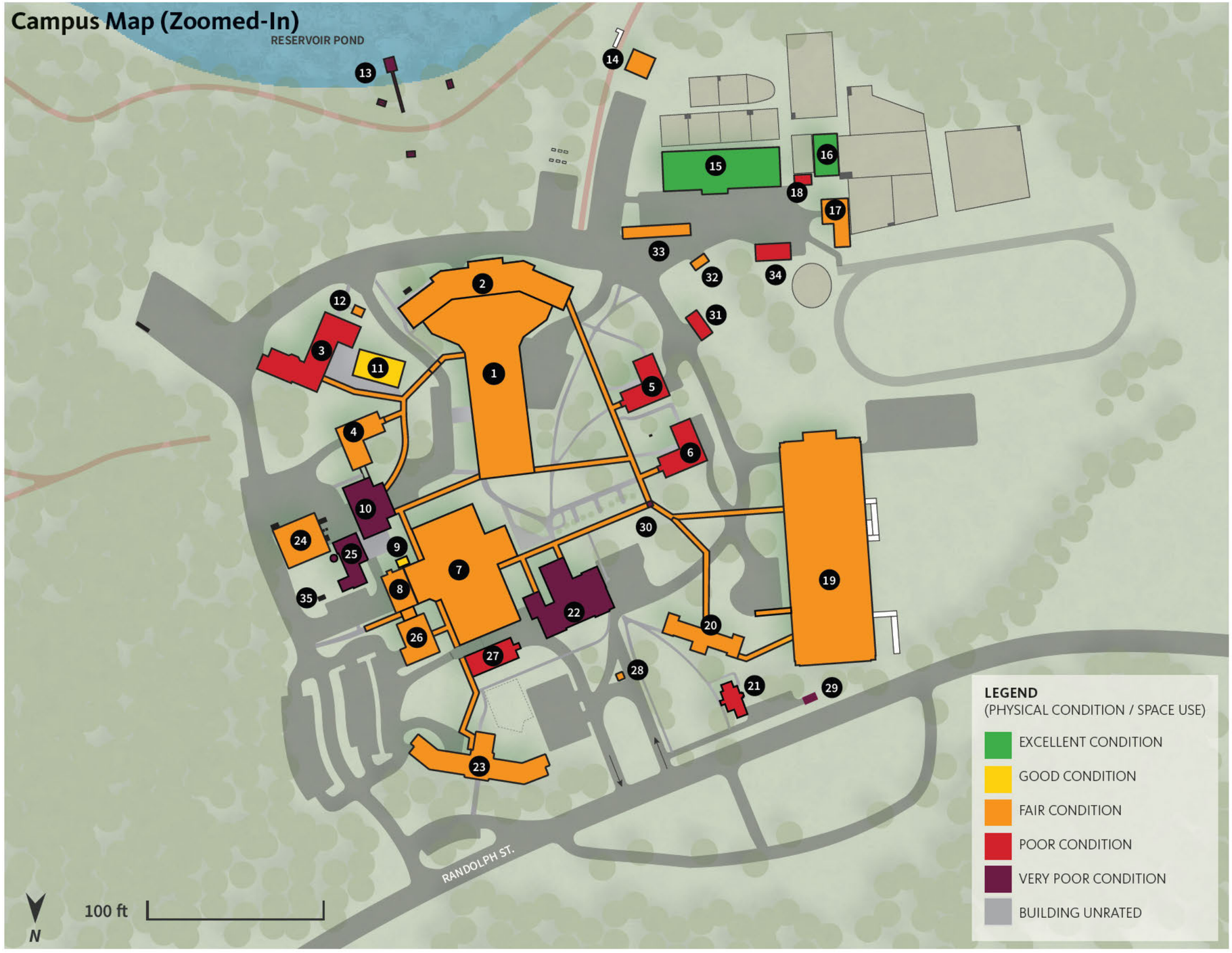
No.	Building Name	Program
1.	Nelson Building	Resi./Clinical/Admin
2.	Bradford Building	Clinical Service/Admin
3.	Gates Unit	Residential
4.	Ross Cottage Unit	Residential
5.	Ellis Cottage Unit	Residential
6.	Baylies Cottage Unit	Residential
7.	Finnegan Gym/Pool Complex	Recreation
8.	Pinkerton Building	Recreation/Education
9.	New Greenhouse	Greenhouse
10.	Morrison Hall	Recreation
11.	Pavilion at Gates	Recreation
12.	Greenhouse	Greenhouse
13.	Boathouse Pavilion/Dock	Recreation
14.	Nature Lodge	Recreation
15.	Indoor Riding Arena	Recreation/Farm
16.	New Barn (formerly Horse Barn)	Recreation/Farm
17.	Old Barn (formerly Cow Barn)	Recreation/Farm
18.	Water Shed	Campus Facilities/Farm
19.	Brayton High School	Education
20.	Elementary School	Education
21.	Superintendent House	Vacant
22.	Administration Building	Administrative
23.	Donovan Building	Administrative
24.	New Power Plant	Campus Facilities
25.	Old Power Plant	Campus Facilities
26.	Industrial Building/New Rehab Eng.	Campus Facilities
27.	Old Laundry/Old Rehab Eng./Storage	Campus Facilities
28.	Guard House	Campus Facilities
29.	Superintendent's Garage	Vacant
30.	John E. Fish Memorial Clock Tower	Campus Facilities
31.	Chauffer Brick Garage	Campus Facilities
32.	Grounds Garage	Campus Facilities
33.	14 Car Garage	Campus Facilities
34.	Open Shed	Campus Facilities
35.	Fire Pump House	Campus Facilities



CAMPUS PHYSICAL CONDITIONS / SPACE USE

PAPPAS REHABILITATION HOSPITAL FOR CHILDREN **CAMPUS MAP (ZOOMED-IN)**

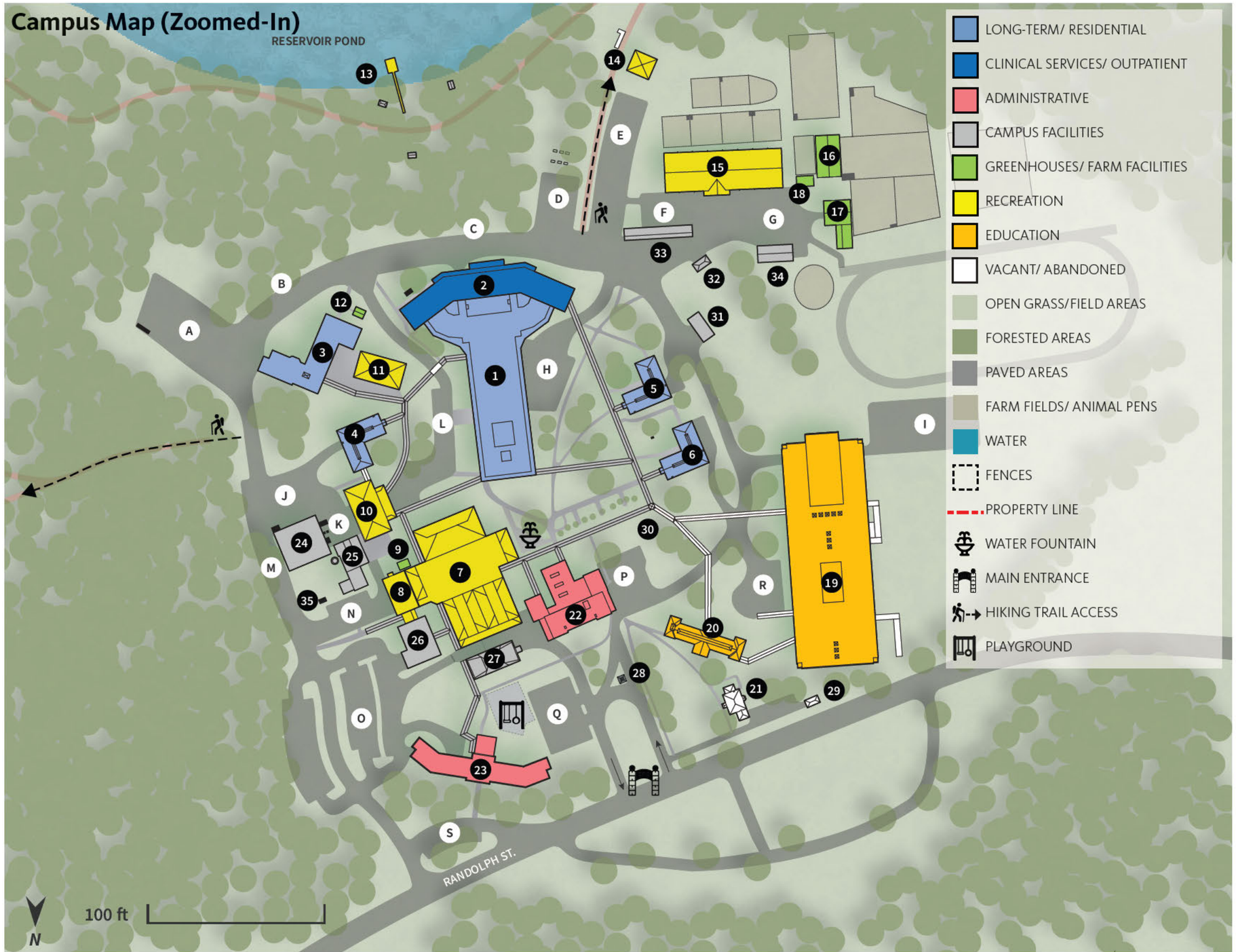
No.	Building Name	Program
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5.	Ellis Cottage Unit	Residential
6.	Baylies Cottage Unit	Residential
7.	Finnegan Gym/Pool Complex	Recreation
8.	Pinkerton Building	Recreation/Education
9.	New Greenhouse	Greenhouse
10.	Morrison Hall	Recreation
11.	Pavilion at Gates	Recreation
12.	Greenhouse	Greenhouse
13.	Boathouse Pavilion/Dock	Recreation
14.	Nature Lodge	Recreation
15.	Indoor Riding Arena	Recreation/Farm
16.	New Barn (formerly Horse Barn)	Recreation/Farm
17.	Old Barn (formerly Cow Barn)	Recreation/Farm
18.	Water Shed	Campus Facilities/Farm
19.	Brayton High School	Education
20.	Elementary School	Education
21.	Superintendent House	Vacant
22.	Administration Building	Administrative
23.	Donovan Building	Administrative
24.	New Power Plant	Campus Facilities
25.	Old Power Plant	Campus Facilities
26.	Industrial Building/New Rehab Eng.	Campus Facilities
27.	Old Laundry/Old Rehab Eng./Storage	Campus Facilities
28.	Guard House	Campus Facilities
29.	Superintendent's Garage	Vacant
30.	John E. Fish Memorial Clock Tower	Campus Facilities
31.	Chauffer Brick Garage	Campus Facilities
32.	Grounds Garage	Campus Facilities
33.	14 Car Garage	Campus Facilities
34.	Open Shed	Campus Facilities
35.	Fire Pump House	Campus Facilities



CAMPUS PARKING

PAPPAS REHABILITATION HOSPITAL FOR CHILDREN **CAMPUS MAP (ZOOMED-IN)**

Lot ID	Spaces	Accessible Spaces	Bus Spaces
A	22	0	0
B	19	2	0
C	15	0	0
D	22	0	0
E	36	0	3
F	2	4	0
G	5	2	0
H	16	0	0
I	53	0	0
J	11	0	0
K	6	0	0
L	15	0	0
M	28	0	0
N	10	3	0
O	90	6	0
P	6	1	0
Q	25	2	0
R	5	6	0
S	12	2	0
T	35	0	0
TOTAL	**433**	**28**	**3**



CAMPUS OVERVIEW

PAPPAS REHABILITATION HOSPITAL FOR CHILDREN: SITE STRUCTURES SUMMARY

Seven buildings were identified as housing the most critical programs for PRHC and are included in the Building Assessment section with more detailed findings and analyses. These buildings are identified below **in red**.

No.	Building Name	Program	Area (GSF) [1]	Year Built	# of Floors	Current Bed Count	Physical Conditions Rating
1.	**Nelson Building**	Residential/Clinical/Admin	66,378	1962	2 + Basement	43	Good
2.	**Bradford Building**	Clinical/Admin	30,268	1954	2	N/A	Fair
3.	**Gates Unit**	Residential	9,049	1950	1 + Basement	21	Fair
4.	**Ross Cottage Unit**	Residential	11,500	1935	2	10	Fair
5.	**Ellis Cottage Unit**	Residential	11,500	1931	2	8	Fair
6.	**Baylies Cottage Unit**	Residential	11,500	1935	2	8	Fair
7.	**Finnegan Gym/Pool Complex**	Recreation	34,765	1982	1 + Basement	N/A	Fair
8.	Pinkerton Building	Recreation/Education	6,570	1915	2	N/A	Fair
9.	New Greenhouse	Greenhouse	~200	1982	1	N/A	Good
10.	Morrison Hall	Recreation	10,712	1912	2 + Attic	N/A	Very Poor
11.	Pavilion at Gates	Recreation	5,000	2014	1	N/A	Good
12.	Greenhouse	Greenhouse	~200	1931	1	N/A	Fair
13.	Boathouse Pavilion/Dock	Recreation	~200	1990	1	N/A	Very Poor
14.	Nature Lodge	Recreation	1,781	1974	1	N/A	Fair
15.	Indoor Riding Arena	Recreation/Farm	14,416	2005	1	N/A	Excellent
16.	New Barn (formerly Horse Barn)	Recreation/Farm	3,050	2006	2	N/A	Excellent
17.	Old Barn (formerly Cow Barn)	Recreation/Farm	3,822	1931	2	N/A	Fair
18.	Water Shed	Campus Facilities/Farm	200	1930s	1	N/A	Poor
19.	Brayton High School	Education	108,312	1967	1 + Basement	N/A	Fair
20.	Elementary School	Education	5,739	1928	1	N/A	Fair
21.	Superintendent House	Vacant	5,076	1930	2 + Attic	N/A	Poor
22.	Administration Building	Administrative	41,966	1907	3	N/A	Very Poor
23.	Donovan Building	Administrative	44,703	1962	3 + Basement	N/A	Fair
24.	New Power Plant	Campus Facilities	5,800	1982	1 + Mezzanine	N/A	Fair
25.	Old Power Plant	Campus Facilities	5,917	1907	2	N/A	Very Poor
26.	Industrial Building/New Rehab Engineering	Campus Facilities	9,572	1957	2	N/A	Fair
27.	Old Laundry/Old Rehab Eng./Storage	Campus Facilities	4,136	1923	1	N/A	Poor
28.	Guard House	Campus Facilities	~200	1990s	1	N/A	Fair
29.	Superintendent's Garage	Vacant	~200	1930s	1	N/A	Very Poor
30.	John E. Fish Memorial Clock Tower	Campus Facilities	144	1913	1	N/A	Very Poor
31.	Chauffer Brick Garage	Campus Facilities	3,072	1950	1	N/A	Poor
32.	Grounds Garage	Campus Facilities	620	1938	1	N/A	Fair
33.	14 Car Garage	Campus Facilities	3,072	1938	1	N/A	Fair
34.	Open Shed	Campus Facilities	3,000	1930	1	N/A	Poor
35.	Fire Pump House	Campus Facilities	~200	2000s	1	N/A	Good
36.	Steam Tunnels	Campus Facilities	-	-	-	N/A	Very Poor
37.	Covered Walkways	Campus Facilities	-	-	-	N/A	Fair

HISTORY

PAPPAS REHABILITATION HOSPITAL FOR CHILDREN

The Pappas Rehabilitation Hospital for Children (PRHC), as it is known today, was originally established in 1904 by Chapter 446 of the Acts of 1904, as the Massachusetts School and Home for Crippled and Deformed Children. In 1907, the facility was renamed the Massachusetts Hospital School by Chapter 226 of the Acts of 1907 and opened its doors with the admission of 104 children under the direction of Dr. John E. Fish who served as the school's superintendent until 1946. In April of 2016, Governor Charles D. Baker signed Chapter 87 of the Acts of 2016 into law, renaming the facility to the Pappas Rehabilitation Hospital for Children. The Act acknowledged Dr. Arthur Pappas as a long-standing advocate for children and for his vast contributions to the hospital's mission as well as to the Commonwealth.

According to the Canton, MA public works historical site, the facility was expanded in 1920 with the purchase of 100 acres of land. Today, the facility is comprised of approximately 166 acres which supports the 30+ campus buildings totaling approximately 457,000 sf of space for clinical, educational, residential, recreational, administration/office, and infrastructure uses. Architecturally, the campus is recognized for its covered walkways which connect all the major buildings and allow for unobstructed movement for the children to travel between them.

PRHC was designed specifically for children with physical disabilities. Today, PRHC is a Joint Commission-accredited, pediatric rehabilitation hospital serving children and young adults (ages 7-22) operated by the Department of Public Health (DPH). The hospital provides medical, rehabilitative, educational, recreational, transitional, and complementary alternative medical services to clients with multiple disabilities, assisting them to achieve their optimal level of independence in all aspects of life.



PHOTO: View of the northern façade of Morrison Hall and the Old Power Plant chimney to the left.

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- Arthur May, Power Plant Supervisor
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- Geoffrey Reinhold, Director of Occupational Therapy
- Christin Santiago, Director of Recreation Programs

PRHC (Continued)
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- Fatima Watt, Chief Executive Officer

CAMPUS ASSESSMENT

CAMPUS ASSESSMENT

Campus Program Overview

PRHC serves children and adolescents ranging in ages from 7 to 22 who reside on campus for stays of approximately one to 14 years. These children have a range of physical and cognitive disabilities. As of July 2023, the patient occupancy is 48. According to staff interviews, the campus housed a maximum of 120 patients at one time. However, the patient population was downsized during the Covid-19 pandemic.

The campus has a pastoral appearance with a combination of flat areas and gently rolling hills. Most of the campus is wheelchair and mobility equipment accessible, allowing patients, staff, and visitors to travel from building to building under covered walkways. According to staff, outdoor activities are an integral part of the therapeutic care environment. More independent patients have additional autonomy to move about the campus when not involved in school or therapy activities, and make extensive use of the campus walkways, outdoor facilities, and recreation buildings.

The campus houses several programs administered by state agencies as well as outside vendors. The primary focus of these agencies and vendors is on providing care, wellbeing, and education of patients who reside on the PRHC campus. Other agencies provide outpatient services to PRHC residents and outside patients. The Donovan Building houses Department of Health (DPH) and Department of Mental Health (DMH) agencies not associated with PRHC programs.

Patient Care

Residential hospital accommodations are provided in five living units in the Nelson Building, Gates Unit, Ross Cottage Unit, Ellis Cottage Unit, and Baylies Cottage Unit. These buildings contain hospital bedroom units with shared restroom and bathing facilities, exam rooms, treatment rooms, nursing stations, patient lounges, laundry facilities, dining rooms, and recreational rooms.

Each living unit has an in-house accessible kitchen. These are used for independent cooking programs and patient use for daily cooking.

Therapeutic Services

Clinical care primary services include medical, nursing, occupational therapy (OT), physical therapy (PT), behavioral health, speech therapy, and alternative medicine. Clinical services are offered within the living units on the campus, though services are provided throughout the campus as required. Dedicated physical and occupational therapy suites can be found in the Bradford and Nelson buildings, complementing the care offered in patient living areas. The staff tailor therapy sessions to the student's day and will often meet the students where they are for sessions.

Adaptive services offered include access to adaptive equipment, alternative communication systems, assistive technology, computer-based learning, independent living skills, and transitional services.

Additional outpatient medical services are provided to patients as required, including dental, optometry, orthopedics, psychiatry, podiatry, and pulmonology. These services may involve outside specialists who visit the campus part-time or on an as-needed basis.

Storage capacity is a major challenge on campus and older equipment hinders effective function of some of the facilities and programs.



PHOTO: Outdoor seating/activity area near Finnegan Gym/Pool.



PHOTO: Landscape near Ellis Cottage



PHOTO: view of reservoir pond from walking trails near Nature Pavilion

Recreation Facilities

The Finnegan Gym/Pool Complex houses a large well-equipped gymnasium, swimming pool, bowling alley, and electronic gaming room. The core of the building contains bathing and changing facilities.

Finnegan also contains a small café grille, used widely by the PRHC staff, visitor, and patients. The grille is run by the same vendor (currently Aramark) that runs the central kitchen in the Administration Building.

This building is relatively new (constructed 1982). It is used by residents on a regular basis and brings them a lot of enjoyment and benefits, according to PRHC staff.

The Reservoir Pond abuts the PRHC property and provides a venue for the PRHC summer program, offering a variety of highly valued summer boating activities. [redacted].

In addition, adjacent undeveloped property also provided natural trails, forested areas, and open fields.

The barn and stables facilities are home for recreational and therapeutic animals that form a part of campus recreational programs.

Playing fields and track are hosting venues for recreational events such as the New England Regional Wheelchair Championships. Most events were paused during the COVID-19 pandemic and have not resumed as of December 2022. However, staff indicate there are plans to restart recreational activities in 2023.

Morrison Hall is an auditorium building used as patient recreational gathering space – filled with mats, beanbags, and seasonal items for mobility training and recreational activities.

Greenhouses and Exterior Gardens

Greenhouses observed in the cold weather months were not in use. The older of the two greenhouses contains tables for raised plants and gardening equipment. The raised exterior gardens adjacent to the nature pavilions exhibited the remnants of robust summer plantings.

Academic Services

The Elementary School and Brayton High School collectively provide academic instruction for the student patients residing at PRHC. Despite being distinguished as elementary and high school, children of varying ages attend school in both buildings.

According to staff, students attend school from 9am to 3pm, including a lunch break at noon. PT/OT therapists generally will meet students at school and conduct therapy activities there.

The school facilities include art room, music room, science room, and numerous other classrooms providing other academic teaching. Brayton High School has a central library and auditorium. The auditorium is uniquely designed to provide access to a high volume of wheelchair occupants.

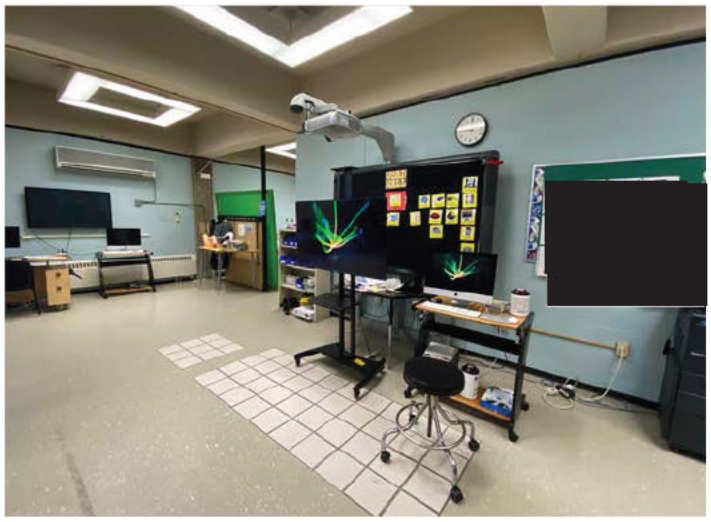


PHOTO: Brayton High School Learning Center Room

Accessible restrooms, changing rooms, and showering/bathing facilities are available.

Staff report the Wi-Fi access is poor, especially for students using tablet devices. Improvement to Wi-Fi and communication devices infrastructure is highly desired for staff and students.

Administration Offices

Administrative offices are spread throughout the campus, with the highest concentration in the Administration Building, Donovan Building, Bradford Building, and Nelson Building. Additionally, there are department offices located within Brayton High School, the Industrial Building, and nurse directors' offices in each of the living units. In general, the facilities are adequately sized.

Kitchen Facilities

The students enjoy meals in their respective living units three times daily. All meals are prepared in the central kitchen, located in the Administration Building, and operated by an outside vendor. The meals are then distributed from the central kitchen to other areas on campus via warming carts. Food is delivered to the dining rooms in each housing unit three times a day.

After each meal, the food containers are shipped via carts back to the main kitchen for washing and reuse in future meals.

The kitchen was originally designed in 1964 and is presently fitted with all gas appliances. The distribution process appears to be functional, although there is concern about food temperature given the travel distance. A more central kitchen may make the process more efficient.

Engineering & Maintenance Facilities

Other campus facilities infrastructure includes engineering offices, industrial workshops, the power plant, underground steam tunnels, and grounds maintenance office.



PHOTO: Main kitchen in the Administration Building.

The Department of Corrections (DOC) operates a reentry/transition program for incarcerated and/or formerly incarcerated persons. This program involves grounds-keeping, maintenance and other facilities related jobs on the campus. According to PRHC staff, these programs were paused in 2020 due to the COVID-19 pandemic but have since resumed as of January 2023.

The Rehabilitation Engineering building houses industrial workshops that design, construct, and modify equipment and assistive technology devices to meet the specific needs of individual students. This includes custom design and fabrication to empower youth to live as independently as possible.

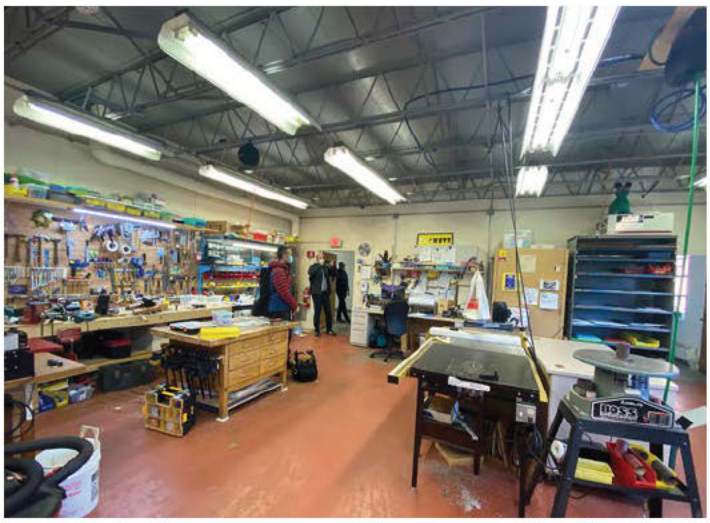


PHOTO: Rehabilitation Engineering shop in Industrial Building

PRHC facilities staff perform regular, day-to-day maintenance duties. For capital repairs, also known as "Deferred Maintenance" projects, facilities staff may also manage external contractors to perform the work. However, projects valued at $5,000,000 or more will typically be managed by DCAMM.

Additional Programs and External Vendors

Easter Seals Massachusetts provides staffing to support PRHC recreational activities, including barn and stable aides, lifeguards, water exercise instructors, and transitional living skills support on campus.

The Donovan Building is a part of the PRHC property however it houses various DPH and DMH agencies whose operations are not related to PRHC activities. DPH agencies include Metro Boston Regional Health, Bureau of Family Health & Nutrition, Bureau of Environmental Health, Bureau of Community Health Access and Promotion, Bureau of Substance Abuse Services, Office of Preparedness and Emergency Management, and Bureau of Public Health Facilities. DMH agencies include the Metro Suburban Area and Southwest Suburban Site offices.

Tufts University School of Dental Medicine serves both the patients on the PRHC campus and outside patients from the statewide community, including adults and children with developmental disabilities. They are located on the second floor of the Bradford building.

Storage

Storage by outside state agencies occupies some areas throughout the PRHC campus. For example, the Massachusetts Accessible Instructional Materials Library, which serves as a statewide distribution point for braille texts for Massachusetts student residents, stores their material on campus. This active storage repository of braille material is stored on the lower level of Brayton High School.

There are other instances of storage that are not active and unrelated to the current mission of the Hospital. File storage is present on the upper floors of the Administration Building and the basement level. Additionally, extensive equipment storage is present in the lower level of Brayton High School, some of which is seasonal. Extensive recreational, seasonal and other equipment storage exists within the Morrison Building.

However, some of these storage spaces do not appear well organized and contain very outdated material that should be disposed of. Furthermore, they are not an effective use of space, and may lead to ineffective hospital operations.



PHOTO: Old materials stored in boxed on third floor of Admin. Building.



PHOTO: Miscellaneous storage in Brayton High School Basement.

CAMPUS ASSESSMENT

Campus Existing Physical Conditions Overview



PHOTO: Parking lot near New Power Plant.

The campus is surrounded on three sides by fields and woodlands, providing a buffer from the neighboring community. On the south side, there is a reservoir pond that patients currently have access to. If PRHC plans to accommodate more challenging patient groups in the future, such as those with behavioral needs, then a further safety assessment should be conducted regarding potential waterfront safety concerns.

The interdependence of the campus structures and functions are emphasized by the covered walkways that connect the buildings , maintaining accessible connections during all seasons for patients and staff to travel back and forth.

The red brick and white wood trim campus dates back to 1907, with structures added in nearly every decade over the last 116 years, although most were constructed prior to 1950. Many structures exhibit deteriorating physical conditions and some do not comply with current codes and healthcare facilities standards. This impedes the staff's ability to maintain the most ideal level of care. Code concerns are addressed in further detail in building specific reports under the "Building Assessments" section and in the Code Consultant's report under Appendix A.

Some buildings are also unused or underutilized as a result of their poor physical conditions. As of December 2022, vacant areas include Administration Building 3rd floor, Superintendent's House, most areas of Old Power Plant, and Morrison Hall upstairs apartment.

EXTERIOR CONDITIONS

Exterior Walls

Exterior wall types include brick masonry bearing assemblies on concrete foundation walls. The concrete has been severely compromised by moisture and salts in many locations, causing rebar to rust and concrete to spall. This is prevalent at terraces and extended floor structures throughout the campus. The brick walls also exhibit cracks at rusting lintels and corners from expansion. Please refer to the last section of this report "Future Investigations" for additional details, risk factors, and recommended actions.

Fenestration

Window frames are composed of wood, steel, or aluminum, with many window assemblies dating back to the original construction. There are areas of rust or rot throughout. Aluminum replacement windows and aluminum storm windows are present in some locations. The glazing on the windows varies, with both single-pane and double-pane insulated units, though most of the glazing is single-pane. The glazing in the steel window frames have cracked in places. While many window systems are in varying states of disrepair, most of them are still operable and appear functional.

In patient rooms, window units are equipped with insect screening, however in some areas, the screens



PHOTO: Admin Building

have exceeded their life span. Additionally, glass block glazing is present in some locations as well.

Doors

Patient and staff entry doors are accessed with motion sensors and delayed closure for easy accessibility and increased independence for the patients. Most entries lack vestibules. This helps in maneuvering but creates challenges in energy use and temperature control in cold weather. Door type and function varies widely.

Roofing

Campus roofs are either flat, membrane type or pitched with asphalt shingles or corrugated metal.

Membrane roofs were all replaced approximately 20 years ago and currently appear to be in good condition. The initial installation at building perimeters was poor, resulting in insufficient flashing that has led to leaks in various locations. These roofs still require annual maintenance with sealant replacement.

Pitched roofs with asphalt shingles cap the older buildings on campus. Due to their shallow pitch, these roofs have experienced issues with moisture and organic surface growth. They are now at the end of viable life.

Corrugated metal roofs clad the animal barns and portions of the Finnegan Gym/Pool Complex. These newer roofs are largely in good condition.

Campus roofs have damaged eaves and gutter systems at numerous locations from excessive snow loads and possibly ice dams at the unheated perimeter eaves. Wood fascias, gutters and snow fences have failed on many buildings in various locations.

Walkway Structures

Wooden covered walkway structures are largely in good condition, but the base of some columns show signs of rot. Some walkways cover existing steam tunnels. These single-story structures are comprised of both heavy and light timber wood framing, with concrete on grade walkways. Wood paint has faded throughout and a paint refresh is recommended. Most areas of the concrete pavement have uniform surface, however there are some areas that require repair due to ponding, cracks, and chipped concrete. Support columns sit on concrete footings where some wood rotting was observed.

The roofs are pitched with black membrane roofing. The walkway ceiling has surface-mounted lighting on a plywood ceiling soffit. Ceiling structures are coated with surface mold throughout, so a power washing before repainting is required.

Staff annually install snow screens on walkway structures to keep the snow off the paths. This maintains unobstructed circulation between the main campus buildings year-round.

The covered walkways do not extend to all portions of the campus grounds, such as the animal barns – making it difficult for students to attend programs there during poorer weather conditions.

Security

[redacted]

Wayfinding

The campus wayfinding design and existing signage, both exterior and interior, lack consistency across the campus. Most signage appears to be for patient navigation, but it is unclear to visitors. The entry area around the Guard House does not promote a clear point of arrival for patients and guests. Arrival and departure areas are also not well designed for vehicular loading activities, and circulation around the site can be confusing given the lack of clear wayfinding signage.

There is however one consistent set of helpful signage for patient wayfinding – the pictographic color-coded thumbs up/thumbs down signs indicating if an area is safe for patients to enter, not safe to enter, or if they need to be accompanied by staff to enter. However, some of these signs appear faded and should be replaced with a more durable signage material.



PHOTO: Covered walkways



PHOTO: Reservoir Pond from Boathouse area.

Groundwater and Surface Waters Protection

PRHC is located in a Zone II MassDEP Wellhead Protection Area, and the Town of Canton Groundwater Protection Overlay District. Wellhead protection areas are important for protecting the recharge area around public water supply (PWS) groundwater sources. The Town of Canton owns three wells located off Charles Drive.

Reservoir Pond (State ID: MA73048_2008) is an approximately 255-acre freshwater water body. It is listed on the Massachusetts Department of Environmental Protection's (DEP) 303d list under Category 4A, indicating that the pond is impaired or threatened for one or more uses. However, a Total Maximum Daily Load (TMDL) has been established for its watershed, the Neponset. The impaired use is the presence of mercury within fish tissue. The pond is also listed for the presence of non-native invasive plants, but this is not considered to be a polluting use by DEP. Popular uses of the pond include boating, swimming, birdwatching, hiking, fishing and ice-fishing, ice- boating, and skating. The Town of Canton contracted with the Metropolitan Area Planning Council (MAPC) to supply a Reservoir Pond Current Conditions and Use Options study in August 2016.

Wetland & Floodplain

Review of Federal Emergency Management Agency (FEMA) and publicly available MassGIS resources indicate that the PRHC campus is not in close proximity to mapped wetlands resources or FEMA floodplain. MassDEP Wetlands Layer indicates two isolated wetland resource areas on the eastern portion of the property in close proximity to Reservoir Pond and the eastern property line. Given the locations campus, surrounding land uses, and topography, it is not surprising that the campus is not located within FEMA flood zones. The campus is located on a hill and is at an elevation that is higher than the surrounding areas. Therefore, it is unlikely that PRHC would be subject to any significant flooding.

Asphalt Pavement Conditions

The asphalt pavement in the parking lots, service drives, and walkways were observed to have moderate cracking and degradation. Old asphalt pavement appears to be cracked and heaved, with uneven sections on the boundaries with new asphalt pavement. In some places, the curbing is overgrown or missing, and edges of the asphalt pavement along landscaped areas show signs of degradation. Extensive walkway systems link buildings but crosswalks on the southern section of the loop road do not connect to further walkways.



PHOTO: Poor asphalt conditions behind Baylies cottage.

INTERIOR CONDITIONS AND SPACE PLANNING

Patient Care Units

The existing patient care units are generally well maintained given the age of the facilities. However, some facilities appear dated in terms of finishes, fixtures, space organization, and ability to support current technology. The original architecture layouts remain unchanged since each structure was initially opened.

Where patient rooms are double occupancy, staff have reported they are not large enough to house all the equipment for daily activities. This is primarily due to these rooms not conforming to FGI (Facilities Guideline Institute) requirements of minimum 140 SF per patient bedroom, or 125 SF per patient in multi-persons bedrooms, For more information, refer to DPH Hospital Inpatient Facilities Checklist "IP28 for Rehabilitation Hospitals"

Typically, each patient has both a manual and an electric wheelchair. Space restrictions require the electric wheelchairs to be housed at one end of the residential units. This setup necessitates multiple trips across the buildings for patients and staff to retrieve the wheelchairs.

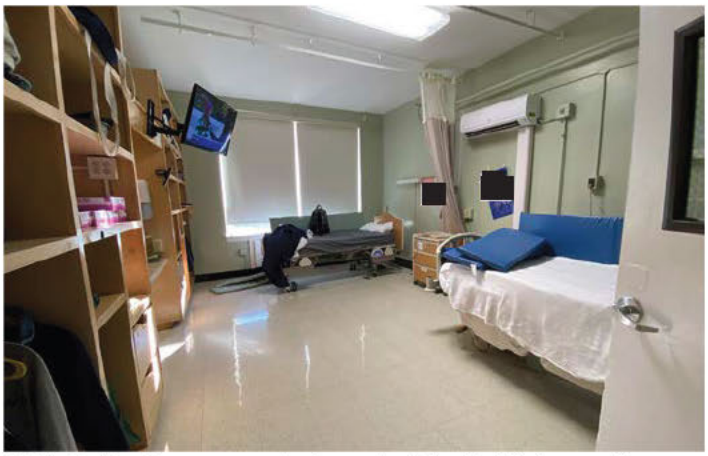


PHOTO: Double occupancy bedroom in Gates that is too small.

Patient room head walls do not provide the appropriate equipment to support more complex patient care, limiting the facility's ability to expand to a larger demographic of patients. See "Future Investigations" for recommendations regarding options for accommodating expanded patient populations.

The location of nursing staff within the units, such as Gates Unit, is often less than ideal. Some stations are in rooms with no visibility to the corridor or patient rooms.

Laundry facilities have been adapted to meet patient needs, but their locations are sometimes less-than-ideal due to constraints in the architectural plans.

Each living unit is equipped with an accessible kitchen used for independent living instruction. The adjoining dining area is where the meals imported from the campus central arrive.

Some lounges within living units (i.e. all the residential cottages) have active building circulation pathways running through them. This design does not promote respite for patients away from the daily staff functions.

The changing, shower and toilet rooms are all in working order, but not all fixtures are accessible or not mounted at suitable/accessible heights.

Storage

The patient rooms have storage for personal items. However, living units in general lack sufficient storage capacity.

Wall Finishes

In most cases, unit walls are clad in the original finishes in most cases. A lot of these finishes are durable but have a dated aesthetic. The public spaces have a heavily institutional aesthetic, lacking warm colors. More comfortable finishes, engaging colors, and tactile textures would be more welcoming to children.

Flooring

Flooring is generally well maintained, though the buildings from the 1950's have irregular multi-colored floor title patterns and are showing the history of wear and replacement.

BUILDING SYSTEMS

The campus's ongoing energy project has provided a new split system heating in most rooms and new surface mounted LED light fixtures.

The patient rooms are not equipped with sufficient power supply to charge the wheelchairs and other required medical equipment. The electrical systems



PHOTO: Wheelchair stored in playroom in Gates Unit.

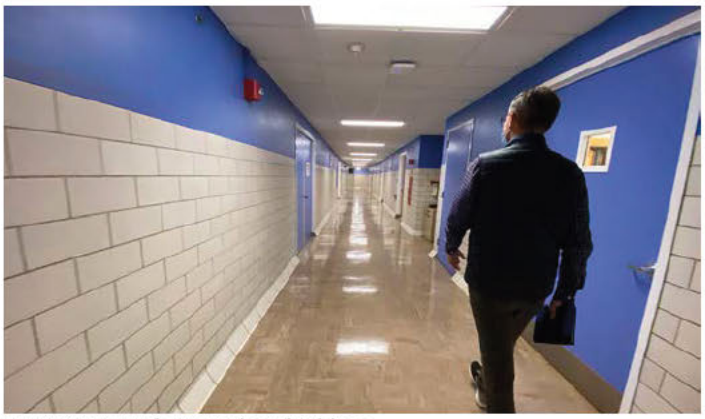


PHOTO: Corridor in Nelson building.

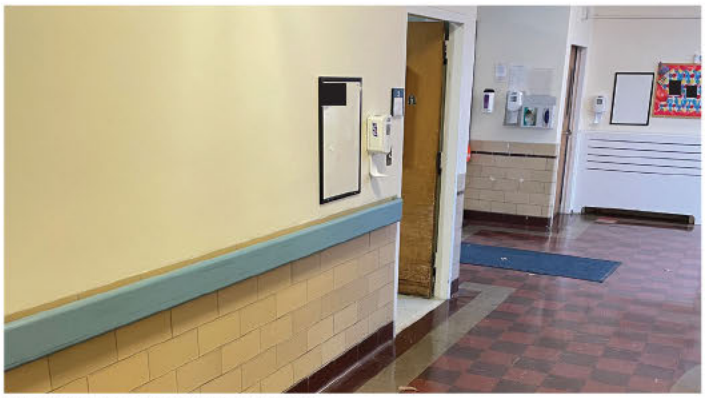


PHOTO: Corridor in Gates unit.



PHOTO: Recent energy project electrical upgrades in Gates Unit.

have not kept pace with technologies growing demand for electricity. See Mechanical, Electrical and Plumbing (MEP) consultants' reports in Appendix A for additional information regarding building systems conditions.

INTERNAL SECURITY/ SAFETY SYSTEMS

[redacted]

ARCHITECTURAL SIGNIFICANCE

PRHC is listed as the Massachusetts Hospital School (Inventory No. CAN.A) in the Massachusetts Cultural Resource Information System (MACRIS) database. The Massachusetts Historical Commission (MHC) issued an opinion on June 18, 2003 that PRHC is eligible for listing in the National Register of Historic Places (NRHP) under criteria A and C on the local and state levels, however more information is required to determine designation and National Registry nomination. Previous and proposed construction projects that impact the existing buildings may impact eligibility for historic designation status. Future work should follow the Secretary of the Interior's Standards and Guidelines. Please refer to the Historic Preservation report by Gale Associates in Appendix A for further information on MHC and MEPA documentation requirements.

SITE UTILITIES OVERVIEW

Stormwater

The PRHC site covers approximately 166 acres with approximately 50 acres being developed. The site is divided into two watersheds. There is a ridge generally between the Superintendents house extending southeast through the Finnegan Gym/Pool Complex to Gates Unit. The area to the west of this ridge generally slopes from north to south and drains towards Reservoir Pond through sheet flow and a closed-drainage system inlets. The site drainage system discharges to a rock swale in the wooded area south of the Nelson Building. Stormwater either infiltrates into the soil or continues to runoff until it ultimately discharges into Reservoir Pond. The swale flows down the wooded slope, under an existing asphalt walkway in a small culvert pipe. On the Pond side of the culvert, runoff sheet flows through tunnels into Reservoir Pond. The area to the west of the ridge is collected in a closed drainage system which record plans do not show the outlet for.



PHOTO: Morrison Hall exterior view.



PHOTO: Morrison Hall interview view from balcony.



PHOTO: Erosion near Parking lot L, east of Nelson building.

The majority of stormwater runoff from the site is currently unmitigated and flows to point discharges in swales. To comply with regulations and ensure environmental protection, all future campus projects should meet the Massachusetts Department of Environmental Protection Stormwater Management standards for both runoff rate and water quality. PRHC staff has indicated that there are no significant stormwater or flooding issues at the campus. The campus contains a closed drainage system consisting of catch basin, drain manholes, and underground piping.

Water

The Town of Canton drinking water is served by two sources: groundwater wells and supplemental water purchased from the MWRA Water supply. The PRHC campus is served by two water mains in Randolph Street, a 12" water main and a 6" water main. The water service connection to this main is east of the Employee entrance gate on the north-east side of the property. This 10" water service goes to an underground vault with a pressure reducer, backflow preventer, and meter. Domestic water distribution mains connect to a 6" domestic water service connection on the southeast side of the building, adjacent to the Old Power Plant, and a fire protection connection and the northeast side of the building, adjacent to the Industrial Building.

All existing water lines and fire hydrants are understood to be in good working order, pressure is adequate throughout the site, and should remain undisturbed and maintained.

Sewer

The existing sewer system on-site is comprised of a series of gravity-based lines that route to a Town of Canton-owned gravity sewer main located adjacent to the Reservoir Pond shoreline. The Power Plant and Old Power Plant buildings contain sewer ejector pumps that discharges through a force main to an 8" gravity sewer to the west of the Old Power Plant building. The PRHC site discharges to a 10" gravity sanitary main owned and maintained by the Town of Canton Public Works Department - Water & Sewer Division. The main discharges to a Massachusetts Water Resources Authority (MWRA) owned main west of Forge Pond in Canton.

Sanitary system is documented on a record plan prepared by Merrimack Engineering Services titled "Plan Depicting cleaning and Inspection of the Existing Sewer System, Massachusetts Hospital School, Canton, Mass" dated Dec. 12, 1996, Rev April 14, 1997.

No issues were reported with sanitary system pipes, manholes or connections to buildings.

Gas

Eversource Energy owns a natural gas main in Randolph Street. There are four (4) service connections to this gas connection. One service connection of unknown size is connected to the Power Plant, another service connection of unknown size is linked to the Administration building beneath the main entrance drive. Additionally, there is a service connection to the Elementary School located the west of the Superintendent's House, and finally a 4" building service connection to the west side of the Brayton School. Records of these services are shown by hand-sketch on top of a plan prepared by Samuel Ussia and Associates, Inc. titled "New Fire Protection Line Study – Site Water Dist." Dated 8-9-95

Steam Tunnels

Below the campus lawns are a network of cast-in-place steam tunnels. They deliver steam and other campus systems to many of the buildings on campus. These tunnels are documented in the facilities plan of Nitsch Engineering's report in Appendix A. The tunnels are leaking in several locations. They are in need of repair and re-waterproofing.



PHOTO: View into the steam tunnels.

BUILDINGS ASSESSMENT

BUILDINGS ASSESSMENT

STUDY METHODOLOGY & RATINGS CLASSIFICATIONS

Study Methodology

The existing conditions assessment of the physical campus and buildings was conducted in December 2022 and January 2023. Multiple on-site investigations were conducted by the consultant teams along with key stakeholders to determine the facilities existing conditions, review space utilization, and document those conditions. Meetings were conducted to review the findings of our investigations and determine how those findings would impact PRHC's short-term and long-term capital needs.

DCAMM has provided Accessibility Summaries for each building under the Facility Condition Assessment (FCA) review. The Accessibility Summary is a listing of recommended mitigations to remove the most significant accessibility barriers. For the purposes of this study, Accessibility items have not been given a rating because issues are captured in the overall facility condition assessment. Additional information on accessibility requirements can be found in the Accessibility Report in Appendix A.

For Life Safety and other Building code related assessments, reference 780 CMR - Massachusetts State Building Code 9th Edition (amended version of the 2015 International Building Code). Please refer to report by Code Red Consultants in Appendix A for additional details.

Additional reference codes are NFPA 101 and 220 - used by Centers for Medicare & Medicaid Services (CMS) and Joint Commission.

Please note only the seven highest criticality buildings have been reviewed by all disciplines. The ratings of other buildings are based on a general architectural review with some inputs from other disciplines where relevant.

Conditions Rating Classification

Each building is assigned an existing physical conditions rating based on weighted averages of ratings in each consultant's assessment category. The following legend outlines the description for each level of the rating system:

☐ Overall Rating ◯ Component Rating

Excellent	Building components/systems are in excellent condition, do not require repair or upgrade in the foreseeable future.
Good	Building components/systems are in good condition, may require repair or upgrade in the long-term (10-15 years).
Fair	Building components/systems are in fair condition, require repair, upgrade, or replacement in the medium-term (5-10 years).
Poor	Building components/systems are in poor condition, require repair, upgrade, or replacement in the short-term (1-5 years).
Very Poor	Building components/systems are in very poor condition, require repair, upgrade, or replacement *immediately* (less than 1 year).
N/A	Building components/systems were not accessible for review, not enough info to determine, or not in the scope of this study.

BUILDINGS ASSESSMENT

STUDY METHODOLOGY & RATINGS CLASSIFICATIONS

Space Utilization Review

High-level benchmarking standards are based on DPH's "Hospital Inpatient Facilities Checklist IPH28 Rehabilitation Hospitals" which was used to assess how well current space meet these guidelines. Please note additional FGI and other code/regulatory requirements (outside of the scope of this study) may also apply.

Patient bed counts are based on site investigations and data collected at staff interviews between December 2022 and January 2023.

Room Area Calculation Methodology:

Room square footage is measured from interior finish face of wall to interior finish face of wall. Shafts and voids are not included in measurement.

Note: *Dimensions and areas are based on scaled takeoffs of record drawings provided by DCAMM and have not been field verified at this time.*

Space Use Rating Classification

Each area is also assigned a rating based on how well a space is utilized, such as if it's over-utilized or under-utilized, whether the space is used efficiently, and how it aligns with benchmarking standards. The following is a description for each level of the rating system:

▲ **Excellent**	Space accommodates occupant needs well, is right sized, used efficiently, located in a suitable area, meets or exceeds FGI guidelines (where applicable), and has an effective layout.
▲ **Good**	Space accommodates occupant needs, meets minimum FGI guidelines (where applicable) but may have minor deficiencies, is in a non-ideal location, or may be slightly over- or undersized.
▲ **Fair**	Space accommodates some occupant needs, meet some FGI guidelines (where applicable), is in a poor location, over- or undersized, and/or have layout or efficiency issues.
▲ **Poor**	Space does not accommodates occupant needs nor meet any FGI guidelines (where applicable), is in a poor location, significantly over- or undersized, and/or highly inefficient.
△ **N/A**	Space was not accessible for review, or utilization is not applicable to this area, and/or not in scope of this study phase/report.

BUILDINGS ASSESSMENT

BUILDINGS SUMMARY AND OVERALL RATINGS

Seven buildings were identified as housing the most critical programs for PRHC and are included in this section with more detailed findings and analyses. These buildings are identified below **in red**.

No.	Building Name	Program	Area (GSF) [1]	Year Built	# of Floors	Current Bed Count	Overall Ratings	
							Physical Condition [3]	Space Use
1.	**Nelson Building**	Resi./Clinical/Admin	66,378	1962	2 + Basement	43		
2.	**Bradford Building**	Clinical/Admin	30,268	1954	2	N/A		
3.	**Gates Unit**	Residential	9,049	1950	1 + Basement	21		
4.	**Ross Cottage Unit**	Residential	11,500	1935	2	10		
5.	**Ellis Cottage Unit**	Residential	11,500	1931	2	8		
6.	**Baylies Cottage Unit**	Residential	11,500	1935	2	8		
7.	**Finnegan Gym/Pool Complex**	Recreation	34,765	1982	1 + Basement	N/A		
8.	Pinkerton Building	Recreation/Education	6,570	1915	2	N/A		
9.	New Greenhouse	Greenhouse	200	1982	1	N/A		
10.	Morrison Hall	Recreation	10,712	1912	2 + Attic	N/A		
11.	Pavilion at Gates	Recreation	5,000	2014 [2]	1	N/A		
12.	Greenhouse	Greenhouse	~200	1931	1	N/A		
13.	Boathouse Pavilion/Dock	Recreation	~200	1990	1	N/A		
14.	Nature Lodge	Recreation	1,781	1974	1	N/A		
15.	Indoor Riding Arena	Recreation/Farm	14,416	2005	1	N/A		
16.	New Barn (formerly Horse Barn)	Recreation/Farm	3,050	2006 [2]	2	N/A		
17.	Old Barn (formerly Cow Barn)	Recreation/Farm	3,822	1931	2	N/A		
18.	Water Shed	Facilities/Farm	200	1930s [2]	1	N/A		
19.	Brayton High School	Education	108,312	1967	1 + Basement	N/A		
20.	Elementary School	Education	5,739	1928	1	N/A		
21.	Superintendent House	Vacant	5,076	1930	2 + Attic	N/A		
22.	Administration Building	Administrative	41,966	1907	3	N/A		
23.	Donovan Building	Administrative	44,703	1962	3 + Basement	N/A		
24.	New Power Plant	Campus Facilities	5,800	1982	1+Mezzanine	N/A		
25.	Old Power Plant	Campus Facilities	5,917	1907	2	N/A		
26.	Industrial Building/New Rehab Engineering	Campus Facilities	9,572	1957	2	N/A		
27.	Old Laundry/Old Rehab Eng./Storage	Campus Facilities	4,136	1923	1	N/A		
28.	Guard House	Campus Facilities	~200	1990s [2]	1	N/A		
29.	Superintendent's Garage	Vacant	~200	1930s [2]	1	N/A		
30.	John E. Fish Memorial Clock Tower	Campus Facilities	144	1913	1	N/A		
31.	Chauffer Brick Garage	Campus Facilities	3,072	1950	1	N/A		
32.	Grounds Garage	Campus Facilities	620	1938	1	N/A		
33.	14 Car Garage	Campus Facilities	3,072	1938	1	N/A		
34.	Open Shed	Campus Facilities	3,000	1930	1	N/A		
35.	Fire Pump House	Campus Facilities	~200	2000s [2]	1	N/A		

[1] GSF values of buildings are taken from "CAMIS Building Replacement Value Update 2022" document dated January 7, 2022.
[2] These "year built" data are based on staff interviews and are approximate.
[3] These ratings are based on a high level assessment and may not include assessment from all disciplines.

Long-term Residential

Nelson Building

CHARACTERISTICS	
YEAR CONSTRUCTED	1962
HISTORICAL DESIGNATION	NO
FLOORS	2 + BASEMENT
GROSS SF	66,378 GSF
CONSTRUCTION TYPE	TYPE IB
EXISTING BED COUNT	20 PATIENT ROOMS 43 TOTAL BEDS
RECOMMENDED BED COUNT	39
24/7 OPERATION	YES
PRIMARY PROGRAMMATIC USE	PATIENT RESIDENCE/ CLINICAL



OVERALL RATING: Good

EXISTING CONDITIONS ASSESSMENT

Rating

ARCHITECTURAL

Roofing

The roof is a flat Sarnafil membrane system from approximately 2000. A typical Sarnafil membrane warranty is 20 years. The second-floor light wells have been prone to leaking at the perimeter. Annual maintenance of applying sealant is currently done however a more long-term solution is required. Given the age and current conditions of the roof, a replacement should be considered within the next five to ten years. However, remedial work, such as at the perimeter to correct the flashing tie at roof copping, may also extend the life of the roof.

Fair

Façade

The façade consists of brick structure on cast-in-place concrete foundation. Minor cracking in the foundation at grade is evident. The cantilevered brow and terrace are in fair condition. There are some areas where rebar is exposed in the brow edge. The terrace steel guard rail has peeling paint. Patient room windows are replacement aluminum framed windows with insulated glazing. The masonry openings are spanned with steel lintels that are in varying stages of disrepair. The brick façade has not suffered cracking from steel expansion yet but may in the future. Windows are operable for natural ventilation. The brick joints are largely tight. Woodwork at the east entrance require paint. A skim coat on the underside of the concrete brow is cracking in a few locations. A large mural covers a portion of the north end wall of the building.

Good

Interiors

All exterior entry doors observed are automated to accommodate the wheelchairs and other mobility equipment. [redacted]. There are also no functioning vestibules to provide HVAC interlocks at the entry points. The north end reception lobby in not presently utilized. This north entry is designed with a vestibule. However, the vestibule interior doors are on hold-opens which removes the vestibule function, leading to energy inefficiency. The upper floor of Nelson contains two residential living units. The central core of the building is comprised of double corridors wrapping common functions including bathing facilities, nursing station, and restrooms, while the perimeter of the floor

Fair

Note: See Appendix B for additional information and photos.

Long-term Residential

Nelson Building







EXISTING CONDITIONS ASSESSMENT Rating

ARCHITECTURAL (contd.)

plate is wrapped with patient rooms, playrooms, and dining facilities. Patient rooms include large storage facilities for patient belongings. VCT flooring throughout patient rooms and circulation are 12x12 tiles. Bathroom flooring is either mosaic tile or epoxy flooring. Hallway walls are partially lined in ceramic tiles wainscot and painted gypsum wall board. In general, the spaces are clean and well-lit.

Patients have lounge and recreational spaces such as public TV/game rooms, and large dining rooms. The overall look and feel of the Nelson building interiors is institutional. Patients could benefit from warmer, softer, more natural, and/or more domestic aesthetics. Additional quiet spaces should be considered. Patient in-unit bathrooms are too small for patents in wheelchairs/other mobility devices. The lower level is clinical space with one central corridor and the east side of the lower level is below grade. [redacted], and doors are not wide enough to fit a bed through so evacuation in beds are not possible. Stairways have a guard post centered at the edge of the landing to prevent patients in wheelchairs from falling down the stairs. This however could be an egress barrier. Staff have indicated while local fire marshals do not find this condition ideal – they are understanding of the unique situation of a children's rehab facility.

MEP SERVICES

Mechanical

The mechanical systems for Bradford & Nelson buildings are shared. Incoming steam enters/exits through the basement. This is in fair condition. Some sections of piping and insulation should be replaced, as is typical for the campus steam lines. New CHW (Chilled Water) system installed in 2020 as part of energy upgrade in good condition with VFD (Variable Frequency Drive) pumps and updated digital controls. Old air separator in basement needs replacing and new cooling should be installed in basement MEP room which is very hot currently. **Poor**

Air-side systems need major upgrades. All AHUs (Air Handling Units) –in the penthouse, basement, and on the roof – are past life expectancy and many are not operating as designed or at all, fresh air is not being supplied to building to meet current code requirements. All should be replaced except for the two newer units in the penthouse which were installed

Note: See Appendix A for full consultants report.

Nelson Building

EXISTING CONDITIONS ASSESSMENT | Rating

MEP SERVICES (contd.)

more recently and are operating as expected, minus inoperable dampers which should be replaced. All AHUs should be upgraded to digital controls tied into BMS. Many cooling issues in spaces, especially the ground floor, where most rooms have portable AC (Air Conditioning) units.

Plumbing

Good

The plumbing systems for Bradford & Nelson buildings are shared. There is an incoming water main to both Bradford and Nelson building and the mains are interconnected inside the buildings. They both feed to a common steam fed domestic water heat exchanger and serves both buildings. The HX (Heat Exchanger) is an Armstrong Digi-flo with a digital mixing valve which was installed February 2020.

Fire Protection

Good

The fire protection systems for Bradford & Nelson buildings are shared. There is a 6" incoming fire main that enters the basement with a double check valve and wet alarm valve on the incoming main. Both Nelson and Bradford buildings are both fully sprinkler protected. The buildings are also protected by a standpipe system with hose valves in the stairways. A floor control assembly feeds the sprinkler system for each floor from the standpipe in the stairway.

Electrical Distribution

Fair

1. 4160V/208V Substation: 300 KVA. General power Westinghouse Equipment, 1200A Main Circuit Breaker (MCB) with Westinghouse Distribution Breakers. Condition: Average. Age 40+ years. Fed from Boiler Plant. Condition: Fair.

2. 4160V/208V Substation: 225 KVA. General power. Westinghouse Equipment, 800A Main Circuit Breaker (MCB) with Westinghouse Distribution Breakers. Condition: Average. Age 40+ years. Fed from Boiler Plant. Condition: Fair.

3. Panels: Westinghouse Breakers. Condition: Some Fair and other Poor.

4. 4160V/208V Substation: 225 KVA. Air conditioning equipment. Square D Equipment, 800A Main Circuit Breaker (MCB) with Square D Distribution Breakers. Fed from Boiler Plant. Condition: Fair.

5. 4160V/208V Substation: 150 KVA. XRAY Equipment. Square D Equipment, 800A Main Circuit Breaker (MCB) with Square D Distribution Breakers. Fed from Boiler Plant. Condition: Fair.

6. Emergency power is presently being updated. Included is a new 200 KW Diesel Emergency Exterior generator with a base fuel storage tank. New normal feeder & panel. Three new Automatic Transfer Switches for Life Safety, Critical and Equipment branches. Also provided are new Emergency distribution panels for each branch. Load banks are also part of the new install. The remaining portion of the facility is on the new 600 kw generator at the Power plant. Inclusive are the two substations for XRAY and Air Conditioning loads.

7. Panels: Square D Breakers. Conditions are varied, breakers are over 40 years old and past their expected service life.

Lighting

Fair

Most of the fixtures (approximately 85%) need to be retrofitted from fluorescent lamps to LED. Interior & Exterior (flood lights) are new. Exit Signs are mostly Incandescent, while some others are LED. Controls are local switching with some occupancy sensors. Conditions are good in areas from recent energy upgrade. Older controls conditions are poor.

Note: See Appendix A for full consultants report.

Nelson Building

EXISTING CONDITIONS ASSESSMENT | Rating

MEP SERVICES (contd.)

General Power

General power is mostly adequate, however additional power is needed. Branch circuit wiring from original panels is poor. Power for inpatient beds are normal power only. No emergency power is provided. Outlets are not hospital grade.

Poor

Fire Alarms

The fire alarm system is a Fire Lite/Honeywell addressable system. There is an electronic fire alarm master box for fire department notification. The system has voice evacuation. The Fire Alarm system also reports to the Power Plant and the Guard shack. There is partial coverage with smoke, heat detectors & pull stations. There is audio visual voice coverage throughout. The system is in good condition.

Good

CODE & LIFE SAFETY

The building consists of Group I-1 Condition 2 (Institutional), Group A-2 (Assembly), Group A-3 (Assembly), Group B (Business), and Group S-2 (Storage) primary occupancies. The building does not have any observed hazardous means of egress conditions. The building is fully sprinkler protected and appears to have smoke detection provided throughout the entire building. Fire alarm system consists of audible/visual notification and pull stations at all exit doors. The egress capacity is adequate for the maximum anticipated occupant load and available exits. It should be noted that both floors of the building have exits which discharge directly to the exterior of the building, and the stairs within are not marked as exit stairways (convenience use only). The construction type of the building is likely adequate for any addition or change of occupancy project based on the occupancies present.

Good

CIVIL

Sanitary

Nelson Building has a discharge on the west side of the building to a six-inch pipe of unknown material. Record plans do not show the outlet of this pipe, but the pipe is shown heading of an Existing Sewer Manhole (SMH) “Z” on the southwest corner of the Nelson Building, adjacent to the covered walkway. This manhole has two sewer pipes shown with no destination but headed in the direction of the Nelson Building. There is a six-inch sewer pipe beneath the northern portion of the Nelson Building which serves Ross Cottage. The sewer service to Gates Unit also is shown beneath the Nelson Building. There is a six-inch vitrified Clay (VC) sewer connection on the southwest corner of the Nelson Building and a six-inch transite pipe connected to Existing SMH “AJ”. Both SMH Z and SMH AJ are connected to Existing SMH Y which is located south of Ellis Cottage, in eight-inch and six-inch pipes. This pipe is a gravity sewer connection to a manhole on the east side of the Nelson Building. This pipe flows to the west and south towards a Sanitary Manhole north of Reservoir Pond where it connects to the Town of Canton Sewer System. No issues were reported or observed with the condition or function of the sanitary discharge from Nelson Building.

Good

Water

Record Plan titled “New Fire Protection Line Study - Site Water Distribution - “AS-BUILT” Dated January 11, 1995 shows a six-inch copper water service on the west side of the building, and a 6-inch Ductile Iron fire protection service with Post Indicator Valve (PIV) on the east side of the building. No issues related to water pressure or availability were reported for Nelson Building.

Good

Note: See Appendix A for full consultants report.

Nelson Building

EXISTING CONDITIONS ASSESSMENT | Rating

CIVIL (contd.)

Stormwater

Nelson Building has a flat roof and internal drains which connect underground to the site closed drainage system. The topography to the east of Nelson slopes from Gates and Ross Cottages towards the building's east facade. No reports of ponding or drainage issues were reported in this vicinity of the building.

● **Good**

LANDSCAPE

The Nelson Building has several entrances. It is accessed from the upper courtyard from the covered walkway running east and west. It also has entrances on the north and south sides, with the north side being a pedestrian entrance crossing the driveway and connecting with Gates and the Pavilion at Gates, and the south side being a doorway from a small parking area at the lower level. There are stairs connecting the upper level to the lower level. Nelson is attached to the Bradford Building on the south side and there are internal connections. There are minimal pedestrian spaces around the Nelson, with the most important being on the north and the east. The east side is where the covered walkway connects it to the Pavilion at Gates, to Gates, and to Ross and Morrison Hall. There is a linear green space on this side, with a small seating area on its northeast corner. There are mature trees in this area with some in poor condition. The north side of the Nelson is adjacent to the main open space on the campus. This is the large green space surrounded by covered walkways, and contained by the Administration Building, Finnegan, Nelson, and Baylies Cottage on the west. This is an activity and display space with walkways, shrubs and trees and is not connected with vehicular drives or parking areas, which makes it feel quiet and secure. Large shrubs separate this space from the cars at the Administration Building.

● **Good**

HISTORIC SIGNIFICANCE

Based on Gale's review of available documents and historic agencies, listed in Appendix A: Gale report, the building does not appear to have a historic designation.

○ **N/A**

ACCESSIBILITY

Accessibility upgrades are needed to replace all doorknob hardware with lever hardware. Some ADA upgrades were performed during the recent energy project upgrades. There are some ADA compliant bathrooms, however major renovations are also recommended all toilet rooms between patient bedrooms that have no accessibility. Additionally, renovation to all other restrooms in the building and raising height for hallway sinks are recommended.

See Appendix A for a preliminary report by DCAMM Statewide Accessibility Initiative.

○ **N/A**[2]

Notes

1. See Appendix A for full consultants reports.
2. Accessibility items have not been given a rating because issues are captured in the overall facility condition assessment. Additional information on accessibility requirements can be found in the Accessibility Summaries in Appendix A.

Nelson Building

UTILIZATION REVIEW

Level	Space Function	Total SF	# of Rooms	Average SF per Room	Space Use Rating	Space Usage Efficiency Summary & Additional Comments [1,2,3]
1st Floor	Bedrooms	7,009	20	350	▲	Bedrooms meet and exceed the FGI guidelines for double occupancy. Note: two patients per room is the maximum possible in available SF.
	Playrooms	1,120	2	560	▲	The playrooms are spacious and staff indicate they meet patient recreational needs.
	Dining Rooms	4,329	2	2,164.5	▲	FGI requirement for combined dining and recreation spaces are 55 SF per bed x the allowable bed count = 2145 SF, the combined total of dining rooms and playrooms is 5449 SF. This meets the guidelines.
	Bathrooms	713	2	356.5	▲	Patient bath and shower rooms are significantly undersized. Installation of more sophisticated patient lifts and bathing equipment is recommended. Refer to DPH's Hospital Inpatient Facilities Checklist IP28 Rehabilitation Hospitals section 2.6-2.2.2.7 "Patient Bathing Facilities" for compliance requirements.
	Toilet rooms	673	20	33.5	▲	The individual toilet rooms are significantly undersized. They do not provided enough space for patient wheelchair equipment, portable lifts, transfer space, adequate turning radii, and staff maneuvering clearances. Space may be available between the two oversized bedrooms sharing the toilet rooms for future renovation. Refer to Checklist IP28 Rehabilitation Hospitals sections "2.6-2.2.2.6 Patient toilet room" for compliance requirements.
	Storage/Utility Spaces	1,082	15	72	▲	Immediate storage areas on patient floor are inadequate.
	Offices	2,383	10	238	▲	There is ample office space available for the current patient load, Full patient load accommodation will likely result in inadequate space.
	Reception	706	1	706	▲	Oversized and can be substantially reduced.
	Therapy rooms	818	3	272	▲	These areas are spacious and appear to meet current needs.[2]
	Laundry	246	1	246	▲	Full patient load will require more facilities.
	Nurse Station	209	1	209	▲	The nurse station has okay sight-lines, however it would be best if shifted to a more central location on the patient floor. There is no ability to supervises most of the access points to the exterior. The station size would also be inadequate for a full patient occupancy.
	Circulation Vert./Horiz.	7,711	-	-	▲	Corridors are appropriate width, egress diagram is up to code.
Ground Floor	Mechanical Spaces	2,220	4	555	▲	Space is acceptable for current equipment.
	Toilet rooms	1,042	13	80	▲	Toilet rooms do not meet ADA standards. See ground floor toiler rooms comment for compliance requirements references.
	Storage/Utility Spaces	6,028	25	241	▲	Inefficient use of former OR suite for additional storage area. Reconfiguration of the space could condense the storage into a more efficient footprint.
	Kitchen	462	1	462	▲	Space is adequate for current needs. Note: Nelson kitchens are for OT training purposes only. Main hospital kitchen in admin building.

Nelson Building

UTILIZATION REVIEW (contd.)

Ground Floor	Offices	3,163	13	243		Not reviewed.
	Exam rooms	687	7	98		Examination rooms are significantly undersized. Minimum 120 SF is required. Refer to Checklist IP28 Rehabilitation Hospitals section "2.2-2.2.8.15 Examination Room" for compliance requirements.
	Therapy rooms	5,831	12	485		These areas are spacious and appear to meet current needs.[2]
	Janitor's closets	119	3	39.5		Janitor closet quantities and access appear to be adequate. Not all spaces could be observed to confirm service sink and hand-wash sink requirements. Refer to Checklist IP28 Rehabilitation Hospitals section "2.6-3.1.8.14 Environmental services" room for compliance requirements.
	Locker rooms	816	4	204		Do not meet ADA requirements and appear to be not used.
	Waiting rooms	805	2	402.5		These areas are spacious and appear to meet current needs. However, designated seating area(s) for wheelchairs should be added.
	Circulation Vert./ Horiz.	7,390	-	-		Circulation may be reduced if the storage area were reconfigured in a more efficient manner.

ADDITIONAL UTILIZATION NOTES

1. Hand-wash sinks are not provided in all patient treatment spaces and staff support areas.
2. Refer to DPH's Hospital Inpatient Facilities Checklist IP28 Rehabilitation Hospitals section "2.6-3.1 REHABILITATION THERAPY DEPARTMENT" for additional compliance requirements for PT, OT, prosthetic & orthotic work areas, and speech & hearing services facilities.
3. Note that FGI guidelines are separate from ADA requirements. A space conforming to ADA may not confirm to FGI and vice versa. Please refer to DCAMM Statewide Accessibility Initiative in Appendix A for ADA compliance information.

Long-term Residential

Nelson Building

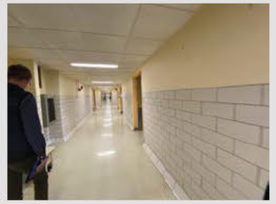
FIRST FLOOR



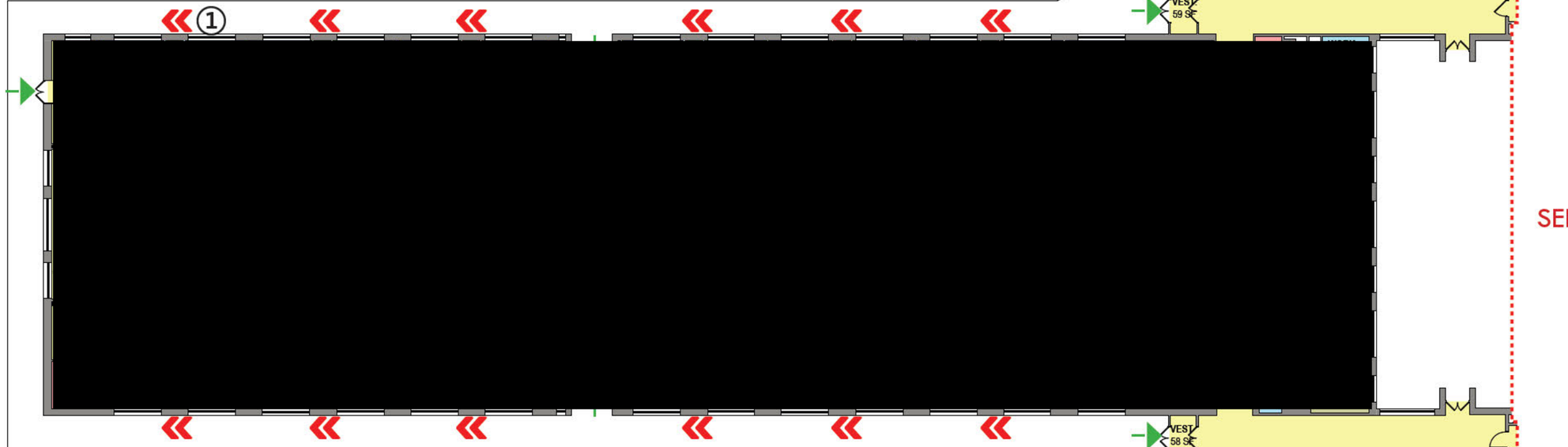
Restrooms are too small and can be resized to become larger since the bedrooms are oversized. ①



Reception area is abandoned, and possibly too large with a lack of control from the outside. A sense of arrival from other buildings is lacking. ②



Corridors are bright and in good condition, but the overall vibe is very institutional. ③





Playrooms, being communal recreational areas are too institutional, relocate one to provide one playroom per unit. ④



Nurse's station is centrally located. If it were shifted adjacent to the mid-point entry doors, the station can provide some control over incoming and outgoing traffic. ⑤



Baths are undersized. The one piece of new bathing equipment takes up most of the space. ⑥



Bedrooms are oversized. They are large enough with another 110 SF available to reallocated for more toilet room and storage space. ⑦

Long-term Residential

Nelson Building

GROUND FLOOR

SPACE USE DEFICIENCIES LEGEND

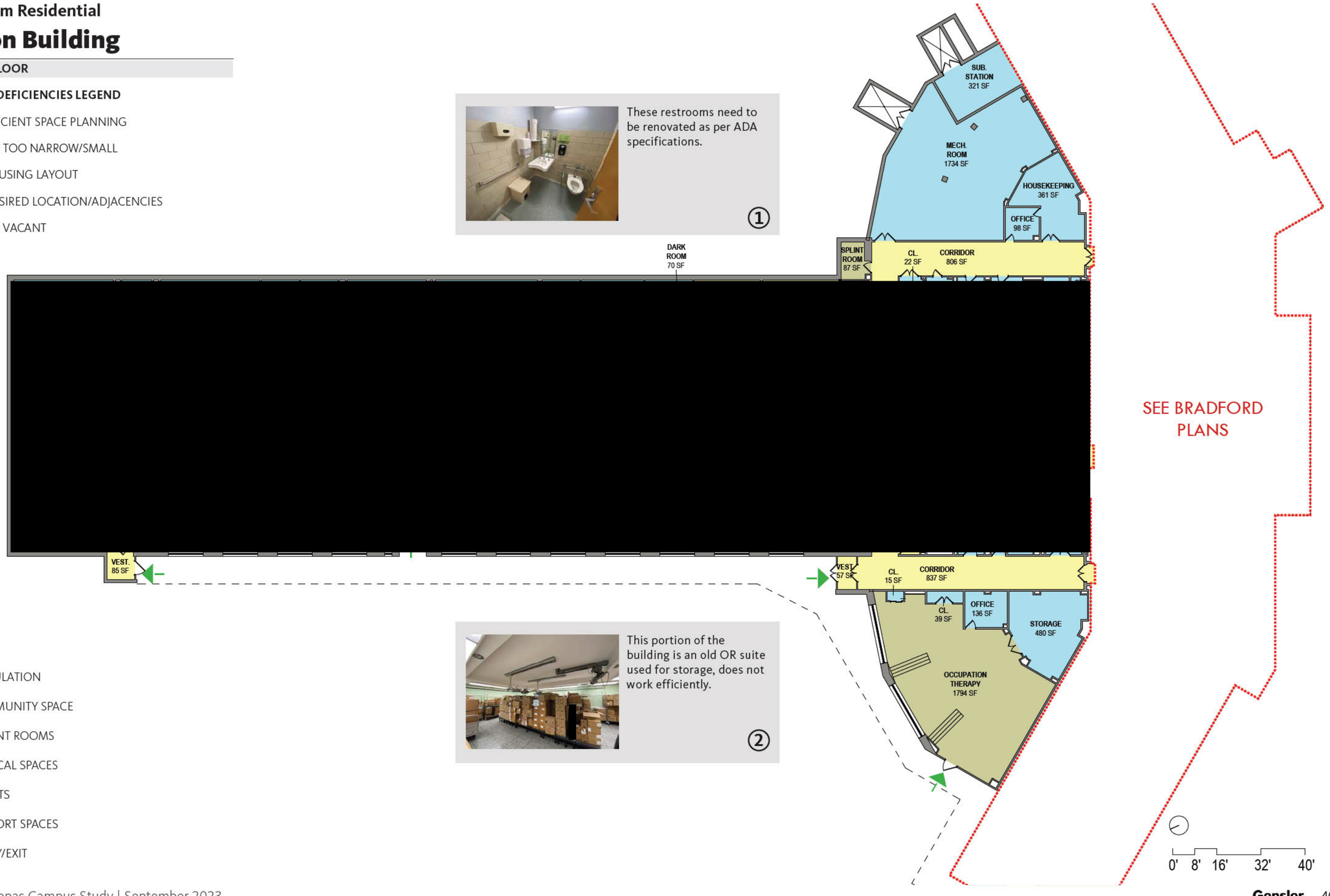
- INEFFICIENT SPACE PLANNING
- SPACE TOO NARROW/SMALL
- CONFUSING LAYOUT
- UNDESIRED LOCATION/ADJACENCIES
- SPACE VACANT

These restrooms need to be renovated as per ADA specifications.

①

This portion of the building is an old OR suite used for storage, does not work efficiently.

②



LEGEND

- CIRCULATION
- COMMUNITY SPACE
- PATIENT ROOMS
- CLINICAL SPACES
- TOILETS
- SUPPORT SPACES
- ENTRY/EXIT

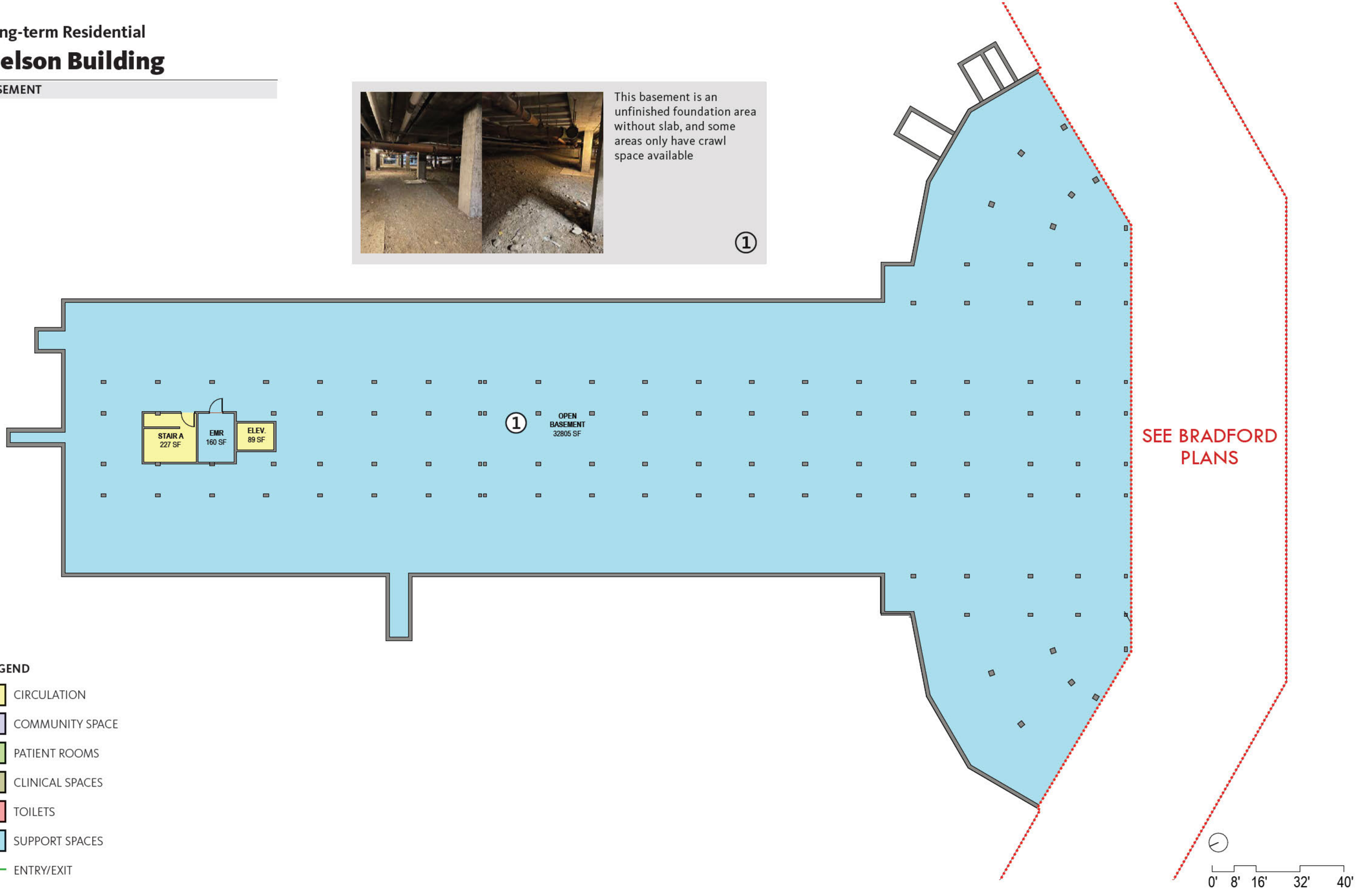
Long-term Residential

Nelson Building

BASEMENT

This basement is an unfinished foundation area without slab, and some areas only have crawl space available

①



LEGEND

- CIRCULATION
- COMMUNITY SPACE
- PATIENT ROOMS
- CLINICAL SPACES
- TOILETS
- SUPPORT SPACES
- ENTRY/EXIT

Clinical Services/ Outpatient/ Administrative

Bradford Building

CHARACTERISTICS	
YEAR CONSTRUCTED	1954
HISTORICAL DESIGNATION	NO
FLOORS	2 + CRAWL SPACE
GROSS SF	30,268 GSF
CONSTRUCTION TYPE	TYPE 1B
24/7 OPERATION	YES
PRIMARY PROGRAMMATIC USE	CLINICAL & ADMINISTRATION



OVERALL RATING: Fair

EXISTING CONDITIONS ASSESSMENT

Rating

ARCHITECTURAL

Roofing

The Bradford building has a flat roof of Sarnafil membrane system installed in approximately 2000. A typical Sarnafil membrane warranty is 20 years and replacement should be considered. When well maintained, these membrane roofs may last as long as 35 years. Annual maintenance of sealant application is currently being performed however a more long-term solution is required. Remedial work at the perimeter to correct the flashing tie in at roof copping may extend the roof life.

Fair

Façade

The façade consists of a brick structure on cast-in-place concrete foundation. Minor cracking in foundation at grade was evident in various locations. Significant concrete spalling at the perimeter of the cantilevered terrace was observed where a steel guard rail has rusted, cracking the concrete. The concrete at the loading platform is cracked and spalled. Patient room windows are replacement aluminum framed windows with insulated glazing and appear to be in good condition. The masonry openings are spanned with rusting steel lintels, although the brick façade has not suffered cracking from steel expansion yet. The windows are trimmed with precast sills, window surrounds, and there is a precast copping at the top of the facade. Windows are operable for natural ventilation; however, some screens have deteriorated and should be replaced. Brick joints are largely tight, and grout appears to be in good condition. Guard rails on the terrace do not meet code and the anchorage of some railing portions are compromised. The guard rails at the south entry also do not meet code. The guardrails should be considered for immediate attention as they may present a safety hazard. Woodwork at the east entrance requires paint and the paint on the underside of the concrete soffit is peeling at the west entrance.

Poor

Interiors

All exterior entry doors observed are automated to accommodate wheelchairs and other mobility equipment. [redacted]s. There are no functioning vestibules to provide HVAC interlocks at the entry points. The building planning consists of a central hallway running the length of the building with offices and or

Fair

Note: See Appendix B for additional information and photos.

Bradford Building







EXISTING CONDITIONS ASSESSMENT Rating

ARCHITECTURAL (contd.)

clinical service rooms flanking the corridor. VCT flooring throughout circulation is 12x12 tile in different mismatched patterns. Hallway walls are a mix of full height or wainscot terracotta tiles. Acoustical tile ceilings are typical. Door frames are hollow metal and door panels are predominantly wood plank. The Tufts dental clinic (external vendor) occupies a third of the upper floor, while various PRHC admin offices occupy the rest. Physical therapy and other therapy rooms occupy most of the lower floor. The reception and connection corridors to the Nelson Building occupy the mid-section of the lower level. The remainder of the building is comprised of storage and support spaces functions. Bathroom flooring is mosaic tile with the walls clad in ceramic wall tile.

[redacted] doors are not wide enough to fit a bed through so evacuation in beds are not possible, and stairways have outdated guard rails.

MEP SERVICES

Mechanical

The mechanical systems for Bradford & Nelson buildings are shared. Please refer to Nelson building for info on this section.

○ **Refer to Nelson**

Plumbing

The plumbing systems for Bradford & Nelson buildings are shared. Please refer to Nelson building for info on this section.

Fire Protection

The fire protection systems for Bradford & Nelson buildings are shared. Please refer to Nelson building for info on this section.

Note: See Appendix A for full consultants report.

Bradford Building

EXISTING CONDITIONS ASSESSMENT	Rating

MEP SERVICES (contd.)

Electrical Distribution

1. Panels: Westinghouse Breakers. Condition: Some fair and other poor.

2. 4160V/208V Substation:225 KVA. Air conditioning equipment. Square D Equipment, 800A Main Circuit Breaker (MCB) with Square D Distribution Breakers. Fed from Boiler Plant. Condition: Fair.

3. 4160V/208V Substation:150 KVA. XRAY Equipment. Square D Equipment, 800A Main Circuit Breaker (MCB) with Square D Distribution Breakers. Fed from Boiler Plant. Condition: Fair.

4. Emergency power is presently being updated. Included is a new 200 KW Diesel Emergency Exterior generator with a base fuel storage tank. New normal feeder & panel. Three new Automatic Transfer Switches for Life Safety, Critical and Equipment branches. Also provided are new Emergency distribution panels for each branch. Load banks are also part of the new install. The remaining portion of the facility is on the new 600 kw generator at the Power plant. Inclusive are the two substations for XRAY and Air Conditioning loads.

5. Panels: Square D Breakers. Conditions are varied, breakers are over 40 years old and past their expected service life.

Fair

Lighting

Most of the fixtures (approximately 85%) need to be retrofitted from fluorescent lamps to LED. Interior & Exterior (flood lights) are new. Exit Signs are mostly Incandescent, while some others are LED. Controls are local switching with some occupancy sensors. Conditions are good in areas from recent energy upgrade. Older controls conditions are poor.

Fair

General Power

General power is mostly adequate, however additional power is needed. Branch circuit wiring from original panels is poor.

Fair

Fire Alarms

The fire alarm systems for Bradford & Nelson buildings are similar. Please refer to Nelson building for info on this section.

Good

CODE & LIFE SAFETY

The building consists of Group I-1 Condition 2 (Institutional), Group A-2 (Assembly), Group A-3 (Assembly), Group B (Business), and Group S-2 (Storage) primary occupancies. The code compliance conditions and life safety systems for Bradford & Nelson buildings are similar. Please refer to Nelson building for info on this section. Unique conditions (if any) are documented in Code Red Consultant's report in Appendix A.

Good

CIVIL

Sanitary

Bradford has a discharge on the north side of the building through Nelson Building to a 6-inch transite pipe connected to Existing SMH "AJ". This Existing SMH is connected to Existing SMH Y which is located south of Ellis Cottage in a 6-inch pipe. This pipe flows to the west and south towards a Sanitary Manhole north of Reservoir Pond where it connects to the Town of Canton Sewer System. No issues were reported or observed with the condition or function of the sanitary discharge from Bradford Building.

Good

Note: See Appendix A for full consultants report.

Bradford Building

EXISTING CONDITIONS ASSESSMENT	Rating

CIVIL (contd.)

Water

Record Plan titled "New Fire Protection Line Study - Site Water Distribution - "AS-BUILT" Dated January 11, 1995 shows a 4-inch copper water service on the northwest corner of the building, and a 4-inch fire protection service on the south side of the building. No issues related to water pressure or availability were reported for Bradford Building.

Good

Stormwater:

Bradford Building has a flat roof and internal drains which connect underground to the site closed drainage system at four roof drain connections on the south side of the building. These are comprised of two 6-inch and two 4-inch roof drain connections which collect at Drainage Manholes and discharge to the wooded swale to the south of the building. No reports of ponding or drainage issues were reported in this vicinity of the building.

Good

LANDSCAPE

The Bradford Building's main entrance is from the rear access drive. This is an unwelcoming approach in poor condition and parking. Dumpsters and forest edge are crowded. The pedestrian connections are poorly marked across the driveway and there is poor signage on the building. There is an abundance of utilities in this area. There is also an elevated covered connection to the south of the building at the upper level, with cars driving beneath it to access the small parking area to the south of the Nelson Building. There are no pedestrian spaces around this building. There is pavement for the driveway and the small parking area, and there is some foundation planting on the building edges. The building is flanked by lawn on the east and west sides.

Fair

HISTORIC SIGNIFICANCE

Based on Gale's review of available documents and historic agencies, listed in Appendix A: Gale report, the building does not appear to have a historic designation.

N/A

ACCESSIBILITY

Accessibility upgrades are recommended for the replacement of all the exterior thresholds and exterior landings. It is also recommended to replace all doorknob hardware with lever hardware. Major renovations are recommended for toilet rooms on ground floor adjacent to the waiting room, and all toilet rooms between patient bedrooms that have no accessibility. Additionally, renovation to all other restrooms in the building, and raising height for hallway sinks are also recommended.

See Appendix A for a preliminary report by DCAMM Statewide Accessibility Initiative.

N/A[2]

Notes

1. See Appendix A for full consultants reports.
2. Accessibility items have not been given a rating because issues are captured in the overall facility condition assessment. Additional information on accessibility requirements can be found in the Accessibility Summaries in Appendix A.

Bradford Building

UTILIZATION REVIEW

Level	Space Function	Total SF	# of Rooms	Average SF per Room	Space Use Rating	Space Usage Efficiency Summary & Additional Comments [1,2,3]
1st Floor	Janitor Closet	119	1	119		Janitor room is a sufficient size for the upper level of Bradford.
	Toilet rooms	644	19	33.5		Toilet rooms are distributed throughout the floor plate as single occupant rooms. Only two rooms on the floor potentially meet ADA SF requirements. Toilet rooms also do not meet FGI requirements. Refer to Checklist IP28 Rehabilitation Hospitals sections "2.6-2.2.2.6 Patient toilet room" for compliance requirements.
	Storage/ Utility	439	7	62.5		Storage on this floor is limited.
	Servery	361	1	361		Servery serves adjacent Nelson dining room. It is rarely used due to most kitchen activity taking place in the central kitchen of the Admin building.
	Offices	5,987	29	206		Offices are spacious however some may be oversized.
	Waiting room	327	1	327		Waiting room size is adequate. However, designated seating area(s) for wheelchairs should be added.
	Treatment room	1,443	7	206		Most treatment rooms are oversized. Plan reconfigurations are recommended to improve space efficiency.
	Laboratory	612	4	153		The labs spaces appear to be mostly adequate in size.
	Circulation Vertical/ Horizontal	3,480	-	-		Elevator access is provided. Both egress stairs exit into L1 circulation corridor. To create direct access to the exterior the eastern stair, the addition of an exit access corridor with fire doors is recommended to form a direct path way to an exterior exit vestibule.
Ground Floor	Laundry	344	1	344		Laundry space appears to be adequate in size.
	Mechanical	794	3	264		Not reviewed due to time constraints and low criticality.
	Toilet room	293	5	58.5		Toilet rooms require renovation to meet ADA and FGI requirements. See note regarding 1st floor toilet rooms.
	Storage	3,533	9	392.5		Storage space is mostly adequate, such as ample storage for house-keeping and physical therapy. However, better organization of physical therapy storage could improve efficiency.
	Office	478	3	159		Offices are spacious and appears to be adequate in size.
	Laboratory	479	1	479		The labs space appears to be adequate in size.
	Therapy rooms	3,417	5	683.5		Physical therapy rooms are functional, however space is constrained.[1,2]
	Locker rooms	182	1	182		Staff locker room does not meet ADA requirements.
	Waiting room	402	1	402		Waiting room size is adequate. However, designated seating area(s) for wheelchairs should be added.
	Circulation Vert/ Horiz.	3,529	-	-		Corridors appear to have adequate width. However, some vestibules are missing the interior set of doors.

ADDITIONAL UTILIZATION NOTES

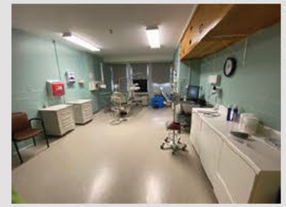
1. Hand-wash sinks are not provided in all patient treatment spaces and staff support areas.
2. Refer to DPH's Hospital Inpatient Facilities Checklist IP28 Rehabilitation Hospitals section "2.6-3.1 REHABILITATION THERAPY DEPARTMENT" for additional compliance requirements for PT, OT, prosthetic & orthotic work areas, and speech & hearing services facilities.
3. Note that FGI guidelines are separate from ADA requirements. A space conforming to ADA may not confirm to FGI and vice versa. Please refer to DCAMM Statewide Accessibility Initiative in Appendix A for ADA compliance information.

Bradford Building

FIRST FLOOR

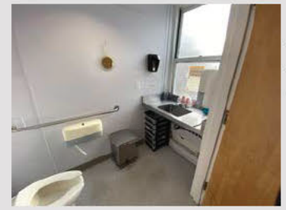
SPACE USE DEFICIENCIES LEGEND

- INEFFICIENT SPACE PLANNING
- SPACE TOO NARROW/SMALL
- CONFUSING LAYOUT
- UNDESIRED LOCATION/ADJACENCIES
- SPACE VACANT



The operating rooms are oversized and some of the square footage can be used to make the adjacent restrooms bigger

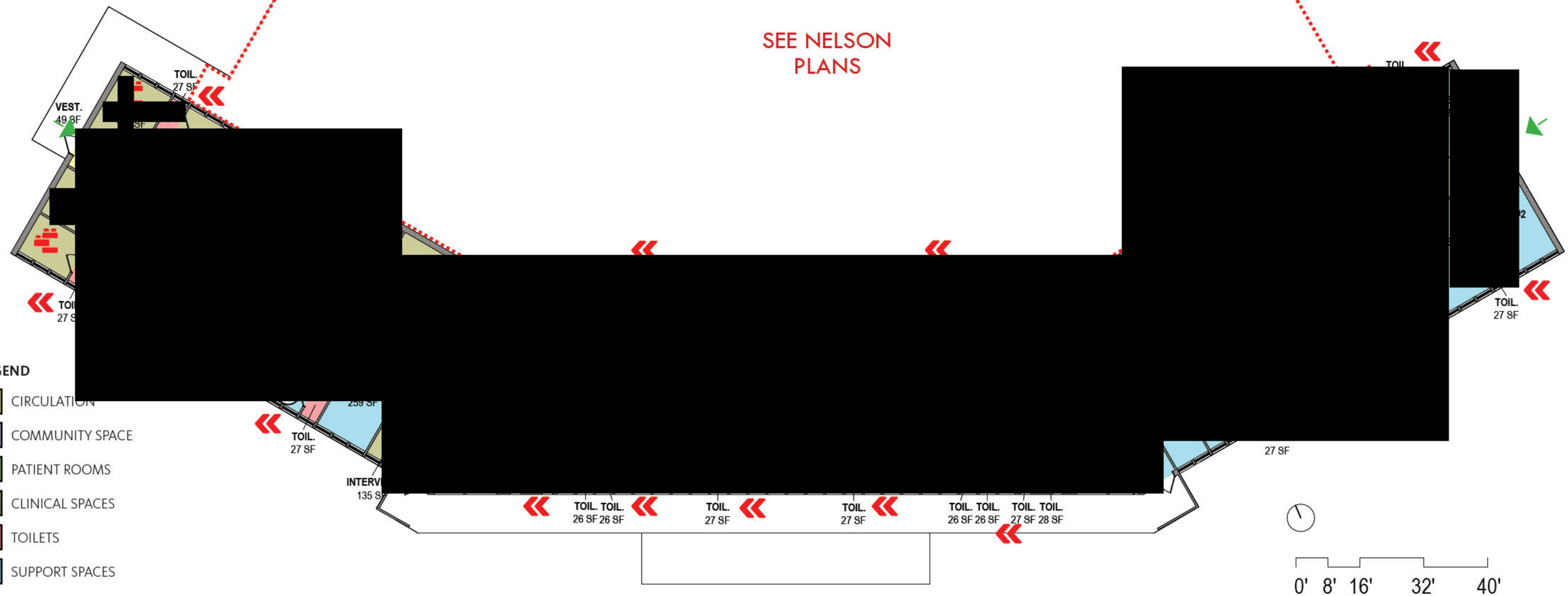
①



Restroom size is small and more sq ft can be added from the oversized operating room.

②

SEE NELSON PLANS



LEGEND

- CIRCULATION
- COMMUNITY SPACE
- PATIENT ROOMS
- CLINICAL SPACES
- TOILETS
- SUPPORT SPACES
- ENTRY/EXIT

Clinical Services/ Outpatient/ Administrative

Bradford Building

GROUND FLOOR

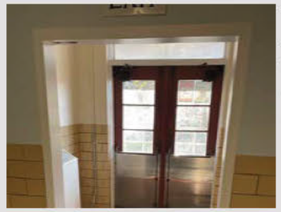
SPACE USE DEFICIENCIES LEGEND

- INEFFICIENT SPACE PLANNING
- SPACE TOO NARROW/SMALL
- CONFUSING LAYOUT
- UNDESIRED LOCATION/ADJACENCIES
- SPACE VACANT



Restrooms require renovation to meet ADA standard

①

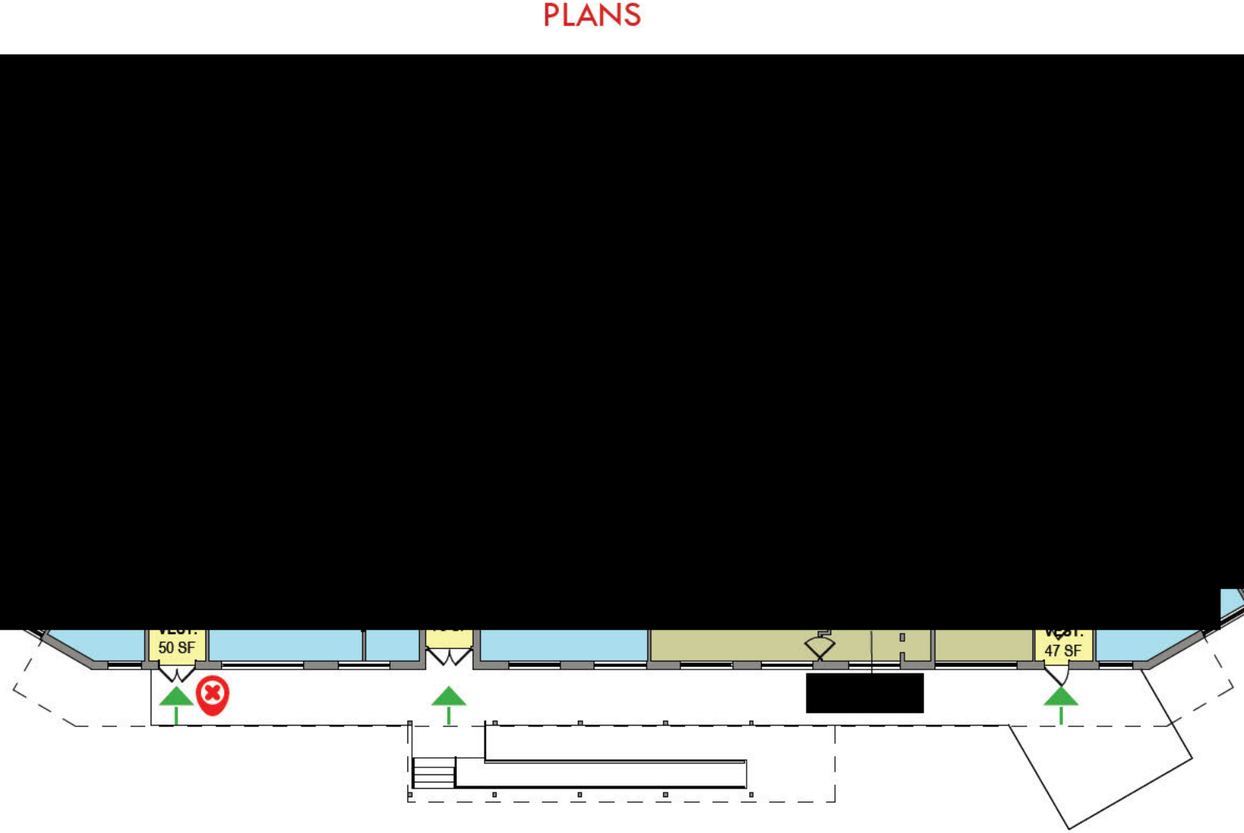


This access is not required, and the space can be used to increase the size of one of the other adjacent spaces.

②

SEE NELSON PLANS

[redacted]



LEGEND

- CIR
- COMMUNITY SPACE
- PATIENT ROOMS
- CLINICAL SPACES
- TOILETS
- SUPPORT SPACES
- ENTRY/EXIT

0' 8' 16' 32' 40'

Long-term Residential

Gates Unit

CHARACTERISTICS	
YEAR CONSTRUCTED	1950
HISTORICAL DESIGNATION	NO
FLOORS	1 + BASEMENT
GROSS SF	9,049 GSF
CONSTRUCTION TYPE	TYPE IB
EXISTING BED COUNT	12 PATIENT ROOMS 21 TOTAL BEDS
RECOMMENDED BED COUNT	11
24/7 OPERATION	YES
PRIMARY PROGRAMMATIC USE	PATIENT RESIDENCE



OVERALL RATING: Fair

EXISTING CONDITIONS ASSESSMENT

Rating

ARCHITECTURAL

Roofing

The Gates building features a flat roof, Sarnafil membrane system installed in approximately 2000. It was observed that the perimeter membrane tie-in at roof copping was not installed correctly requiring continued annual maintenance with sealant. Given the age and current conditions of the roof, a replacement should be considered within the next five to ten years. However, remedial work, such as at the perimeter to correct the flashing tie at roof copping, may also extend the life of the roof. There is a skylight installed over main entry lobby. The mortar on the brick chimney is decaying and the chimney should be repointed.

Fair

Façade

The façade consists of a brick structure on a cast-in-place concrete foundation. Patient room windows are replacement aluminum framed windows with insulated glazing. The masonry openings are spanned with rusting steel lintels, causing cracking in the façade. It is recommended that the lintels and adjacent brick be scheduled for maintenance and/or replacement. Cracks must be sealed with exterior grade sealant. The windows are operable for natural ventilation and typically lock at the interior. The North entry consists of single pane glazing with an entrance canopy. Single pane glazing systems are not energy efficient and replacement with a double pained glazing unit system should be considered. Water damaged soffits at the south end entry canopy were observed. The painted mural on north end façade is in good condition. Glass block glazing is present at a few locations in the façade to provided light into circulation corridors.

Fair

Interiors

Sliding and swing doors are automated to accommodate wheelchairs and other mobility equipment. [redacted]. HVAC interlocks are not present at the entry points, leading to the potential for cold air infiltration into the building during the winter months. Patient rooms include large storage facilities for patient belongings. Flooring is VCT throughout patient rooms and circulation corridors and includes both 12x12 and 9x9 tiles in varying mismatched patterns. Bathroom flooring is either mosaic tile or epoxy flooring. Hallway walls are partially lined in ceramic tiles with painted wooden guard rails.

Fair

Notes: See Appendix B for additional information and photos.

Long-term Residential

Gates Unit







EXISTING CONDITIONS ASSESSMENT Rating

ARCHITECTURAL (contd.)

During the interview process the staff commented that much of the nursing equipment is antiquated and should be upgraded. [redacted] doors are not wide enough to fit a bed through, which means evacuation in beds are not possible.

MEP SERVICES

Mechanical

Incoming steam enters/exits the building through a crawlspace to serve backup heating to radiators. Steam campus lines entering the building appear to be in poor condition and connect into newer lines with two (2) Skidmore steam return pumps that appear to be recently installed (no date indicated). Primary heating and cooling are via Hitachi wall mounted VRF split systems in most spaces controlled via digital thermostats which are adjustable with wall mounted user interfaces. VRF are new and in-stalled in 2019. Operable windows offer passive ventilation, and no mechanical fresh air is supplied. Exhaust fans on roof serving some patient rooms & bathing rooms (unable to determine condition or year of fans). There appeared to be no exhaust serving ground floor toilets.

Fair

Plumbing

Incoming water and sanitary enters/exits the building through the crawl space. Domestic hot water was previously by Wiessman HoriCell HG steam heaters in the crawl space and has been replaced by Rheem Ruud electric heater ES-85-18-G. An 85-gallon storage heater was installed in 2018. This is in keeping with goals identified in EO 594. The bathrooms typically have manual faucets and a combination of tank and flush valve WC's. No low flow fixtures were observed.

Fair

Fire Protection

The building is fully sprinklered with incoming water in the crawl space along with two zones (flow switches). It is unclear what the two zones represent. Both say laundry on the zone description. Storz FDC was observed in the rear of the building.

Good

Note: See Appendix A for full consultants report.

Gates Unit

EXISTING CONDITIONS ASSESSMENT | Rating

MEP SERVICES (contd.)

Electrical Distribution

Existing is a 208V 3Ph 4W 225A Feeder from the Ross Cottage. A new Panelboard for this Building is in the Sub Basement. This feeds Panels throughout the building.

Excellent

Lighting

Most of the fixtures (approximately 85%) need to be retrofitted from fluorescent lamps to LED. Interior & Exterior (flood lights) are new. Exit Signs are mostly Incandescent, while some others are LED. Controls are local switching with some occupancy sensors.

Good

General Power

General power is mostly adequate. However, additional power is needed. Power at patient beds is normal power only. No emergency power is provided. Outlets are not hospital grade.

Fair

Fire Alarms

The fire alarm system is a Gamewell “E3 Series” Fire Alarm Zoned System. There is an electronic fire alarm system master box for fire department notification. This system appears to be 20+ years old. It is functioning but is no longer supported by the manufacturer. The Fire Alarm system also reports to the Power Plant and the Guard shack. There is partial coverage with smoke detectors. There is audio visual voice evacuation coverage throughout.

Good

CODE & LIFE SAFETY

The building consists of Group I-1 Condition 2 (Institutional), Group A-2 (Assembly), and Group A-3 (Assembly) primary occupancies alongwith Group S-2 (Storage) accessory occupancy. The building does not have any hazardous means of egress conditions. The building is fully sprinkler protected and appears to have smoke detection provided in select areas throughout the building. Fire alarm system consists of A/V notification and pull stations at all exit doors. The egress capacity is adequate for the maximum anticipated occupant load based on the egress analysis completed. The construction type of the building is likely adequate for any addition or change of occupancy project based on the occupancies present.

Good

CIVIL

Sanitary

Gates Unit has a discharge on the west side of the building of unknown size and material. This pipe is a gravity fed sewer connection to a manhole on the east side of the Nelson Building. This pipe flows beneath Nelson Building to the west and south towards Reservoir Pond. No issues were reported or observed with the condition or function of the sanitary discharge from Finnegan.

Good

Water

The record plan titled “New Fire Protection Line Study - Site Water Distribution “AS-BUILT” Dated January 11, 1995, shows a 3-inch copper water service, a 6-inch Ductile Iron fire protection service on the west side of the building. No issues related to water pressure or availability were reported for Gates Unit.

Good

Stormwater

Gates Unit has a flat roof and internal drains which connect underground to the site closed drainage system. Gates Unit is located at a topographic high point, the adjacent topography slope away from the building on all sides. No reports of ponding or drainage issues were

Good

Note: See Appendix A for full consultants report.

Gates Unit

EXISTING CONDITIONS ASSESSMENT Rating

CIVIL (contd.)

reported in this vicinity of the building. Area drains were installed as part of the outdoor pavilion project in 2013.

LANDSCAPE

The main door to Gates Unit faces the central campus on the northwest side of the building with a covered walkway that connects to the site-wide system. The doorway is flush with the concrete walkway. There is a concrete walkway leading to the building door in the south (near the greenhouse) and another in the southeast corner of the building. The pedestrian walking surfaces are mostly concrete. The primary walking surface of the covered walkways is in good condition, with discrete areas of the walkways in fair to good condition. In the southeast corner near the road, there is a covered area for bins, and the door is located directly on a concrete pad in poor condition next to the road pull-off area. Adjacent to this pad is a concrete walkway leading to a basement bulkhead.

● **Good**

The largest pedestrian gathering space in this area is the large, covered area between Gates and Nelson. This large pavilion has picnic tables, display areas, a monitor/television, and some interior lights. There are also picnic tables beyond the pavilion roof. This is a newer space, sized for and used for full-campus events. The pavilion area appears to be in good condition, as do the site furnishings.

The vegetation in the courtyard area is limited and is mostly oak of declining health. On the south side of the building, there are a couple of large spruce trees, and there is planting of mixed evergreens along the building foundation. Near the loading dock area are mostly evergreen shrubs. Across from the loading area is a large, open parking area with dumpsters. This parking area is surrounded by the native woodlands. Lastly, on the northeast side of the building, there are large oak trees parallel with the building face. There is a steep slope between Gates and the Power Plant, and an area of large trees of spruce, maple, white pine and oaks, plus bittersweet and poison ivy. In summary, the mature trees need pruning and removal of invasive species, foundation plantings should be assessed for health and visibility, and a tree replacement program should be established.

HISTORIC SIGNIFICANCE

Based on Gale's review of available documents and historic agencies, listed in Appendix A: Gale report, the building does not appear to have a historic designation.

○ **N/A**

ACCESSIBILITY

Accessibility upgrades are recommended for the replacement of all the exterior thresholds and exterior landings. It is also recommended to replace all doorknob hardware with lever hardware. Modification to kitchen fixtures and appliances, multi-user bathroom grab bar locations, and various components in resident bedrooms are recommended. Major renovations are recommended for multi-user toilet rooms, staff restroom, and resident bathrooms. Door swings should also be reversed to provided 18" pull side in four bedrooms.

○ **N/A**[2]

See Appendix A for a preliminary report by DCAMM Statewide Accessibility Initiative.

Notes

1. See Appendix A for full consultants reports.
2. Accessibility items have not been given a rating because issues are captured in the overall facility condition assessment. Additional information on accessibility requirements can be found in the Accessibility Summaries in Appendix A.

Long-term Residential

Gates Unit

UTILIZATION REVIEW

Level	Space Function	Total SF	# of Rooms	Average SF per Room	Space Use Rating	Space Usage Efficiency Summary & Additional Comments [1,2]
Ground Floor	Bedrooms	2,225	12	185	▲	Each bedroom capacity is two patients. Double occupancy rooms are undersized and significantly smaller than FGI guidelines of minimum 125 SF per patient. Doors do not meet FGI minimum of 45.5" clear width. Refer to the FGI guidelines "2.6-2.2.2 PATIENT CARE UNIT – PATIENT ROOM" for compliance requirements.
	Treatment Room	134	1	134	▲	Room is adequately sized however it's currently not used for treatment but as storage for oxygen, carts, and other equipment.
	Patient Toilet Rooms (Private)	85	3	28	▲	Patient toilet and shower rooms are significantly undersized. They do not provide enough space for various functions including patient wheelchair equipment, portable lifts, transfer spaces, adequate turning radii, and staff maneuvering clearances when assisting patients. Refer to DPH's Hospital Inpatient Facilities Checklist IP28 Rehabilitation Hospitals sections 2.6-2.2.2.6 "Patient toilet room" and 2.6-2.2.2.7 "Patient Bathing Facilities" for compliance requirements.
	Patient Toilet Rooms (Shared)	342	2	171	▲	
	Patient Shower Rooms (Shared)	173	1	173	▲	
	Kitchen	340	1	340	▲	Kitchen has adequate space but may be oversized as it is only used for patient therapy/skills training.
	Dining	554	1	554	▲	FGI requirements for combined dining and recreation spaces are 55 SF per bed x 24 beds = 1,320 SF. Therefore the combined total of dining and recreation (1,269 SF) are undersized. They are also not efficiently used, and are used as pass-through to get to the kitchen and laundry. TV room is underutilized and Play Room is used as electric wheelchair storage.
	Recreation (TV & Play Room)	715	2	358	▲	
	Laundry	161	1	161	▲	Space is right-sized and effectively laid out. However, it requires going through dining or kitchen to access.
	Nursing Station	191	1	191	▲	Space is in non-ideal location and offers no visibility to patients or common areas. Furniture is oversized and tight to maneuver around. Upper storage unreachable.
	Staff Lounge	137	1	137	▲	Meets FGI requirement of minimum 100 SF. Location is less than ideal as it is at western end of the building.
	Staff Bathrooms	65	3	22	▲	Bathrooms are very small, located in far ends of the building, and there is no accessible restroom provided.
	Janitor Closets	27	2	24	▲	Meets FGI environmental services requirements. However, only one is located on the eastern end of the building. Space on other end is only a small closet.
	Storage	254	7		▲	Not enough equipment storage spaces in the building. One storage room cannot be used due to requiring travel through electrical room.
	Electrical Room	110	1	110	▲	Room renovated within last year. Space is right-sized an adequate clearances are provided.
	Circulation	1,405	N/A		▲	Major circulation corridors do not meet FGI minimum of 8'-0". FGI requires handrails on both corridor sides however here it's only installed on one side. "Snakelike" layout is also inefficient.
Basement	Service/Vacant Space	7,005[4]			△	Basement is unfinished and mostly low headroom conditions. Some electrical and plumbing equipment are housed but space is mostly vacant.

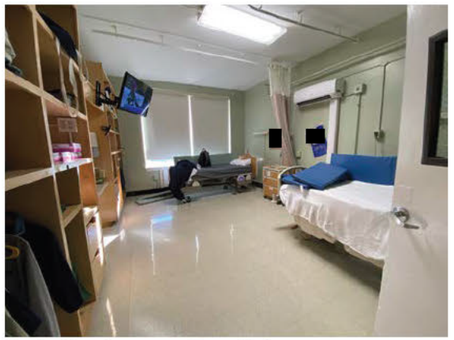
ADDITIONAL UTILIZATION NOTES

1. Hand-wash sinks are not provided in all patient treatment rooms/spaces.
2. Note that FGI guidelines are separate from ADA requirements. A space conforming to ADA may not confirm to FGI and vice versa. Please refer to DCAMM Statewide Accessibility Initiative in Appendix A for ADA compliance information.
3. No dedicated clean utilities room (stored in cabinets in nursing station) and no dedicated soiled utilities room.
4. No dedicated storage space for wheelchair, equipment, stretchers and not enough power outlets for charging equipment such as electric wheelchair.
5. Basement area does not appear to be counted in Capital Asset Management Information System (CAMIS).

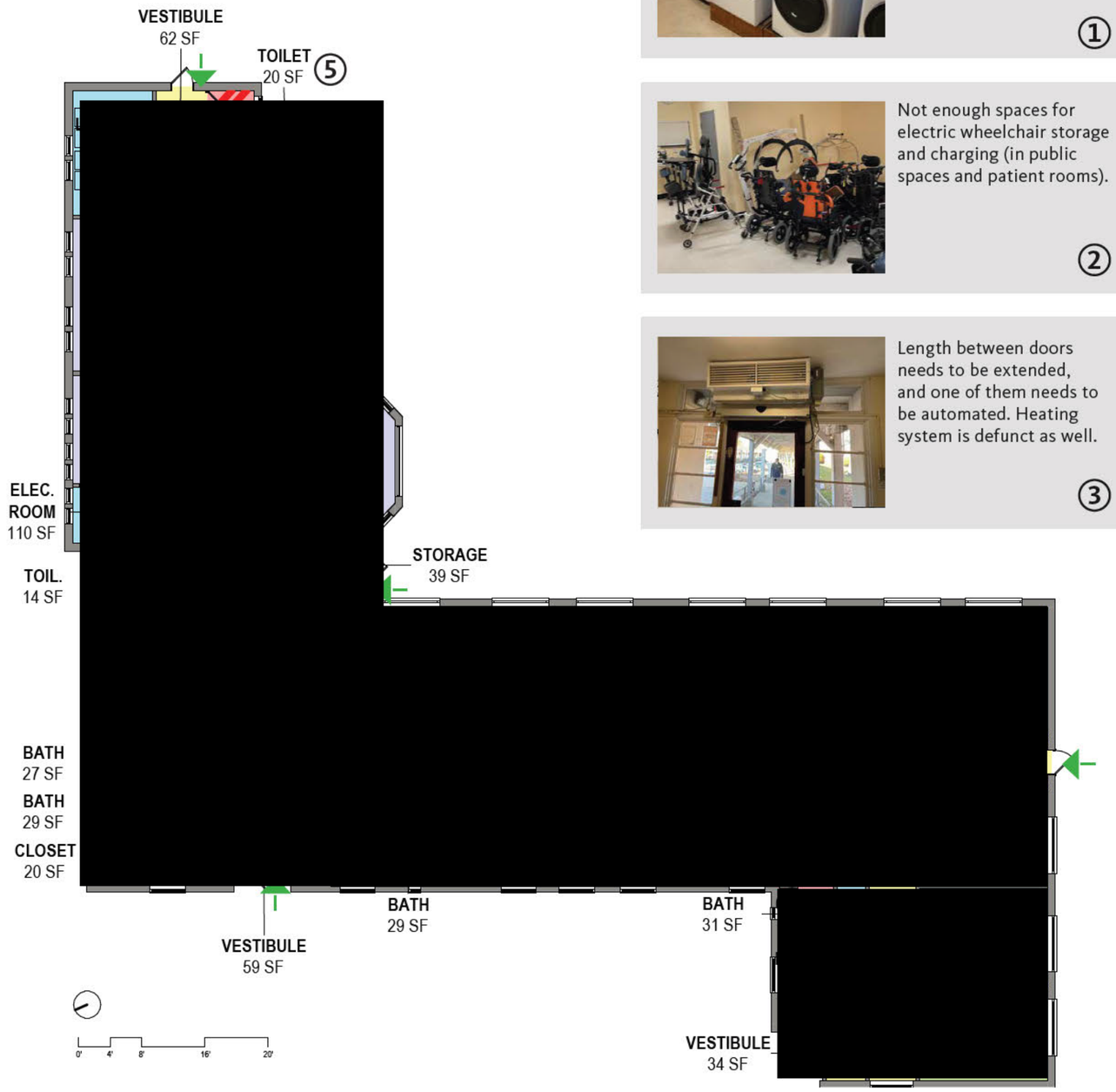
Long-term Residential

Gates Unit

GROUND FLOOR



Typical bedroom at Gates Unit
NOTE: FGI requires minimum 140 SF per patient bedroom, or 125 SF per patient in multi-persons bedrooms. All but one bedroom in Gates are only large enough to accommodate one patient. Bedroom #1 is too small for even a single patient. Refer to DPH Hospital Inpatient Facilities Checklist "IP28 for Rehabilitation Hospitals" for more information.



LEGEND

- CIRCULATION
- COMMUNITY SPACE
- PATIENT ROOMS
- CLINICAL SPACES
- TOILETS
- SUPPORT SPACES
- ENTRY/EXIT

SPACE USE DEFICIENCIES LEGEND

- INEFFICIENT SPACE PLANNING
- SPACE TOO NARROW/SMALL
- CONFUSING LAYOUT
- UNDESIRED LOCATION/ADJACENCIES
- SPACE VACANT



Laundry used by patients. Location poor. Creates traffic through program spaces relocate to other end of building

①

Not enough spaces for electric wheelchair storage and charging (in public spaces and patient rooms).

②

Length between doors needs to be extended, and one of them needs to be automated. Heating system is defunct as well.

③



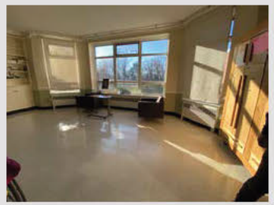
Some hallways are not wide enough for patients in mobility equipment. The floor finishes need to be brought up to current standard.

④



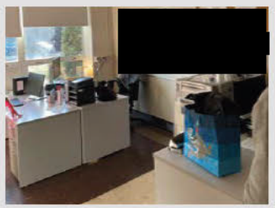
Three unisex non ADA staff toilet rooms. Needs to be brought up to code.

⑤



Common areas such as TV and dining rooms are used as pass-through spaces to kitchen and laundry. Spaces could be reorganized more efficiently.

⑥



Nursing station needs more visibility of patient areas.

⑦



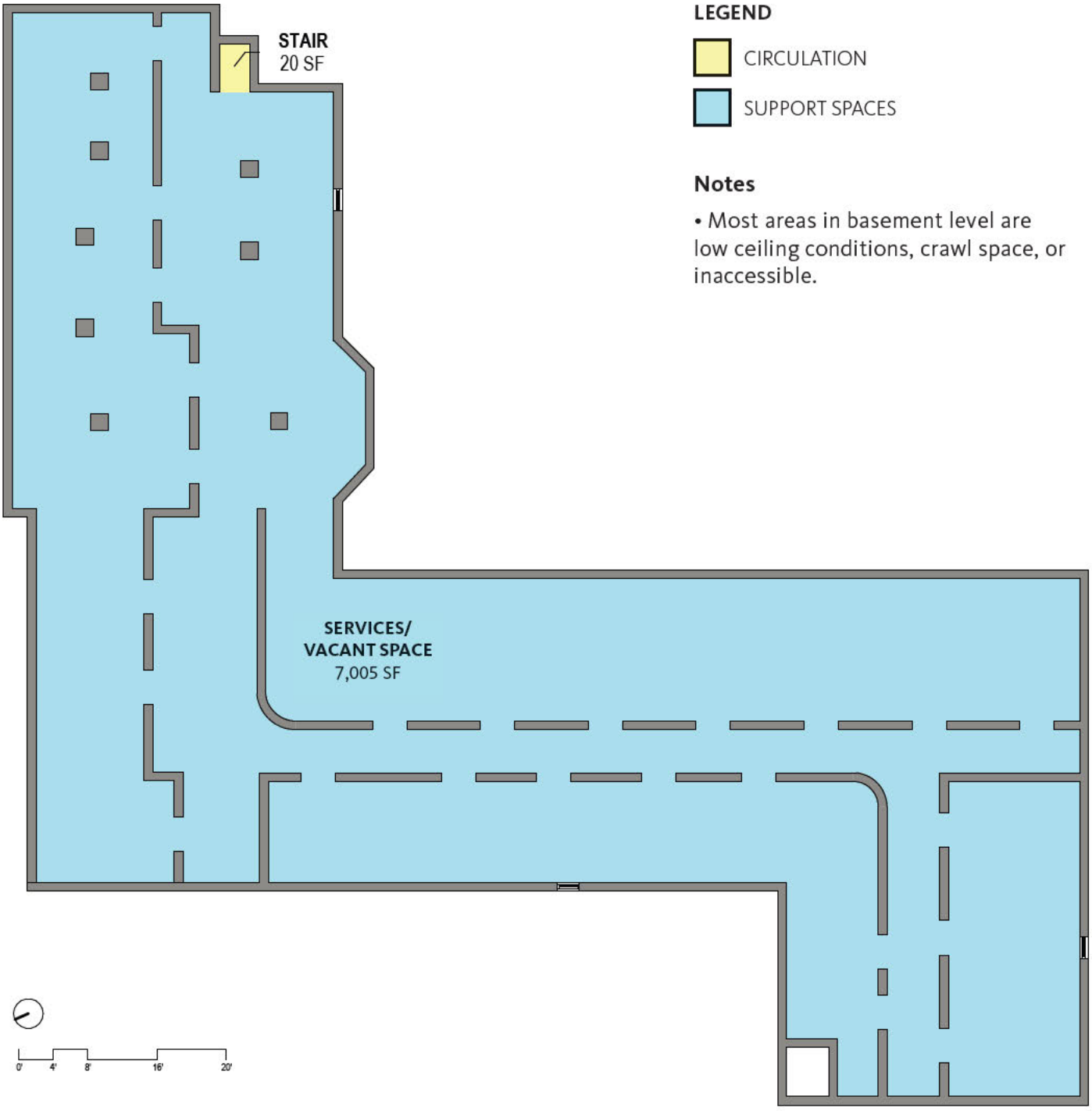
Bathroom space not sufficient enough for more sophisticated pieces of equipment

⑧

Long-term Residential

Gates Unit

BASEMENT LEVEL



LEGEND

- CIRCULATION
- SUPPORT SPACES

Notes

- Most areas in basement level are low ceiling conditions, crawl space, or inaccessible.

Long-term Residential

Ross Cottage Unit

CHARACTERISTICS	
YEAR CONSTRUCTED	1935
HISTORICAL DESIGNATION	NO
FLOORS	1 + BASEMENT/ CRAWLSPACE
GROSS SF	11,500 GSF
CONSTRUCTION TYPE	TYPE IIA
EXISTING BED COUNT	6 PATIENT ROOMS 10 TOTAL BEDS
RECOMMENDED BED COUNT	8
24/7 OPERATION	YES
PRIMARY PROGRAMMATIC USE	RESIDENTIAL PROGRAM



OVERALL RATING: Fair

EXISTING CONDITIONS ASSESSMENT

Rating

ARCHITECTURAL

Roofing

The Ross building has pitched roofs with asphalt shingles of unknown age though they appear to be more than 20 years old. Shingles on north side of ridge have significant growth of moss and lichen. Some shingles are missing or displaced. Flashing and out of place shingles were observed with an inward buckle in roof plane at the chimney penetration. Perimeter gutters have been torn off, likely during snow event and should be replaced. Many of the eave fascia boards have rotted away and the remaining wood trim needs painting. Monitor clerestories are in fair condition. All glazing observed are insulated. Ventilation operational mechanism appears to have been updated with an electrical actuator. The north entry is single pane glazed with a canopy above on the exterior. Water damaged soffits on south end entry canopy were observed.

Fair

Façade

The façade is a brick structure on cast-in-place concrete foundation. Minor cracking in foundation at grade was evident. Significant concrete spalling at perimeter of terrace was observed where a steel pipe rail rusted, likely cracking the concrete. Patient room windows are replacement aluminum framed windows with insulated glazing. The masonry openings are spanned with rusting steel lintels, although the brick façade has not suffered cracking from steel expansion yet. In some places the precast sills and bands within the brick have spalled where the rebar within has rusted. Windows are operable for natural passive ventilation. The brick joints are largely tight yet worn and mortar is diminished in a few areas. It is recommended that repointing of the masonry should be accomplished in the next five years. Guard rails on the terrace do not meet code and many of the anchorage are compromised. The bridge connector to Morrison has significant concrete deterioration and restoration of the walking paths at the bridge is highly recommended.

Good

Interiors

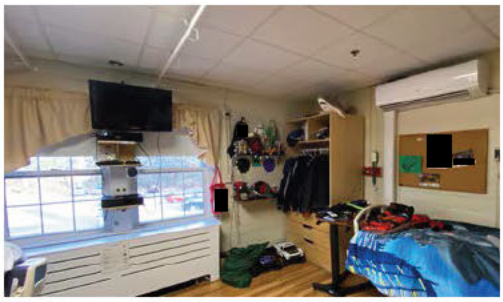
Automated swinging doors are at the entry points accommodate wheelchairs and other mobility equipment. [redacted]. HVAC interlocks are not present at the entry points. Patient rooms include large storage facilities

Fair

Note: See Appendix B for additional information and photos.

Ross Cottage Unit







EXISTING CONDITIONS ASSESSMENT Rating

ARCHITECTURAL (contd.)

for patient belongings. Ceilings are primarily acoustical tile systems and flooring is comprised of linear vinyl flooring tiles. Bath-room flooring is either mosaic tile or epoxy flooring. Corridor walls are lined with painted masonry. Two large common rooms include the kitchen, which doubles has an occupational training space, and a great room with TV and fireplace. Soft seating for staff and visitors with room for wheelchairs were observed. Building entry circulation occurs through the middle of the room which results in a lack of refuge for quite or less public space. The nursing station is located centrally located. However, it only has visibility to the hallways adjacent to the dining room. There are not enough spaces for electric wheelchair storage and charging in public spaces and patient rooms. Some hallways appear to be less than 8' wide. Room doors should be widened to accommodate wheeled equipment and to fit beds during evacuation. During the interview process the staff commented that nursing equipment is very antiquated and should be upgraded. Lower level of the building can only be access via the exterior and is not accessible from the upper level. The partition walls in the lower level are masonry with quarry tile and or concrete floors. The lower-level spaces are lightly used. [redacted].

MEP SERVICES

Mechanical

There are steam lines entering and exiting through basement into a PRV station with pneumatics control valves. Steam radiators are past their life expectancy. New VRF system are providing cooling & heating to some but not all spaces. There are operable windows offering passive ventilation, but mechanical fresh air is not supplied to all spaces. No exhaust is suppled to kitchen cooking area or one of the shower rooms. AHUs serving restrooms have many issues and are past their life expectancy. They also need to be replaced and upgraded to digital controls.

● **Fair**

Plumbing

All sanitary drainage is cast iron and runs by gravity from the main floor level. There is a small ejector pit and pump in the lower level. Incoming water is a 2" copper main which feeds the fixtures and supplies the Ruud Electric storage water heater.

● **Fair**

Note: See Appendix A for full consultants report.

Ross Cottage Unit

EXISTING CONDITIONS ASSESSMENT	Rating

MEP SERVICES (contd.)

Fire Protection

There is a single incoming 6" fire main that enters the basement with a wet alarm valve and a flow switch. The building is fully sprinkler protected with sprinklers installed in the last ten years.

Rating: **Good**

Electrical Distribution/Lighting/General Power/Fire Alarm

The electrical systems for Ross Cottage are similar to Ellis. Please refer to Ellis Cottage for info on this section. Unique conditions (if any) are documented in Pristine Engineer's report in Appendix A.

Rating: **Refer to Ellis**

CODE & LIFE SAFETY

The building consists of Group I-1 Condition 2 (Institutional), Group A-2 (Assembly), Group A-3 (Assembly), Group B (Business), and Group S-2 (Storage) primary occupancies. The building does not have any observed hazardous means of egress conditions. The building is fully sprinkler protected and appears to have smoke detection provided in select areas throughout the building. Fire alarm system consists of audible/visual notification and pull stations at all exit doors. The egress capacity is adequate for the maximum anticipated occupant load based on the egress analysis completed. The construction type of the building is likely adequate for any addition or change of occupancy project based on the occupancies present [Type IIA/Type II(111) as identified on the BBI], however if the license status of the facility ever changes to a Hospital per Massachusetts General Law, then the construction type may require an upgrade.

Rating: **Good**

CIVIL

Sanitary

Ross Cottage has a discharge on the west side of the building of into a 6-inch sewer pipe, the material is unknown. This pipe is a gravity sewer connection to a manhole on the east side of the Nelson Building. This pipe flows beneath Nelson Building to the west and south towards Sanitary Manhole north of Reservoir Pond where it connects to the Town of Canton Sewer System. No issues were reported or observed with the condition or function of the sanitary discharge from Ross Cottage.

Rating: **Good**

Water

Record Plan titled "New Fire Protection Line Study - Site Water Distribution - "AS-BUILT" Dated January 11, 1995, shows a 1 1/4-inch copper water service on the west side of the building, and a 6-inch fire protection service on the east side of the building. No issues related to water pressure or availability were reported for Ross Cottage.

Rating: **Good**

Stormwater

Ross Cottage has a sloped roof. The east side of the building has gutters and downspouts which are connected to the site closed drainage system. Ross Cottage is located at a topographic high point, the adjacent topography slope away from the building to the east, towards the Power Plant. No reports of ponding or drainage issues were reported in this vicinity of the building.

Rating: **Good**

Note: See Appendix A for full consultants report.

Ross Cottage Unit

EXISTING CONDITIONS ASSESSMENT	Rating

LANDSCAPE

The Ross Cottage is connected to the system of covered walks that connect to Gates building, the Pavilion at Gates, Nelson, and Morrison Hall. There is a green space to the west of the front door of Ross, and these spaces are generally inaccessible due to the railings along the covered walkways. There is a slope from Ross to Morrison Hall and steps up from Ross to Morrison. The rear/driveway entrance to Ross is on its lower level (see images in Shadley Associates' report in Appendix A). There are large trees in the green space between Ross and Gates, and the building has foundation planting.

● **Good**

HISTORIC SIGNIFICANCE

Based on Gale's review of available documents and historic agencies, listed in Appendix A: Gale report, the building does not appear to have a historic designation.

○ **N/A**

ACCESSIBILITY

Major renovation are recommended for multi-user toilet rooms and staff restrooms. Door swings should be revered to provided 18" clearances. 32" wide doors should be replaced with 40" wide doors. The modify of exterior thresholds, exterior landings, kitchen fixtures and door hardware are also recommended.

See Appendix A for a preliminary report by DCAMM Statewide Accessibility Initiative.

○ **N/A**[2]

Notes

1. See Appendix A for full consultants reports.
2. Accessibility items have not been given a rating because issues are captured in the overall facility condition assessment. Additional information on accessibility requirements can be found in the Accessibility Summaries in Appendix A.

Long-term Residential

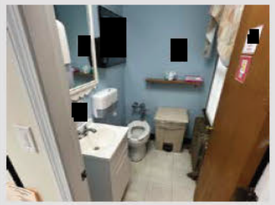
Ross Cottage Unit

GROUND & FIRST FLOOR



Lack of proper working vestibule needed to maintain thermal comfort in the day room. Automated double doors would be needed at both portals.

①



Staff bathroom too small, can be relocated to the current nurse station to get a larger bathroom; typical for all cottages.

②



Nursing station should be relocated to current laundry/office location to provide views down both the corridors; typical for all cottages.

③



Room needs to be a more formal wheelchair charging & storage area or the wheelchairs need to be stored in rooms where space is found by removing extra bed; typical for all cottages.

④



Guard rail needs to be brought up to code & terrace concrete needs to be replaced. Also roof frame for sun shading or screened porch in seasonal weather needed; typical for all cottages.

⑤

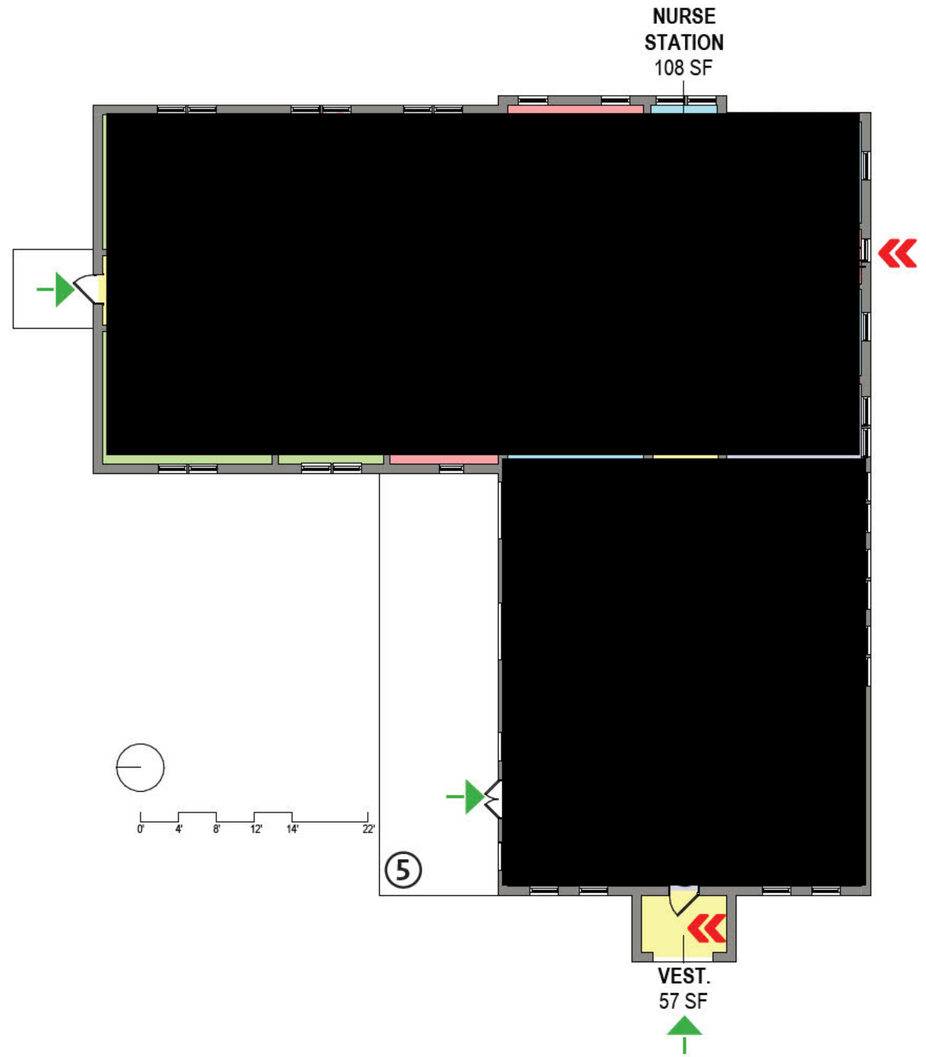
NOTE: As layouts of Ross, Ellis, and Baylies are similar, please refer to the Utilization Review table for **Ellis Cottage** for additional space use comments for all three cottages. Refer to plans for any unique space use comments for each cottage.

LEGEND

- CIRCULATION
- COMMUNITY SPACE
- PATIENT ROOMS
- TOILETS
- SUPPORT SPACES
- ENTRY/EXIT

SPACE USE DEFICIENCIES LEGEND

- INEFFICIENT SPACE PLANNING
- SPACE TOO NARROW/SMALL
- CONFUSING LAYOUT
- UNDESIRED LOCATION/ADJACENCIES
- SPACE VACANT



Long-term Residential

Ross Cottage Unit

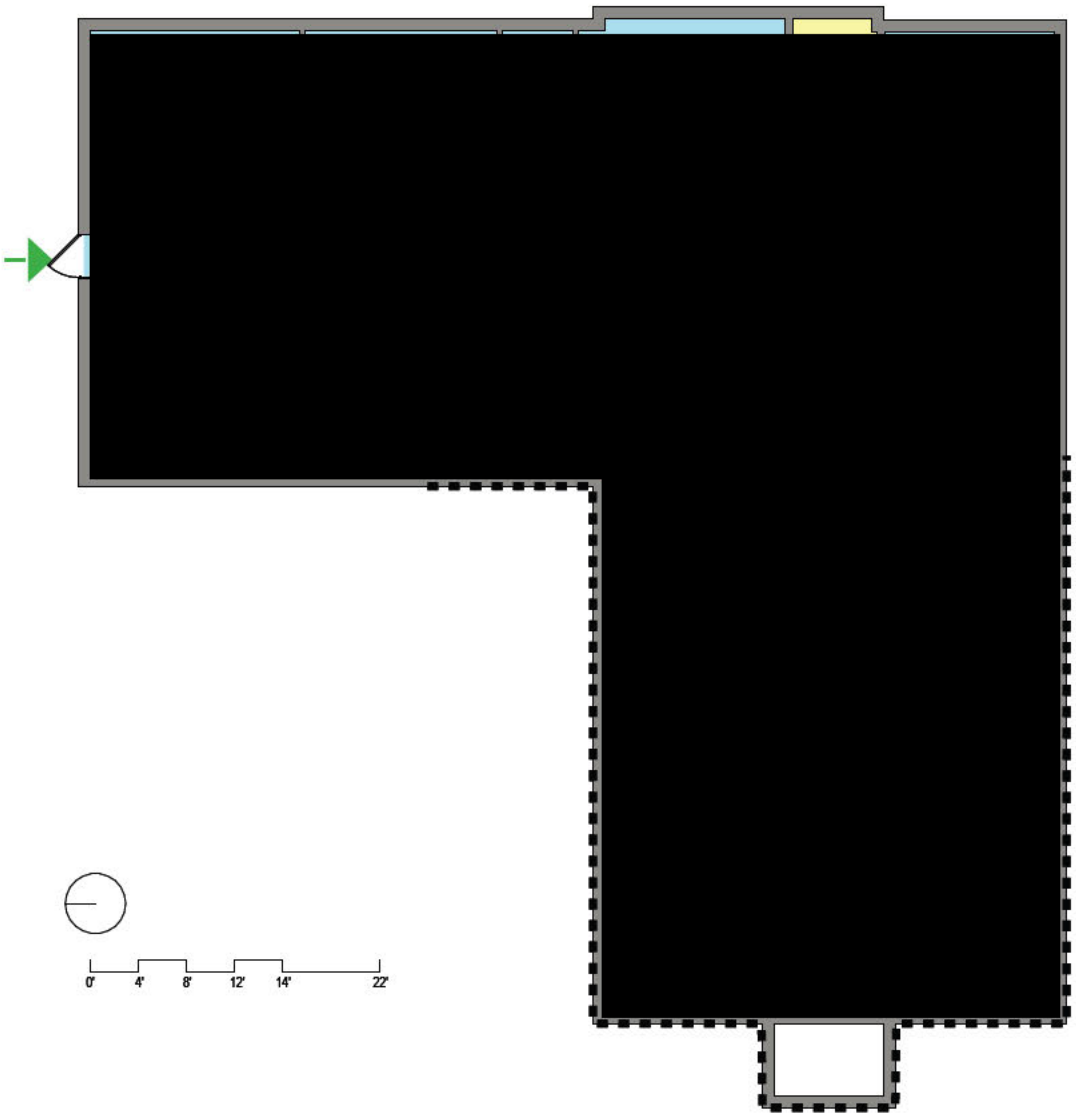
BASEMENT LEVEL

SPACE USE DEFICIENCIES LEGEND

- INEFFICIENT SPACE PLANNING
- SPACE TOO NARROW/SMALL
- CONFUSING LAYOUT
- UNDESIRED LOCATION/ADJACENCIES
- SPACE VACANT

LEGEND

- CIRCULATION
- SUPPORT SPACES
- TOILETS



Long-term Residential

Ellis Cottage Unit

CHARACTERISTICS	
YEAR CONSTRUCTED	1935
HISTORICAL DESIGNATION	NO
FLOORS	1 + BASEMENT/ CRAWLSPACE
GROSS SF	11,500 GSF
CONSTRUCTION TYPE	TYPE IIA
EXISTING BED COUNT	6 PATIENT ROOMS 8 TOTAL BEDS
RECOMMENDED BED COUNT	8
24/7 OPERATION	YES
PRIMARY PROGRAMMATIC USE	RESIDENTIAL PROGRAM



OVERALL RATING: Fair

EXISTING CONDITIONS ASSESSMENT

Rating

ARCHITECTURAL

Roofing

The roofing systems for Ellis Cottage is similar to Ross. Please refer to Ross Cottage for info on this section. Unique conditions (if any) are documented in the photos section of this building in Appendix B.

Refer to Ross

Façade

The façade for Ellis Cottage is similar to Ross. Please refer to Ross Cottage for info on this section. Unique conditions (if any) are documented in the photos section of this building in Appendix B.

Interiors

The interiors condition for Ellis Cottage is similar to Ross. Please refer to Ross Cottage for info on this section. Unique conditions (if any) are documented in the photos section of this building in Appendix B.

MEP SERVICES

Mechanical

This building is served by off campus steam lines, providing heating via steam radiators. New VRF heating & cooling system was installed recently and is in good condition. They are controlled via wall-mounted thermostats. Restroom exhaust fan and AHU are past their life expectancy and need replacing.

Fair

Plumbing

The plumbing systems for Ellis Cottage is similar to Ross. Please refer to Ross Cottage for info on this section. Unique conditions (if any) are documented in ARUP's report in Appendix A.

Refer to Ross

Fire Protection

The fire protection system for Ellis Cottage is similar to Ross. Please refer to Ross Cottage for info on this section. Unique conditions (if any) are documented in ARUP's report in Appendix A.

Note: See Appendix B for additional information and photos.

Ellis Cottage Unit







EXISTING CONDITIONS ASSESSMENT Rating

MEP SERVICES (contd.)

Electrical Distribution

The distribution has recently been upgraded with all new normal and emergency power. Including new normal main distribution panel, (3) new automatic transfer switches (ATS) for Life Safety (LS), Critical (CR) and equipment branches (EQ). A new emergency diesel generator with a base tank is also installed. There is also a quick connection for a temporary generator if needed. LS & CB are manual bypass style, and the EQ is a normal style ATS. All are in Excellent condition.

Excellent

Lighting

Most of the fixtures (approximately 85%) need to be retrofitted from fluorescent lamps to LED. Interior & Exterior (flood lights) are new. Exit Signs are mostly Incandescent, while some others are LED. Controls are local switching with some occupancy sensors.

Good

General Power

General power is mostly adequate, however power for inpatient beds is normal power only. No emergency power is provided. Outlets are not hospital grade.

Good

Fire Alarms

The fire alarm system is a Fire Lite/Honeywell addressable system. There is an electronic fire alarm master box for fire department notification. The Fire Alarm system also reports to the Power Plant and the Guard shack. There is partial coverage with smoke detectors. There is audio visual voice evacuation coverage throughout.

Excellent

CODE & LIFE SAFETY

The building consists of Group I-1 Condition 2 (Institutional), Group A-2 (Assembly), Group A-3 (Assembly), Group B (Business), and Group S-2 (Storage) primary occupancies.The building has a discharge door from the basement which leads to a path which is in disrepair and could be cited as a hazardous means of egress condition within the exit discharge. The building is fully sprinkler protected and appears to have smoke detection provided in select areas throughout the building. Fire alarm system consists of audible/visual notification and pull stations at all exit doors. The egress capacity is adequate for the maximum anticipated

Good

Note: See Appendix A for full consultants report.

Ellis Cottage Unit

EXISTING CONDITIONS ASSESSMENT Rating

CODE & LIFE SAFETY (contd.)

occupant load based on the egress analysis completed. The construction type of the building is likely adequate for any addition or change of occupancy project based on the occupancies present [Type IIA/Type II(111) as identified on the BBI], however if the license status of the facility ever changes to a Hospital per Massachusetts General Law, then the construction type may require an upgrade.

CIVIL

Sanitary

Ellis Cottage has a discharge on the west side of the building of into a 8-inch PVC sewer pipe which appears to have been replaced in 1997. This pipe is a gravity sewer connection to an existing SMH located in the landscape area to the north of Chauffer Brick Garage (31). This pipe flows towards Sanitary Manhole north of Reservoir Pond where it connects to the Town of Canton Sewer System. No issues were reported or observed with the condition or function of the sanitary discharge from Ellis Cottage.

● **Good**

Water

Record Plan titled "New Fire Protection Line Study - Site Water Distribution - "AS-BUILT" Dated January 11, 1995, shows a 2-inch copper water service on the east side of the building, and a 4-inch fire protection service on the west side of the building. No issues related to water pressure or availability were reported for Ellis Cottage.

● **Good**

Stormwater

Ellis Cottage has a sloped roof. The building has gutters and downspouts which are connected to the site closed drainage system. Gutters and downspouts wherein poor condition. Ellis Cottage is located at a topographic high point, the adjacent topography slope away from the building to the west, towards the landscape area north of the Chauffer Brick Garage (31). No reports of ponding or drainage issues were reported in this vicinity of the building.

● **Good**

LANDSCAPE

Ellis Cottage is west of the Nelson Building and south of Baylies Cottage. It is connected on its upper level to the covered walkway system and one at-grade path connecting it to the Administration Building. On its lower level there is a vehicular drive connecting it with the loop drive system. The trees around these cottages are very large and magnificent. While there is some damage from pests and storms, they greatly contribute to the character of this central area.

● **Good**

HISTORIC SIGNIFICANCE

Based on Gale's review of available documents and historic agencies, listed in Appendix A: Gale report, the building does not appear to have a historic designation.

○ **N/A**

ACCESSIBILITY

The Accessibility recommendations for Ross, Ellis, and Baylies cottages are similar. Please refer to Ross Cottage for info on this section. Unique conditions (if any) are documented in DCAMM's report in Appendix A.

○ **N/A[2]**

Notes

1. See Appendix A for full consultants reports.
2. Accessibility items have not been given a rating because issues are captured in the overall facility condition assessment. Additional information on accessibility requirements can be found in the Accessibility Summaries in Appendix A.

Long-term Residential

Ellis Cottage Unit

UTILIZATION REVIEW

Level	Space Function	Total SF	# of Rooms	Average SF per Room	Space Use Rating	Space Usage Efficiency Summary & Additional Comments [1,2]
1st Floor	Bedroom	1,296	5	259	▲	Most bedrooms are too small to accommodate more that one occupant. At Ellis and Baylies, there is a large multi patient bedroom. That can accommodate 4 patients, at Ross this bed room has been subdivided into two double occupancy bedrooms. Doors also do not meet FGI minimum of 45.5" clear width. Refer to the FGI guidelines "2.6-2.2.2 PATIENT CARE UNIT – PATIENT ROOM" for compliance requirements.
	Day room	714	1	714	▲	Room is ample in size. It is however in an undesirable location due to being bisected by the entry/exit circulation, resulting frequent air and temperature changes, which is disruptive to the occupants. Additionally, half the room is used as main storage area for wheelchairs.
	Dining/Kitchen	470	1	470	▲	FGI requirement for combined dining and recreation spaces are 55 SF per bed x the allowable bed count per cottage = 440 SF, the combined total of dining and half of the Day room is 827 SF. This meets the guidelines.
	Toilet room	240	2	120	▲	Toilet rooms are significantly undersized. They do not provided enough space for patient wheel chair equipment and portable lifts, transfer space, adequate turning radii, and staff maneuvering clearances. Refer to Checklist IP28 Rehabilitation Hospitals sections "2.6-2.2.2.6 Patient toilet room" for compliance requirements.
	Bathroom	279	2	139.5	▲	Patient Bath and shower rooms are significantly undersized. They do not provided enough space for patient wheel chair equipment and portable lifts, transfer space, adequate turning radii,and staff maneuvering clearances. Refer to Checklist IP28 Rehabilitation Hospitals sections "2.6-2.2.2.7 Patient Bathing Facilities" for compliance requirements.
	Office	160	1	160	▲	The office space is functional, however space appears to be tight.
	Laundry	290	1	290	▲	Space size is right sized and functional.
	Nurse Station	108	1	108	▲	Nurses station is centrally located, however, space appears inadequate and medication storage takes up most of the space. Seating space is limited. There is no fixed work spaces with sight-lines to the corridor.
	Storage/ Utility	156	3	52	▲	Very limited storage. Not sufficient.
	Circulation Vert./Horiz.	732	-	-	▲	Circulation improvement and wider doors are required for bed width evacuation. Adding a double door vestibules is recommended to improve thermal comfort.
Ground Floor	Mechanical	694	2	347	▲	Space is adequate with ample space available for additional equipment
	Toilet room	98	1	98	▲	There is no access to the upper level of the building. The one restroom is not ADA compliant and not sufficient for the floor level.
	Storage/ Utility	1,826	10	182.5	▲	Storage area is not utilized.
	Concealed void	506	1	506	△	Not reviewed.
	Crawl Space	733	1	733	△	Not reviewed.
	Circulation vert./Horiz.	496	-	-	▲	Circulation path meets code requirements.

ADDITIONAL UTILIZATION NOTES

1. Hand-wash sinks are not provided in all patient treatment rooms/spaces.
2. Note that FGI guidelines are separate from ADA requirements. A space conforming to ADA may not confirm to FGI and vice versa. Please refer to DCAMM Statewide Accessibility Initiative in Appendix A for ADA compliance information.
3. No dedicated clean utilities room (stored in cabinets in nursing station) and no dedicated soiled utilities room.
4. No dedicated storage space for wheelchair, equipment, stretchers and not enough power outlets for charging equipment such as electric wheelchair.

Long-term Residential

Ellis Cottage Unit

FIRST FLOOR



Lacks proper working vestibule to maintain thermal comfort in the day room. Automated double doors would be needed at both portals. ①



Staff bathroom too small, can be relocated to the current nurse station to get a larger bathroom; typical for all cottages. ②



Nursing station should be relocated to current laundry/office location to provide views down both the corridors; typical for all cottages. ③



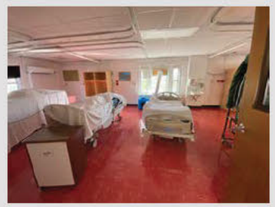
Room needs to be a more formal wheelchair charging & storage area or the wheelchairs need to be stored in rooms where space is found by removing extra bed; typical for all cottages. ④



Guard rail needs to be brought up to code & terrace concrete needs to be replaced. Roof frame for sun shading or screened porch in seasonal weather also needed; typical for all cottages. ⑤



Corridor too narrow, needs to be widened for better access; typical for both Ellis and Baylies cottages. Door width not suitable for bed evacuation. ⑥



Inefficient bedroom layout, could be broken down into 2 bedrooms with an additional bathroom, or even 3 bedrooms; typical for Ellis and Baylies cottages. ⑦



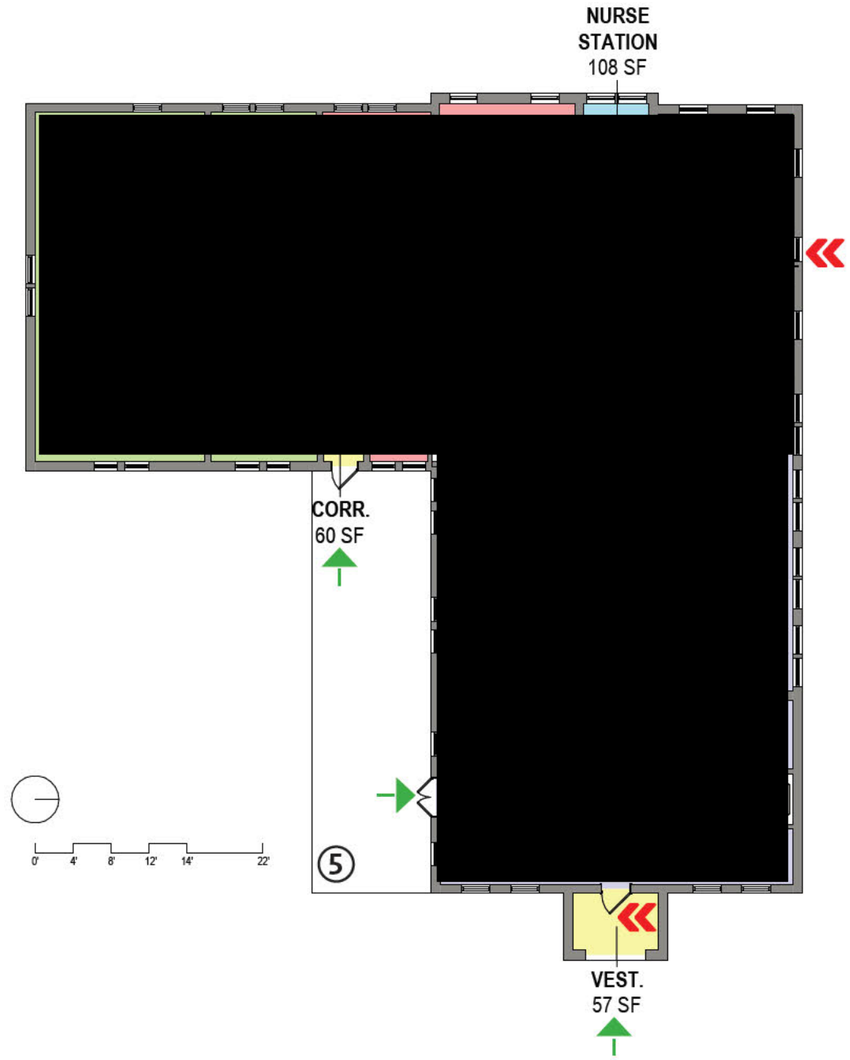
There is no room for sophisticated new equipment, since there is less space than Ross here due to the exit adjacent to the bath area. ⑧

LEGEND

- CIRCULATION
- COMMUNITY SPACE
- PATIENT ROOMS
- TOILETS
- SUPPORT SPACES
- ENTRY/EXIT

SPACE USE DEFICIENCIES LEGEND

- INEFFICIENT SPACE PLANNING
- SPACE TOO NARROW/SMALL
- CONFUSING LAYOUT
- UNDESIRED LOCATION/ADJACENCIES
- SPACE VACANT



Longterm Residential

Ellis Cottage Unit

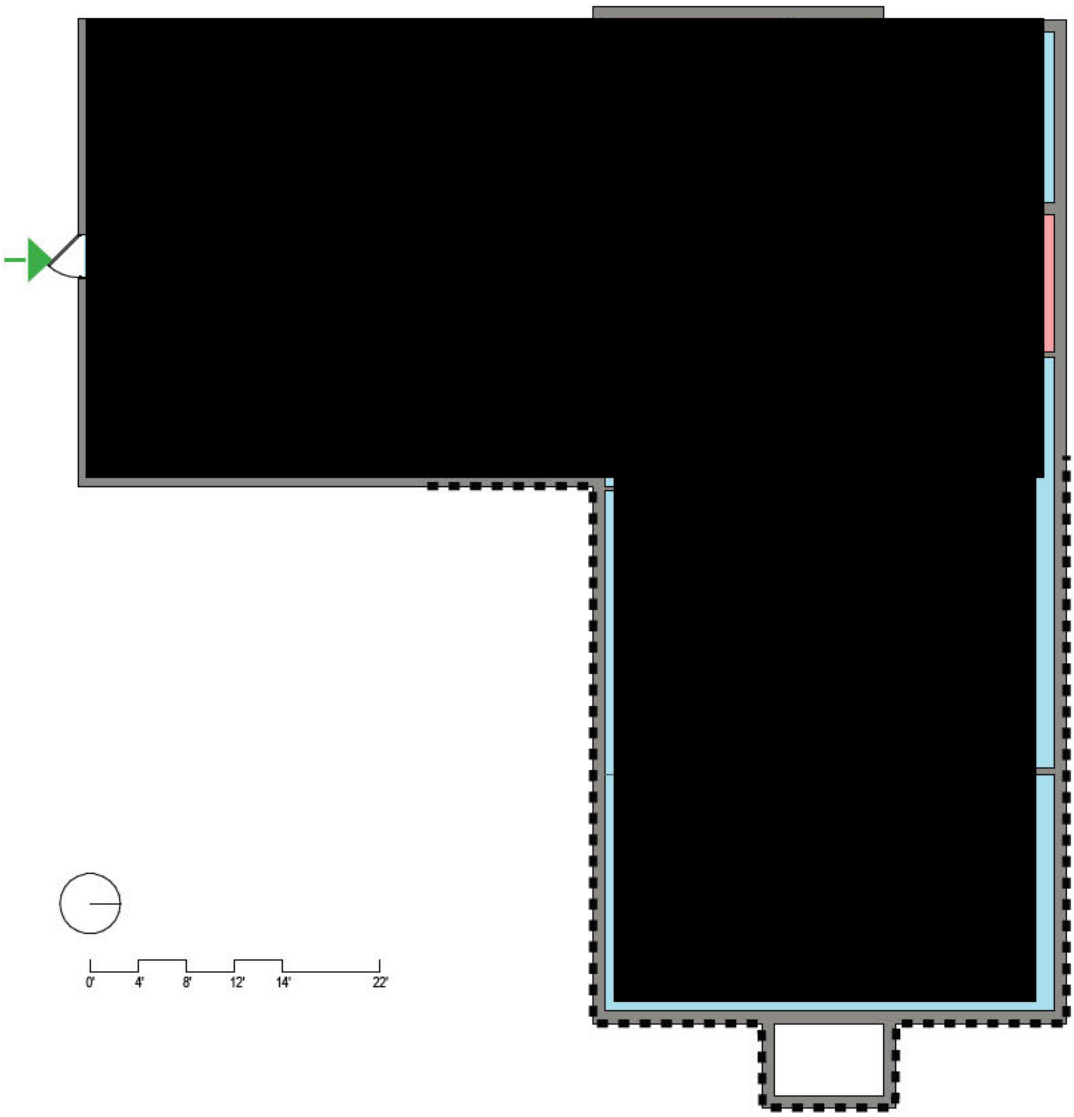
BASEMENT LEVEL

SPACE USE DEFICIENCIES LEGEND

- INEFFICIENT SPACE PLANNING
- SPACE TOO NARROW/SMALL
- CONFUSING LAYOUT
- UNDESIRED LOCATION/ADJACENCIES
- SPACE VACANT

LEGEND

- CIRCULATION
- SUPPORT SPACES
- TOILETS



Long-term Residential

Baylies Cottage Unit

CHARACTERISTICS	
YEAR CONSTRUCTED	1935
HISTORICAL DESIGNATION	NO
FLOORS	1 + BASEMENT/ CRAWLSPACE
GROSS SF	11,500 GSF
CONSTRUCTION TYPE	TYPE IIA
EXISTING BED COUNT	6 PATIENT ROOMS 8 TOTAL BEDS
RECOMMENDED BED COUNT	8
24/7 OPERATION	YES
PRIMARY PROGRAMMATIC USE	RESIDENTIAL PROGRAM



OVERALL RATING: Fair

EXISTING CONDITIONS ASSESSMENT

Rating

ARCHITECTURAL

Roofing

The roofing systems for Baylies Cottage is similar to Ross. Please refer to Ross Cottage for info on this section. Unique conditions (if any) are documented in the photos section of this building in Appendix B.

Refer to Ross

Façade

The façade for Baylies Cottage is similar to Ross. Please refer to Ross Cottage for info on this section. Unique conditions (if any) are documented in the photos section of this building in Appendix B.

Interiors

The interiors condition for Baylies Cottage is similar to Ross. Please refer to Ross Cottage for info on this section. Unique conditions (if any) are documented in the photos section of this building in Appendix B.

MEP SERVICES

Mechanical

Steam lines entering through basement serve steam radiators. They are original to building and are past life expectancy. New VRF indoor & outdoor units have been recently installed as part of energy project serving heating & cooling to most spaces. They are not tied into steam system or window operation. AHU serving exhaust & conditioning to restrooms is old but has parts that have recently been replaced. It is, however, past life expectancy and still pneumatically controlled. Exhaust fan on roof removes excess heat. It is also likely past life expectancy and may no longer be needed.

Fair

Refer to Ross

Plumbing

The plumbing systems for Baylies Cottage is similar to Ross. Please refer to Ross Cottage for info on this section. Unique conditions (if any) are documented in ARUP's report in Appendix A.

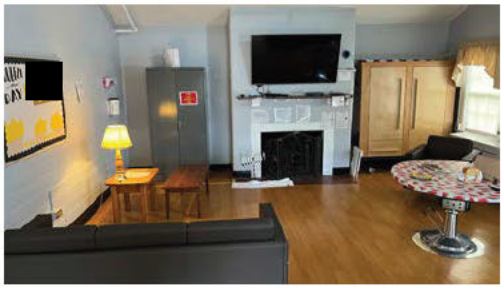
Note: See Appendix B for additional information and photos.

Longterm Residential

Baylies Cottage Unit







EXISTING CONDITIONS ASSESSMENT	Rating

MEP SERVICES (contd.)

Fire Protection

There is a single incoming 6" fire main that enters the basement with a wet alarm valve and a flow switch. The building is fully sprinkler protected with sprinklers replaced in 2022. The building is all on a single flow switch and there is a single fire department connection that serves the building.

● **Good**

Electrical Distribution/Lighting/General Power/Fire Alarm

The electrical systems for Baylies Cottage are similar to Ellis. Please refer to Ellis Cottage for info on this section. Unique conditions (if any) are documented in Pristine Engineer's report in Appendix A.

○ **Refer to Ellis**

CODE & LIFE SAFETY

The building consists of Group I-1 Condition 2 (Institutional), Group A-2 (Assembly), Group A-3 (Assembly), Group B (Business), and Group S-2 (Storage) primary occupancies. The code compliance conditions and life safety systems for Baylies Cottage is similar to Ross. Please refer to Ross Cottage for info on this section. Unique conditions (if any) are documented in Code Red Consultant's report in Appendix A.

○ **Refer to Ross**

CIVIL

Sanitary

Baylies Cottage has a discharge on the west side of the building of into a sewer pipe of unknown size or material. This pipe is a gravity sewer connection to an existing SMH "M" located in the access drive on the west side of the building. This pipe flows south towards Sanitary Manhole north of Reservoir Pond where it connects to the Town of Canton Sewer System. No issues were reported or observed with the condition or function of the sanitary discharge from Ellis Cottage.

● **Good**

Water

Record Plan titled "New Fire Protection Line Study - Site Water Distribution - "AS-BUILT" Dated January 11, 1995, shows a 2-inch copper water service on the east side of the building,

● **Good**

Note: See Appendix A for full consultants report.

Baylies Cottage Unit

EXISTING CONDITIONS ASSESSMENT Rating

CIVIL (contd.)

and a 4-inch fire protection service on the west side of the building. No issues related to water pressure or availability were reported for Baylies Cottage.

Stormwater

Baylies Cottage has a sloped roof. The building has gutters and downspouts which are connected to the site closed drainage system. Gutters and downspouts wherein poor condition. Baylies Cottage is located at a topographic high point, the adjacent topography slope away from the building to the west, towards the landscape area north of the Chauffer Brick Garage (31). No reports of ponding or drainage issues were reported in this vicinity of the building.

● **Good**

LANDSCAPE

Baylies Cottage is north of Ellis and is also connected with the covered walkway system on the east site, and with a vehicular drive on its west site. It is on the axis of the main pedestrian walkway in the center green space and as such holds a visual significance in this landscape. The trees around these cottages are very large and magnificent. While there is some damage from pests and storms, they greatly contribute to the character of this central area.

● **Good**

HISTORIC SIGNIFICANCE

Based on Gale's review of available documents and historic agencies, listed in Appendix A: Gale report, the building does not appear to have a historic designation.

○ **N/A**

ACCESSIBILITY

The Accessibility recommendations for Ross, Ellis, and Baylies cottages are similar. Please refer to Ross Cottage for info on this section. Unique conditions (if any) are documented in DCAMM's report in Appendix A.

○ **N/A**[2]

Notes

1. See Appendix A for full consultants reports.
2. Accessibility items have not been given a rating because issues are captured in the overall facility condition assessment. Additional information on accessibility requirements can be found in the Accessibility Summaries in Appendix A.

Space Utilization Review Note: As layouts of Ellis and Baylies are almost identical, for the Utilization Review table and floor plans, please refer to Ellis Cottage.

Recreation

Finnegan Gym/Pool Complex

CHARACTERISTICS	
YEAR CONSTRUCTED	1982
HISTORICAL DESIGNATION	NO
FLOORS	1 + BASEMENT
GROSS SF	34,765 GSF
CONSTRUCTION TYPE	TYPE IIIB
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	RECREATION



OVERALL RATING: Fair

EXISTING CONDITIONS ASSESSMENT

Rating

ARCHITECTURAL

Roofing

The Finnegan Gym/Pool Complex has a flat, Sarnafil membrane roof system from approximately 2000, and pitched standing seam roof. Gutters have been pulled off roof edge and should be replaced. Snow guards were observed to be present although they have also been pulled off in some location. Solar panels which power the heating system for pool were observed on the pitched roof.

Fair

Façade

Almost all the down spouts are broken or bent and are recommended for replacement. The brick is in fair shape though there were a few areas observed where vertical staining of the brick is present. There were locations where efflorescence was observed at the interior at the bowling alley, which could indicate water infiltration into the wall cavity. There is a concerning section of brick at the top of the elevator tower which consists of a band of brick perhaps twelve courses high and 20 foot long that has cracked free at both corners of the tower. This area could be held in place only by brick ties and the thickness of the brick wall below and requires immediate investigation and stabilization/repair.

Fair

Interiors

The gym area is subdivided by an operable curtain and appears to be in excellent shape. The large swimming pool appears to be in good condition. Stainless steel duct overhead provides only exhaust ventilation to the space in its present dysfunctional condition. Portable AC unit are present to assist with ongoing HVAC needs related to the failed Pool Pak. The two-lane bowling alley is operational with ball return. One lane is fitted with automated ball thrower to assist players. A large gaming room includes electronics and flat screens. It is also in good condition. Food service occurs at the grille/server area, which is staffed with grille cook and counter cashier staff. Two refrigerator coolers for bottled beverages were observed. The dining area includes high and low table and a flat screen TV for viewing. Support facilities include restrooms, locker rooms and bathing facilities. All these are large spacious rooms with floor and walls clad in tile finishes that are in excellent condition.

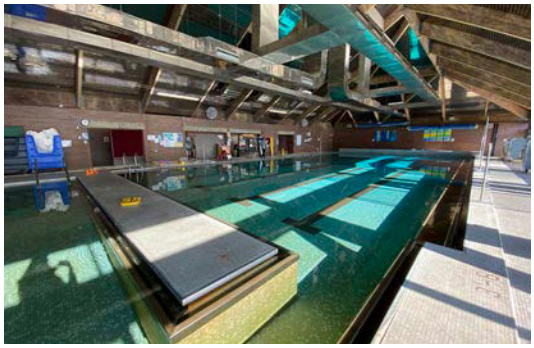
Good

Note: See Appendix B for additional information and photos.

Recreation

Finnegan Gym/Pool Complex







EXISTING CONDITIONS ASSESSMENT	Rating

MEP SERVICES

Mechanical

The building is served by steam for primary heating that is fed from campus steam lines that enters PRV in the basement. There is no cooling in building except for the cafe and snack bar which are served by two separate Johnson Controls AHUs on the roof with DX cooling coils. All AHU heating coils are fed with steam. Vestibules are served by wall-recessed unit heaters which appear to be in good condition. Two York AHUs on the roof serve the gym and provide only heating. During the interview process it was noted that the occupants would prefer if there was cooling in the gym. Locker rooms and restrooms are served by a York heating-only multi-zone RTU. Heating-only multi-zone Johnson Controls AHU that serve the offices and admin spaces were not operational at the time of observation, and each office is using temporary portable AC units. This arrangement constitutes a code violation as AC units do not bring in fresh air to meet min outside air requirement. The pool area is meant to be served by a dehumidifying AHU though it was noted during interviews that this system has not worked in 6 years and only currently exhausts air. The pool is being temporarily served by portable AC units, but there is a bid out currently to replace the system. Pool ductwork still appears in reasonable shape. All AHUs were stated to have been replaced during the 2008 roof renovation, except the York units serving gym & locker rooms, which were said to have been replaced recently (no exact year available). Pool is heated to 92°F via steam heat exchanger with solar heating backup, and the system appears to be in working condition. All kitchen appliances are electric.

Poor

Plumbing

Roof leaks were observed at the Gym wall. Roof drains need clearing as pooling at the drains were observed. One ejector in crawl space under the pool was observed and is believed to serve the pool perimeter drains. The pool bathroom facilities have various fixtures and faucets which do not look to be low flow type. A floor drain in the men's room was observed to be heaving and should be repaired. Domestic hot water is generated from newly installed (Feb 2020) Armstrong Digi-Flo Heat exchangers and Brain mixing valves.

Fair

Note: See Appendix A for full consultants report.

Finnegan Gym/Pool Complex

EXISTING CONDITIONS ASSESSMENT	Rating

MEP SERVICES (contd.)

Fire Protection

The complex does not currently have a fire protection / sprinkler system. The kitchen hoods are protected by a dry chemical system. Refer to Code Consultant comments and report (in Appendix A) for Fire Protection upgrade requirements.

Poor

Electrical Power

Distribution is 4160V/208V Substation: 500KVA. Federal Pacific Electric (FPE) Equipment, 1200A Main Circuit Breaker (MCB) with General Electric (G.E.) Distribution Breakers. Condition is average. Age is 40+ years. It is fed from the Boiler Plant.

Panels are FPE with General Electric & Federal Pacific Electric Breakers. The condition is poor. Age of system is 40+ years.

Poor

Lighting

Most of the fixtures (approximately 85%) need to be retrofitted from fluorescent lamps to LED. Interior & exterior (flood lights) are new. Exit Signs are mostly Incandescent, while some others are LED.

Good

General Power

General power is mostly adequate. However additional power is needed.

Good

Fire Alarms

The fire alarm is an EST 3 addressable system. There is an electronic fire alarm master box for fire department notification. The fire alarm system also reports to the Power Plant and the Guard shack. There is partial coverage with smoke, heat detectors & pull stations. There is audio visual voice coverage throughout. The system is not original to Building Construction 1980. It was upgraded however exact age is unknown.

Excellent

Clock System

The clock system is a Simplex automated programmable clock controller. It is original to the building. The condition was not able to be assessed and is therefore unknown.

N/A

Sound System

The sound system is comprised of a console in Main Office with speakers located throughout the building. The condition was not able to be assessed and is therefore unknown.

N/A

CODE & LIFE SAFETY

The complex has minimal hazardous means of egress conditions, although some exist. The complex does not have sprinkler protection but would require it if any alteration/addition project were to occur based on Massachusetts General Law. Fire alarm system consists of A/V notification and pull stations at all exit doors. The egress capacity is adequate for the maximum anticipated occupant load based on the egress analysis completed. The construction type of the building consists of Type IIIB construction based on the presence of wood in the pool area. This construction type may need to be upgraded, or a fire wall may need to be installed if an addition or change of occupancy to a higher hazard were to ever occur.

Good

Note: See Appendix A for full consultants report.

Finnegan Gym/Pool Complex

EXISTING CONDITIONS ASSESSMENT Rating

CIVIL

Sanitary

Finnegan Pool has a discharge on the west side of the complex of unknown size and material. This pipe is located within an existing steam tunnel which is directed to the northwest towards the Administration Building and joins with an 8-inch Vitrified Clay pipe. This pipe flows south towards a sanitary manhole north of Reservoir Pond where it connects to the Town of Canton Sewer System. No issues were reported or observed with the condition or function of the sanitary discharge from the Finnegan Gym.

Fair

Water

Domestic water distribution mains connect to a 6-inch domestic water service connection on the southeast side of the building, adjacent to the former power plant, and a fire protection connection and the northeast side of the building, adjacent to the vocational building.

Fair

Stormwater

Finnegan Gym has a system of gutters and roof downspouts on the exterior facade of the complex. A number of these gutters are or have failed, resulting in gaps where rainwater from the roof discharges directly onto adjacent grade. Nitsch observed locations where downspouts were disconnected from the cast iron drainage connector. The adjacent topography slope away from the building on the west and south sides, the southeast side of the building has a flat landscape area with a catch basin, no reports of ponding or drainage issues were reported in this area. The north side of the complex is an asphalt driveway and slopes to the east. There are two catch basins to collect the runoff from the driveway and roof drains that discharge to grade. Record Drawings dated 08/02/2010 titled “Site Plan/Details” from Jacobs Consultants Inc. show the design of several new downspouts and an area drain (Lawn Inlet) connecting to a new Catch Basin on the southwest corner of the complex and overflowing to an existing drain manhole. The pool roof area generally drains to the south and west, and the gym roof generally drains to the north and east.

Fair

LANDSCAPE

The Finnegan Gym/ Pool Complex has doors on all sides, and usable outdoor spaces on most of its sides. The main door from the courtyard area near the Administration building is from a covered walkway connecting to the campus system. The condition of the pavement in this area is mixed; some concrete is in good condition and other panels are in poor condition. Immediate repair of the areas in poor condition is recommended.

Fair

The outdoor gathering space has a large, paved area, a fire pit, benches, and tables, and is edged with small granite blocks with planting. It has lights and a large shade tree. Its surfacing is made of precast concrete pavers with weeds in the joints that should be removed. There is differential settling between the types of pavers. Because most of the federal and state accessibility codes say there can be a maxi-mum of ¼” height variation, most of this plaza is on the border of accessibility / non accessibility. The adjacent and connecting walkways are mostly asphalt of fair to poor condition. There is a gathering area on the southwest corner of the complex with benches and pedestrian-scale lights. It is accessed from the central courtyard by a sloped walkway adjacent to the terrace. It has concrete pavement and planters, all in good condition.

There is also a patio on the south side of the complex, outside the pool. The concrete pavement is in fair to poor condition and is stained. It is edged with a wood wall on a brick base with integrated plastic basins that can be planted and are in poor condition.

Note: See Appendix A for full consultants report.

Finnegan Gym/Pool Complex

EXISTING CONDITIONS ASSESSMENT Rating

LANDSCAPE (contd.)

There is a small green space between the east side of the Finnegan Gym/Pool Complex near Morrison Hall. It has rhododendron along the covered walkway, and there is a greenhouse/ glassed building extension near the food service. It has picnic tables and one large tree near the entrances to Morrison. At the end of Morrison near the Power Plant, there are walls, railings, and steps to the service areas below. This green space has passive use and is in mostly good condition. The east and north sides of the Finnegan Gym/Pool Complex are primarily pedestrian circulation and service. The concrete pavement under the covered walkways is in fair condition, and other pavements in this area are in poor condition.

The site topography is relatively flat on the interior campus side (west of the building). There is a slope from the complex to the south and the covered walkway to Morrison and the parking area and small green space. There is a large grade change to the east of Finnegan, and the parking area for the power plant and the lower area of the Rehab Engineering building are on the lower levels of those buildings.

The vegetation is mixed around this building. In the courtyard there is a large maple for shade, and more shade is needed. There are evergreens and mixed deciduous shrubs on the foundation of the complex on its west side, and memorial trees between Finnegan and Nelson. Most of the plant material is in poor condition. The trees need to be pruned, and the shrubs need to be pruned or replaced. Around the campus there are mostly oaks, maples and evergreen trees and shrubs.

HISTORIC SIGNIFICANCE

Based on Gale's review of available documents and historic agencies, listed in Appendix A: Gale report, the complex does not appear to have a historic designation. ◯ **N/A**

ACCESSIBILITY

Minor modifications are recommended for multi-user restrooms, and at some doors to address clearance issues. An automatic door opener installation is required at pool entry. It is also recommended to replace exterior threshold at the entertainment room. Major renovation of staff toilet room is recommended. Additionally, toilet partitions and toilets in the men's and women's locker rooms should be relocated. ◯ **N/A**[2]

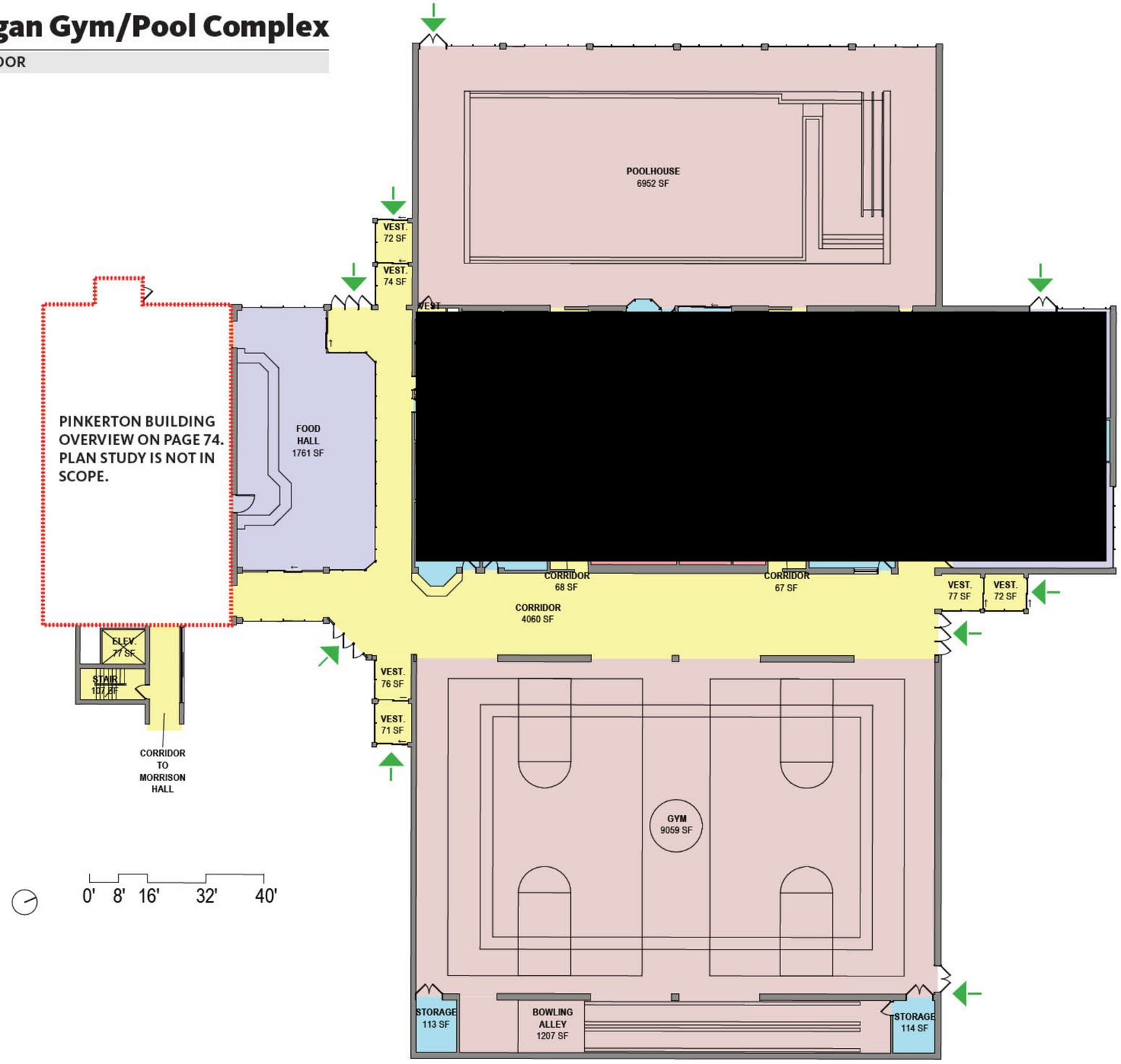
See Appendix A for a preliminary report by DCAMM Statewide Accessibility Initiative.

Notes

1. See Appendix A for full consultants reports.
2. Accessibility items have not been given a rating because issues are captured in the overall facility condition assessment. Additional information on accessibility requirements can be found in the Accessibility Summaries in Appendix A.

Finnegan Gym/Pool Complex

GROUND FLOOR



LEGEND

- CIRCULATION
- COMMUNITY SPACE
- EDUCATION
- RECREATION
- SUPPORT SPACES
- ENTRY/EXIT

FINNEGAN SPACE UTILIZATION OVERVIEW

The Finnegan recreational facilities appear to be adequate for a campus with 74 potential residents. There are accessibility issues with some restrooms and door clearances, however most areas are very spacious. The building is likely underutilized currently due the fact that prior to the COVID-19 pandemic, it served outside events in addition to PRHC patient programs. At the time of observation only PRHC patients used these facilities. However, staff indicate once restrictions are lifted, external events and program may resume. In this case, the utilization of these recreational facilities will likely increase. However, the pool will still be underutilized in warmer months until the air conditioning systems can be repaired.

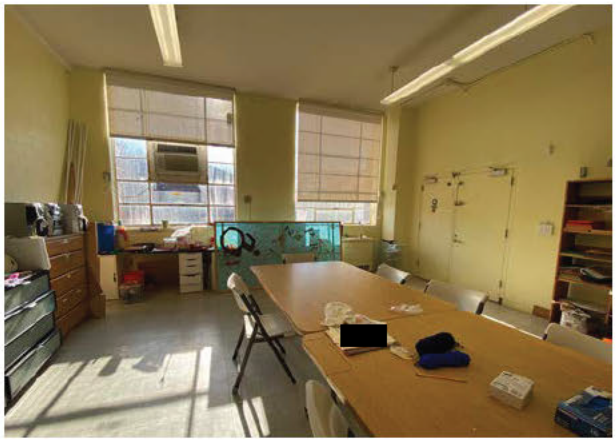
Recreation/Education

Pinkerton Building

CHARACTERISTICS	
YEAR CONSTRUCTED	1915
HISTORICAL DESIGNATION	NO
FLOORS	2
GROSS SF	6,570 GSF
CONSTRUCTION TYPE	TYPE IIB
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	RECREATION / EDUCATION



OVERALL RATING: Fair





ADDITIONAL INFORMATION

ARCHITECTURAL

Roofing: The roof is a flat Sarnafil system from approximately 2009. It contains a 4x4 square acrylic bubble skylight. The roof was not observed close up.

Facade: Brick structure, with limestone trim, on cast-in-place foundation. There are rusting steel lintels and steel single pane windows. The walls are vine-covered. The upper north and east wall of the building have been integrated into the Finnegan Gym/Pool Complex and have interior access to that complex.

Interiors: The lower level of the building is used for campus office supply storage. The floor is concrete, the walls are painted concrete block partitions and the ceilings are painted concrete slabs. All MEP systems mounted are exposed. The storage capacity is fully utilized. The upper floor is used for office and recreation programs. Craft room and AV room are the primary program spaces. Flooring finishes are VCT and other vinyl flooring products. Ceilings are plaster with pendant fixtures. Exterior walls and partitions are painted CMU. HVAC and most other systems are concealed. There is water damage in a storage room. Plaster has fallen at the perimeter of a skylight. The leak occurred sometime ago. It is not understood to be an ongoing leak.

MEP SERVICES

Mechanical: Steam radiators throughout. Connected to Finnegan, unclear if served by same air-side systems, more investigation would be needed. Restroom exhaust fans are old and need replacing.

Plumbing: The building has its own cold water supply to serve an Aerotherm hybrid water which feeds hot water to the kitchen above in the Finnegan building.

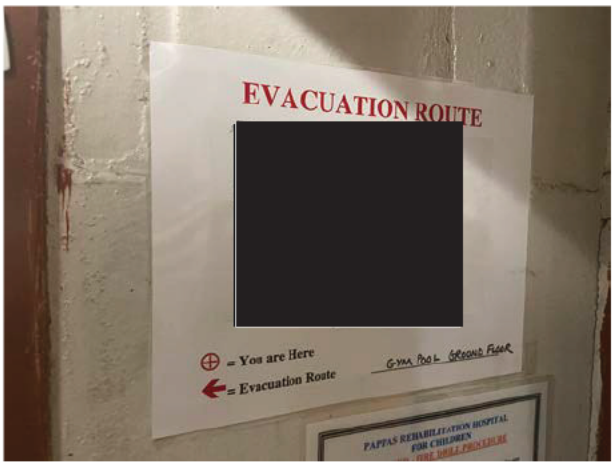
Fire Protection: The building has no fire protection on either floor.

Pinkerton Building

ADDITIONAL INFORMATION (contd.)

CODE/ LIFE SAFETY

The building does not have sprinkler protection and would not require it based on Massachusetts General Law based on the size of the building. The building contains smoke detectors, however no additional fire alarm devices were observed. The egress capacity is adequate for the maximum anticipated occupant load with two exits (one of which travels through the Finnegan building. The construction type of the building consists of Type IIB construction, with noncombustible CMU block construction. This construction type may need to be upgraded, or a fire wall may need to be instituted if an addition or change of occupancy to a higher hazard were to ever occur.



CIVIL

Sanitary: Pinkerton Building has a sanitary connection to an 8" Cast Iron pipe that slopes towards Existing SMH "AF". This manhole also collects sewer from the power plan and Finnegan Recreation Building.



Water: Record Plan titled "New Fire Protection Line Study - Site Water Distribution - "AS-BUILT" Dated January 11, 1995, shows a 2" copper water service on the south side of the building. No fire protection water service is shown. There is an existing fire hydrant on the southeast corner of the building. No issues related to water pressure or availability were reported for Pinkerton Building.

Stormwater: Pinkerton Building has a flat roof and internal drains which connect underground to the site closed drainage system. The adjacent topography slopes away from the building to the east, towards the wooded area east of the New Power Plant (25) The loading dock on the east side of the building appeared to have standing water and some localized drainage issues during the site walk.

LANDSCAPE: There is no landscape around this building.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.

Farm/ Garden/ Greenhouse

New Greenhouse

CHARACTERISTICS	
YEAR CONSTRUCTED	1982
HISTORICAL DESIGNATION	NO
FLOORS	1
GROSS SF	~200 GSF
CONSTRUCTION TYPE	N/A
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	GREENHOUSE



OVERALL RATING: Good





ADDITIONAL INFORMATION

ARCHITECTURAL

Roofing: The roof has pitched acrylic corrugated transparent roof panels on aluminum frames. Acrylic panels are beginning to yellow from UV degradation.

Facade: The structure is prefabricated. It is comprised of aluminum frames with glazed acrylic corrugated transparent panels resting on wood blocking curb on the concrete sidewalk.

Interiors: Concrete floor slab.

MEP SERVICES: Not included in scope.

CODE/LIFE SAFETY: Not included in scope.

CIVIL: Not included in scope.

LANDSCAPE

There is minimal landscape around this building. This patio is in poor condition.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.

Recreation

Morrison Hall

CHARACTERISTICS	
YEAR CONSTRUCTED	1912
HISTORICAL DESIGNATION	NO
FLOORS	3
GROSS SF	10,712 GSF
CONSTRUCTION TYPE	TYPE IIIB
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	RECREATION



OVERALL RATING: Very Poor





ADDITIONAL INFORMATION

ARCHITECTURAL:

Roofing: Morrison Hall has a pitched hipped roof with dormers on all facades. The roof is clad with asphalt shingles. There is no discernible deterioration of the shingle roofing. There are no signs of roof leakage on the interior.

Facade: Morrison Hall is a two-story structure. The lower level is partially below grade. The foundation is cast in place concrete. The upper level is support by round steel columns and steel floor beams. Above level 1 is a mezzanine and loft above. Walls are typical 1' thick brick masonry construction, broken by a series of brick pilasters along the east and west facades. Pilasters thicken the wall an additional 4" and serve has the bearing point for the steel trusses supporting the roof. The brick masonry openings are supported by steel lintels. Rusting is present but there is currently no jacking or cracking of the masonry at the header. The building requires brick pointing. The brick piers supporting the level 1 entry canopy must be rebuilt. Snow and salt piled against them over the years have eroded the mortar and bricks. There are two temporary shoring columns in place however it appears to be precarious. Immediate repairs are required. Installation of bollards or wheel stops is recommended after repair to keep vehicles away from support piers. The original wood windows are single pane glazed. All the building's exterior woodwork needs painting. The windows need full restoration or replacement. Some windows are open, or have glass panels missing, which allow moisture into the building. The walls are not insulated.

Interiors: Interior lower level is mostly used as a storage facility. Finishes are sparse. The ceiling is plaster and flooring is concrete. Walls are exposed brick. The upper (ground) level is primarily an auditorium space with proscenium stage at one end of a large open room, and a mezzanine at the opposite end of the room. There are some smaller rooms beyond these features. Interior at this level is also exposed brick. The auditorium floor is wood. The mezzanine is a wood structure hung by steel rods from the roof structure above. This structure is compromised by cracked and displaced wood beams. The mezzanine should be off limits to further use until repairs can be made. The live load on the mezzanine should be removed in the interim. The ceiling is an exposed wood beam framed supported by the steel trusses, with finished wood plank decking.

Morrison Hall

ADDITIONAL INFORMATION (contd.)

MEP SERVICES: Not included in scope.

CODE/ LIFE SAFETY

The building does not have sprinkler protection but would require it if any alteration/addition project were to occur based on Massachusetts General Law. Fire alarm system consists of audible/ visual notification and pull stations at exit doors. The egress capacity is adequate for the maximum anticipated occupant load as five exits which discharge to the interior of the building are provided. The construction type of the building consists of Type IIIB construction (noncombustible exterior walls with combustible interior structure) based on the presence of wood. This construction type may need to be upgraded, or a fire wall may need to be instituted if an addition or change of occupancy to a higher hazard were to ever occur.





CIVIL

Sanitary: Morrison Hall has a discharge on the northwest side of the building of into a 6" Cast Iron sewer pipe of unknown size or material. This pipe is a gravity sewer connection to an existing SMH "AE" located in the access drive on the west side of the building. This pipe flows west past Finnegan Recreation Buildings towards Sanitary Manhole north of Reservoir Pond where it connects to the Town of Canton Sewer System. No issues were reported or observed with the condition or function of the sanitary discharge from Morrison Hall.

Water: Record Plan titled "New Fire Protection Line Study - Site Water Distribution - "AS-BUILT" Dated January 11, 1995, shows a 2" domestic water service on the north side of the building. No fire protection service is shown on the record drawings. No issues related to water pressure or availability were reported for Morrison Hall.

Stormwater: Morrison has a sloped roof. The building has no gutters, the building's roof sheets onto crushed stone splash pad on the west side. The remaining sides have no closed drainage connections. The stone splash pad on the east side is overgrown with weeds. Localized ponding and water intrusion was reported during the site walk by PRHC staff. Morrison Hall is located at a topographic high point, the adjacent topography slopes away from the building to the east, towards the wooded area east of the New Power Plant.

LANDSCAPE

The landscape around this building is in poor condition. The open space to the north of Morrison is discussed in the Finnegan section. The front of this building is covered walkways and driveways, and the back of the building is utilitarian as the pavement abuts the New Power Plant and the Old Power Plant.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.

Recreation

Pavilion at Gates

CHARACTERISTICS	
YEAR CONSTRUCTED	2014
HISTORICAL DESIGNATION	NO
FLOORS	1
GROSS SF	~5,000 GSF
CONSTRUCTION TYPE	UNKNOWN
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	RECREATION



OVERALL RATING: Good







ADDITIONAL INFORMATION

ARCHITECTURAL

Roofing: The roof is composed of pitched, corrugated metal, eave repair is required.

Facade: Steel support columns are in excellent condition.

Interiors: The inside/underside of the pavilion includes metal panel ceiling on clean painted steel frame, LED light fixtures, and a smooth concrete slab.

MEP SERVICES: Not included in scope.

CODE/LIFE SAFETY: Not included in scope.

CIVIL

Stormwater: There is a sloped standing seam metal roof, and washed crushed stone drip edge at surface.

LANDSCAPE

Excellent quality outdoor space. The Landscape is in good condition.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.

Greenhouse

CHARACTERISTICS	
YEAR CONSTRUCTED	1931
HISTORICAL DESIGNATION	NO
FLOORS	1
GROSS SF	~200 GSF
CONSTRUCTION TYPE	UNKNOWN
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	GREENHOUSE



OVERALL RATING: Fair







ADDITIONAL INFORMATION

ARCHITECTURAL

Roofing: Roof is glass in aluminum frame with curved glass panel and yellowed plexi glass. Glazing puddy is aged.

Facade: The building has functional single-pane glass on aluminum frame with cast-in-place foundation. Door hardware and glass sealant are in poor condition.

Interiors: This is a concrete floor slab building equipped with operable vents. Water pipes are insulated.

MEP SERVICES: Not included in scope.

CODE/LIFE SAFETY: Not included in scope.

CIVIL: Not included in scope.

LANDSCAPE

The landscape around this building is in fair condition and is comprised of one walkway and lawn.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.

Recreation

Boathouse + Pavilion / Dock

CHARACTERISTICS	
YEAR CONSTRUCTED	1990
HISTORICAL DESIGNATION	NO
FLOORS	1
GROSS SF	~200 GSF
CONSTRUCTION TYPE	UNKNOWN
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	RECREATION



OVERALL RATING: Very Poor







ADDITIONAL INFORMATION

ARCHITECTURAL

There are three structures and a dock.

Roofing: 1. Open equipment storage shed: the roof has fallen in. (Very Poor) 2. Closed equipment shed: Pitched roof with asphalt shingles, a few slipped out of place, discolored. Shingles are at end of serviceable life. 3. Pavilion: Pitched roof with asphalt shingles, a few slipped out of place, discolored/ moss covered. Shingles are at end of serviceable life.

Facade: 1. Open equipment storage shed: Heavy timber structure clad with wood board and batten vertical siding , floor and roof have rotted out. (Very poor) 2. Closed equipment shed: Foundation structure is cast-in-place with heavy timber structure, clad with wood lap clap board siding. Wood requires painting. Wood entry doors are rotting from bottom up. 3. Pavilion: six round wood column structure with a hip roof, on a concrete slab. GWB ceiling soffit molding with rusted light fixtures.

Interiors: 1. Open equipment storage shed: Void. 2. Closed equipment shed: N/A for review. 3. Pavilion: see exterior façade section

MEP SERVICES: Not included in scope.

CODE/LIFE SAFETY: Not included in scope.

CIVIL: Not included in scope.

LANDSCAPE

The landscape is in fair condition.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.

Recreation

Nature Lodge

CHARACTERISTICS	
YEAR CONSTRUCTED	1974
HISTORICAL DESIGNATION	NO
FLOORS	1
GROSS SF	1,781 GSF
CONSTRUCTION TYPE	UNKNOWN
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	RECREATION



OVERALL RATING: Fair





ADDITIONAL INFORMATION

ARCHITECTURAL

Roofing: The roof is a pitched hip roof with cupola clad in wood shakes. The roof system has organic matter covering portions of the roof. Replacement within five years is recommended.

Facade: The structure perimeter is a wraparound porch wood porch structure and deck. The building exterior wall is clad with a slip lapped wood wainscoting siding. The windows are large casement windows.

Interiors: Not included in scope.

MEP SERVICES: Not included in scope.

CODE/LIFE SAFETY: Not included in scope.

CIVIL: Not included in scope.

LANDSCAPE

The landscape is in fair condition.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.

Recreation/ Farm

Indoor Riding Arena

CHARACTERISTICS	
YEAR CONSTRUCTED	2005
HISTORICAL DESIGNATION	NO
FLOORS	1
GROSS SF	14,416 GSF
CONSTRUCTION TYPE	TYPE IIB
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	RECREATION / FARM



OVERALL RATING: Excellent





ADDITIONAL INFORMATION

ARCHITECTURAL

Roofing: The roof is a pitched, corrugated galvalume metal roof. It is in good condition. A 25-year warranty is typical for this type of roof. This roofing product is not recommended for animal confinement buildings.

Facade: The building has perimeter concrete footings, tapered vertical columns, and rafters weld to form moment truss frame spaced approximately every 28'. The bottom two-thirds of walls are infilled with horizontal steel girts supporting corrugated Galvalume vertical metal siding for and the top third is clad with corrugated translucent fiberglass panels.

Interiors: The interior walls and roof have insulation with batt secured in vinyl membrane where exposed. The stable portion of the building is fitted out with wood tongue and grove wood wall paneling. At the exterior walls and as the partitions forming the horse stalls. The stable floor is slab on grade. The riding ring is exposed soil with concrete board wainscot at the wall base and corrugated metal panel concealing the insulation up to the bottom of the clerestory.

MEP SERVICES: Not included in scope.

CODE/ LIFE SAFETY

The building does not have sprinkler protection but would require it if any alteration/addition project were to occur based on Massachusetts General Law based on the size of the building. The fire alarm system consists of audible/visual notification and pull stations at all exit doors and smoke detectors throughout the building. The egress capacity is adequate for the maximum anticipated occupant load, with 3 exits which discharge to the exterior of the building. The construction type of the building consists of Type IIB construction, consisting of a pre-manufactured steel building and concrete foundation. This construction type is adequate based on the current use, but may need to be upgraded if a change of use or addition ever occurs.

Recreation/ Farm

Indoor Riding Arena

ADDITIONAL INFORMATION (contd.)

CIVIL

Water: Record Plan titled “New Fire Protection Line Study - Site Water Distribution - “AS-BUILT” Dated January 11, 1995 shows a 6” domestic water service extending to the east side of the Open Shed (34) before downsizing to a 2” water service connection to the Water Shed (18). Water service to the Indoor Riding Arena is assumed to be from this service. No fire protection service is shown on the record drawings. No issues related to water pressure or availability were reported for the Indoor Riding Arena.

Stormwater: Metal roof sheet flow and drip edge with sheet flow away from the building.



LANDSCAPE

The landscape is in fair condition.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.

Farm/ Garden/ Greenhouse

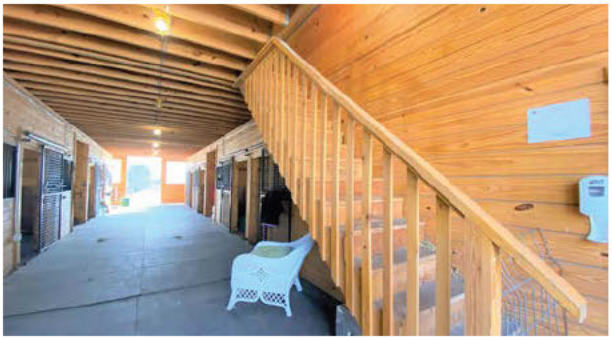
New Barn (formerly Horse Barn)

CHARACTERISTICS	
YEAR CONSTRUCTED	2006
HISTORICAL DESIGNATION	NO
FLOORS	2
GROSS SF	3,050 GSF
CONSTRUCTION TYPE	TYPE VB
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	RECREATION / FARM



OVERALL RATING: Excellent







ADDITIONAL INFORMATION

ARCHITECTURAL

Roofing: The main roof is a pitched corrugated metal roof, with an upper roof at the ridge monitor that runs the length of the building, comprised of vertical clerestory windows illuminating the upper hay loft. The monitor roof is corrugated metal.

Facade: The building has a slab on grade foundation with heavy timber structural frame. Exterior cladding is vertical board and batten. The wood windows are single pane. The barn is uninsulated.

Interiors: Interior exposed structure and animal pens in excellent condition.

MEP SERVICES: Not included in scope.

CODE/ LIFE SAFETY

The building does not have sprinkler protection and would not require it based on Massachusetts General Law based on the size of the building. A fire alarm system is not provided within the building but is not required to based on the size and occupancy. The egress capacity is adequate for the maximum anticipated occupant load, with two exits which discharge to the exterior of the building. The construction type of the building consists of Type VB construction. This construction type is adequate based on the current use but may need to be upgraded if a change of use or addition ever occurs.

CIVIL

Water: Record Plan titled "New Fire Protection Line Study - Site Water Distribution - "AS-BUILT" Dated January 11, 1995, shows a 6" domestic water service extending to the east side of the Open Shed (34) before downsizing to a 2" water service connection to the Water Shed (18). Water service to the Indoor Riding Arena is assumed to be from this service. No fire protection service is shown on the record drawings. No issues related to water pressure or availability were reported for the Indoor Riding Arena.

Stormwater: Metal roof sheet flow and drip edge with sheet flow away from the building.

LANDSCAPE: The landscape is in fair to poor condition.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.

Farm/ Garden/ Greenhouse

Old Barn (formerly Cow Barn)

CHARACTERISTICS	
YEAR CONSTRUCTED	1931
HISTORICAL DESIGNATION	NO
FLOORS	2
GROSS SF	3,822 GSF
CONSTRUCTION TYPE	UNKNOWN
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	RECREATION / FARM



OVERALL RATING: Fair







ADDITIONAL INFORMATION

ARCHITECTURAL

Roofing: The roof is pitched with asphalt shingles. Shingle roof is in good condition.

Facade: The building is a one-story structure with lofts, constructed on a field stone perimeter foundation. The floor is slab on grade. The structure is a heavy timber frame construction. Exterior wall construction is comprised of wood stud walls sheathed in horizontal barn board with wood shake cladding. Shakes are a weathered grey. At the south side of the structure the shakes require repair where an abutting structure was removed at the center doorway. Door and window trim requires paint. A number of the barn window openings are covered with plastic. Window replacement is recommended. Barn is uninsulated. Garden soils and plant material has risen adjacent to the wall cladding in a few locations the grade and should be cut down to prevent deterioration wood structural materials.

Interiors: Interior exposed structure and animal pens are in good condition.

MEP SERVICES: Not included in scope.

CODE/LIFE SAFETY: Not included in scope.

CIVIL

Stormwater: Asphalt shingle roof sheet flow and drip edge with sheet flow away from the building

LANDSCAPE

The landscape is in fair to poor condition.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.

Water Shed

CHARACTERISTICS	
YEAR CONSTRUCTED	1930s
HISTORICAL DESIGNATION	NO
FLOORS	1
GROSS SF	200 GSF
CONSTRUCTION TYPE	UNKNOWN
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	CAMPUS FACILITIES/ FARM



OVERALL RATING: Poor







ADDITIONAL INFORMATION

ARCHITECTURAL

Roofing: The roof is pitched with asphalt shingles and monitor top. Vines on roof are overgrown. Shingles are discolored and worn. The roof system beyond its serviceable life.

Facade: The building is a single-story structure. Wood shakes clad light wood frame on cast-in-place foundation. Wood shakes are in disrepair and new cladding required. Glazing is single pane wood windows. The wood trim requires repainting. The building is heated to protected water valve within. Undetermined if building is insulated.

Interiors: Building houses water valve and pigs.

MEP SERVICES: Not included in scope.

CODE/LIFE SAFETY: Not included in scope.

CIVIL: Not included in scope.

LANDSCAPE: The landscape is in fair to poor condition.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.

Education

Brayton High School

CHARACTERISTICS	
YEAR CONSTRUCTED	1967
HISTORICAL DESIGNATION	NO
FLOORS	2
GROSS SF	108,312 GSF
CONSTRUCTION TYPE	TYPE IB
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	EDUCATION



OVERALL RATING: Fair





ADDITIONAL INFORMATION

ARCHITECTURAL

Roofing: Roof is a flat, Sarnafil system form approximately 2009, with flashing and upper clerestory. The roofing is a ballasted system.

Facade: Brayton is a two-story structure, with a concrete reinforced frame that is cast-in-place. The exterior walls are composed of 4" brick veneer, with a 1" cavity and an 8" CMU back up wall. All cavity flashing material is via membrane. There is no insulation. The punched brick window openings are supported with a steel angle lintel in the brick masonry. The backup wall headers are formed concrete perimeter beams engaged with the floor slab above. The building perimeter is ringed with a continuous 8' cantilevered concrete soffit/terrace. Both at the main roof level and at the first level on the west side where the grade falls away revealing the lower level. These concrete projections have protected the brick facade and window lintels which are in good repair. The windows are replacement aluminum windows with insulated glazing. The windows are a combo of fixed panels and operable sash windows. Galvanized steel guard rails line the first level terrace on the west which are secured to the concrete slab. The terrace waterproof coating has held off deterioration of the slab and railing connections. The entry doors are automatic aluminum sliding doors, which are motion activated and in good working order. Underside of terrace and roof soffit need painting. Sealant at control joints needs replacing.

Interiors: Lower level of the building is used for campus equipment storage. It has concrete floors, exposed cast-in-place concrete exterior and interior walls. The ceiling is exposed concrete slab. All MEP systems are exposed. Storage capacity is fully utilized. There is a need to clean out some of the outdated equipment. Other portions of the lower level serve as the state library for visual impaired, and are mechanical spaces. The upper (ground) level is occupied primarily with classrooms, a library, and an auditorium. Additional spaces are offices, restrooms, and changing areas. The ceiling throughout is a painted concrete coffered ceiling. The upper portions of the coffers originally contained ACT tiles. They have been removed per an abatement effort. The adhesive remains and does require remediation. The exposed floor surface is predominately carpeting. Classrooms have VCT 8"x8" floor tiles. Interior partitions are surfaced with ceramic tiles or brick veneer. Exterior walls are steel and glass infill panels. The auditorium is designed for individuals

Brayton High School

ADDITIONAL INFORMATION (contd.)

in wheelchairs in the prime viewing areas of the auditorium. Several ramps weave through the space to make the auditorium accessible.

MEP SERVICES: Not included in scope.

CODE/ LIFE SAFETY

Building has minimal hazardous means of egress conditions. The building does not have sprinkler protection but would require it if any alteration/addition project were to occur based on Massachusetts General Law based on the size of the building. Fire alarm system consists of audible/visual notification and pull stations at all exit doors and smoke detectors throughout the building. The egress capacity is adequate for the maximum anticipated occupant load, with fifteen exits which discharge to the exterior of the building. The construction type of the building consists of Type IB construction comprised of a concrete frame, enclosed by insulated masonry walls and non-insulated steel frame glazing systems. This construction type is likely adequate for any change of occupancy or addition that may occur.

CIVIL

Sanitary: Brayton High School has a sanitary connection to a 5" Vitrified Clay pipe that slopes towards Existing SMH "I" and SMH "H". This pipe flows south beneath the track and farm fields towards a sanitary utility access hole north of Reservoir Pond where it connects to the Town of Canton Sewer System. No issues were reported or observed with the condition or function of the sanitary discharge from Brayton High School. Given the size and demand of the sanitary system from the school, further study is needed to assess the capacity of the 5" pipe is adequate to serve the building.

Water: Record Plan titled "New Fire Protection Line Study - Site Water Distribution - "AS-BUILT" Dated January 11, 1995, shows a 4" domestic and fire protection water service on the west side of the building. There is an existing fire hydrant on the southeast corner of the building. No issues related to water pressure or availability were reported for Brayton High School

Stormwater: Brayton High School has a flat roof and internal drains which connect underground to the site closed drainage system. The adjacent topography slopes towards the building from the east (Parking Lot R). This causes drainage and erosion issues on the building's eastern side and cantilevered exterior walkway. Runoff conveyance and stormwater erosion control measures are recommended for future study in the area on the east side of the building.

LANDSCAPE

The landscape is in fair to poor condition. Pedestrian access should be made safer.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.

Education

Elementary School

CHARACTERISTICS	
YEAR CONSTRUCTED	1928
HISTORICAL DESIGNATION	NO
FLOORS	1
GROSS SF	5,739 GSF
CONSTRUCTION TYPE	TYPE IIIB
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	EDUCATION



OVERALL RATING: Fair





ADDITIONAL INFORMATION

ARCHITECTURAL

Roofing: The elementary school has a pitched roof with asphalt shingles on wood framed rafter system with continuous roof top monitor. The roof is insulated on the inboard side with batt insulation. Shingles are missing in places. Moss is growing extensively on the north side of the building. The eave and soffit trim are discolored and has rotted out in a few locations.

Facade: The school is a one-story building with brick load bearing walls at 1' thick. There is rigid insulation board at the interior side of masonry. Foundation is comprised of concrete footings. The brick joints are tight. Outboard aluminum storm windows cover original wood windows, creating a double-glazed insulation, which is a thermal improvement preserving historic windows. However, it is not as effective as insulated glazed units. Exposed wood window trims have peeling paint.

Interiors: Recent renovated areas are in decent shape. Main issues are the door jambs which have been damaged by wheelchair access in and out of the classrooms. The doors also are too narrow. The acoustic ceiling tiles in all the rooms are bowed at the center, possibly caused by HVAC imbalance sucking the tiles downward. Walls are crisp GWB with paint in good condition. Classroom flooring are VCT. Hallway flooring is carpet. The restrooms are in good condition with ceramic tile walls and porcelain floor tiles.

MEP SERVICES: Not included in scope.

CODE/ LIFE SAFETY

The building is currently provided with automatic sprinkler protection which is required to be maintained. Fire alarm system consists of audible/visual notification and pull stations at all exit doors and smoke detectors in the corridor system. The egress capacity is adequate for the maximum anticipated occupant load, with nine exits which discharge to the exterior of the building. The construction type of the building consists of Type IIIB construction with a masonry exterior and unprotected wood roof. This construction type may need to be upgraded, or a fire wall may need to be instituted if an addition or change of occupancy to a higher hazard were to ever occur.

Elementary School

ADDITIONAL INFORMATION (contd.)

CIVIL

Sanitary: Elementary School has a discharge on the north side of the building of into a Force Main. The force main is connected to DMH 9 within 8" PVC sewer pipe. This pipe flows east and south beneath the covered walkway towards a Sanitary Manhole north of Reservoir Pond where it connects to the Town of Canton Sewer System. No issues were reported or observed with the condition or function of the sanitary discharge from Morrison Hall.

Water: Record Plan titled "New Fire Protection Line Study - Site Water Distribution - "AS-BUILT" Dated January 11, 1995, shows a 4" fire protection water service on the east side of the building. A domestic water service line is shown on the record drawings with no size or material. No issues related to water pressure or availability were reported for the Elementary School.

Stormwater: The Elementary School building has a sloped roof. The building has failing wooden gutters. Localized areas of ponding and nuisance flooding were reported on the site walk on the north side of the building. The adjacent topography slopes towards the building from the north. The topography slopes away from the building on other sides.

LANDSCAPE

The landscape is in fair to poor condition.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.

Vacant

Superintendent House

CHARACTERISTICS	
YEAR CONSTRUCTED	1930
HISTORICAL DESIGNATION	NO
FLOORS	3
GROSS SF	5,076 GSF
CONSTRUCTION TYPE	TYPE IIIB
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	VACANT



OVERALL RATING: Poor





ADDITIONAL INFORMATION

ARCHITECTURAL

Roofing: The roof has pitched asphalt shingles, some are missing and discolored. Eaves are rotted out. Roof replacement is required.

Facade: The building is a three-level structure above grade. The houses frame is wood supported on a concrete foundation with full sub-basement. The exterior is clad with brick veneer, with punched masonry openings supported by precast lintels, many of which are cracked due to rusting rebar within. Precast windowsills are also spalling. The entry porch roof, and rear glazed projected bay are in very poor condition. The glazed projected bay may not be salvageable without extensive care. The wooden deck at the rear may require replacement. The precast concrete lintels have deteriorated with cracked and rusting rebar. If replaced soon the rest of the masonry will not be affected. Additionally, the gutter and down spout system must be replaced.

Interiors: The Interior finish has been disrupted by window installation and heating equipment repairs. The rotting fascia boards may require repairs deeper than surface level. The attic is uninsulated. There is water damage on the ground floor ceiling. The exterior wood trim requires scrape and painting.

MEP SERVICES: Not included in scope.

CODE/ LIFE SAFETY

The building does not have sprinkler protection and would not require it based on Massachusetts General Law based on the size of the building. Fire alarm system consists of audible/visual notification and pull stations at all exit doors as well as smoke detectors. The egress capacity is adequate for the maximum anticipated occupant load, with three exits which discharge to the exterior of the building. The construction type of the building consists of Type IIIB construction (masonry exterior walls and combustible wood interior structure). This construction type may need to be upgraded, or a fire wall may need to be instituted if an addition or change of occupancy to a higher hazard were to ever occur.

CIVIL

Sanitary: Elementary School has a discharge on the north side of the building of into a Force Main. The force main is connected to DMH 9 within 8" PVC sewer pipe. This pipe flows east and south beneath the covered walkway towards

Vacant

Superintendent House

ADDITIONAL INFORMATION (contd.)

a Sanitary Manhole north of Reservoir Pond where it connects to the Town of Canton Sewer System. No issues were reported or observed with the condition or function of the sanitary discharge from Morrison Hall.

Water: Record Plan titled "New Fire Protection Line Study - Site Water Distribution - "AS-BUILT" Dated January 11, 1995, shows a 4" fire protection water service on the east side of the building. A domestic water service line is shown on the record drawings with no size or material. No issues related to water pressure or availability were reported for the Elementary School.

Stormwater: The Elementary School building has a sloped roof. The building has failing wooden gutters. Localized areas of ponding and nuisance flooding were reported on the site walk on the north side of the building. The adjacent topography slopes towards the building from the north. The topography slopes away from the building on other sides.

LANDSCAPE: The landscape is in fair to poor condition.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.



Administrative

Administration Building

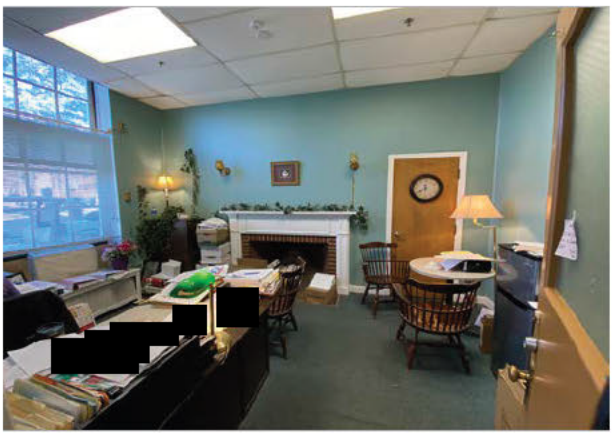
CHARACTERISTICS	
YEAR CONSTRUCTED	1907
HISTORICAL DESIGNATION	NO
FLOORS	3
GROSS SF	41,966 GSF
CONSTRUCTION TYPE	TYPE IIIB
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	ADMINISTRATIVE



OVERALL RATING: Very Poor







ADDITIONAL INFORMATION

ARCHITECTURAL

Roofing: The roof is flat, Sarnafil system from approximately 2009. The roof membrane exhibits many patches. A portion of the roof was undergoing repairs during the inspection.

Facade: The building is a three-story structure supported by field stone foundation. Brick exterior walls are assumed to be brick masonry appointed with precast bands and coining. The punched brick masonry openings are supported by severely rust jacked steel lintels. Some of the rust jacking has extended to the building corners. Rust jacking exhibited at the building's parapets could dislodge a portion of the parapet. The west elevation of the building exhibits temporary repair work from the steel channel has been through bolted above some widow heads to stabilize the wall. The south elevation has a similar repair with steel plates or wood planks that are severely aged. This building should have lintel replacement throughout the building and immediate reevaluation by and engineer for the wall and parapet integrity. On the building north and west elevation are the level 2 and level 3 fire escape balcony stairs and ladders. All these exhibits significant rust. Integrity of these fire escapes are in question and should be inspected.

Interiors: The basement is used for storage. Field stone foundation has been parged and painted. Internal support piers are brick. The basement floor is uneven concrete slab. Ceiling is painted plaster. All the building systems are exposed. The first and second level function as offices primarily, in addition to the campus main kitchen. The interior finish is either plaster or GWB with wood trim. A few of the rooms have fireplaces. Ceilings are plaster or hung ACT. The first two floor are in decent shape. The third level is not occupied except for some storage. The finishes have begun to deteriorate from water damage. The floor tiles are popping loose. The paint on the walls and ceiling are peeling . The third floor is underutilized . Given the condition of the building exterior walls and deteriorating interior conditions, use of the third level is not advised.

Administration Building

ADDITIONAL INFORMATION (contd.)

MEP SERVICES

Mechanical: Building heating fed from campus steam lines entering through basement serving steam radiators vestibules and offices. New direct digital control (DDC) control valves have been installed on steam lines tied into BMS ~2019. New Skidmore condensate return pumps (~3 years old) also on DDC control. Rest of the building is still on pneumatic controls served by old Quincy Climate Control air compressor in basement that is about 15 years old. New Siemens/Niagara BMS room in basement was cooled by now failed Friedrich split system. Sanyo cooling-only condensing unit in the basement that is about 25 years old providing cooling to the server room but is undersized and not providing sufficient cooling. The central Dunham-Bush AHU (steam heating coil & DX cooling, located in basement) was installed pre-1970 and failed in about 2013. Most spaces in building are not getting code-required ventilation and have temporary FCU units in windows for conditioning. Some restrooms observed do not have exhaust.

Kitchen is served by a York Borg-Warner makeup air unit (MAU) in the space adjacent to the kitchen, which is about 50 years old. The unit is past its life expectancy and having issues with the outdoor air dampers. It is heating only, fed by steam, and all pneumatically controlled. Kitchen exhaust hood is original to the kitchen (~ 50 years old as well). It is past its life expectancy and controlled via manual switch on wall that controls both the kitchen hood & exhaust fan on roof, and the AHU. Kitchen exhaust fan & restroom exhaust fans on roof are also past their life expectancy and need to be replaced. Kitchen is hot since there is no mean of cooling.

Plumbing: The plumbing system has a lot of rotting pipes throughout the building. The third-floor plumbing is decommissioned due to leaking and rotted drainage pipes in the second-floor ceiling, some of the janitors sinks on level 2 cannot be used due to leaking pipes.

Fire Protection: The existing building is fully sprinkler protected with a flow switch for each floor within the main egress stair.

Landscape: The landscape is in fair condition.

CODE/ LIFE SAFETY

The building has several hazardous means of egress conditions relative to fire escapes and blocked exits. The building is currently provided with automatic sprinkler protection. Fire alarm system consists of audible/visual notification and pull stations at all exit doors as well as smoke detectors throughout the building. The egress capacity is adequate as eight exits are provided for the building The construction type of the building consists of Type IIIB construction (noncombustible exterior walls with combustible interior structure) based on observable wood floor construction. This construction type may need to be upgraded, or a fire wall may need to be instituted if an addition or change of occupancy to a higher hazard were to ever occur.

CIVIL

Sanitary: The Administration Building has three six" sanitary discharges. The first is on the southeast side of the building and flows to Existing SMH "T". The second and third are on the southwest side of the building, south of the parking lot and are connected to Existing SMH "Q". This pipe flows west and south beneath the covered walkway towards a Sanitary Manhole north of Reservoir Pond where it connects to the Town of Canton Sewer System. No issues were reported or observed with the condition or function of the sanitary discharge from Morrison Hall.

Water: Record Plan titled "New Fire Protection Line Study - Site Water Distribution - "AS-BUILT" Dated January 11, 1995, shows a 2" domestic water service on the east side of the building. A fire protection water service line is shown on the north side of the building. No issues related to water pressure or availability were reported for the Administration Building.

Stormwater: The Elementary School building has a flat roof with internal drains that connect to the site closed drainage system.

LANDSCAPE: The landscape is in good to fair condition.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.

Administrative

Donovan Building

CHARACTERISTICS	
YEAR CONSTRUCTED	1962
HISTORICAL DESIGNATION	NO
FLOORS	3 + BASEMENT
GROSS SF	44,703 GSF
CONSTRUCTION TYPE	TYPE IIB
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	ADMINISTRATIVE



OVERALL RATING: Fair







ADDITIONAL INFORMATION

ARCHITECTURAL

Roofing: The roof is likely a flat, Sarnafil system from approximately 2009. The roof was not reviewed during this report.

Facade: The building is a four-level structure. It is constructed on a concrete foundation, with perimeter 1' thick load bearing brick masonry walls and central columns supporting concrete slabs. Walls are uninsulated, with masonry punched openings supported by steel lintels exhibiting some rust. The windows are aluminum double hung windows. Brick has tight joints in general. There are some occurrence of rust jacking and corner cracking conditions where the parapet has expanded at a different rate than the wall below. Some windows locations have cracks where the rust jacking is present. The central entry facade on the north is a limestone panel area with ceramic tile transom above the windows. This portion of the facade is heavily stained from vines.

Interiors: Not included in scope.

MEP SERVICES: Not included in scope.

CODE/ LIFE SAFETY

The building does not have sprinkler protection but would require it if any alteration/addition project were to occur based on Massachusetts General Law based on the size of the building. Fire alarm system consists of audible/visual notification and pull stations at all exit doors as well as smoke detectors in select areas in the building. The egress capacity is adequate for the maximum anticipated occupant load as three enclosed exit stairs are provided as well as three exits which discharge to the exterior of the building on Level 1. The construction type of the building consists of Type IIB construction (noncombustible concrete and steel frame). This construction type may need to be upgraded, or a fire wall may need to be instituted if an addition or change of occupancy to a higher hazard were to ever occur.

Donovan Building

ADDITIONAL INFORMATION (contd.)

CIVIL

Sanitary: The Donovan Building has two sanitary discharges of unknown size and material located on the southeast side of the building. The sewer pipes are connected to Existing SMH "AI". This pipe flows south between the Finnegan Recreation Building and Industrial Building towards a Sanitary Manhole north of Reservoir Pond where it connects to the Town of Canton Sewer System. No issues were reported or observed with the condition or function of the sanitary discharge from Donovan Hall.

Water: Record Plan titled "New Fire Protection Line Study - Site Water Distribution - "AS-BUILT" Dated January 11, 1995, shows a 4" domestic water service on the east side of the building. A 6" Ductile Iron fire protection water service line is shown on the north side of the building, connected routed through the existing steam runnel into the Donovan Building mechanical Room. No issues related to water pressure or availability were reported for the Donovan Building.

Stormwater: The Donovan Building has a flat roof with internal drains that connect to the site closed drainage system.

LANDSCAPE

The landscape is in good condition.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.

New Power Plant

CHARACTERISTICS	
YEAR CONSTRUCTED	1982
HISTORICAL DESIGNATION	NO
FLOORS	2
GROSS SF	5,800 GSF
CONSTRUCTION TYPE	TYPE IIB
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	CAMPUS FACILITIES



OVERALL RATING: Fair





ADDITIONAL INFORMATION

ARCHITECTURAL

Roofing: The roof is a flat, ballast membrane EPDM roof. There are no reports of leaking. The membrane age is beyond its serviceable life. Increasing insulation of the roof deck is recommended.

Facade: The building is a single-story structure with a mezzanine. There is a concrete foundation that is slab on grade. Steel frame structures support the concrete on metal deck mezzanine slab and roof slab. Exterior walls are 4" brick veneer with 2" insulated cavity supported by 8" CMU back up wall. CMU wall is either free span to bottom of continuous wrap around clerestory or supported by mezzanine slab to bottom of clerestory. The glazing system is single panel steel window supported by continuous wood header hung down from perimeter steel angle attached to columns.

Interiors: There was a recent upgrade of all mechanical systems. Building interior has painted concrete block at exterior walls, concrete floor, and exposed steel structure supporting steel roof deck. The area below the mezzanine is infilled with CMU partitions forming a few offices and restrooms. The rooms have acoustical tile ceilings.

MEP SERVICES

Mechanical: Mechanical systems in power plant are all new steam-producing equipment serving whole campus, except for the three buildings that have been removed from the steam system (buildings provided with independent heating hot water (HHW) boilers) - Brayton school, elementary school, & superintendent's office. New steam equipment includes three 6,695,000 BTU/h Cleaver Brooks gas-fired steam boilers manufactured in 2020 and two (2) Cleaver Brooks economizers providing boiler makeup water pre-heating. Four new Capstone micro-combined heat and power (CHP) units that generate electricity are installed and connected to a Cain heat recovery steam generator. Facility is currently waiting for a plumbing variance but once operational expected to not require one steam boilers.

Two diesel generators receive fuel from an Eco Vault above-ground storage tank that is outside the power plant and in good condition. All systems are connected to new BMS in building engineer's office, except fresh air louver dampers in generator room that are pneumatically controlled by two old, compressed air units in plant room mezzanine. Steam condensate system still served by two Skidmore vacuum pumps in old power plant building, which appear to be operational but past their life expectancy. New steam equipment, pipes, ductwork, and accessories all in very good condition, however steam system does not align with goals detailed in Executive Order 594 aiming to move towards electric heat pump technology as a state-wide decarbonization effort.

New Power Plant

ADDITIONAL INFORMATION (contd.)



Plumbing: The plumbing for this building is limited to a few bathroom fixtures, an emergency shower and boiler make up water. Make-up used to be from a well and that has been disconnected and is now from city water to economizers and then into the boilers. Floor drainage is routed to an ejector in the corner of the building and is pumped into the site sewage system. Domestic water to the campus is metered with backflow devices in buried pits centrally and not provided building by building.

Fire Protection: The Power Plant has no Fire Protection / sprinkler system. The old campus Diesel pump was previously in this building has been removed and is now in a separate fire pump building / container adjacent and serves the entire campus. This building contains a 1,000 GPM x 100 psi Paterson fire pump that serves all buildings on campus that contain sprinkler / standpipe systems. Central backflow for the campus is installed in a pit on the incoming 10" main and is not in the fire pump building.

Electrical: This facility has 13.8V rated utility service which has overhead/underground service on the maintenance road. The Utility Company maintains the overhead service. The underground portion is maintained & owned by the State. Underground Feeder from the last utility pole feeds a pad mounted Transformer 1500KVA adjunct to the Power Plant Secondary Voltage is 4160Volts. Existing 4160V interior Switchgear 400Amps. This feeds various Buildings & an existing 4160V Automatic Transfer Switch. The Emergency System is currently in the process of being upgraded. A new 600KW Diesel Generator is being provided for the site excluding (6) Buildings (Gates, Ross, Bradford Bldg., Nelson, Ellis & Baylies Cottage which will get standalone Generators). The 4160V Systems feeds all the Buildings on Campus via an underground network. Age is 40+ years. Poor Some of the Equipment is failing & needs repair or replacement.

Power Plant: A 300KVA Transformer Steps down 4160V to 480V & feeds a distribution panel for local panels & loads. 180KW Backup Diesel Generator provides Backup Power to the power plant. A 200A ATS (Westinghouse) exists. The 4160V, 480V, ATS & Generator Equipment is all located in the Electric Room.

Lighting: Site Lighting is provided by either wall mounted flood lights (LED conversions or incandescent) Wall packs or Decorative Pole & Decorative Path lights. Our Understanding is that the site Lighting Levels are either inadequate or do not Exist. Our Review concludes that it appears that is correct.

CODE/ LIFE SAFETY

The building does not have sprinkler protection and would not require it based on Massachusetts General Law based on the size of the building. The building also contains a fire pump which serves the entire campus. Fire alarm system consists of audible/visual notification and pull stations at all exit doors as well as smoke detectors throughout the building. The egress capacity is adequate for the maximum anticipated occupant load, with three exits which discharge to the exterior of the building. The construction type of the building consists of Type IIB construction with CMU block and unprotected steel construction. This construction type is adequate based on the current use but may need to be upgraded if a change of use or addition ever occurs.

CIVIL

Sanitary: The New Power Plant has one sewer ejector pumps connected to force mains located on the west side of the building.

Water: Record Plan titled "New Fire Protection Line Study - Site Water Distribution - "AS-BUILT" Dated January 11, 1995, shows a 2" domestic water service on the east side of the building. A 6" Ductile Iron fire protection water service line is shown on the north side of the building, connected routed through the existing steam runnel into the Donovan Building mechanical Room. No issues related to water pressure or availability were reported for the New Power Plant.

Stormwater: The New Power Plant has a flat roof with internal drains that connect to the site closed drainage system.

LANDSCAPE: The area surrounding this building is mostly pavement.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.

Old Power Plant

CHARACTERISTICS	
YEAR CONSTRUCTED	1907
HISTORICAL DESIGNATION	NO
FLOORS	1
GROSS SF	5,917 GSF
CONSTRUCTION TYPE	TYPE IIB
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	CAMPUS FACILITIES



OVERALL RATING: Very Poor







ADDITIONAL INFORMATION

ARCHITECTURAL

Roofing: The building has a flat roof. The main roof likely has Sarnafil system from approximately 2009. The lower roof addition at the north side of the building have EDPM roof. The roof structure is primarily a wood joist frame.

Facade: The main building is a two-story structure, with lower level partially below grade. There are also two one-story appendages connected to the lower level. A cast-in-place concrete foundation supports load bearing brick masonry walls. The building is not insulated. The upper-level window fenestration is wood single pane windows. The lower-level windows are steel single pane windows. Both window systems are in poor condition with missing glass and poor glazing putty.

Interiors: Interior are comprised of exposed brick walls and exposed roof structures. The building is not finished. The building serves as a storage facility and as a conduit for the new power plant to connect to the campus steam tunnels.

MEP SERVICES: Not included in scope.

CODE/ LIFE SAFETY

The building does not have sprinkler protection and would not require it based on Massachusetts General Law based on the size of the building. A fire alarm system is not provided within the building but is not required to based on the size and occupancy. The egress capacity is adequate for the maximum anticipated occupant load, with two exits which discharge to the exterior of the building. The construction type of the building consists of Type IIB construction as the building consists of masonry exterior and unprotected steel structure. This construction type is adequate based on the current use but may need to be upgraded if a change of use or addition ever occurs.

Old Power Plant

ADDITIONAL INFORMATION (contd.)

CIVIL

Sanitary: The Old Power Plant has one sewer ejector pump connected to force mains located on the west side of the building.

Water: Record Plan titled “New Fire Protection Line Study - Site Water Distribution - “AS-BUILT” Dated January 11, 1995, shows a 4” domestic water service on the east side of the building. A 6” connects to the northwest corner of the building, and a 4” domestic water distribution main serving the campus is connected to the west side of the building.

Stormwater: The Old Power Plant has a flat roof with internal drains that connect to the site closed drainage system

LANDSCAPE

The area surrounding this building is mostly pavement. The stair connection from the pen space between Pinkerton and Morrison is in very poor condition and is overground with invasive vines.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.





Industrial Building / Rehab Engineering

CHARACTERISTICS	
YEAR CONSTRUCTED	1957
HISTORICAL DESIGNATION	NO
FLOORS	2
GROSS SF	9,572 GSF
CONSTRUCTION TYPE	UNKNOWN
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	CAMPUS FACILITIES



OVERALL RATING: Fair





ADDITIONAL INFORMATION

ARCHITECTURAL

Roofing: The roof is a flat Sarnafil system from approximately 2009. The roof structure is supported by steel bar joists with concrete planks or panels spanning between joists.

Facade: The building is a two-story structure supported by a cast in place foundation that extends to the upper-level floor. The lower level is partially below grade. There is an area on the concrete wall where the rebar has rusted and spalled the concrete face. The upper level of the building has load bearing CMU walls with exterior brick veneer. The fenestration is punched steel windows. Steel lintels span the masonry opening in the upper brick walls. There is evidence of rust jacking at some of the headers.

Interiors: The lower level of the building is used as a storage facility. Concrete walls the ceiling structure are painted. The floor is exposed concrete. The upper-level serves as offices and workshops for the industrial rehabilitation program. The space is enclosed with concrete block at the exterior walls and internal partitions. Floors are painted concrete or vinyl covered in the office areas. There are hung acoustical tile ceilings in the office areas and exposed steel bar joist in roof deck in the workshops.

MEP SERVICES

Mechanical: Building served by old heating-only, pneumatically controlled AHU that needs replacement. No cooling not all spaces have mechanical exhaust. Steam radiators throughout. General exhaust fans installed in windows.

CODE/LIFE SAFETY: Not included in scope.

CIVIL: Not included in scope.

LANDSCAPE

The area surrounding this building is mostly pavement.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.

Old Laundry / Old Rehab Engineering/ Storage

CHARACTERISTICS	
YEAR CONSTRUCTED	1923
HISTORICAL DESIGNATION	NO
FLOORS	1
GROSS SF	4,136 GSF
CONSTRUCTION TYPE	TYPE IIIB
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	CAMPUS FACILITIES



OVERALL RATING: Poor





ADDITIONAL INFORMATION

ARCHITECTURAL

Roofing: The main roof is a pitched hip asphalt shingle roof with inactive clerestory monitor at the ridge. The shingles are discolored and the north facing slope is spotted with moss. The wood eave fascia is rotten. Gutters have been ripped from the fascia where occurring. The monitor clad with inlay siding trim is sagging. Flanking additions at the east and west end have low slope roofs clad with sarnafil membrane from approximately 2009.

Facade: The building is a single-story structure on a concrete foundation, with load bearing 8" brick walls. The original masonry work has excessively widened mortar joints. The north facade has excessive moisture and mold build up at the base of the masonry wall. The fascia below eaves has peeling paint. Glazing systems vary - some are steel and some are replacement aluminum. All windows are in poor condition and single pane. Walls are not insulated.

Interiors: The interior is comprised of painted brick masonry walls, painted concrete flooring and 2x4 acoustical ceiling tile.

MEP SERVICES:

Plumbing: Fair condition

Fire Protection: There are no fire protection system in the building.

CODE/ LIFE SAFETY

The building does not have sprinkler protection and would not require it based on Massachusetts General Law based on the size of the building. Fire alarm system consists of audible/visual notification and pull stations at all exit doors as well as smoke detectors. The egress capacity is adequate for the maximum anticipated occupant load, with two exits which discharge to the exterior of the building. The construction type of the building consists of Type IIIB construction (masonry exterior walls and combustible wood interior structure). This construction type may need to be upgraded, or a fire wall may need to be instituted if an addition or change of occupancy to a higher hazard were to ever occur.

CIVIL: Not included in scope.

LANDSCAPE: The area surrounding this building is mostly pavement, with some green space on its north side.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.

Guard House

CHARACTERISTICS	
YEAR CONSTRUCTED	1990s
HISTORICAL DESIGNATION	NO
FLOORS	1
GROSS SF	~200 GSF
CONSTRUCTION TYPE	UNKNOWN
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	CAMPUS FACILITIES



OVERALL RATING: Fair



ADDITIONAL INFORMATION

ARCHITECTURAL

Roofing: The roof is pitched with asphalt shingles. The building is crowned with a glazed monitor/cupola.

Facade: The building is a single-story structure on concrete foundation supporting a one story light wood framed insulated walls and roof, with a brick veneer waistcoat. Glazing is a series of vinyl clad casement and slider windows with insulated glass. The eave and soffit trim are painted wood.

Interiors: Not included in scope.

MEP SERVICES: Not included in scope.

CODE/LIFE SAFETY: Not included in scope.

CIVIL: Not included in scope.

LANDSCAPE

The large trees along the entrance road require care by an arborist.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.

Vacant

Superintendent's Garage

CHARACTERISTICS	
YEAR CONSTRUCTED	1930s
HISTORICAL DESIGNATION	NO
FLOORS	1
GROSS SF	~200 GSF
CONSTRUCTION TYPE	UNKNOWN
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	VACANT



OVERALL RATING: Very Poor





ADDITIONAL INFORMATION

ARCHITECTURAL

Roofing: Pitched roof with asphalt shingles.

Facade: Single-story structure. Wood structure on cast-in-place foundation. Base of wall is rotting and door is not functional. The roof is sagging and trims are rotted.

Interiors: Not included in scope.

MEP SERVICES: Not included in scope.

CODE/LIFE SAFETY: Not included in scope.

CIVIL: Not included in scope.

LANDSCAPE: Not included in scope.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.

John E Fish Memorial Clock Tower

CHARACTERISTICS	
YEAR CONSTRUCTED	UNKNOWN[1]
HISTORICAL DESIGNATION	NO
FLOORS	1
GROSS SF	144 GSF
CONSTRUCTION TYPE	UNKNOWN
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	CAMPUS FACILITIES



OVERALL RATING: Very Poor





ADDITIONAL INFORMATION

ARCHITECTURAL

Roofing: Pitched roof with asphalt Shingles

Facade: Single-story structure with limestone trim, on cast-in-place foundation. Masonry needs cleaning and repointing. Wood trim and clock require repair and replacement. Open upper floor has significant deterioration.

Interiors: Internal ceiling at walkway level has been subjected to water damage.

MEP SERVICES: Not included in scope.

CODE/LIFE SAFETY: Not included in scope.

CIVIL: Not included in scope.

LANDSCAPE

The large trees require care by an arborist.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.

Note

1. Exact building year is unknown. However according to the Mass. Historic Commission the clock tower was named and dedicated to John E. Fish in 1945.

Chauffer Brick Garage

CHARACTERISTICS	
YEAR CONSTRUCTED	1950
HISTORICAL DESIGNATION	NO
FLOORS	1
GROSS SF	3,072 GSF
CONSTRUCTION TYPE	UNKNOWN
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	CAMPUS FACILITIES



OVERALL RATING: Poor







ADDITIONAL INFORMATION

ARCHITECTURAL

Roofing: The roof is likely a flat Sarnafil system from approximately 2009. The roof structure is comprised of light wood framing rafters. Supported by king post heavy timber trusses.

Facade: The building is a single-story structure on cast-in-place foundation with slab on grade floor. The walls are 8" load bearing brick masonry. Precast lintels span the header of window and door openings. The window sills are the top of the concrete foundation. The knee-high foundation wall is cracked in a few locations. The brick needs repointing. The wood single pane double hung windows have rotted and upper sashes are sliding down and crooked. The two garage doors are metal panel sectional glide up doors.

Interiors: Interior brick masonry is painted white. Cracking is present between the brick wall and underside of precast lintel. It may be caused by differential material expansion. There is no exposed or rusted repair in the precast at present.

MEP SERVICES: Not included in scope.

CODE/LIFE SAFETY: Not included in scope.

CIVIL: Not included in scope.

LANDSCAPE: Not included in scope.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.

Grounds Garage

CHARACTERISTICS	
YEAR CONSTRUCTED	1938
HISTORICAL DESIGNATION	NO
FLOORS	1
GROSS SF	620 GSF
CONSTRUCTION TYPE	UNKNOWN
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	CAMPUS FACILITIES



OVERALL RATING: Fair







ADDITIONAL INFORMATION

ARCHITECTURAL

Roofing: Pitched hip roof with asphalt shingles. Several shingles are displaced or missing. Condition is okay, re-roofing in ten years is recommended.

Facade: Single-story structure on cast-in-place foundation supporting heavy wood timber framed structure . Exterior is clad in wood clapboards needing scrape and paint. Corner and window/door opening trims are rotting or in need of painting. Windows are single pane double hung windows in poor condition. The four bi-leaf doors on the south sided comprised of vertical bead board are severely rotten.

Interiors: Not included in scope.

MEP SERVICES: Not included in scope.

CODE/LIFE SAFETY: Not included in scope.

CIVIL: Not included in scope.

LANDSCAPE

The large trees require care by an arborist.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.

14 Car Garage

CHARACTERISTICS	
YEAR CONSTRUCTED	1938
HISTORICAL DESIGNATION	NO
FLOORS	1
GROSS SF	3,072 GSF
CONSTRUCTION TYPE	UNKNOWN
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	CAMPUS FACILITIES



OVERALL RATING: Fair







ADDITIONAL INFORMATION

ARCHITECTURAL

Roofing: Pitched roof with asphalt shingles are in poor condition. Swale in roof structure was observed. Roof has solar panels.

Facade: Single-story structure. Light wood framed structure on cast-in-place perimeter foundation. The structure has three closed sides clad in horizontal lap seam wood siding. Wood paint has peeled. The active side is divided into 14 bays, each with a vinyl panel roll up garage door.

Interiors: Not included in scope.

MEP SERVICES: Not included in scope.

CODE/LIFE SAFETY: Not included in scope.

CIVIL: Not included in scope.

LANDSCAPE

The large trees require care by an arborist.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.

Open Shed

CHARACTERISTICS	
YEAR CONSTRUCTED	1930
HISTORICAL DESIGNATION	NO
FLOORS	1
GROSS SF	3,000 GSF
CONSTRUCTION TYPE	UNKNOWN
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	CAMPUS FACILITIES



OVERALL RATING: Poor







ADDITIONAL INFORMATION

ARCHITECTURAL

Roofing: Pitched roof, asphalt shingles. Shingles are worn in places. Replacement within ten years is recommended.

Facade: Single-story structure. Light wood framed structure on cast-in-place perimeter foundation. The structure has three closed sides clad in vertical tongue and grove wood siding. The open side is divided into five bays. One bay is closed. The building needs repainting. Replacement of some wood trims are recommended.

Interiors: Building is uninsulated with wall structure and exterior sheathing boards. The ceiling is wood plank. Floor is concrete on grade. Ceiling planks are in disrepair.

MEP SERVICES: Not included in scope.

CODE/LIFE SAFETY: Not included in scope.

CIVIL: Not included in scope.

LANDSCAPE

The large trees require care by an arborist.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.

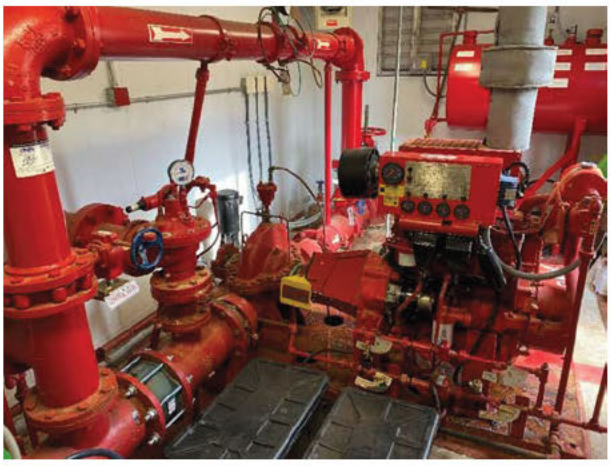
Fire Pump House

CHARACTERISTICS	
YEAR CONSTRUCTED	2000s
HISTORICAL DESIGNATION	NO
FLOORS	1
GROSS SF	~200 GSF
CONSTRUCTION TYPE	UNKNOWN
24/7 OPERATION	NO
PRIMARY PROGRAMMATIC USE	CAMPUS FACILITIES



OVERALL RATING: Good





ADDITIONAL INFORMATION

ARCHITECTURAL

Roofing: The roof is a corrugated metal roof with a bi-lateral pitch to drain.

Facade: The fire pump building is a prefabricated building with insulated metal wall units. Supported by Steel channel equipment curb resting on a concrete bearing pad. Wooden entry steps.

Interiors: Concrete floor with metal wall panels painted white.

MEP/LIFE SAFETY

This room contains the old campus diesel pump that was previously in the Power Plant building. This fire pump serves the entire campus.

CIVIL: Not included in scope.

LANDSCAPE: Not included in scope.

HISTORICAL SIGNIFICANCE: No known historic designation.

ACCESSIBILITY: Not included in scope.

FUTURE INVESTIGATIONS

FUTURE INVESTIGATIONS

The following are recommended items for future implementation or study which are not a comprehensive list of all deficiencies and improvement opportunities. They are primarily focused on the stabilization of physical infrastructure problems, possibilities for underutilized areas, and short- to medium-term goals that may support PRHC's current mission and vision. A programmatic review and more focused studies should be conducted prior to the commencement of any significant building or grounds alteration project.

Building Stabilization

Administration Building

The exterior walls of the Administration Building have exhibit considerable degradation, from rust jacking (a phenomenon caused by rusting steel reinforcement that expands to crack and deform concrete and masonry structure) and freeze thaw action (where water infiltrates cracks in masonry construction, freezes and expands degrading the structural integrity of the masonry). Temporary bracing has been installed at a few locations in recent decades to stabilize the walls. However despite these efforts, the deterioration persists and gradually undermines the integrity of the masonry structure.



PHOTO: View of the corroded masonry at the Admin. Building.

Please also refer to the report produced in 2012 by **GMI Architects, in conjunction with SGH**, titled **"Massachusetts Hospital School, Administration Building Envelope study"** – a comprehensive certifiable study that used destructive demolition of the masonry walls as a part of their information gathering. This report discussed steel rust jacking as a major cause for the building's deterioration, along with discussions about the mortar quality within the in wythes of the masonry. The mortar found at some locations during the destructive investigations was softer in the interior, than the outer mortar. This indicates the building was repointed in the past with a harder mortar on the building face. The repointed mortar may spall off over time, but where present it is trapping moisture within the walls, which is subjected to freeze thaw cycles in the wall. This can, in extreme cases, eventually turn the mortar back to sand. Another issue is the overall structural integrity of the buildings' frame. The 2012 report indicates that not all tie rods proposed in 1996 were installed, indicating that an engaged engineering firm was concerned about the building's overall integrity. The integrity of the structural diaphragm in this building may have deteriorated since 2012. Additionally, the report indicates the brick (located where supports for the fire escapes are embedded within the wall) have no positive bond inside the masonry wall. This could also be true for other structural elements relying on the masonry for support. This report was produced 11 years ago and based on discussions with PRHC staff, no proposed repairs from this report were implemented. There is likely further structural deterioration since 2012. We recommend either re-engaging the companies that produced the 2012 report, or another structural engineer, to conduct additional investigations. This is to review if there is further deterioration, determine if the building's lateral and load bearing stability has been compromised, and develop an updated plan for interim stabilization and comprehensive repair.

Morrison Hall

Morrison Hall requires masonry and structural repair of the canopy support and other key lintels where rust jacking is occurring on the building's exterior. Based on observations, the south elevation requires repointing (replacement of the outer one inch of existing mortar with new mortar). Other areas may also require repointing, and further investigations should be conducted.

The interior balcony requires structural repair to restore the integrity, to the hung support beams.



PHOTO: View of the decrepit masonry at Morrison Hall.

FUTURE INVESTIGATIONS

Finnegan Gym/Pool Complex

A study of the Finnegan elevator tower, including destructive demolition, is recommended to determine the origins of the outward bow in the brick at the top of the shaft enclosure.

Additionally, a study for the renovation and repair of the mechanical systems for the Finnegan pool is advised to identify work that could make the space more available in the summer for patient use.



PHOTO: View of the bow at the masonry wall of the head house at Finnegan Recreational Center.

Bradford Building & Cottages (Ross, Ellis & Baylies)

Guard rails at the cottage terraces and the Bradford building balconies are recommended to be repaired and replaced to prevent accidental falls and falling concrete due to spalling. An alternative solution is to remove the south balcony.

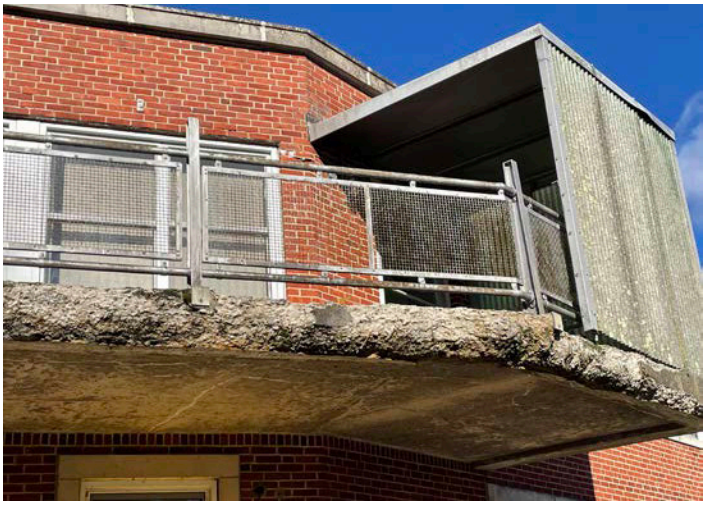


PHOTO: View of the spalling at the concrete balcony of Bradford Building.



PHOTO: View of the concrete spalling at the structure underneath the high school bridge.

Brayton High School

A complete removal and repair of concrete spalls from the underside of the Brayton high school bridge and ramp structures is recommended.

Utilization of Undeveloped Acreage

During meetings with DPH staff, including Valenda Liptak, Bureau Director of Public Health Hospital Systems, and Pamela Couchon, Facilities Project Manager for Public Health Hospitals – discussions included exploring redevelopment opportunities for open land on campus. The PRHC site presents various potential redevelopment opportunities that could leverage vacant developable land and underutilized facilities in a manner compatible with adaptive reuse. Below are a series of potential study areas that could unlock the full potential of the campus.

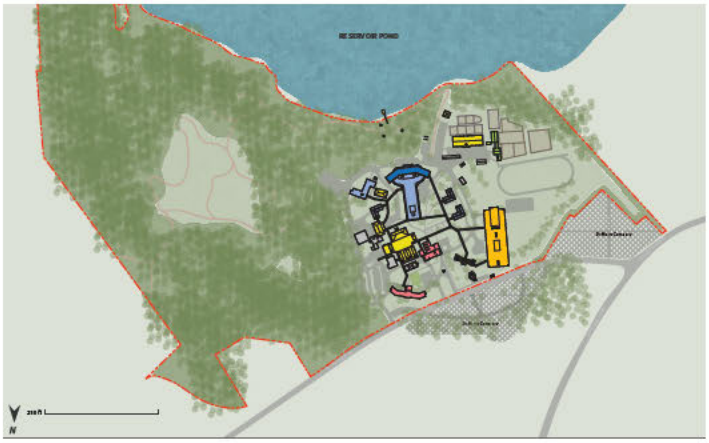
An initial study to survey the undeveloped campus property to determine the extent of wetlands is recommended to establish the extent and suitability of land available for development.

Viable Options for Undeveloped Land

A study that investigates the potential of new housing units on-site/ adjacent designed to benefit patients that have aged-out of the program who may continue to seek outpatient services offered by the hospital.

FUTURE INVESTIGATIONS

A study to investigate utilizing some of the open lands and available space on the Nelson, Bradford, and Brayton High School buildings roofs as a potential solar panel farm – to provide electricity to the hospital is recommended. The study could evaluate if the roofs can accommodate the panels and determine the potential amount of energy that could be generated.



Studies to focus on Vacant or Lightly used Buildings at the Northern perimeter of the campus

The following underused buildings presents opportunities for disposition, renovation, or redevelopment. These structures can have a viable future both within the campus and outside the campus. Their current utilization, location on the campus perimeter as well as the buildings' physiology led to a review of their role in the campus.

The Superintendent's House is a two-story structure with 5,076 sf including its basement. The first floor has been made accessible via ramp. The upper floor is inaccessible for campus patients. Given the building size it would not be particularly cost beneficial to make it accessible. As a campus building the upper floor would remain administrative. Should there be a substantial renovation to address the building's needs, ADA codes would require accessibility for staff alone. The building was designed as a single-family home. If the campus had a need to house any resident staff, this is its best utilization.

The Superintendent's House could be incorporated into a potential redevelopment structured along the north edge of the campus, where separate access to town roads can be gained, independent of the campus access road. The building could be incorporated into other state development projects unrelated to the campus, or disposed with some adjacent properties for public private development.



PHOTO: View of the exterior facade of the Superintendent's House.

The Donovan Building currently houses a number of DPH agencies and departments. The recent pandemic's need for employees working from home has left the building frequently vacant or lightly used, but this may change over time. The current utilization raises questions about the necessity of the structure for the Hospital or other state agencies. The building was originally designed as a dorm building for Hospital staff. It has narrow corridors and one elevator serving its four floors.

The building is deemed viable as an administration building. However, its current configuration renders it unsuitable for clinical or patient residential purposes. The corridors are only five feet wide, too narrow for daily multiple wheelchair users and mobile equipment navigating the hallways. The elevator footprint is large enough for ADA and stretcher use, but the elevator doors will not accommodate stretchers. Nonetheless, the building could serve as swing space during renovation or a permanent home for the Hospital administration.



PHOTO: View of the exterior facade of the Donovan Building.

FUTURE INVESTIGATIONS

Other studies should focus on the Old Laundry building (AKA old Rehab Engineering building) and Old Power Plant building, both of which are located tight in the campus core. The limited amenities currently housed within these buildings can be relocated to other campus buildings. These buildings are more appropriate for non-hospital tenant such as another state agency. However, if that is not a direction suitable for the Hospital and there are no programmatic needs that can be housed in these buildings, we recommend decommissioning them to divert the associated annual upkeep funds to other Hospital needs.



PHOTO: View of the exterior facade of Old Rehab Engineering Building.



PHOTO: View of the exterior facade of the Old Power Plant.

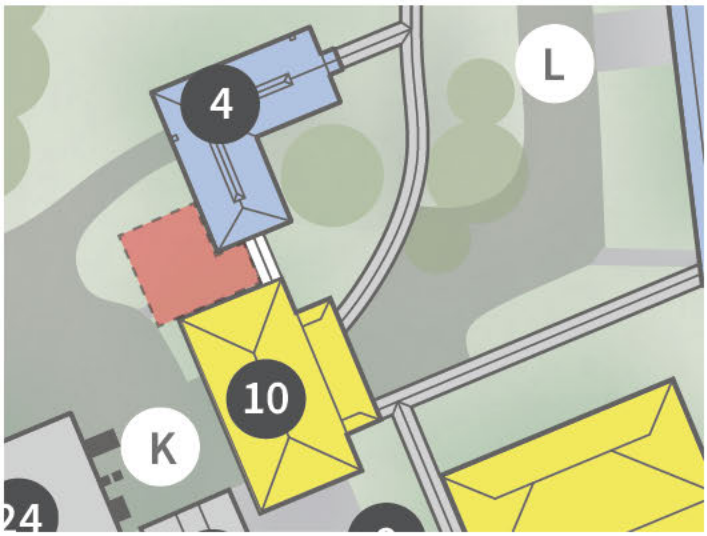
Improvements to Present Campus Mission

Study Cottage Rehabilitation for Ross, Ellis & Baylies

A study to confirm the construction type of Ross, Ellis, and Baylies cottages is recommended. These cottages are constructed with concrete Cast-in-Place Foundation and level one floor structure. Exterior walls appear to be load bearing masonry. However, the pitched roof structure type is not yet confirmed. Further investigation is required to determine if the structure is steel or wood. The Facility BBI sheet lists the building as Type IIA/Type II (111). Under current code, the wooden roof is not permitted within a Type II building unless it is fire-retardant treated (780 CMR 603.1-1.3) or is considered heavy timber (780 CMR Table 601 footnote c). It should be confirmed with a structural engineer whether the wood roof qualifies for one of these two exceptions. See Code Red Consultants' Report in Appendix A for additional comments regarding construction types.

The cottages have numerous space deficiencies for bathing and toilet facilities. To accommodate FGI recommended space requirements, it would be necessary to either decrease the total bed counts or consider constructing building additions.

Currently, patients in Baylies or Ellis must travel a long distance via the walkways to reach a point for vehicular pick-up. The roadways at the rear of the cottages only access the lower levels, which are mostly vacant, with no access to the upper levels (where residents live). A study for a new building infilling the juncture between Baylies and Ellis is recommended as a potential solution to provide access from upper to the lower levels, which would also facilitate access to vehicular pick up and connection to a new exterior covered walkway extension



FUTURE INVESTIGATIONS

leading to the Barn & Stables area. The upper level of a new structure could also offer new spaces for toilet rooms, bedrooms, and bath expansions.

A similar scenario could be developed between the Morrison building and Ross Cottage. This could be combined with a new central kitchen on the lower level of Morrison, with a space for expanded facilities at Ross's upper level via an infill structure. The current kitchen facility dates from the early 1960s, and the equipment is not electric. It should be updated in line with current energy reduction goals and be in a more central location to the resident housing it serves.

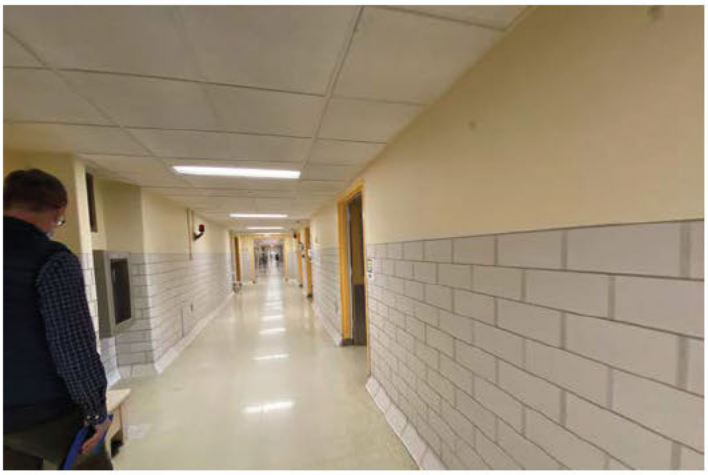


PHOTO: View looking down a typical corridor at the Nelson Building.

A study of Nelson's two living units is recommended to investigate the upgrades and expansion of the bathing and toilet areas within the existing floor plate. The Nelson living units 1 and 2 could also be renovated to provide a more welcoming residential and less "institutional" character.

As recommended in Shadley Associates' landscape study, (Appendix A) – a more detailed study focused on campus aesthetics is recommended. This study should develop a concept that connect main hospital buildings to the Barn & Stables area, improve the water views on campus, and provide a more welcoming (less institutional) environment that is suitable for children. Additionally, an overall plan for repair and painting of the campus woodwork is also recommended.

A study of the campus waterfront is highly recommended. The waterfront is an important part of the campus experience [redacted]. The campus, in general, is designed to be accessible to all patients



PHOTO: View from a section of the walkway looking to one of the cottages.



PHOTO: View looking at the exterior facade of the old barn.



PHOTO: View looking to waterfront pier.

FUTURE INVESTIGATIONS

where possible. However, the direct access to the waterfront is a natural draw for patients therefore can be a significant safety risk. A study that examines the lake access and develops protection against accidental falls is recommended. It has also been noted by the hospital staff that the waterfront is a place where patients may on occasion encounter the surrounding community members utilizing the lake. The study should investigate if there are any precautions required with respect to this interaction.

A more detailed study of improvements to MEP and Fire Protection infrastructure as indicated in the Arup's report in Appendix A, is recommended – with a prime focus on ventilation systems and control ties to the campus BMS system.

Expanded Campus Mission including Patients with More Complex Needs

Accommodating patients with more complex needs, such as respiratory conditions, will require a plan to determine where additional therapy rooms, staff, and equipment can be located to support this new patient group. Living unit patient rooms will need to be modified to provide medical gases in new headwall systems, as well as installation of patient nurse call systems and electrical outlets tied to emergency power. The number and type of additional patients will determine the medical gas requirements, which may be accomplished with portable in-room tank systems, or, depending on the scale, this could require the installation of permanent building-wide medical gas systems.

The suggested studies indicated above are based on the consultant team's on-site investigation, reviews of previous studies reference, and interviews with PRHC staff.



PHOTO: View showing the head wall at a typical bedroom at Baylies Cottage.

APPENDIX

A. FULL CONSULTANT REPORTS

B. PHOTO SET

C. MEETING NOTES

APPENDIX A

FULL CONSULTANT REPORTS

ARUP

Subject	Pappas – Final Report
Job No/Ref	292535-00
Date	July 14, 2023

1. Mechanical

1.1 Gates Unit

1.1.1 Existing Conditions

Heating and cooling to the Gates unit is primarily through Hitachi wall-mounted variable refrigerant flow (VRF) split systems in most spaces, controlled via digital thermostats with an adjustable interface. The VRF was installed in 2019 and is in nearly new condition, serving as primary heating and cooling to the building except in winter when outdoor air temperatures fall below 20°F and steam will become the primary heat source. Operable windows are used for outside ventilation, no mechanical fresh air is supplied. This approach is permitted for the existing residential buildings, however using natural ventilation not provided by the mechanical system decreases overall efficiency of the system since users could open windows while not adjusting the space temperature. Additionally, occupied spaces are likely getting little to no ventilation air in winter months when outdoor air temperatures are too cold to open windows. Main entrance is equipped with a vestibule space to act as a thermal barrier between inside conditioned zones and the outside, but interior door of vestibule is no longer there, making it nonfunctional. Lack of functional thermal separation contributes to energy loss through opening of door and can cause drafts leading to discomfort of occupants. Exhaust fans on roof serve some patient rooms & bathing rooms, we were unable to determine the condition or manufactured date of fans. No exhaust is provided for the ground floor toilets. Incoming steam enters/exits through crawlspace for backup heating to radiators. Steam campus lines entering building appear to be in poor condition but connect into newer lines with two Skidmore steam return pumps that appear to be recently installed (no date indicated).



Figure 1: Example of New Wall-Mounted VRF



Figure 2: Wall-Mounted Thermostat



Figure 3: Representative Steam Radiator



Figure 4: Steam Return Pumps in Crawlspace

1.1.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for mechanical improvements to the Gates Unit:

- Provide exhaust to the ground floor toilet rooms.
- Provide mechanical ventilation to guarantee adequate fresh air is being supplied year-round.
- Install window monitoring system tied into the building management system (BMS) to shut off local HVAC unit when windows are open.
- Replace exhaust fans with heat recovery ventilation (HRV) units to recover heat and supply mechanical fresh air to selected spaces year-round.
- Replace existing steam radiators and any control valves not tied to the BMS, if applicable. Control as secondary heating in spaces with other heating sources.
- Main entrance should be improved to have functioning thermal barrier to improve occupant comfort and energy efficiency. Either install door on interior of vestibule or provide new air curtain at exterior door.

1.2 Finnegan Gym/Pool Complex

1.2.1 Existing Conditions

The Finnegan Gym/Pool complex uses steam as the primary means for heating, provided from the central campus steam lines that enters a steam pressure reducing valve (PRV) in the basement. The

heating coils at all air handling units are fed by steam. Wall-recessed unit heaters in the vestibules are in good condition.

Cooling is not provided in the building except for the cafe and snack bar spaces that are served by two separate Johnson Controls air handling units (AHU) on the roof with direct expansion (DX) cooling coils. Both the café and snack bar kitchens are equipped with all-electric appliances. The gym is served by two York AHUs on the roof that provide heating only and there is no cooling. Locker rooms & restroom spaces are served by a York heating-only multi-zone rooftop unit (RTU). The offices and administration area are served by a multi-zone Johnson Controls AHU that is currently not operational. Each office is using temporary portable air conditioning units, unclear if these provide the code-required fresh air. The pool area is served by a dehumidifying AHU that is supposed to provide heating & cooling but this unit has also not been operational for 6 years. This unit currently only exhausts air from the pool area. Conditioning of the pool area is temporarily being provided by portable air conditioning units, but currently there is a bid to replace the permanent system. The ductwork in the pool area appears in reasonable condition. The Johnson Control AHUs were replaced during the roof renovation in 2008. The York units serving gym & locker rooms are believed to have been replaced in the last 5 years (no exact year available). The pool water is heated to 92°F via steam heat exchanger with solar heating backup, that is in good working order.

All appliances in snack bar/kitchen area are electric.



Figure 5: Existing Steam Lines Entering Through Basement



Figure 6: Temporary AC Serving Pool

1.2.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for mechanical improvements to the Finnegan Gym/Pool Complex:

- Replace the dehumidifying air handling unit and provide air conditioning to the pool area. We understand this work is currently out to bid for replacement.
- Replace the failed air handling unit serving the office and administration with a heat pump air handling unit that provides heating and cooling to the space. [Executive Order 594 opportunity]
- Occupants would prefer if there was cooling in the gym, provide heat pump for cooling to gym. Replace or modify existing air handling unit to provide heating and cooling. [Executive Order 594 opportunity]
- Retrofit all remaining air handling units to have heat pump coils and make steam secondary heating to building. [Executive Order 594 opportunity]
- Replace existing failing steam piping to improve the reliability of the system or migrate the building to heat pump technology and decouple the building from the campus steam system.
- Replace existing steam radiators and any control valves not tied to the BMS. Control as secondary heating in spaces with other heating sources.

1.3 New Power Plant

1.3.1 Existing Conditions

Mechanical systems in power plant are all new steam-producing equipment serving the entire campus, except for the three buildings that have been removed from the steam system. The Brayton school, elementary school, & superintendent's office have been migrated to local heating hot water boilers. New steam equipment includes three 6,695,000 BTU/h Cleaver Brooks gas-fired steam boilers from 2020, two Cleaver Brooks economizers providing boiler makeup water pre-heating, and new control valves on steam lines. Electricity is generated from four new Capstone C65 micro-combined heat and power (CHP) units to generate electricity , each with an individual capacity of 65 kW, are installed and tied into one Cain heat recovery steam generator. The facility has approved plumbing variance for the CHPs but are waiting on testing & commissioning (Cx) in order to start running. Once the CHPs are operating, it is believed that one of the boilers will not be required to meet peak demands for the campus.

An Eco Vault above-ground storage tank is located outside the Power Plant with as estimated capacity of 500 gallons that provides fuel oil for the two diesel generators. The above ground storage tank is in fair condition.

The HVAC systems in the Power Plant are connected to a new building automation system in engineer's office, except for dampers on the fresh air louvers in the generator room. The dampers in the generator room are pneumatically controlled by two old compressed air units in plant room mezzanine. The steam condensate system is served by two Skidmore vacuum pumps in the old power plant building that are operational but past their useful life expectancy. New steam equipment, pipes, ductwork, and accessories are all in close to new condition, however the system does not align with goals detailed in Executive Order 594, aiming to move towards electric heat pumps for the state-wide decarbonization effort. The recently installed campus heating system greatly out performs the prior system in terms of efficiency and functionality, but is still gas-fired.

Steam tunnels serving steam from main power plant to distributed buildings over campus are mostly in disrepair. Much of the infrastructure is still original to the campus - external leakage and deterioration of concrete structure has been noted in many places. Facilities has been working to repair the piping on an annual basis, mainly condensate return lines, about 100 ft/yr, but a lot of work is still needed.

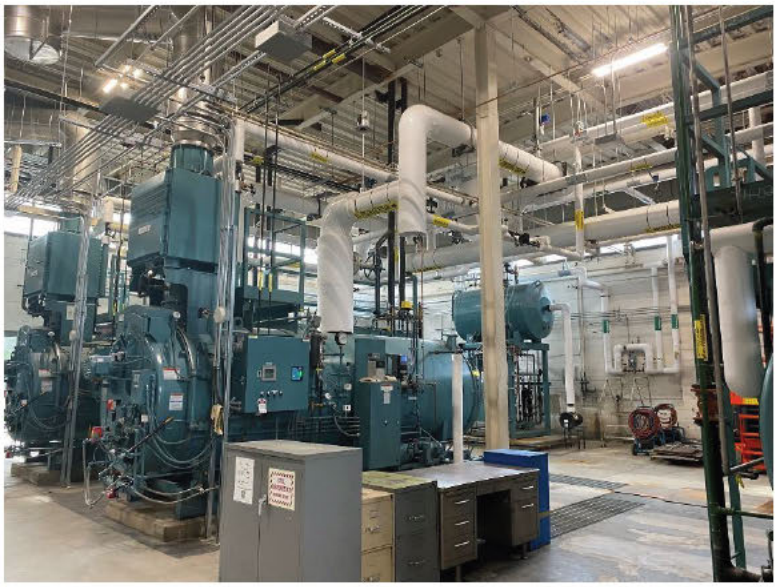


Figure 7: Steam Boilers & Overall Plant Layout



Figure 8: Heat Recovery Steam Generator



Figure 9: Air Compressors for Pneumatic Control



Figure 10: Micro-CHP Units



Figure 11: EcoVault Diesel Storage Tank



Figure 12: Old Vacuum Pumps for Steam Condensate

1.3.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for mechanical improvements to the New Power Plant:

- Replace the existing vacuum pumps for the steam condensate system to minimize requirements for makeup water.
- Replace pneumatically controlled dampers with electric actuators and remove pneumatic control system.
- Perform inspection of steam distribution piping system. Replace any portions of steam lines & tunnel infrastructure in poor condition.

1.4 Ross Cottage Unit

1.4.1 Existing Conditions

The ground floor of the Ross unit is heated via steam radiators. The radiators appear to be original to the building and past their life expectancy, but the year of installation is unclear. The radiators were planned to be replaced as part of a previous project (energy project) however the scope was removed and were instead equipped with new controls valves connected into the building management system. Steam enters and exits through the basement with a PRV station that is in fair condition. The PRV station uses pneumatically controlled steam valves. There is an Electric Mars Air Door, electrically heated door air curtain (DAC) above the main entrance. It is unclear on the date of installation but according to facilities it's 13+ years old, making it past its life expectancy. It was also noted that it is sometimes manually shut off, unclear the reason but might be uncomfortable for certain patients. Lack of functional thermal separation contributes to energy loss through opening of door and can cause drafts leading to discomfort of occupants. The ground floor cooling is by window FCUs which appear old and in poor condition. A new VRF split system box controller & refrigerant lines are installed around ceiling and are assumed to serve primary heating and cooling to patient bedrooms, controlled through new wall-mounted digital thermostats connected into the building automation system. An outdoor heat pump serving the entire building VRF system is ground-mounted next to the building – York Model TVAHR168B32S that was installed in 2018. Operable windows are used for outside ventilation and no mechanical fresh air is supplied. This approach is permitted for the existing residential buildings, however using natural ventilation not provided by the mechanical system decreases overall efficiency of the system since users could open windows while not adjusting the space temperature.

There is a kitchen area with a stovetop, used for cooking within the Ross Cottage with no exhaust provided. One above-ceiling air handling unit serve the restrooms that is pneumatically controlled and past the life expectancy (50+ years old). The facility is having trouble replacing parts due to age and control of units. One of the shower rooms has no exhaust or means of humidity control, leading to humidity build-up issues. Ground floor air quality appears low, air is stale and the lack of ventilation is

noticeable.



Figure 13: Existing Steam Radiator



Figure 14: Existing Window AC Unit



Figure 15: New VRF Branch Controller



Figure 16: VRF Outdoor Heat Pump



Figure 17: Cooking Area Without Exhaust



Figure 18: Shower Room Without Exhaust

1.4.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for mechanical improvements to the Ross cottage:

- Provide mechanical ventilation to guarantee adequate fresh air is being supplied year-round.
- Install VRF system serving primary heating & cooling to rest of spaces in building with digital wall-mounted thermostats tied to the BMS for control.
- Install window monitoring system tied into the building management system (BMS) to shut off local HVAC unit when windows are open.
- Replace restroom AHU and update to digital controls tied to BMS.
- Install new exhaust fans or HRVs for shower space & kitchen area.
- Replace existing steam radiators and any control valves not connected to the BMS . The steam should be controlled as backup to the spaces that are equipped with heat pump type heating systems.
- Main entrance should be improved to have functioning thermal barrier to improve occupant comfort and energy efficiency, by means of functioning vestibule or new air curtain.

1.5 Nelson Building

1.5.1 Existing Conditions

Nelson & Bradford buildings are served mechanically as one building, with thermal zones on shared systems.

The Nelson building is connected into the campus steam system, which enters through the basement and serves as primary heating to the building. There is a chilled water (CHW) system serving Nelson & Bradford. This system is fairly new (installed in 2020 as part of energy upgrade project) and is comprised of one Carrier absorption chiller, two Baldor CHW return pumps, and two Baldor condenser water return pumps all in the basement. Additionally, there is one Baltimore Aircoil Company (BAC) cooling tower ground-mounted on the backside of the building. There are new (2020) variable frequency drive (VFD) controllers for the new CHW pumps, but the rest of the building equipment is still controlled pneumatically. There is also an old air separator (no identifiable date but looks original to building) in the basement.

On the airside, there are four York AHUs in the penthouse, all with steam heating. Two (AC-2 & AC-4) are original to the building (~1962) serving central supply and the old operating room area. Both units are past their life expectancy and AC-4 hasn't been running for years. The condensing units for DX cooling on these two units are no longer in operation either. The two newer units (AHU-1 & CHILDRENS) heave steam heating & CHW cooling and serve the nurse's suite and the children's unit. The newer AHU internal dampers are not working so outdoor air louvers are currently covered to protect the coils from freezing, which means no outdoor air control(OA) is being supplied and does not comply with current code requirements. There are a couple of other AHUs on the low roof that serve the outpatient department which are also not working.

On the Nelson side, the basement MEP room is very hot and the fan coil unit (FCU) installed in the room is not working. The Health Information Services suite is run off an air handling unit cooled by domestic water, but according to the building engineer it is not providing sufficient cooling. There are two York condensing units (CU1 & CU2) on roof, it is unclear what they serve as they are no longer operational. Finally, one additional decommissioned RTU on the Nelson roof that is still in place but the services have been demolished. A lot of remediation of hazardous materials has been done on the Pappas campus, no longer any asbestos in existing insulation as far as facilities is aware.

Nelson & Bradford are both having conditioning & ventilation issues throughout, mostly on the ground floor. Many spaces are being served my temporary portable AC units.



Figure 19: New CHW Pumps



Figure 20: Condenser Water Pumps



Figure 21: Chiller and CHW System



Figure 22: BAC Cooling Tower



Figure 23: Old Condensing Units Serving Penthouse AHUs



Figure 24: Boarded-Up OA Louvers

1.5.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for mechanical improvements to the Nelson-Bradford building:

- Both Nelson & Bradford airside systems should be replaced in full, except for the two newer air handling units in the penthouse. Those units (serving nurse's suite and children's unit) should have their dampers replaced and controls upgraded to a digital system. All new units installed should have digital controls tied to the campus BMS. Upgrade the thermostats in spaces to digital control tied to BMS. Ensure all units have heating & cooling, if new CHW system does not have sufficient capacity to serve the full building, DX coils can makeup the remainder of cooling load. [Executive Order 594 opportunity].
- Replace two York condensing units on Nelson roof or identify if spaces can be served by updated airside systems.
- Remove decommissioned RTU on Nelson roof.

1.6 Bradford Building

1.6.1 Existing Conditions

The Bradford building is connected into the campus steam system, which enters through the basement and serves as primary heating to the building. There is a chilled water (CHW) system serving Nelson & Bradford. This system is fairly new (installed in 2020 as part of energy upgrade project) and is comprised of one Carrier absorption chiller, two Baldor CHW return pumps, and two Baldor condenser water return pumps all in the basement. Additionally, there is one Baltimore Aircoil Company (BAC) cooling tower ground-mounted on the backside of the building. There are new (2020) variable frequency drive (VFD) controllers for the new CHW pumps, but the rest of the building equipment is still controlled pneumatically. There is also an old air separator (no identifiable date but looks original to building) in the basement.

On the Bradford side, there are two Taco heating hot water (HHW) pumps in the basement from ~2000, that are past their life expectancy and an old AHU (AH3) original to the building, that is past its life expectancy. There is an additional York RTU on the Bradford side that is no longer in operation and an old unit (AH1) on the roof that used to serve the second half of central supply, that is no longer in operation.

Nelson & Bradford are both having conditioning & ventilation issues throughout, mostly on the ground floor. Many spaces are being served my temporary portable AC units.



Figure 25: Taco HHW Pumps



Figure 26: Existing AH3 Air Handling Unit

1.6.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for mechanical improvements to the Bradford building:

- Bradford airside systems should also be replaced in full. All new units installed should have digital controls tied to the campus BMS. Upgrade the thermostats in spaces to digital control tied to BMS. Ensure all units have heating & cooling, if new CHW system does not have sufficient capacity to serve the full building, DX coils can makeup the remainder of cooling load. [Executive Order 594 opportunity].
- Replace two Taco HHW pumps in Bradford basement that are past their life expectancy.
- Replace cooling unit in basement MEP room.
- Replace the old air separator in basement MEP room.

1.7 Administration Building

1.7.1 Existing Conditions

The building heating is served from the 20 psi campus steam lines entering through basement into PRV, that serve steam radiators with local manual control in the vestibules and offices. The old 150 psi steam system has been abandoned in place in the basement. New direct digital control (DDC) control valves have been installed on steam lines connected to the building automation system monitoring from the power plant, as part of the energy project ~2019. New Skidmore condensate return pumps (~3 years old), that pump condensate back to power plant, that is direct digital controlled. The remaining building is controlled pneumatically from the old Quincy Climate Control air compressor in basement that is about 15 years old. New Siemens/Niagara building automation system room in the basement provides an additional location to monitor the building automation system, was cooled by a failed Friedrich split system but is now temporarily cooled with fans. Additionally, there is a Sanyo (Model # C3682) cooling-only condensing unit in the basement that is about 25 years old providing cooling to the server room. The cooling system for the server room is past its life expectancy and not working well, especially on hot days it is not providing enough cooling. Since it was installed the server room cooling load increased from 1 rack to 3 so it is likely also undersized.

The central Dunham-Bush VMZ-64 AHU (steam heating coil & DX cooling, located in basement) that fed the Clark conference room and human resources was installed pre-1970 and failed in about 2013. Most spaces in building are not receiving the code-required ventilation and use temporary fan coil units in windows for conditioning, some spaces use windows for natural ventilation. Some restrooms observed do not have exhaust. The upper level of the admin building is being heated while unoccupied and is a waste of energy.

Kitchen is served by a York Borg-Warner makeup air unit (MAU) in the space adjacent to the kitchen, which is about 50 years old. The unit is past its life expectancy and having issues with the outdoor air dampers. It's heating only, fed by steam, and is pneumatically controlled. Main kitchen still has some gas appliances. The kitchen exhaust hood is original to the kitchen (~ 50 years old). It is past its life expectancy, but is working well and controlled by a manual switch on wall that controls both the kitchen hood & exhaust fan on roof, and the air handling unit for make-up air. The kitchen and restroom exhaust fans on roof are also past their life expectancy and need to be replaced. The kitchen is hot since there is no mean of cooling, occupants open windows for relief.



Figure 27: Existing Steam Radiator Example



Figure 28: New Steam Lines & Old Abandoned in Place



Figure 29: Failed Central AHU in Basement



Figure 30: Kitchen MAU



Figure 31: Old Rooftop Exhaust Fan

1.7.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for mechanical improvements to the Admin building:

- Replace central AHU and upgrade system to provide sufficient heating, cooling, & code-required ventilation to all spaces not served by other means. Install window monitoring system tied into AHU for all spaces with operable windows so wasted energy is minimized as windows are opened.
- Separate unoccupied portion of building onto its own thermal zone and provide just enough heat for freeze protection by lowering heating setpoint to 40F.
- Replace kitchen MAU, ductwork, dampers, grilles, and upgrade to DDC controls. Replace kitchen exhaust fan on roof and potentially kitchen hood as well (although this is not a priority since it is still working well and appears in good condition). Provide means of cooling for kitchen, potentially via DX split system. [Executive Order 594 opportunity].
- Update kitchen appliances to all-electric.

- Provide exhaust to all restrooms and replace rooftop exhaust fans with new or install HRV units to recover energy and bring in supplemental OA.
- Replace VRF split system for Server room & upsize capacity to meet cooling loads. Relocate to roof for better operating temperatures.
- Upgrade existing systems & install all new systems with DDC control tied to BMS.
- Replace cooling only split system serving building automation station in basement.
- Replace existing steam radiators and any control valves not connected to the BMS . The steam should be controlled as backup to the spaces that are equipped with heat pump type heating systems.
- Remove 150 psi steam lines abandoned in place in basement.

1.8 Baylies Cottage Unit

1.8.1 Existing Conditions

Steam enters and exits through tunnels into basement, with a steam shut-off valve located in the tunnel that is not very accessible. Steam radiators serve most spaces in the cottage with local manual controls, original to building. New Hitachi wall-mounted VRF units were installed in most spaces to provide heating & cooling approximately 3 to 4 years ago. They're digitally controlled with wall-mounted thermostats and in very good condition. There is an Electric Mars Air Door (Model 42CH-0), electrically heated door air curtain (DAC) above the main entrance. It is unclear on the date of installation but according to facilities it's 13+ years old, making it past its life expectancy. It was also noted that it is sometimes manually shut off. Lack of functional thermal separation contributes to energy loss through opening of door and can cause drafts leading to discomfort of occupants. One above-ceiling air handling unit (unobservable) exhausts from the restrooms and supplies conditioned fresh air, controlled by a pneumatic wall-mounted thermostat. This air handling unit was rebuilt recently with new valves and dampers but is past its life expectancy. Two outdoor York VRF units (Model TVAHR120B32S) serve the recently installed VRF system (2019) and are in good condition. The branch circuit controller (BCC) is located in the basement as has some available space capacity. The exhaust fan on roof from pre-2012 is still operating to remove excess heat.



Figure 32: Electric DAC Above Entrance



Figure 33: Example of Existing Radiators & New Wall-Mount VRF

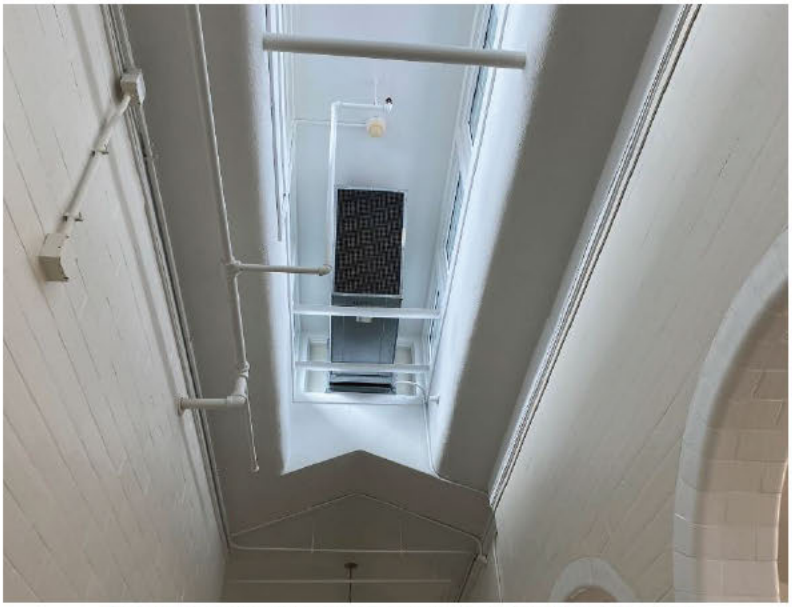


Figure 34: Indoor Ductwork to Rooftop Heat Removal Fan



Figure 35: Outdoor VRF Units

1.8.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for mechanical improvements to the Baylies cottage:

- Provide mechanical ventilation to guarantee adequate fresh air is being supplied year-round.
- Install VRF system serving primary heating & cooling to rest of spaces in building with digital wall-mounted thermostats tied to the building automation system for control.
- Replace restroom AHU and update to digital controls tied to building automation system.
- Install window monitoring system tied into the building automation system to shut off local HVAC unit when windows are open.
- Replace existing steam radiators and any control valves not connected to the BMS . The steam should be controlled as backup to the spaces that are equipped with heat pump type heating systems.
- Rooftop exhaust fan should be investigated to see if still necessary with new VRF units installed.
- Main entrance should be improved to have functioning thermal barrier to improve occupant comfort and energy efficiency, by means of functioning vestibule or new air curtain.

1.9 Ellis Cottage Unit

1.9.1 Existing Conditions

Mechanically, Baylies, Ellis, and Ross are all very similar. Campus steam lines entering through basement that serve radiators with local manual control and are past life expectancy. Some steam lines insulation is noticeably in poor condition. There is an old steam hot water heat exchanger in basement that has been abandoned in place (now served with electric hot water heater, refer to plumbing section). Main entrance has an electric door air curtain, 13+ years old, past its life expectancy, and sometimes manually shut off. Lack of functional thermal separation contributes to energy loss through opening of door and can cause drafts leading to discomfort of occupants. New wall-mounted Hitachi indoor & York outdoor (Model TVAHR192B32S) VRF systems installed in 2021, sump pumps in basement collect condensate from VRF. The air handling unit is past its life expectancy exhausting from and conditioning restrooms, and an additional (unobservable) exhaust fan on roof exhausting from restrooms according to building engineer is past its life expectancy.



Figure 36: Example Condition of Steam Radiators

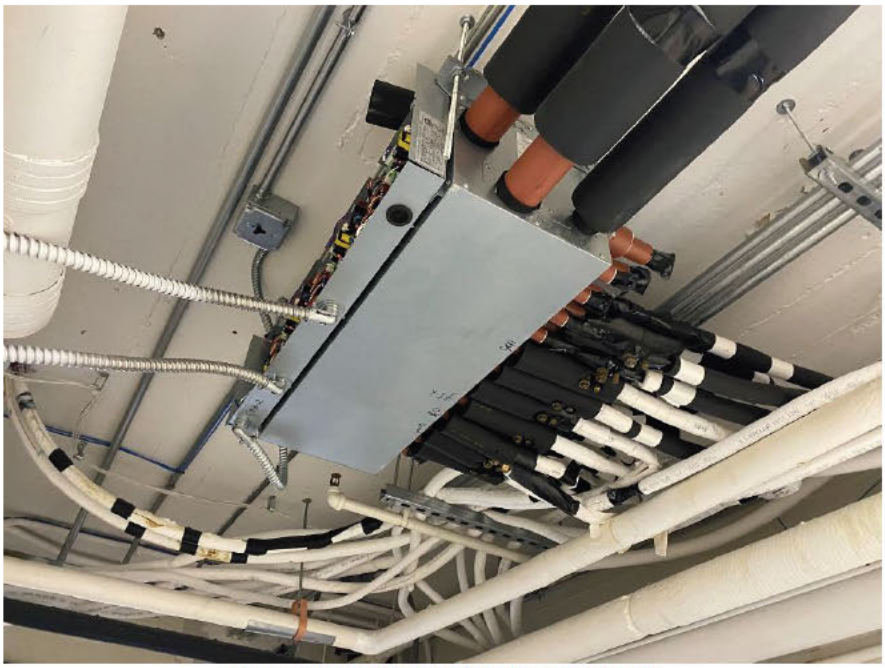


Figure 37: VRF BCC With Spare Capacity

1.9.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for mechanical improvements to the Ellis cottage:

- Provide mechanical ventilation to guarantee adequate fresh air is being supplied year-round.
- Replace restroom AHU and update to digital controls tied to BMS & additional restroom exhaust fan.
- Install VRF system serving primary heating & cooling to rest of spaces in building with digital wall-mounted thermostats tied to the BMS for control.
- Install window monitoring system tied into the building management system (BMS) to shut off local HVAC unit when windows are open.
- Replace existing steam radiators and any control valves not connected to the BMS . The steam should be controlled as backup to the spaces that are equipped with heat pump type heating systems.
- Remove old steam to HW heat exchanger.
- Main entrance should be improved to have functioning thermal barrier to improve occupant comfort and energy efficiency, by means of functioning vestibule or new air curtain.

1.10 Old Laundry/Old Rehab Eng./Storage

1.10.1 Existing Conditions

The Old Laundry building is also served by the campus steam lines. There is one old York heating only AHU with steam coils in a tight mechanical closet within the main storage space next to entrance. It is still operational but well past its life expectancy, with pneumatic control and pneumatic thermostats. There is a ventilation fan (unobservable) on roof that is no longer operational so there is no ventilation for the restroom or shed spaces. There are a couple of steam radiators in spaces not heated by the air handling unit that is locally manually controlled. One Dayton air compressor serving pneumatic controls but is also used for shop functions like cleaning wheelchairs so the air compressor should remain operational after a controls upgrade is completed. A couple of old window exhaust fans are past their life expectancy.



Figure 38: Existing York AHU



Figure 39: Dayton Air Compressor



Figure 40: Example of Steam Radiators & General Exhaust Fan

1.10.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for mechanical improvements to the Old Laundry building:

- Install new AHU serving ventilation and conditioning to entire building, with heat pump heating and cooling coils and steam backup. [Executive Order 594 opportunity].
- Install new exhaust systems specified for shop functions (snorkel, exhaust hood, etc) as necessary to replace general exhaust. Provide clear manual switches for when units are to be in operation and tie into AHU operation.
- Replace steam radiators and update control to DDC, as secondary heating system.
- Tie all mechanical equipment into new BMS monitored from New Power Plant.

1.11 Superintendent House

1.11.1 Existing Conditions

The Superintendent's House has been decoupled from the campus steam system. There is one new HTP natural gas boiler in the basement, that was installed about 3 years ago as part of the energy project. This boiler along with a new Grundfos pump serve heating hot water for entire building with new heating hot water piping and an upgraded direct digital controls connected to the building automation system. A new Modine unit heater is in basement. New heating hot water baseboard radiators are

throughout the building as well with a local manual dial control. There is no cooling or mechanical ventilation provided to the building at all, including in kitchen where there is cooking equipment, and restrooms. Windows are operable for ventilation when outdoor conditions allow. Building is currently heated to meet human comfort levels while unoccupied, resulting in wasted energy.



Figure 41: New HTP Gas-Fired heating hot water Boiler

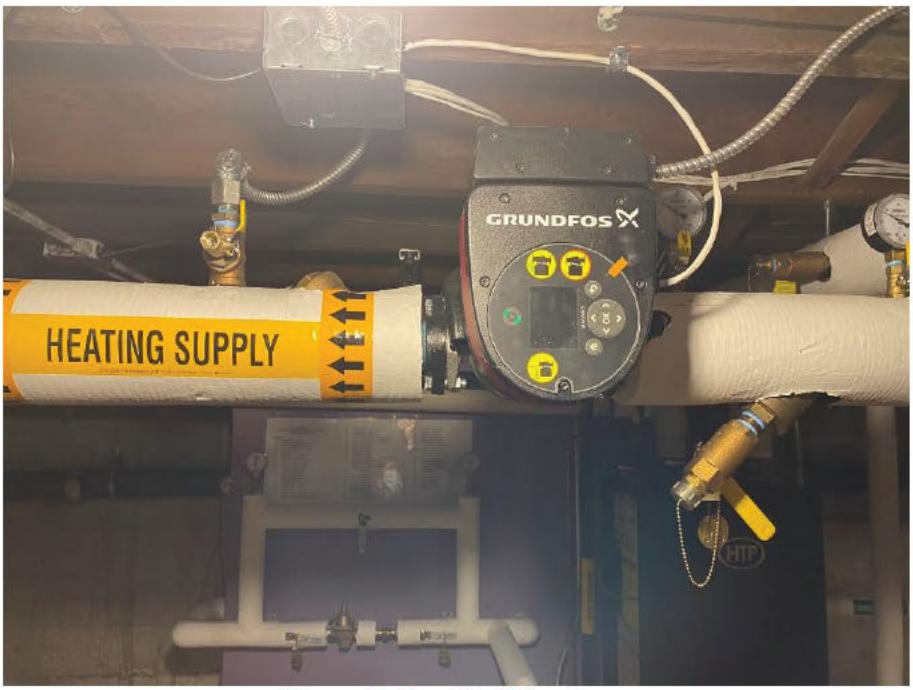


Figure 42: Grundfos Inline Pump



Figure 43: Example of New HHW Baseboard Heaters

1.11.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for mechanical improvements to the Superintendent's house:

- Install HRV unit for exhaust from restrooms and kitchen, system will allow for ventilation air to also be provided to limited spaces based on size of unit.
  Reduce heating setpoint to 40F while unoccupied to provide just enough heat for freeze protection.

2. Plumbing

2.1 Gates Unit

2.1.1 Existing Conditions

Incoming water and sanitary enters/exits in the crawl space. Domestic hot water was previously by Wiessman HoriCell HG steam heaters in the crawl space and has been replaced by Rheem Ruud electric heater ES-85-18-G. A domestic hot water heater with 85 gallons storage was installed in 2018. This is in keeping with goals identified in Executive Order 594. The bathrooms typically have manual faucets and a combination of tank and flush valve water closets (toilets). No low flow fixtures are provided. The accessibility of the plumbing fixtures could be improved.



Figure 44: Incoming water and outgoing sanitary in crawlspace



Figure 45: New Electric Rheem Ruud 85 gallon water heater replacing steam Horicell units

2.1.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for plumbing improvements to the Gates Unit:

- Replace fixtures and faucets with low flow type.
- Accessibility of the plumbing fixtures could be improved.

2.2 Finnegan Gym/Pool Complex

2.2.1 Existing Conditions

Domestic hot water is generated from newly installed (Feb 2020) Armstrong Digi-Flo Heat exchangers and Brain mixing valves. Typical bathroom facilities have different fixtures and faucets, which do not appear to be low flow type. The floor drain in men's room is buckling. There are roof leaks at Gym wall. Roof drains need clearing and pooling was observed at the drains. The pool perimeter drains flow to one ejector in crawl space. The cooking equipment does not use natural gas.



Figure 46: Buckling floor drain in men's restroom



Figure 47: Armstrong Digital Flo heat exchanger



Figure 48: Three different faucets

2.2.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for plumbing improvements to the Finnegan Gym/Pool Complex:

- Clear roof drains from blockages to prevent pooling.
- Repair the floor drain in the men's room.
- Repair roof leaks.
- Replace fixtures and faucets with low flow type.

2.3 New Power Plant

2.3.1 Existing Conditions

The plumbing for this building is limited to a few bathroom fixtures, an emergency shower and boiler make up water. Make-up used to be from a well and that has been disconnected and is now from city water to economizers and then into the boilers. Floor drainage goes to an ejector in the corner of the building and is pumped into the site sewage system. Domestic water to the campus is metered with backflow devices in buried pits centrally and not provided building by building.



Figure 49: Emergency shower and service sink



Figure 50: Duplex Weil Ejector Pumps serve boiler room drainage

2.3.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for plumbing improvements to the New Power Plant:

- Low Flow fixtures could be provided but the percentage of water use in this building by fixtures is nominal.

2.4 Ross Cottage Unit

2.4.1 Existing Conditions

All roof drainage is to external gutters and leaders. All sanitary drainage is cast iron and runs by gravity from the main floor level. There is a small ejector pit and pump in the lower level. Incoming water is a

2" copper main which feeds the fixtures and supplies the Ruud Electric storage water heater. This has a 1" supply and a ½" recirculation line back to the heater.

2.4.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for plumbing improvements to the Ross cottage:

- Replace fixtures and faucets with low flow type.

2.5 Nelson Building

Nelson & Bradford buildings are served as one building with regards to domestic hot and cold water service.

2.5.1 Existing Conditions

There is an incoming water main to both Bradford and Nelson building and the mains are interconnected inside the buildings. They both feed to a common steam fed domestic water heat exchanger and serves both buildings. The heat exchanger is an Armstrong Digi-flo with a digital mixing valve which was installed February 2020.



Figure 51: **New Armstrong heat exchanger**

There are old recirculation pumps in the Bradford building where the old heat exchanger used to be which now shuttles water to the new location in Nelson. The sanitary drainage is typically gravity cast iron from the restrooms and plumbing fixtures. The storm drainage from the roof drops through the building and drains to the site drainage system by gravity.

2.5.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for plumbing improvements to the Nelson-Bradford building:

- Replace fixtures and faucets with low flow type.

2.6 Bradford Building

2.6.1 Existing Conditions

Refer to the description of the domestic water system in the Nelson section above. The sanitary drainage is typically gravity cast iron from the restrooms and plumbing fixtures. The storm drainage from the roof drops through the building and drains to the site drainage system by gravity.

2.6.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for plumbing improvements to the Nelson-Bradford building:

- Replace fixtures and faucets with low flow type.

2.7 Administration Building

2.7.1 Existing Conditions

The 2" incoming water main enters from the East in the basement. It feeds into a small simplex Amtrol booster pump where the outgoing pressure was not available to read. There are at least 2 sanitary outfalls that offset drainage across the basement, one to the south and one to the east.



Figure 52: Incoming water main and booster set

Domestic hot water is generated from a Bell and Gossett steam heat exchanger in the basement and then the output from the heat goes to one of two thermostatic mixing valves – one feeds the first floor and one feeds the second floor, but both are set to the same temperature of around 120 degrees. Each hot water system has its own recirculation pump in the basement adjacent the mixing valve.



Figure 53: Steam heat exchanger in basement

The storm drainage system is partly external gutters with some internal leaders which drain to the basement and offset separately to outfalls independently of the sanitary system. There is no visible sewer ejector despite there being floor drains in the basement slab. There is a semi-buried blue basin which looks to have a pump inside, but it is unclear quite what this serves.

Natural gas serves the kitchen appliances only.

The first floor has a large commercial kitchen. There is a floor-standing grease trap for the 3 pot sinks but no other interception either inside or out.

The plumbing system has a lot of rotting pipes throughout the building. The 3rd floor plumbing is decommissioned due to leaking and rotted drainage pipes in the 2nd floor ceiling, some of the janitors sinks on level 2 cannot be used due to leaking pipes. There have been lots of leaks from the drainage piping under the kitchen area. It has generally been the hub and spigot lead caulked joints that have been leaking as these are old.

2.7.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for plumbing improvements to the administration building:

- All plumbing piping should be reviewed and all drainage piping in the building is surveyed and establish what is necessary to make this system fully operational again so that all floors of the building can be used.
- Consider changing gas appliances to electric type to eliminate natural gas dependence.
- Low Flow fixtures could be provided but some of the problems are more fundamental on the upper floors.

2.8 Baylies Cottage Unit

2.8.1 Existing Conditions

All roof drainage is to external gutters and leaders, although most of the gutters have been removed from the eaves by snow damage. All sanitary drainage is cast iron and runs by gravity from the main floor level. There is a small ejector pit and pump in the lower level. Incoming water is a 2" copper main which feeds the fixtures and supplies the Ruud Electric storage water heater. This has a 1" supply and a ½" recirculation line back to the heater.

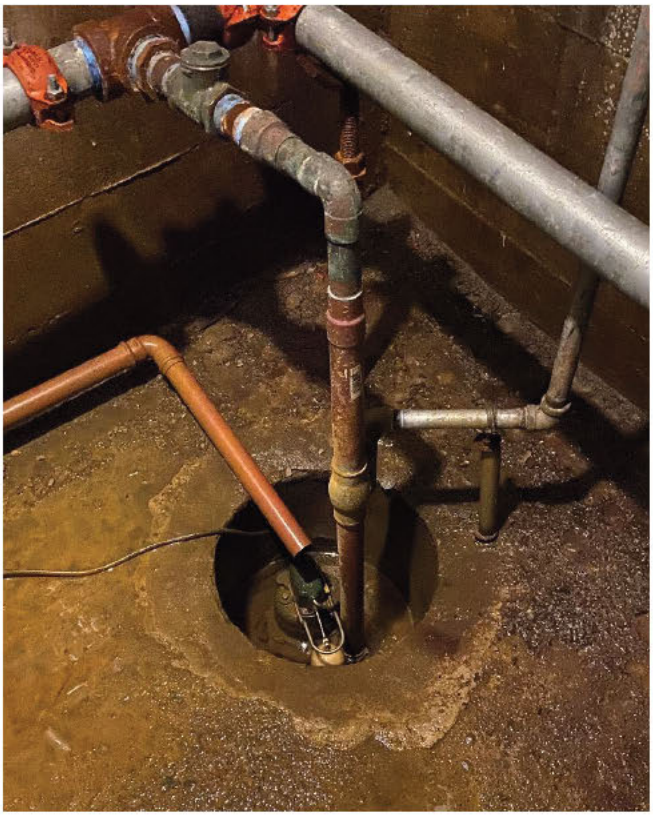


Figure 54: Basement Sump pit and pump

2.8.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for plumbing improvements to the Baylies cottage:

- Replace fixtures and faucets with low flow type.

2.9 Ellis Cottage Unit

2.9.1 Existing Conditions

All roof drainage is to external gutters and leaders. All sanitary drainage is cast iron and runs by gravity from the main floor level. There is a small ejector pit and pump in the lower level. Incoming water is a 2" copper main which feeds the fixtures and supplies the Ruud Electric storage water heater. This has a 1" supply and a ½" recirculation line back to the heater.



Figure 55: Electric storage heater in the basement of Ellis Cottage

2.9.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for plumbing improvements to the Ellis cottage:

- Replace fixtures and faucets with low flow type.

2.10 Old Laundry/Old Rehab Eng./Storage

2.10.1 Existing Conditions

The 1-1/2" incoming water main enters in the Welding room and runs to the rear of the building in the ceiling void. At the rear of the building there is a small, suspended water heater serving a service sink. There is another separate water heater that exclusively serves a "Hub-Scrub" machine. Drainage is below slab on grade and it is assumed to run by gravity. Roof drainage is collected in external gutters and leaders. There were no reported plumbing problems in this building.



Figure 56: Suspended water heater in Storage building

2.10.2 Recommendations

The plumbing component of this building is so small we have no suggestions for changing or modifying the plumbing systems.

2.11 Superintendent House

2.11.1 Existing Conditions

The plumbing systems in the basement of the house are in good condition generally. There is an incoming ¾" water main, an electric water heater, and a sump pit and pump in the corner of the basement. However, when looking upstairs in the house, there are leaks from drainage piping above the front door entry-way and at the rear also where bathrooms have been abandoned because of leaking piping.

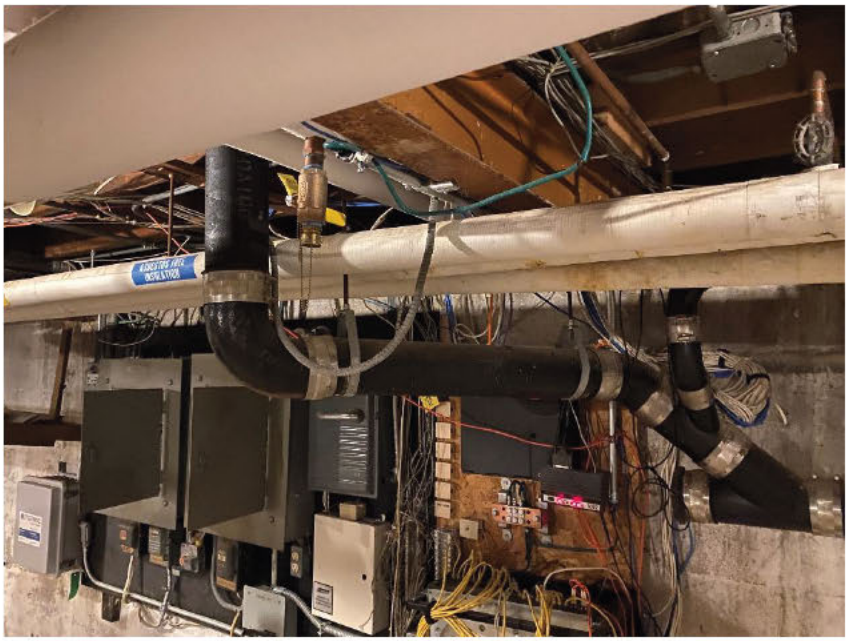


Figure 57: Suspended sanitary cast iron drainage in the basement

2.11.2 Recommendations

The buildings bathrooms and kitchen need surveying and a lot of the piping will likely need to be replaced to bring this building back to being fully operational.

3. Fire Protection

3.1 Gates Unit

3.1.1 Existing Conditions

The Gates unit building is fully sprinklered with incoming water in the crawl space along with 2 zones (flow switches). It is unclear what the 2 zones represent. Both say laundry on the zone description. A storz fire department connection is located at the rear of the building.



Figure 58: Incoming fire main in crawl space

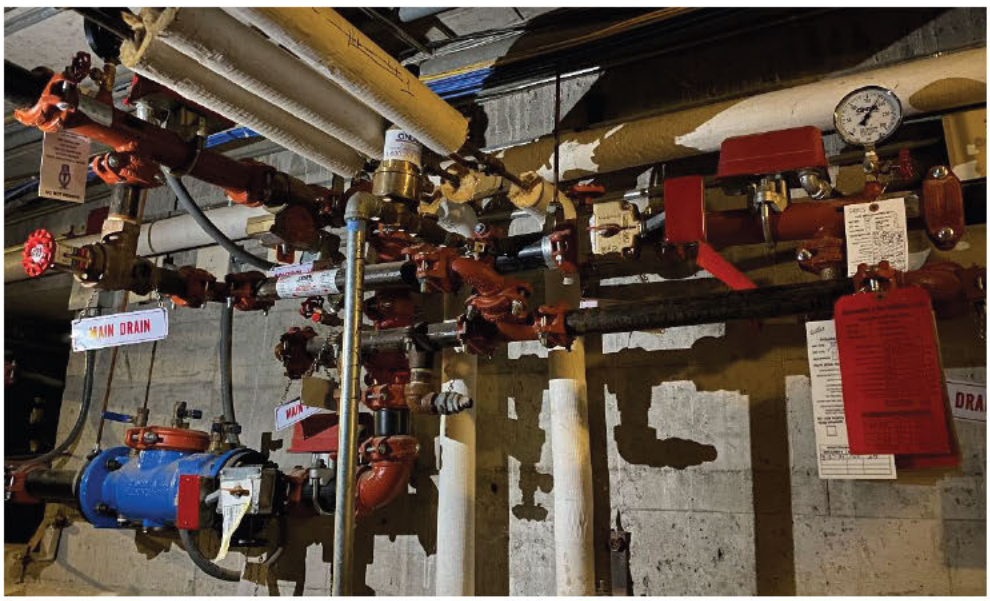


Figure 59: 2 zones/ flow switches in the crawl space

3.1.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for fire protection improvements to the Gates Unit:

- Maintain the campus fire pumping system in accordance with 527 CMR 1.00 and NFPA 25.
- Provide proper signage on fire sprinkler system.

3.2 Finnegan Gym/Pool Complex

3.2.1 Existing Conditions

The building has no fire protection / sprinkler coverage at all. The kitchen hoods are protected by a dry chemical suppression system.

3.2.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for fire protection improvements to the Finnegan Gym/Pool Complex:

- Install fire sprinkler system for property protection and to limit business interruption.

3.3 New Power Plant

3.3.1 Existing Conditions

The Power Plant has no Fire Protection / sprinkler system. The old campus diesel pump was previously in this building has been removed and is now in a separate fire pump building / container that serves the entire campus.



Figure 60: Location of previous diesel fire pump in power plant

This building contains a 1,000 GPM at 100 psi Paterson fire pump that serves all buildings on campus that contain sprinkler / standpipe systems. Central backflow for the campus is installed in a pit on the incoming 10" main and is not in the fire pump building.

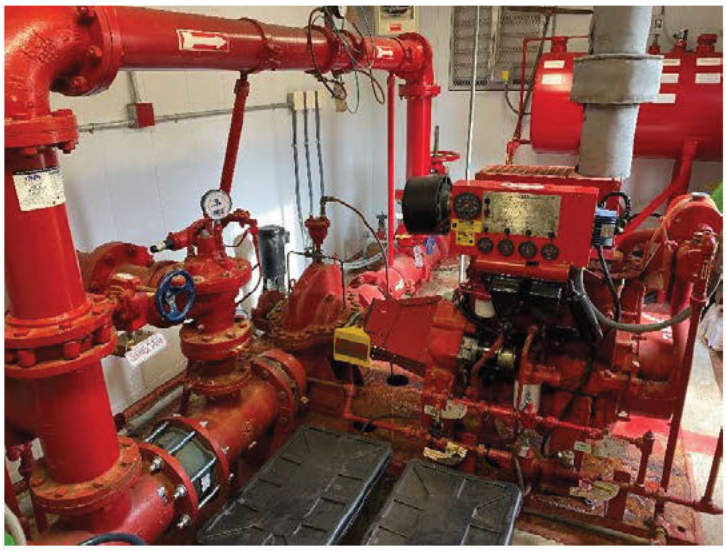


Figure 61: New Diesel fire pump in container

3.3.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for fire protection improvements to the New Power Plant:

- Maintain the campus fire pumping system in accordance with 527 CMR 1.00 and NFPA 25.
- Install fire sprinkler system for property protection and to limit business interruption.

3.4 Ross Cottage Unit

3.4.1 Existing Conditions

There is a single incoming 6" fire main that enters the basement with a wet alarm valve and a flow switch. The building is fully sprinkler protected with sprinklers installed in the last 10 years. The building is all on a single flow switch and there is a single fire department connection that serves the building.

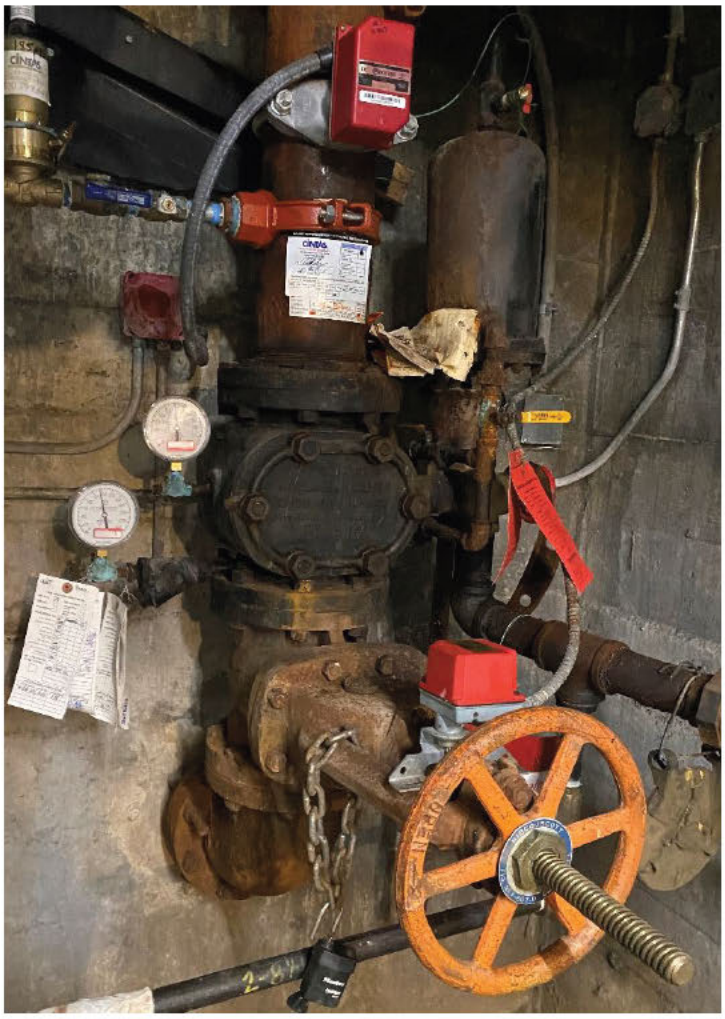


Figure 62: 6" wet alarm valve on incoming main

3.4.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for fire protection improvements to the Ross Cottage:

- Maintain the campus fire pumping system in accordance with 527 CMR 1.00 and NFPA 25.

3.5 Nelson Building

Bradford and Nelson buildings share the same fire protection system as described below:

3.5.1 Existing Conditions

A 6″ incoming fire main enters the basement with a double check valve and wet alarm valve on the incoming main. Both Nelson and Bradford buildings are both fully sprinkler protected. The buildings are also protected by a standpipe system with hose valves in the stairways. A floor control assembly feeds the sprinkler system for each floor from the standpipe in the stairway in Bradford building. A Fire Department Connection is located at the back of Bradford by the loading dock. There are no roof manifolds present on either building.



Figure 63: 6″ Standpipe with upper level floor control assembly

3.5.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for fire protection improvements to the Nelson Building:

- Maintain the campus fire pumping system in accordance with 527 CMR 1.00 and NFPA 25.

3.6 Bradford Building

3.6.1 Existing Conditions

Refer to the description of existing conditions above in the Nelson building description as Bradford and Nelson buildings share the same fire protection systems.

3.6.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for fire protection improvements to the Bradford Building:

- Maintain the campus fire pumping system in accordance with 527 CMR 1.00 and NFPA 25.

3.7 Administration Building

3.7.1 Existing Conditions

The existing building is fully sprinkler protected with a flow switch for each floor within the main egress stair. There are no standpipes in the stairs, however a standpipe was likely not required at the time of construction. The incoming main has a double check valve assembly installed in the basement along with a main wet alarm check valve. There is the occasional hose valve connection in corridors but those are fed from the domestic water system. A single Fire Department Connection feeds in at the front of the building. There is no roof manifold. The building overhangs are protected by dry sidewall sprinklers fed from the internal wet system. The sprinklers were installed within the past 15 years and test drains are installed at the remote end of each system.

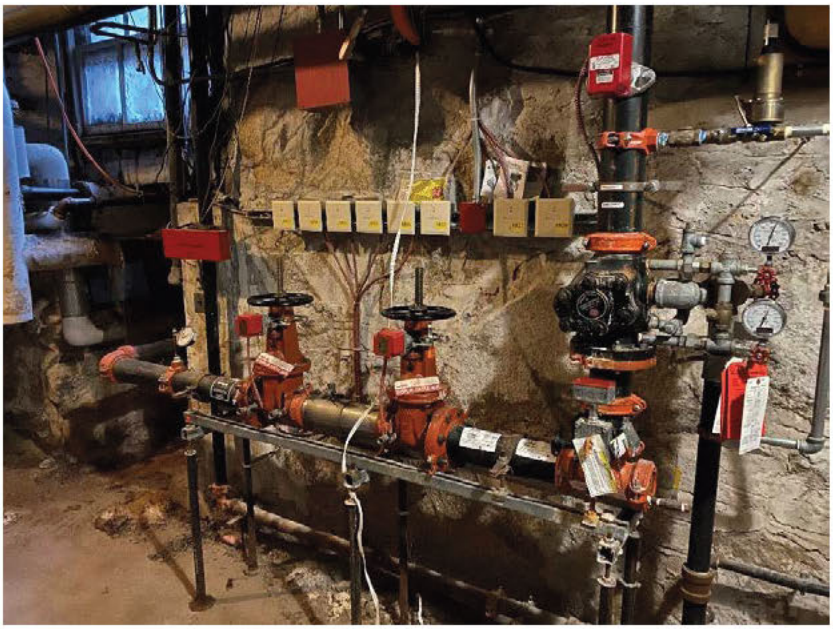


Figure 64: Incoming fire main and BFP

3.7.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for fire protection improvements to the Administration Unit:

- Maintain the campus fire pumping system in accordance with 527 CMR 1.00 and NFPA 25.
- Suggest removing hose valves fed from the domestic water system.
- Renovations may require a standpipes in the stairs to be installed.

3.8 Baylies Cottage Unit

3.8.1 Existing Conditions

There is a single incoming 6" fire main that enters the basement with a wet alarm valve and a flow switch. The building is fully sprinkler protected with sprinklers replaced in 2022. The building is all on a single flow switch and there is a single fire department connection that serves the building. There is a small antifreeze system that serves under the porch.

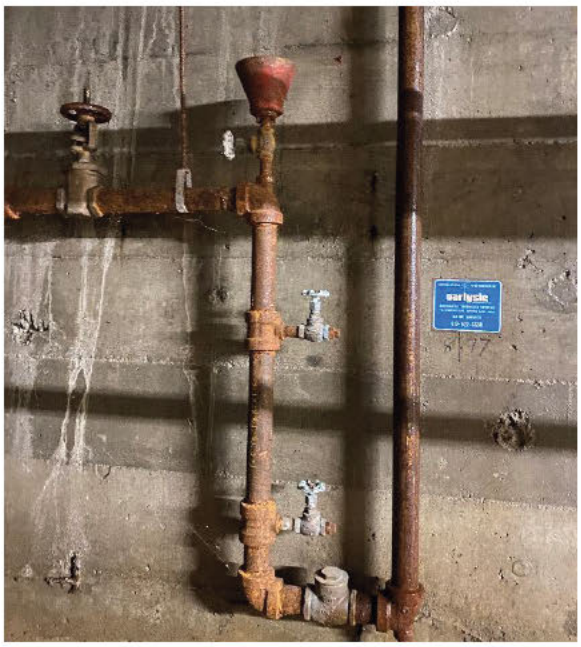


Figure 65: Glycol fill point

3.8.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for fire protection improvements to the Baylies Cottage:

- Maintain the campus fire pumping system in accordance with 527 CMR 1.00 and NFPA 25.
- NFPA 25-2020 §5.3.4.4 requires listed antifreeze solutions to be installed. If the antifreeze is found to be a type that is no longer permitted, it shall be replaced with an acceptable solution.

3.9 Ellis Cottage Unit

3.9.1 Existing Conditions

There is a single incoming 6" fire main that enters the basement with a wet alarm valve and a flow switch. The building is fully sprinkler protected with sprinklers installed in the last 10 years. The building is all on a single flow switch and there is a single fire department connection that serves the building. There is no automatic ball-drip on the FDC connection.



Figure 66: Freestanding Fire Department Connection

3.9.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for fire protection improvements to the Ellis Cottage:

- Maintain the campus fire pumping system in accordance with 527 CMR 1.00 and NFPA 25.
- Install ball-drip on the fire department connect to prevent freezing.

3.10 Old Laundry/Old Rehab Eng./Storage

3.10.1 Existing Conditions

There are no fire protection systems installed in this building whatsoever.

3.10.2 Recommendations

Based on our review of the existing conditions, we offer the following recommendations for fire protection improvements to the storage building:

- Install fire sprinkler system for property protection and to limit business interruption.

3.11 Superintendent House

3.11.1 Existing Conditions

There are no fire protection systems installed in this building whatsoever.

3.11.2 Recommendations

Establish whether there is a benefit to sprinkler protecting the Superintendents house.

PRISTINE ENGINEERS:
ELECTRICAL/SECURITY/FIRE ALARMS REPORT

Systems Narrative

Finnegan Recreation Complex

Distribution:

1. 4160V/208V Substation: 500KVA. Federal Pacific Electric (FPE) Equipment, 1200A Main Circuit Breaker (MCB) with General Electric (G.E.) Distribution Breakers. Condition: Average. Age 40+ years. Fed from Boiler Plant
2. Panels: FPE with General Electric & Federal Pacific Electric Breakers.
3. Condition: Poor. Age 40+ years.

Lighting:

1. Most of the fixtures (approximately 85%) need to be retrofitted from fluorescent lamps to LED. Interior & Exterior (flood lights) new.
2. Exit Signs Incandescent mostly, some LED.
3. Controls, Local Switching & some Occupancy Sensors
4. Condition: Excellent, well maintained, still should be retrofitted to LED.

General Power:

1. Adequate, additional power is needed. Condition: Average. Age: Newer to 40+yrs.

Fire Alarm:

1. EST 3 addressable system. Electronic Fire Alarm Master Box for Fire Dept. Notification. The Fire Alarm system also reports to the Power Plant and the Guard shack.
2. Partial coverage with Smoke, Heat Detectors & Pull Stations.
3. Audio Visual Coverage throughout.
4. System is not original to Building Construction 1980. It was upgraded in 1997.
5. Condition : Excellent.

Clock System:

1. Simplex Automated Programmable Clock Controller.
2. Local Wall clocks on System.
3. Original.
4. Condition: Unknown

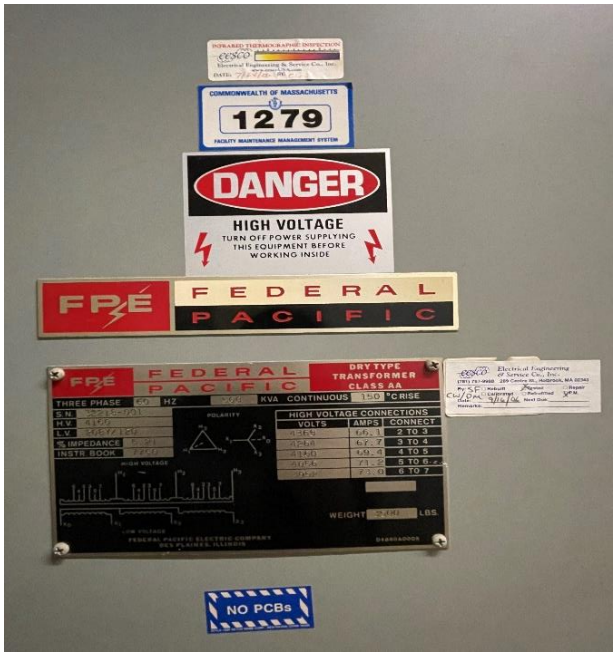
Sound System:

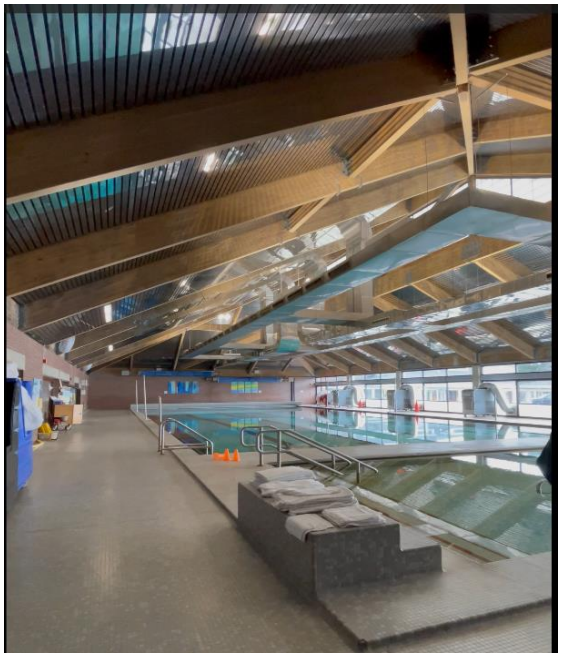
1. Console in Main Office.
2. Speakers located throughout.
3. Condition Unknown.

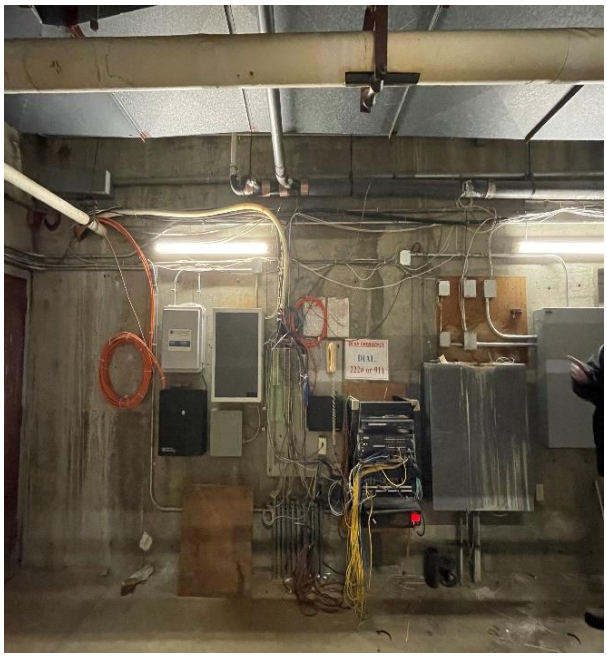
TV Distribution:

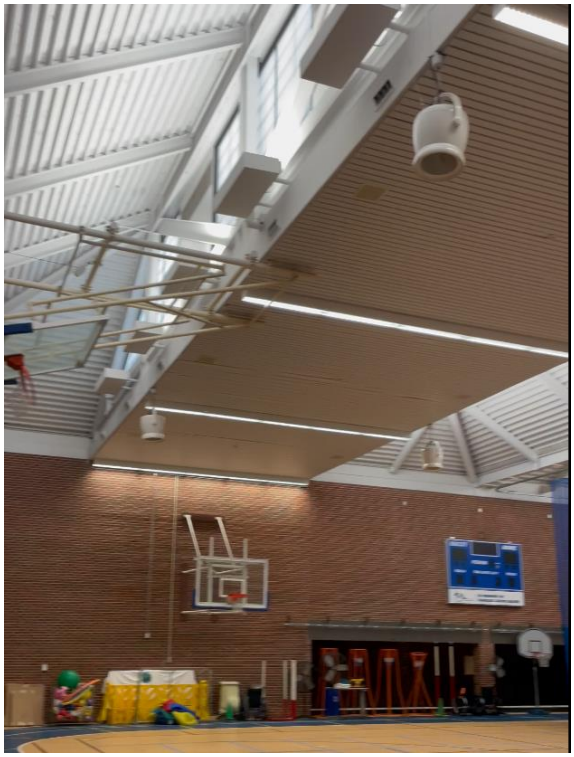
1. Unknown Condition


DANGER
HIGH VOLTAGE


COMMONWEALTH OF MASSACHUSETTS
1279
DANGER
HIGH VOLTAGE
TURN OFF POWER SUPPLYING THIS EQUIPMENT BEFORE WORKING INSIDE
FEDERAL PACIFIC
DRY TYPE TRANSFORMER
CLASS AA
NO PCBs










DANGER
HIGH VOLTAGE
1263


AREA IN FRONT OF THIS ELECTRICAL
PANEL MUST BE KEPT CLEAR FOR
36 INCHES OSHA-NEC REGULATIONS

Gates Cottage:

Distribution:

1. Existing is a 208V 3Ph 4W 225A Feeder from the Ross Cottage. A new Panelboard for this building is in the Sub Basement. This feeds Panels throughout the Building.
2. Condition: Excellent

Lighting:

1. Most of the fixtures (approximately 85%) need to be retrofitted from fluorescent lamps to LED. Interior & Exterior (flood lights) new.
2. Exit Signs Incandescent mostly, some LED.
3. Controls, Local Switching & some Occupancy Sensors
4. Condition: Excellent, well maintained, still should be retrofitted to LED.

General Power:

1. Adequate, additional power needed. Condition: Average. Age: Newer to 40+yrs.
2. Power at patient beds is normal power only. No emergency power is provided. Outlets are not hospital grade.

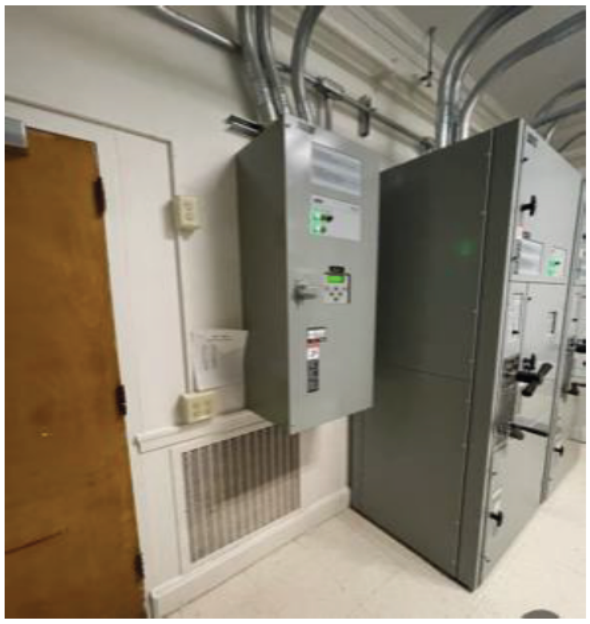
Fire Alarm:

1. Gamewell "E3 Series" Fire Alarm Zoned System Exists. Electronic Fire Alarm System Master Box for Fire Department Notification. This System is 20+yrs old. Functions but is not supported by the Manufacture. The Fire Alarm system also reports to the Power Plant and the Guard shack.
2. Partial coverage with Smoke Detectors.
3. Audio Visual Coverage with Voice Evacuation throughout.
4. Condition: Good


LAUNDRY
ROOM











Power Plant:

Electrical Site:

1. This facility has 13.8V rated utility service which has overhead/underground service on the maintenance road. The Utility Company maintains the overhead service. The underground portion is maintained & owned by the State. Underground feeder from the last utility pole feeds a pad mounted Transformer 1500KVA adjunct to the Power Plant Secondary Voltage is 4160Volts. Existing 4160V interior Switchgear 400Amps. This feeds various buildings & an existing 4160V Automatic Transfer Switch. The Emergency System is currently in the process of being upgraded. A new 600KW Diesel Generator is being provided for the site excluding (6) Buildings (Gates, Ross, Bradford Bldg., Nelson, Ellis & Baylie Cottage which will get standalone Generators). The 4160V Systems feeds all the buildings on campus via an underground network.
2. Age: 40+yrs
3. Condition: Poor
4. We recommend a separate & detailed study for Electric Distribution System

Electrical Power Plant:

1. 300KVA Transformer step down 4160V to 480V & feeds a distribution panel for local panels & loads.
2. 180KW backup Diesel Generator provides backup power to the power plant. A 200A ATS (Westinghouse) exists.
3. The 4160V, 480V, ATS & Generator Equipment is all located in the Electric Room.
4. We recommend a separate & detailed study for Electric Distribution System
5. Condition: Fair

Fire Alarm:

1. Gamewell "E3 Series" Fire Alarm Zoned System Exists. Electronic Fire Alarm System Master Box for Fire Department Notification. This System is 20+yrs old. The Fire Alarm system also reports to the Power Plant and the Guard shack.
2. Partial coverage with Smoke Detectors.
3. Audio Visual Coverage with Voice Evacuation throughout.
4. Condition: Good

Site:

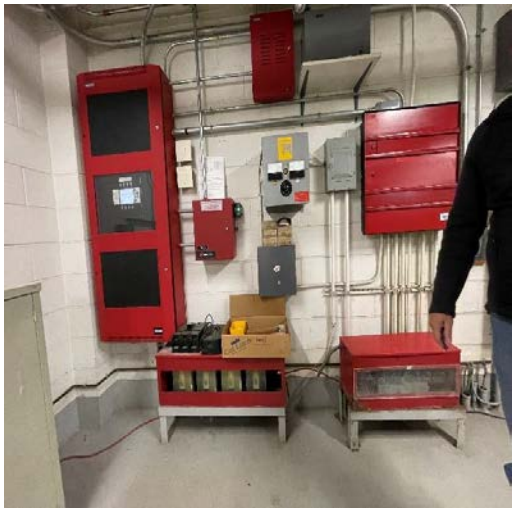
1. Site lighting is provided by either wall mounted flood lights (LED conversions or incandescent) Wall packs, flood lights, decorative pole & decorative path lights.
2. Our understanding is that the site lighting levels are inadequate.
3. Our review concludes that it appears that is correct.
4. We recommend a separate & detailed study for Electric Distribution System
5. Condition: Poor













Nelson Facility

Distribution Equipment:

1. 4160V/208V Substation: 300 KVA. General power Westinghouse Equipment, 1200A Main Circuit Breaker (MCB) with Westinghouse Distribution Breakers. Condition: Average. Age 40+ years. Fed from Boiler Plant. Condition Fair.
2. 4160V/208V Substation:225 KVA. General power. Westinghouse Equipment, 800A Main Circuit Breaker (MCB) with Westinghouse Distribution Breakers. Condition: Average. Age 40+ years. Fed from Boiler Plant. Condition Fair.
3. Panels: Westinghouse Breakers. Condition: Some Fair and other Poor.
4. 4160V/208V Substation:225 KVA. Air conditioning equipment. Square D Equipment, 800A Main Circuit Breaker (MCB) with Square D Distribution Breakers. Fed from Boiler Plant. Condition Fair.
5. 4160V/208V Substation:150 KVA. XRAY Equipment. Square D Equipment, 800A Main Circuit Breaker (MCB) with Square D Distribution Breakers. Fed from Boiler Plant. Condition Fair.
6. Emergency power is presently being updated. Included is a new 200 kW Diesel Emergency Exterior generator with a base fuel storage tank. New normal feeder & panel. Three new Automatic Transfer Switches for Life Safety, Critical and Equipment branches. Also provided are new Emergency distribution panels for each branch. Load banks are also part of the new install. The remaining portion of the facility is on the new 600 kW generator at the Power plant. Inclusive are the two substations for XRAY and Air Conditioning loads.
   Panels: Square D Breakers. Condition: Varied; breakers are over 40 years old and past their expected service life.

Lighting:

1. Most of the fixtures (approximately 85%) need to be retrofitted from fluorescent lamps to LED. Interior & Exterior (flood lights) new.
2. Exit Signs Incandescent mostly, some LED.
3. Controls, Local Switching & some Occupancy Sensors
4. Condition: Excellent but old, well maintained, still should be retrofitted to LED.

General Power:

1. Adequate, addition power needed. Condition: Branch circuit wiring from original panels poor.
2. Power in-patient beds is normal power only. No emergency power is provided. Outlets are not hospital grade.

Fire Alarm:

1. Fire Lite/Honeywell addressable system. Electronic Fire Alarm Master Box for Fire Dept. Notification. Voice evacuation. The Fire Alarm system also reports to the Power Plant and the Guard shack.
2. Partial coverage with Smoke, Heat Detectors & Pull Stations.
3. Audio Visual Voice Coverage throughout.
4. System is in good condition.

Bradford Facility

Distribution Equipment:

1. Panels: Westinghouse Breakers. Condition: Some Fair and other Poor.
2. 4160V/208V Substation:225 KVA. Air conditioning equipment. Square D Equipment, 800A Main Circuit Breaker (MCB) with Square D Distribution Breakers. Fed from Boiler Plant. Condition Fair.
3. 4160V/208V Substation:150 KVA. XRAY Equipment. Square D Equipment, 800A Main Circuit Breaker (MCB) with Square D Distribution Breakers. Fed from Boiler Plant. Condition Fair.
4. Emergency power is presently being updated. Included is a new 200 KW Diesel Emergency Exterior generator with a base fuel storage tank. New normal feeder & panel. Three new Automatic Transfer Switches for Life Safety, Critical and Equipment branches. Also provided are new Emergency distribution panels for each branch. Load banks are also part of the new install. The remaining portion of the facility is on the new 600 kw generator at the Power plant. Inclusive are the two substations for XRAY and Air Conditioning loads.
   Panels: Square D Breakers. Condition: Varied; breakers are over 40 years old and past their expected service life.

Lighting:

1. Most of the fixtures (approximately 85%) need to be retrofitted from fluorescent lamps to LED. Interior & Exterior (flood lights) new.
2. Exit Signs Incandescent mostly, some LED.
3. Controls, Local Switching & some Occupancy Sensors
4. Condition: Excellent but old, well maintained, still should be retrofitted to LED.

General Power:

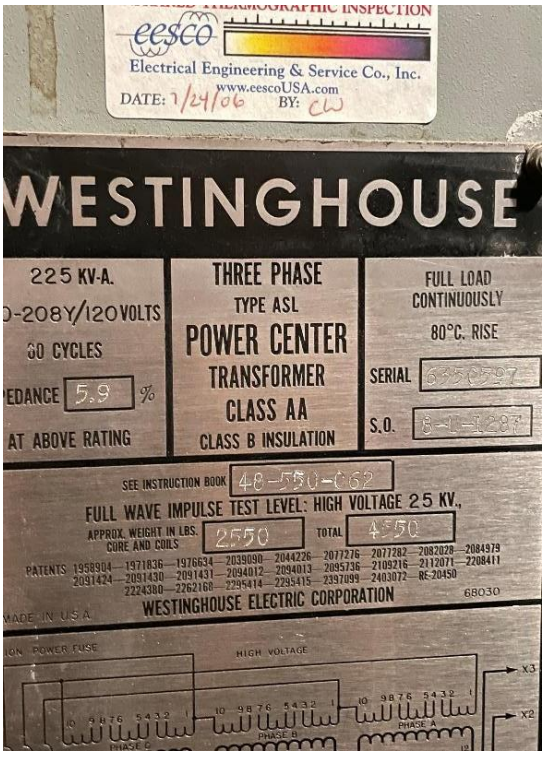
1. Adequate, additional power needed. Condition: Branch circuit wiring from original panels poor.

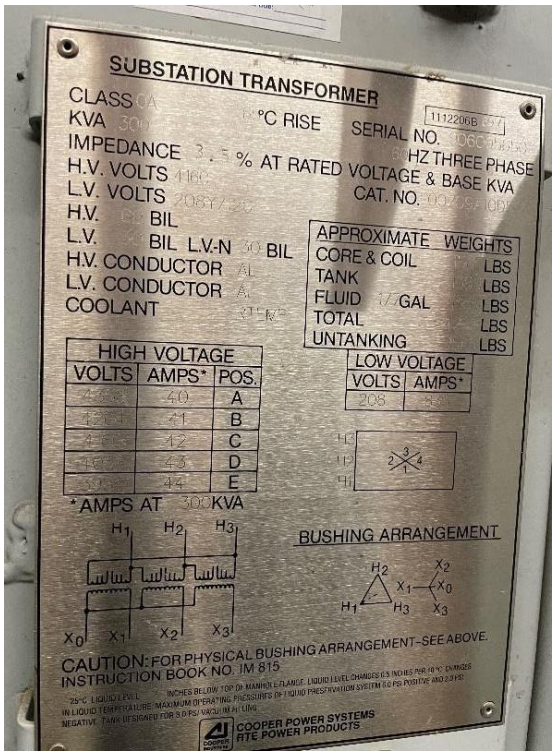
Fire Alarm:

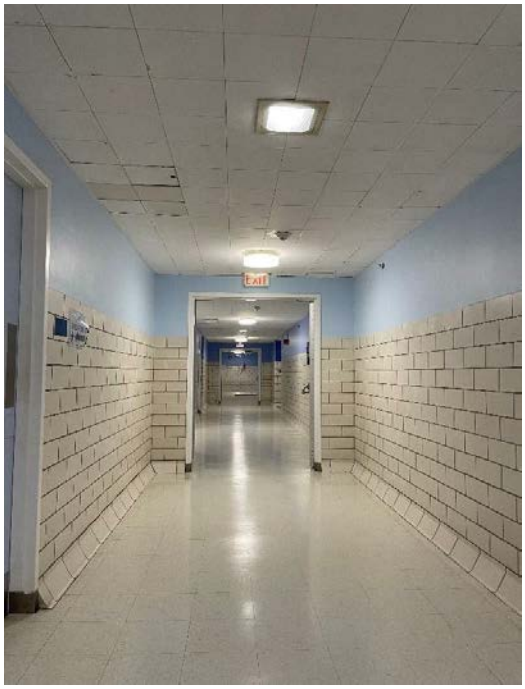
1. Fire Lite/Honeywell addressable system. Electronic Fire Alarm Master Box for Fire Dept. Notification. Voice evacuation. The Fire Alarm system also reports to the Power Plant and the Guard shack.
2. Partial coverage with Smoke, Heat Detectors & Pull Stations.
3. Audio Visual Voice Coverage throughout.
4. The system is in good condition.






eesco
Electrical Engineering & Service Co., Inc.
www.eescoUSA.com
DATE: 7/24/06 BY: EW
WESTINGHOUSE
225 KV-A.
3-208Y/120 VOLTS
60 CYCLES
IMPEDANCE 5.9 %
AT ABOVE RATING
THREE PHASE
TYPE ASL
POWER CENTER
TRANSFORMER
CLASS AA
CLASS B INSULATION
FULL LOAD
CONTINUOUSLY
80°C. RISE
SERIAL
S.O.
SEE INSTRUCTION BOOK 48-550-062
FULL WAVE IMPULSE TEST LEVEL: HIGH VOLTAGE 25 KV.,
APPROX. WEIGHT IN LBS. CORE AND COILS 2550 TOTAL 4550
PATENTS 1958904 1971836 1976634 2039090 2044226 2077276 2077282 2082028 2084979
2091424 2091430 2091431 2094012 2094013 2095736 2109216 2112071 2208411
2224380 2262168 2295414 2295415 2397099 2403072 RE-20450
WESTINGHOUSE ELECTRIC CORPORATION
68030
MADE IN U.S.A.
HIGH VOLTAGE
PHASE B
PHASE A


SUBSTATION TRANSFORMER
CLASS
KVA
°C RISE
SERIAL NO.
IMPEDANCE
% AT RATED VOLTAGE & BASE KVA
HZ THREE PHASE
H.V. VOLTS
L.V. VOLTS
CAT. NO.
H.V. BIL
L.V. BIL L.V-N BIL
H.V. CONDUCTOR
L.V. CONDUCTOR
COOLANT
APPROXIMATE WEIGHTS
CORE & COIL LBS
TANK LBS
FLUID GAL LBS
TOTAL LBS
UNTANKING LBS
HIGH VOLTAGE
VOLTS AMPS* POS.
A
B
C
D
E
LOW VOLTAGE
VOLTS AMPS*
208
*AMPS AT KVA
BUSHING ARRANGEMENT
CAUTION: FOR PHYSICAL BUSHING ARRANGEMENT-SEE ABOVE.
INSTRUCTION BOOK NO. IM 815
COOPER POWER SYSTEMS
RTE POWER PRODUCTS









Baylie/Ellis Cottages:

Distribution:

1. The distribution has recently been upgraded with all new Normal and Emergency power. Including new normal Main Distribution panel, (3) new Automatic Transfer Switches (ATS) for Life Safety (LS), Critical (CR) and Equipment branches (EQ). A new Emergency Diesel generator with a base tank is also installed. There also is a quick connection for a temporary generator if needed. LS & CB are manual by pass style and the EQ is a Normal style ATS. All are in Excellent condition.

Lighting:

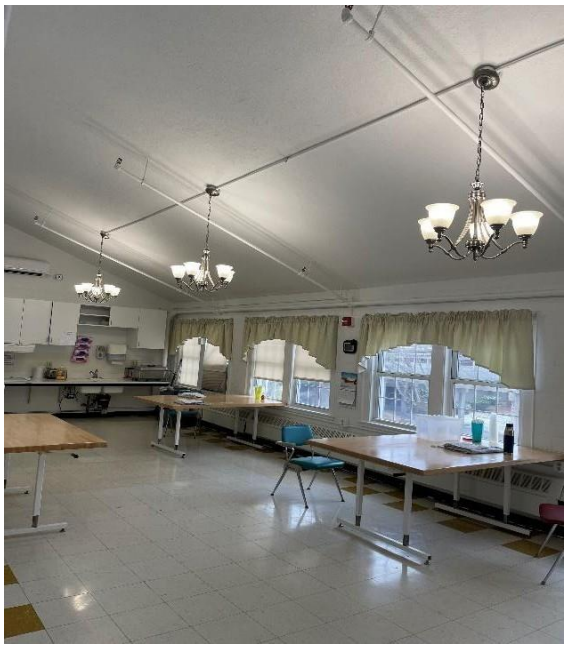
1. Most of the fixtures (approximately 85%) need to be retrofitted from fluorescent lamps to LED. Interior & Exterior (flood lights) new.
2. Exit Signs Incandescent mostly, some LED.
3. Controls, Local Switching & some Occupancy Sensors
4. Condition: Excellent but old, well maintained, still should be retrofitted to LED.

General Power:

1. Adequate, Condition: Good.
2. Power at patient beds is normal power only. No emergency power is provided. Outlets are not hospital grade.

Fire Alarm:

1. Fire Lite/Honeywell Fire Alarm Addressable System Exists. Electronic Fire Alarm System Master Box for Fire Department Notification. The Fire Alarm system also reports to the Power Plant and the Guard shack.
2. Partial coverage with Smoke Detectors.
3. Audio Visual Coverage with Voice Evacuation throughout.
4. Condition: Excellent.













Administration Building:

Electrical Distribution:

1. This facility has 13.8V rated feeder which is underground from the Power Plant. Secondary Voltage is 120/208 volts 3 phase 4 wire. There are two transformers serving this building. The first is a 500 KVA pad mounted transformer which feeds a 400 Amp distribution panel in the basement. This panel feeds the Baylie and Ellis Cottages. A second 225 KVA pad mount

transformer is in the basement and feeds the Administration building. The 225 KVA transformer is CODE required to be installed in a 3 Hour rated vault and it is not, it is mounted directly on the floor.

2. There is no Emergency power System in the building. There are emergency battery lighting units and exit signs installed in the building. This constitutes a Life Safety system for the building. The building is also provided with backup power from the Power plant 600 KW generator.
3. Newer panels associated with the new service equipment is new and in excellent condition. The remaining panels in the facility are relatively original and are poor condition. The wiring is the same and should be upgraded.
4. Condition: Poor Some of the Equipment is failing & needs repair or replacement

Lighting:

1. Most of the fixtures (approximately 85%) need to be retrofitted from fluorescent lamps to LED. Interior & Exterior (flood lights) new.
2. Exit Signs Incandescent mostly, some LED.
3. Controls, Local Switching & some Occupancy Sensors
4. Condition: Excellent but old, well maintained, still should be retrofitted to LED.

General Power:

1. Adequate, additional power needed. Condition: Branch circuit wiring from original panels

poor. Fire Alarm:

1. Notifier addressable system. Electronic Fire Alarm Master Box for Fire Dept. Notification. Voice evacuation. The Fire Alarm system also reports to the Power Plant and the Guard shack.
2. The building is sprinkled.
3. Partial coverage with Smoke, Heat Detectors & Pull Stations.
4. Audio Visual Voice Coverage throughout.
5. The system is in good condition.














15 A. Fuses Only
IN
This PANEL










EXIT

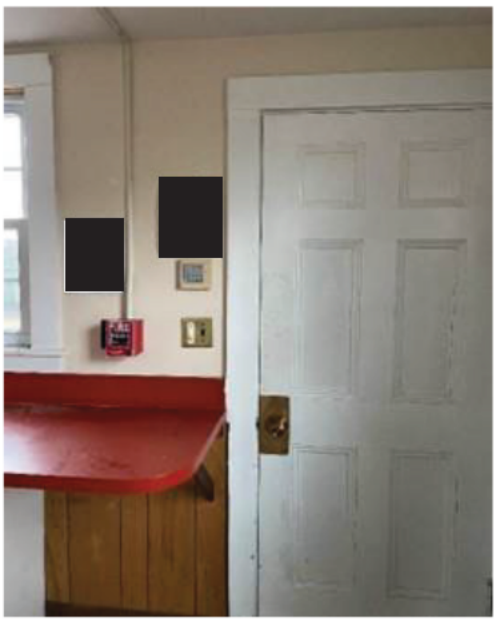
Superintendent's House:

Electrical Distribution:

1. A 100 amp service with older circuit breaker panel is in the basement. Condition poor.
2. Lighting original. Condition poor.
3. Power is residential. Fire Alarm is Fire Lite with older audio/visual. The Fire Alarm system also reports to the Power Plant and the Guard shack. Condition of panel good. Devices poor.









Pinkerton/Storage Building:













SHADLEY ASSOCIATES: LANDSCAPE REPORT

NARRATIVE

EXISTING CONDITIONS ASSESSMENT OF PEDESTRIAN SPACES AND LANDSCAPE

GENERAL SITE-WIDE LANDSCAPE COMMENTS

The Pappas campus is extensive and is comprised of approximately 166 acres with multiple buildings and many covered walkway connections between buildings. The landscape of the campus includes a large number of mature trees which provide extensive shade. There are many oaks, maples and evergreen trees such as spruce and white pine. There is a large beech tree planted in the parking area adjacent to the Administration Building. There is evidence of recent tree removals, and we were told this is due to their declining health. The site has many evergreen shrubs along the building foundations, and within the main courtyard between the Finnegan Gym/Pool Complex and the Baylies Cottage Unit; some of these shrubs are overgrown and impede visibility across the campus.

As the buildings are heated with steam, there are extensive tunnels connecting the buildings. Future tree planting plans should avoid these steam tunnels, both to avoid heat within the tree root zones, and to not risk the tree roots damaging the tunnels themselves. The steam tunnels emerge from the New Power Plant and extend to all buildings. There appear to be many, many tunnels between Morrison Hall and the Finnegan Gym/Pool Complex. In the same category, gas/water/sewer/fire protection lines shall be understood in the creation of a future Planting Plan.

The USDA Plant Hardiness Zone Map shows the site in Zone 6b. Plants chosen for the site should meet this hardiness factor, be able to withstand drought conditions and strong winds, and have a deep root system.

Soils maps available online reveal that the area is comprised of glacial till, sand and gravel, with underlying soils of granite and conglomerate bedrock. “Merrimac 626B” is the underlying soil in the center of the campus.

Because of the condition of the existing trees and the shade and character value mature trees have on this campus, an arborist should be retained to prepare a Tree Inventory and Assessment Report. This would result in a road map for immediate and future tree removals for those trees that pose a danger to people and infrastructure. Also, the report can be used as a basis to prepare a Campus Tree Planting Program, so that young trees are planted to eventually replace the magnificent shade trees on the campus. The species for the new trees can be chosen in anticipation of climate change and can avoid the pests and diseases being experienced in our state, such as the Asian-Long-Horned Beetle, Emerald Ash Borer, Winter Moth, Hemlock Woolly Adelgid, and others.



The plan above illustrates the full campus, with the core of the campus shown in the box. There are two significant campus areas that are beyond the core. The first is the waterfront, which is a beloved place and is well-used. The second is the forested open space on the east side of the property.

Briefly, the waterfront area provides an important amenity with activities for the patients. Improvements could include improving the walkway and edges leading to the shoreline, addressing drainage and erosion, removing deteriorated older (and dangerous) structures and materials, repairing the ground plane, and improving universal access to all destinations, including the boat storage.


View of waterfront looking east


Waterfront: abandoned structure





Waterfront: onsite boat & dock storage and uncontrolled drainage and erosion



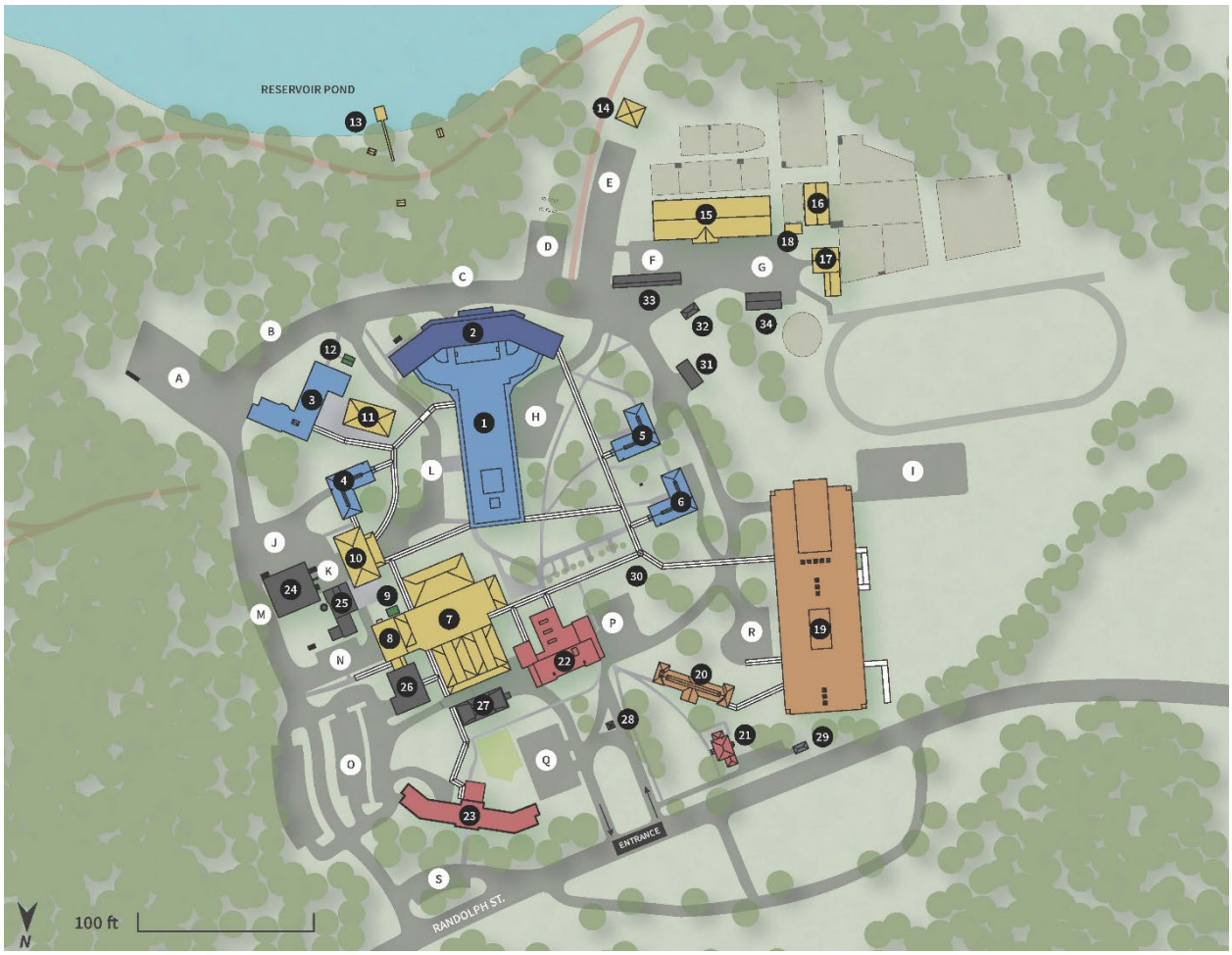
The <u>forested and open land</u> on the east side of the property is also important to the campus. It provides riding and hiking trails and an immersive experience in the forest and meadows. The walkways and trails could be improved with regrading and pruning the edge trees. Wayfinding signage could also be added. Its primary access is through the parking area near and between the Gates Unit and the New Power Plant.

LANDSCAPE COMMENTS FOR SPECIFIC AREAS

This Phase 2 Landscape Report addresses the sites surrounding these buildings:

1. Gates Unit (#3)
2. Finnegan Gym/Pool Complex (#7) and Pinkerton Building (#8)
3. Morrison Hall (#10)

4. Nelson Building (#1)
5. Bradford Building (#2)
6. Ross, Ellis and Baylies Cottage Units (#4, #5, #6)



GATES UNIT (#3)

Site Access to the Building

The main door faces towards the central campus on the northwest side of the building. It is connected with a covered walkway to the site-wide system. The doorway is flush to the concrete walkway. There is a concrete walkway leading to the building door in the south (near the greenhouse) and another to the southeast corner of the building. In addition, there is a covered area where bins are kept, and the door is locked directly on a pull-off area from the access road in the southeast corner of the site. This building door is not accessible because there is a step up to the concrete pad, which is in poor condition. There is also a small step at the door threshold. Adjacent to this pad is a concrete walkway leading to a basement bulkhead.

The pedestrian walking surfaces are primarily concrete. The walking surface of the covered walkways is mostly in good condition. The sloped walkway

leading to the southwestern door is relatively steep. Other than the covered walkways, the concrete walks on the site are in fair to good condition.



Covered walkway to Gates Unit from driveway & Ross Cottage Unit



Rear of Gates Unit facing access road

Pedestrian Spaces

The largest pedestrian gathering space in this area is the large, covered area to the northwest of the Gates Unit, between it and the Nelson Building, called the Pavilion at Gates. This large pavilion has picnic tables, display areas, a monitor/television, and some interior lights. There are also picnic tables beyond the pavilion roof to provide seating choices. This is a newer space, and we are told it is sized for and used for full-campus events. We are also told that the acoustics are challenging. The pavilion area appears to be in good condition, as do the site furnishings.





The Pavilion at Gates, from the south and from within

There are metal frames for shade covers (not present) near the Gates Unit. One is between the Pavilion and the building. The other is at the edge of the outer roadway on the building's southeast side. We are told the roadway structure was used for people waiting for buses or other transportation, although unused for several years. There is a greenhouse structure on the southwest side of the building, separated from the main building.

Landscape

The site topography around the Gates Unit is relatively flat on the interior campus side (west side of the building). There is a slope from the building to

the access road on the southeast, a shallow slope on the southwest, and quite a large slope on the northeast side of the building. The Gates Unit is on the high ridge line of the site, which generally runs through the Administration Building, Finnegan Gym/Pool complex and through the Gates Unit and is approximately 197 feet above sea level (from Mass GIS).

The vegetation in the courtyard area is limited and is mostly oak of generally declining health. On the south side of the building, between the building and the loop road, there are a couple of large evergreen trees, mostly spruce, and there is foundation planting of mixed evergreens along the building edge. Near the loading dock area there are mostly evergreen shrubs. Across from the loading area is a large, open parking area with dumpsters (no enclosures); this parking area is surrounded by the native woodlands. Lastly, on the north side of the building, there are large oak trees parallel with the building face. There is a steep slope between the Gates Unit and the New Power Plant, and an area of large trees. These trees are mixed with spruce, maple, white pine and oaks, plus bittersweet and poison ivy.



Trees on east side of the Gates Unit, looking south, and looking north

The USDA Plant Hardiness Zone Map shows the site in Zone 6b. Plants chosen for the site should meet this hardiness factor, be able to withstand drought conditions, strong winds and have a deep root system.

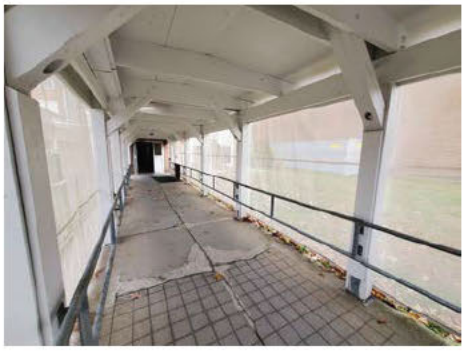
FINNEGAN GYM/POOL COMPLEX (#7) AND PINKERTON BUILDING (#8)

Site Access to Building / Outdoor Gathering Areas

The Finnegan Gym/Pool Complex includes the Gymnasium and the Pool, and the Pinkerton Building abuts its east end. It has doors on all sides, and usable outdoor spaces on most of its sides.

West side of building, facing the courtyard

The main door from the courtyard area near the Administration Building is from a covered walkway connecting to the campus system. Adjacent to it is a door leading directly to an interior space from a programmable outdoor space. The condition of the pavement in this area is mixed; some concrete is in good condition and other panels are in poor condition.







The outdoor gathering space west of the Finnegan Gym/Pool Complex has a large, paved area, a fire pit, benches and tables, and is edged with small granite blocks with planting. It has lights and a large shade tree. Its surfacing is made of precast concrete pavers with weeds in the joints. There is differential settling between the types of pavers. Because most of the federal and state accessibility codes say there can be a maximum of ¼" height variation, most of this plaza is on the border of accessibility / non accessibility. We were told on our site visit that the patients enjoy the texture of this pavement as it is different from other site surfaces. There are electrical receptacles in this area for hosting events, which we are told are insufficient for this use. The adjacent and connecting walkways are asphalt and concrete in fair condition.









These four photos are of the pavements in the outdoor space west of the Finnegan Gym/Pool Complex

Southwest and south side of the Finnegan Gym/Pool Complex, facing the space between the Nelson Building and Morrison Hall

There is a gathering area on the southwest corner of the Finnegan Gym/Pool Complex with benches and pedestrian-scale lights. It is accessed from the central courtyard by a sloped walkway adjacent to the terrace. It has concrete pavement and planters.

There is also a patio on the south side of the building, outside the pool. This area, because of its solar exposure, is hot in the summer (we are told). The concrete pavement is in fair to poor condition and is stained. It is edged with a wood wall on a brick base with integrated plastic basins that can be planted. The wall wood and planters are in poor condition. The edge planters turn and connect the patio with the covered walkway between Morrison Hall and an entrance to the Finnegan Bym/Pool Complex at its east corner.



Outdoor space on southwest corner



Outdoor space on south side

There is a small green space between the east side of the Finnegan Gym/Pool Complex, between the Pinkerton Building and Morrison Hall. It has rhododendron along the covered walkway, and there is a greenhouse/glassed building extension near the food service. The green area has picnic tables and one large tree near the entrances to Morrison Hall. At the end of Morrison Hall near the New Power Plant, there are walls, railings and steps to the service areas below. This green space has passive use.






These four images are of the green space between the Pinkerton Building and Morrison Hall

The east side of the Pinkerton Building is primarily pedestrian circulation and service. The concrete pavement under the covered walkways is in fair condition. The other pavements in this area are in poor condition.



Covered walkway between Finnegan and the Industrial Building



Alley between Finnegan and the Old Laundry Building

Landscape

The site topography around the Finnegan Gym/Pool Complex is relatively flat on the interior campus side (west of the building). There is a slope from the

building to the south and to the covered walkway to Morrison Hall and the parking area and small green space. There is a large grade change to the east of Finnegan Gym/Pool Complex/Pinkerton Building. The parking area for the Old Power Plant and the lower area of the Industrial Building/New Rehab Engineering Building abut the lower levels of those buildings.

The vegetation is mixed around the Finnegan Gym/Pool Complex. In the courtyard there is a large maple for shade, and we are told that more shade is needed. There are evergreens and mixed deciduous shrubs at the foundation of the building on its west side, and memorial trees between the Finnegan Gym/Pool Complex and the Nelson Building.





Foundation planting and memorial tree planting east of the Finnegan Gym/Pool Complex

Most of the plant material is in poor condition. The trees need to be pruned, and the shrubs need to be pruned or replaced. Around the campus there are mostly oaks, maples and evergreen trees and shrubs.

MORRISON HALL (#10)

Site Access to Building

Morrison Hall is to the southeast of the Finnegan Gym/Pool Complex and the Pinkerton Building, and its front doors face towards the Nelson Building. Trucks and other vehicles can pull up to the front portico. The covered walkways connect with all adjacent buildings.



The front (east) face of Morrison Hall

Pedestrian Spaces and Landscape

The green space between Morrison Hall and the Finnegan Gym/Pool Complex is discussed in the previous section on Finnegan/Pinkerton. In summary, all the landscape areas and pedestrian areas around Morrison Hall are in poor condition.

NELSON BUILDING (#1)

Site Access to Building

The Nelson Building has several entrances. It is accessed from the upper courtyard by the covered walkway running east and west. It also has entrances on the east and south sides, with the east side being a pedestrian entrance crossing the driveway and connecting with the Gates Unit and the Pavilion at Gates, and the south side being a doorway from a small parking area at the lower level. There are exterior stairs connecting the upper level to the lower level. The Nelson Building is attached to the Bradford Building on the south side and there are internal connections.



Entrance to the Nelson Building from the north (Administration Building) side



Entrance to the Nelson Building from the east (Gates Unit) side

Pedestrian Spaces and Landscape

There are minimal pedestrian spaces around the Nelson Building. The largest outdoor spaces are on the north and the east sides of the building. The east side is where the covered walkway connects it to the Pavilion at Gates, to the Gates Unit, to the Ross Cottage Unit and to Morrison Hall. There is a linear green space on this side, with a small seating area on its northeast corner. There are mature trees in this area with some in poor condition.

The north side of the Nelson Building fronts the main open space on the campus. This is a large green space surrounded by covered walkways, and contained by the Administration Building, Finnegan Gym/Pool Complex, the Nelson Building, and the Baylies Cottage Unit on the west. This is an activity and display space with walkways, shrubs and trees and is not connected with vehicular drives or parking areas, which makes it feel quiet and secure. Large shrubs separate this space from the cars parked at the Administration Building.

BRADFORD BUILDING (#2)

Site Access to Building

The Bradford Building's main entrance is from the rear access drive. This is an unwelcoming approach in poor condition and the parking, dumpsters and forest edge are crowded. The pedestrian connections are poorly marked across the driveway and there is poor signage on the building. There is an abundance of utilities in this area. On the building's west side is an elevated covered connection to the south of the building at the upper level, with cars driving beneath it to access the small parking area to the west of the Nelson Building.



South side of the Bradford Building





South side of the Bradford Building, looking west, and looking east



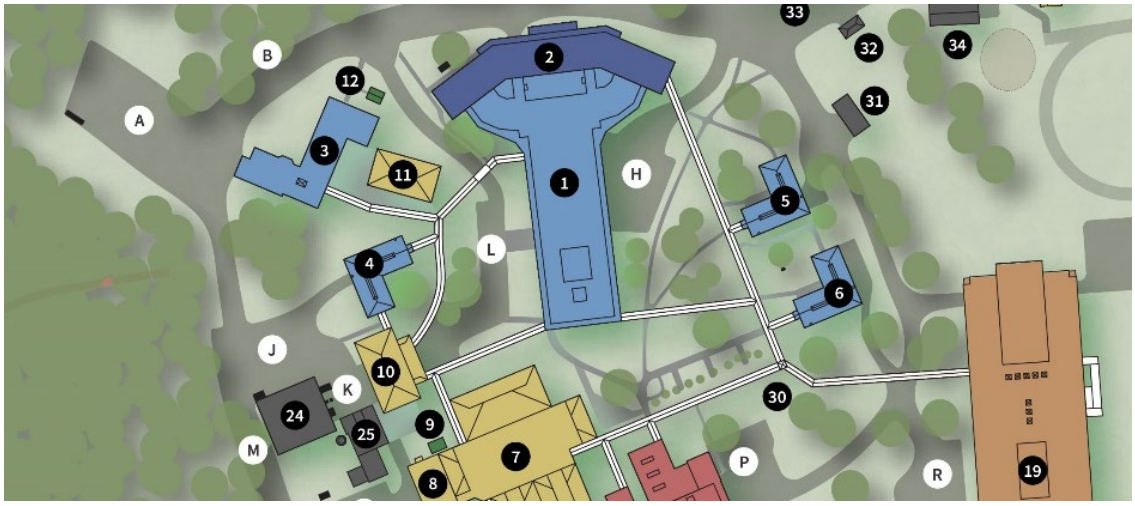
Southwest corner of the Bradford Building with a driveway under the elevated walkway

Pedestrian Spaces and Landscape

There are no pedestrian spaces around this building. There is pavement for the driveway and the small parking area, and there is some foundation planting on the building edges, and the building is flanked by lawn on the east and west sides.

ROSS, ELLIS AND BAYLIES COTTAGE UNITS (#4, #5, #6)

The Ross Cottage Unit is located next to the Gates Cottage Unit. The other two cottages are on the opposite end of the large central green space, west of the Nelson Building.



Ross Cottage Unit (#4)

The Ross Cottage Unit is connected to the system of covered walks that connect the Gates Cottage Unit, the Pavilion at Gates, the Nelson Building, and Morrison Hall. There is a green space to the west of the front door of the Ross Cottage Unit, and the outdoor spaces are generally inaccessible due to the railings along the covered walkways. There is a slope from the Ross Cottage Unit to Morrison Hall and steps up from it to Morrison Hall. The rear/driveway entrance to the Ross Cottage Unit is on its lower level (see image). There are large trees in the green space between the Ross and Gates Cottage Unit, and the building has foundation planting.





Front walkway to the Ross Cottage Unit

Walkway to Morrison Hall with the Ross Cottage Unit on the right



Rear of the Ross Cottage Unit from the parking area on the east side

Ellis Cottage Unit (#5) and Baylies Cottage Unit (#6)

The Ellis Cottage Unit is west of the Nelson Building and south of the Baylies Cottage Unit. It is connected on its upper level to the covered walkway system and an at-grade path connecting it to the Administration Building. On its lower level there is a vehicular drive connecting it with the loop driveway system.

The Baylies Cottage Unit is north of the Ellis Cottage Unit and is also connected with the covered walkway system on the east site, and with a vehicular drive on its west site. It is on the east-west axis of the main pedestrian walkway in the center green space and as such holds a visual significance in this landscape.



Ellis Cottage Unit from the south



Baylies Cottage Unit at the end of the green space axis; view looking east

The trees around these cottages are very large and magnificent. While there is some damage from pests and storms, they contribute greatly to the character of this central area.

There are opportunities for outdoor pedestrian spaces at the front entrances of each of these buildings.



AREAS FOR FUTURE INVESTIGATION

TREES

Because of the condition of the existing trees and the shade and character value mature trees have on this campus, an arborist should be retained to prepare a Tree Inventory and Assessment Report. This would result in a road map for immediate and future tree removals for those trees that pose a danger to human health. Also, the report can be used as a basis to prepare a Campus Tree Planting Program, so that young trees are planted to eventually replace the magnificent shade trees on the campus. The species for the new trees can be chosen in anticipation of climate change and can respond to the pests and diseases being experienced in our state, such as the Asian-Long-Horned Beetle, Emerald Ash Borer, Winter Moth, Hemlock Woolly Adelgid, and others.

SOILS / LAWN

It appears that in many places the lawn is not thriving. This could be because they are compacted, insufficiently irrigated (or at all), or need fertilizer and amendments. Soils tests would reveal deficiencies that could be corrected, if desired by DCAMM.

NITSCH ENGINEERING: CIVIL REPORT

3. Existing Conditions

3.1 Civil

INTRODUCTION

The Pappas Rehabilitation Hospital for Children (PRHC) campus assessment in Canton, Massachusetts will provide a conditions assessment and recommend accessibility improvements to the facilities and supporting site and utility infrastructure.

GROUNDWATER AND SURFACE WATERS PROTECTION

PRHC is located in a Zone II MassDEP Wellhead Protection Area, and the Town of Canton Groundwater Protection Overlay District. Wellhead protection areas are important for protecting the recharge area around public water supply (PWS) groundwater sources. The Town of Canton owns three wells located off Charles Drive.

Reservoir Pond (State ID: MA73048_2008) is an approximately 255-acre freshwater waterbody. Reservoir Pond is listed on the Massachusetts Department of Environmental Protection's (DEP) 303d list under Category 4A, indicating that the pond is impaired or threatened for one or more uses, but that a Total Maximum Daily Load (TMDL) has been established for its watershed, the Neponset. The impaired use is the presence of mercury within fish tissue. The pond is also listed for the presence of non-native invasive plants but this is not considered to be a polluting use by DEP. Popular uses of the pond include boating, swimming, birdwatching, hiking, fishing and ice-fishing, ice- boating, and skating. The Town of Canton contracted with the Metropolitan Area Planning Council (MAPC) to supply a Reservoir Pond Current Conditions and Use Options study in August 2016

WETLAND & FLOODPLAIN

Review of Federal Emergency Management Agency (FEMA) and publicly available MassGIS resources indicate that the PHRC campus is not in close proximity to mapped wetlands resources or FEMA floodplain. MassDEP Wetlands Layer indicates two isolated wetland resource areas on the eastern portion of the property in close proximity to Reservoir Pond and the eastern property line. Given the locations campus, surrounding land uses, and topography, it is not surprising that the campus is not located within FEMA flood zones. The campus is located on a hill and is at an elevation that is higher than the surrounding areas. Therefore, it is unlikely that PHRC would be subject to any significant flooding.

ASPHALT PAVEMENT CONDITIONS

The asphalt pavement in the parking lots, service drives, and walkways were observed to have moderate cracking and degradation. Old asphalt pavement appears to be cracked and heaved, with uneven sections on the boundaries with new asphalt pavement. In some places curbing is overgrown or missing and edges of the asphalt pavement along landscaped areas is degraded. Extensive walkway systems link buildings but crosswalks on the southern section of the loop road do not connect to further walkways.

SITE EXISTING UTILITIES

3. Existing Conditions

3.1 Civil

Nitsch Engineering

STORMWATER

The PHRC site is approximately 160 acres, of which approximately 50 acres is developed. The site is divided into two watersheds. There is a ridge generally between the Superintendents house extending southeast through the Finnegan Recreation Building to Gates Cottage. The area to the west of this ridge generally slopes from north to south and drains towards Reservoir Pond through sheet flow and a closed-drainage system inlets. The site drainage system discharges to a rock swale in the wooded area south of the Nelson building. the stormwater infiltrates into the soil or continues to runoff until ultimately discharging into Reservoir Pond. The swale flows down the wooded slope, under an existing asphalt walkway in a small culvert pipe. On the Pond side of the culvert, runoff sheet flows through runnels into Reservoir Pond. The area to the west of the ridge is collected in a closed drainage system which record plans do not show the outlet for.

The majority of stormwater runoff from the site is unmitigated and flows to point discharges to swales. All future campus projects should meet Massachusetts Department of Environmental Protection Stormwater Management standards for runoff rate and water quality. PRHC staff has indicated that there are no significant stormwater or flooding issues at the campus. The campus contains a closed drainage system consisting of catch basin, drain manholes, and underground piping.

WATER

The Town of Canton drinking water is served by two sources: groundwater wells and supplemental water purchased from the MWRA Water supply. The PHRC campus is served by two water mains in Randolph Street, a 12-inch water main and a 6-inch water main. The water service connection to this main is east of the Employee entrance gate on the north-east side of the property. This 10-inch water service goes to an underground vault with a pressure reducer, backflow preventer, and meter. Domestic water distribution mains connect to a 6-inch domestic water service connection on the southeast side of the building, adjacent to the former power plant, and a fire protection connection and the northeast side of the building, adjacent to the vocational building.

All existing water lines and fire hydrants are understood to be in good working order, pressure is adequate throughout the site, and should remain undisturbed and maintained.

SEWER

The existing sewer system onsite is comprised of a series of gravity-based lines routing to a Town of Canton-owned gravity sewer main adjacent to Reservoir Pond shoreline. The Power Plant and Old Power Plant buildings contain sewer ejector pumps which discharge through a force main to an 8” gravity sewer to the west of the Old Power Plant building. The PRHC site discharges to a 10-inch gravity sanitary main owned and maintained by the Town of Canton Public Works Department - Water & Sewer Division. The main discharges to a Massachusetts Water Resources Authority (MWRA) owned main west of Forge Pond in Canton.

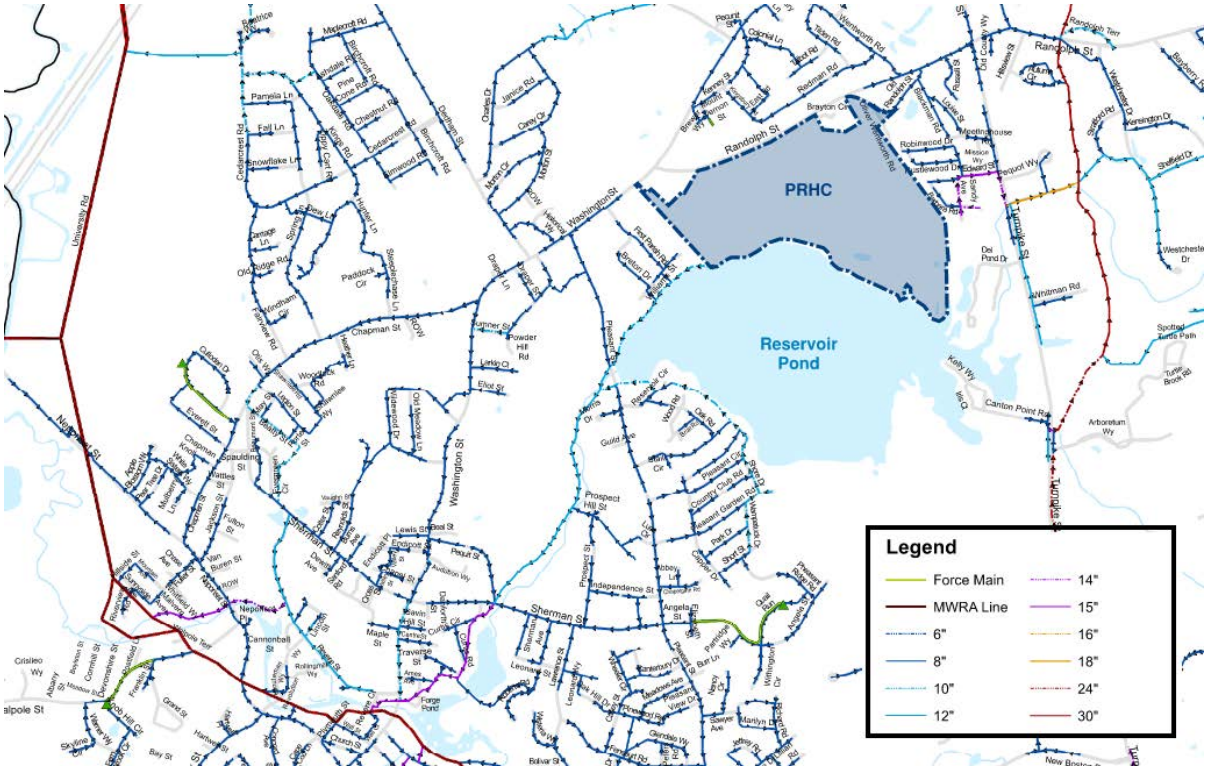
Sanitary system is shown on a record plan prepared by Merrimack Engineering Servies titled “Plan Depicting cleaning and Inspection of the Existing Sewer System, Massachusetts Hospital School, Canton, Mass” dated Dec. 12, 1996, Rev April 14, 1997.

3. Existing Conditions

3.1 Civil

Nitsch Engineering

No issues were reported with sanitary system pipes, manholes or connections to buildings.



GAS

Eversource Energy owns a natural gas main in Randolph Street. There are our (4) service connections to this gas connection. One service connection to the Power Plant of unknown size, One service connection to the Administration building beneath the main entrance drive of unknown size, one service to the Elementary school located the west of the Superintendent's House, and finally a 4-inch building service connection to the west side of the Brayton School. Records of these services are shown by hand-sketch on top of a plan prepared by Samuel Ussia and Associates, Inc. titled "New Fire Protection Line Study – Site Water Dist." Dated 8-9-95

SITE DEVELOPMENT CONSIDERATIONS

Areas for Future Investigations

- Engage a Licensed Surveyor to perform a campus-wide site utilities basemap

Wetland & Floodplain

- Detailed studies performed by a wetland scientist to determine the exact limit of wetland resources in close proximity to the PRHC campus.

Storm Drainage

- Significant runoff and erosion issues are present in the woods at the closed drainage system outfalls south of the Bradford Building. The channelized flow drains to a culvert which is partially clogged and appears to be surcharging. As a result, sand and debris is washing over the campus pathway to the Boathouse Pavilion.



- Building gutters, particularly those at Finnegan and the Elementary School have failed. This allows water to stand and puddle against the building foundation which is likely to lead to water intrusion. Correct and repair broken gutters and downspouts.





- Erosion issues were observed and could be considered for future remediation at the following locations:

3. Existing Conditions

3.1 Civil

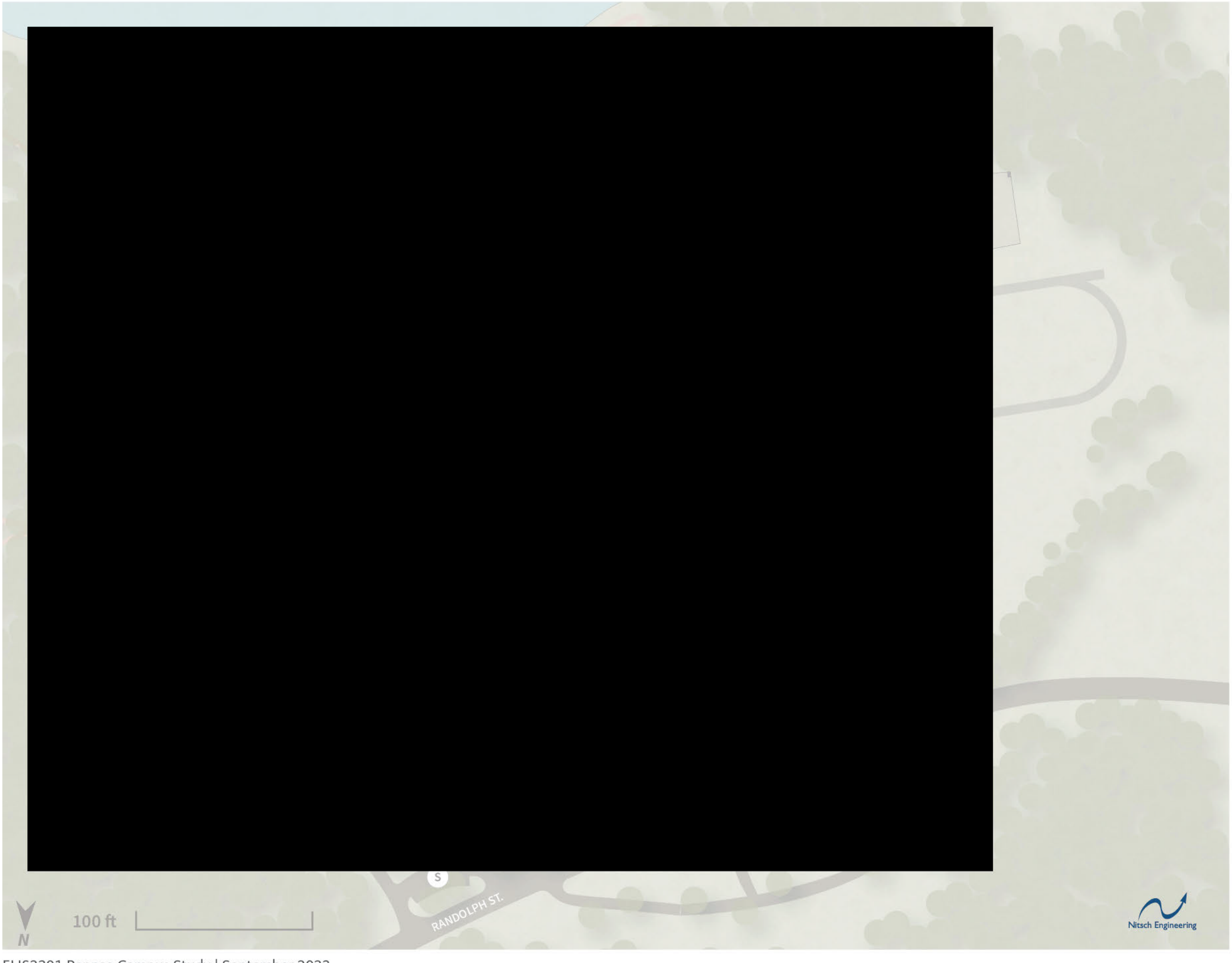
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UNDEVELOPED PROPERTY DEVELOPMENT CONSTRAINTS

- **Wetlands:** There are two (2) Isolated vegetated wetland areas on the eastern portion of the property. Each of these wetlands outlets with intermittent stream flowing towards Reservoir Pond exists on the southeast portion of the property. A 100-foot buffer area set by the Massachusetts Wetland Protection Act (310 CMR 10.00)
- **Wellhead Protection Areas:** The Massachusetts DEP ensures the protection of drinking water supplies from contamination by regulating land use and activities within wellhead protection areas. The Pappas site is almost entirely within Wellhead Protection Area Zone II. To meet WHP requirements, certain threatening land uses must either be prohibited or restricted within Zone II via local zoning bylaw/ordinance, general bylaws/ ordinance, or health regulation. These land uses are:
    - Prohibited
        - non-sanitary wastewater disposal to the ground
        - landfills and open dumps
        - automobile graveyards/junkyards
        - stockpiling/disposal of snow or ice that contains deicing chemicals
        - facilities that generate, treat, store, or dispose of hazardous waste (Note: Very Small Quantity Generators are exempt.)
        - petroleum, fuel oil and heating oil bulk stations and terminals
        - wastewater residual landfills
    - Restricted
        - storage of sludge, septage, deicing chemicals, animal manure, commercial fertilizers, hazardous materials, and petroleum products
        - earth removal activities
        - impervious surfaces greater than 15% or 2,500 square feet
    - Other DEP programs also regulate certain threatening land uses, such as septic systems and landfill siting. MassDEP indicates additional requirements for stormwater management in a Zone II which is considered a "Critical Area".
- **Topography:** The southeast portion of the property has steep slopes. Portions of this site contain approximately 40% slopes in isolated areas south of the isolated vegetated wetland. These areas of steep slopes are not suitable for development


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Nitsch Engineering

3. Existing Conditions

3.5 Site - Civil

BUILDING CIVIL OBSERVATIONS – FINNEGAN RECREATION BUILDING

STORMWATER

Finnegan Gym has a system of gutters and roof downspouts on the exterior facade of the building. A number of these gutters are failing, or have failed, resulting in gaps where rainwater from the roof discharges directly onto adjacent grade. Nitsch observed locations where downspouts were disconnected from the cast iron drainage connector. The adjacent topography slopes away from the building on the west and south sides, the south east side of the building has a flat landscape area with a catch basin, no reports of ponding or drainage issues were reported in this area. The north side of the building is an asphalt driveway and slopes to the east. There are two catch basins to collect the runoff from the driveway and roof drains that discharge to grade. Record Drawings from Jacobs Consultants titled “Site Plan/Details” dated 08/02/2010 show the design of several downspouts and an area drains (Lawn Inlet) connecting to a new catch basin on the southwest corner of the building, overflowing to an existing drain manholes, the pool roof area generally draining to the south and west, and the gym roof generally draining to the north and east.

WATER

Domestic water distribution mains connect to a 6-inch domestic water service connection on the southeast side of the Finnegan Recreation building, adjacent to the former power plant. There is an six-inch fire protection connection and the northeast side of the building, adjacent to the vocational building.

SEWER

Finnegan Pool has a gravity sanitary outlet on the west side of the building of unknown size and material. This pipe is located within an existing steam tunnel which is directed to the northwest towards the Administration Building and joins with an 8-inch Vitrified Clay pipe. This pipe flows to the west and south towards Reservoir Pond. The PRHC site discharges to a 10-inch gravity sanitary main owned and maintained by the Town of Canton Public Works Department - Water & Sewer Division. No issues were reported or observed with the condition or function of the sanitary discharge from Finnegan.

3. Existing Conditions

3.5 Site - Civil













BUILDING CIVIL OBSERVATIONS – GATES COTTAGE

STORMWATER

Gates Cottage has a flat roof and internal drains which connect underground to the site closed drainage system. Gates Cottage is located at a topographic high point, the adjacent topography slope away from the building on all sides. No reports of ponding or drainage issues were reported in this vicinity of the building. Area drains were installed as part of the outdoor pavilion project in 2013.

SANITARY

Gates Cottage has a discharge on the west side of the building of unknown size and material. Highlights of the This pipe is a gravity sewer connection to a manhole on the east side of the Nelson Building. This pipe flows beneath Nelson Building to the west and south towards Reservoir Pond. No issues were reported or observed with the condition or function of the sanitary discharge from Finnegan.

WATER

Record Plan titled "New Fire Protection Line Study - Site Water Distribution - "AS-BUILT" Dated January 11, 1995 shows a 3-inch copper water service, a 6-inch Ductile Iron fire protection service. on the west side of the building. No issues related to water pressure or availability were reported for Gates Cottage.

3. Existing Conditions

3.5 Site - Civil













CODE RED CONSULTANTS
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DCAMM Pappas Rehabilitation Hospital
Site-Wide Existing Conditions Assessment

Fire Protection / Life Safety
Code Compliance Report

July 14, 2023

Prepared for:

Gensler
One Beacon Street, Third Floor
Boston, MA 02108

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1. Introduction

Gensler has retained Code Red Consultants to provide fire protection and life safety code consulting services for an existing conditions study of the DCAMM Pappas Rehabilitation Hospital campus in Canton, MA. This document has been prepared to describe the existing conditions of the following buildings to help identify the major existing building code upgrade requirements that could impact the scope and expenditure for future renovation projects:

- Gates Unit (Part of Pilot Study conducted in December 2022)
- Finnegan Gym/ Pool Complex (Part of Pilot Study conducted in December 2022)
- Bradford Building
- Nelson Building
- Baylies Cottage Unit
- Ross Cottage Unit
- Ellis Cottage Unit
- Administration Building
- Brayton High School
- Donovan Building
- Elementary School
- New Barn (formerly Horse Barn)
- Indoor Riding Arena
- Morrison Hall
- New Power Plant
- Old Power Plant
- Pinkerton Building
- Old Laundry/Old Rehab Eng./Storage
- Superintendent House

The remaining buildings: Boathouse Pavilion/Dock, Green House(s), Open Shed, Old Barn (formerly Cow Barn), Guard House, John E. Fish Memorial Clock Tower, Industrial Building/New Rehab Engineering, Nature Lodge, Pavilion at Gates, Water Shed, Fire Pump House, and Garage(s) were not inspected during either survey conducted as they were either inaccessible to our team during the surveys or they were addressed as not being within the scope of any future project work. Thus, these buildings are not included in section of this report.

The analysis contained in this report is not related to any specific proposed renovation project. The existing condition information outlined herein is based on the following:

- Non-destructive visual observation of the campus by Zach Blanchard, P.E. on December 1, 2022, and Brian Kuhn, P.E. and Madelyn Uryase on January 31, 2023
- Various existing documents received May 20, 2022

A detailed summary for each building is provided in Section 4 which specifically documents the existing conditions of each building.

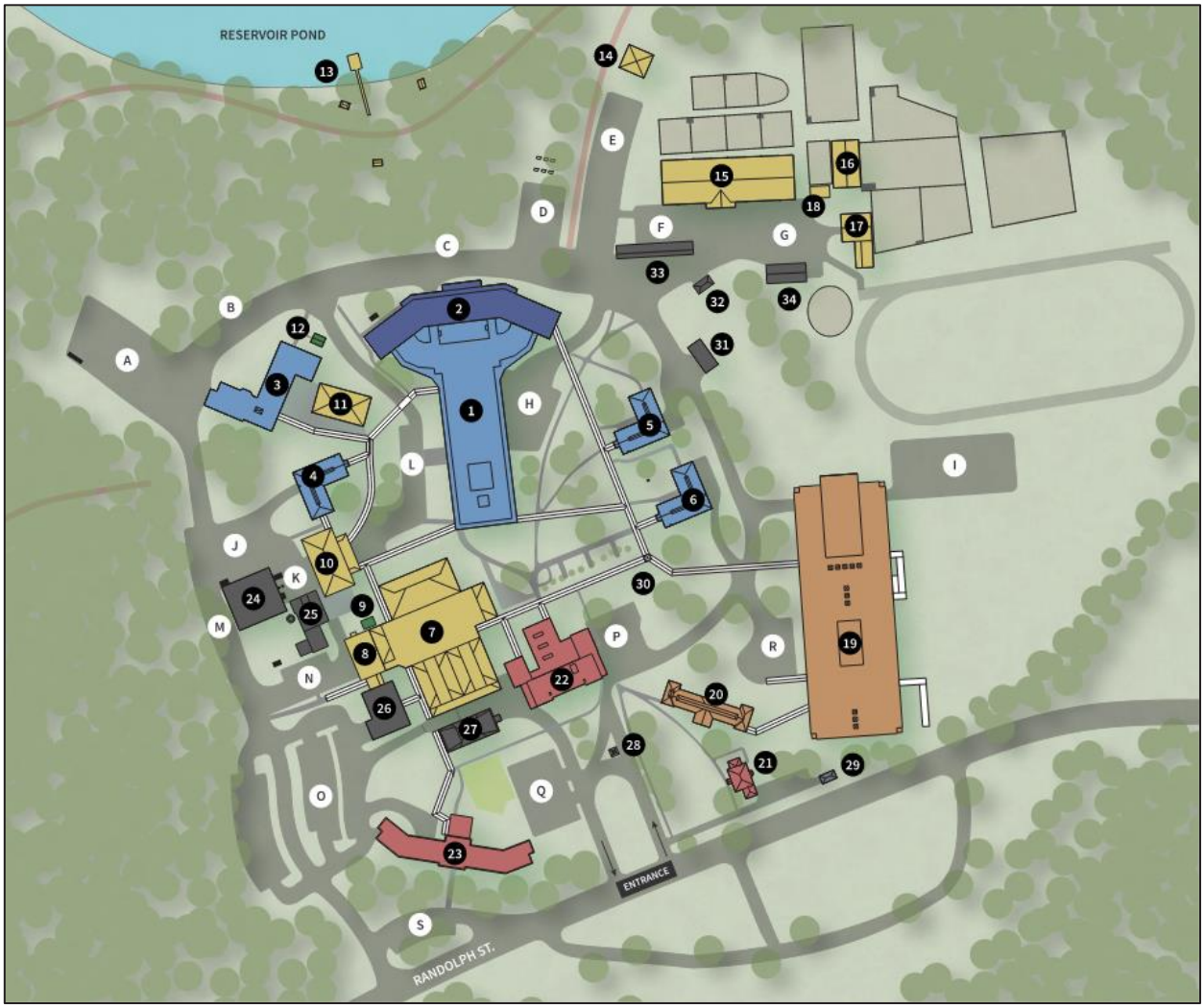


FIGURE 1: DCAMM PAPPAS REHABILITATION HOSPITAL CAMPUS

2. Applicable Codes & Standards

Building	780 CMR - Massachusetts State Building Code 9th Edition, which is an amended version of the 2015 International Building Code (IBC).[1] 780 CMR 34.00 is deleted and replaced by the Massachusetts Existing Building Code (MEBC), which is an amended version of the 2015 International Existing Building Code (IEBC).
Life Safety	2012 Edition of NFPA 101, *Life Safety Code* (NFPA 101) as adopted by the Centers for Medicare & Medicaid Services and the Joint Commission.[2]
Fire Code	527 CMR 1.00 - Massachusetts Comprehensive Fire Safety Code, which is an amended version of the 2021 Edition of NFPA 1, Fire Code.
Plumbing Code	248 CMR 10.00 - Uniform State Plumbing Code.
Electrical Code	527 CMR 12.00 – Massachusetts Electrical Code, which is an amended version of the 2023 Edition of NFPA 70, National Electrical Code.
Mechanical Code	2015 International Mechanical Code (IMC) as amended by 780 CMR 28.00.
Energy Code	2018[3] Edition of the International Energy Conservation Code (IECC) as amended by 780 CMR 13.00.
Accessibility Regulations	521 CMR - Architectural Access Board (AAB) Rules and Regulations 2010 ADA Standards for Accessible Design
Other	Various National Fire Protection Association (NFPA) codes and standards as referenced by the codes listed above

[1] The 10th Edition of 780 CMR is anticipated to be adopted in summer 2023 (as soon as July 1, 2023 but later is more likely).
[2] Applicable to licensed buildings only.
[3] The 2021 Edition of the IECC and MA Stretch Code will be effective on July 1, 2023.

3. Executive Summary

The purpose of this report is to provide the property owner existing conditions information and existing building code analysis that can be utilized in the future projects to the various buildings on campus. The executive summary has been provided to summarize key future project planning considerations from a fire protection and life safety perspective.

Key Future Project Planning Considerations

The following section discusses key considerations relative to future project planning based on potential scopes of work. However, regardless of the scope of work, the building official has the authority to cite the following conditions and require upgrades where they are deemed hazardous relative to a building environment being safe and healthy (780 CMR 102.6.4):

1. Inadequate number of egress
2. Egress components with insufficient width or so arranged to be inadequate, including signage and lighting
3. Inadequate lighting and ventilation

Specific hazardous means of egress conditions that were observed for each building are located within the corresponding existing conditions sections for this report.

The Finnegan Gym/ Pool Complex is not provided with automatic sprinkler protection. Massachusetts General Law, M.G.L Chapter 148 Section 26G requires that sprinkler protection be provided in buildings over 7,500 square feet that undergo major alterations, which is typically enforced as any significant renovation within the building. A memorandum was released by the Massachusetts Sprinkler Appeals Board as an advisory to what work would constitute “major” alterations. That memorandum is located in Appendix A.

The use and occupancy of the Gates Unit should be confirmed in accordance with the facilities Base Building Information Sheet for Joint Commission Accreditation. The existing patient sleeping area observed (Gates Unit) is within buildings that consist of concrete construction and are believed to have concrete bearing walls, minimally resembling Type IB construction. Massachusetts General Law M.G.L. Chapter 111 Section 51 requires that all facilities licensed as hospitals to be constructed of Type IB. The construction type of the building should be confirmed to understand if it can meet the Type IB requirements.

The use and occupancy of the Baylies Cottage Unit, Ellis Cottage Unit, and Ross Cottage Unit are identified as “Hospital or LTC” accordance with the facilities Base Building Information Sheet for Joint Commission Accreditation. The occupancy classification in accordance with 780 CMR is most similar to a Group I-1, Condition 2 use as the residents are not administered medical treatment while occupying the buildings. The construction type of the three buildings is listed as Type II(111) per the BBI sheet (equivalent to Type IIA per 780 CMR). Massachusetts General Law M.G.L. Chapter 111 Section 51 requires that all facilities originally licensed as

hospitals to be constructed of Type IB. If the license status of these buildings changes and a new license must be issued, then Type IB construction may be required for these buildings. However, if they continue to operate in the same manner as they currently operate, then Type IB construction is not required as part of any renovation unless specifically required per the Massachusetts Existing Building Code.

Note that all residential buildings on the campus, as well as select other buildings, are currently provided with sprinkler protection which is required to be maintained. The following table displays the remaining evaluated buildings on the campus and whether Massachusetts General Law, M.G.L Chapter 148 Section 26G is applicable if a major alteration were to occur:

Building	Size	MGL Sprinkler Protection Required?
Administration Building	41,966 ft^2	**Provided**
Brayton High School	108,212 ft^2	**Yes**
Donovan Building	44,703 ft^2	**Yes**
Elementary School	5,739 ft^2	No
New Barn (formerly Horse Barn)	3,050 ft^2	No
Indoor Riding Arena	14,416 ft^2	Yes
Morrison Hall	10,712 ft^2	Yes
New Power Plant	5,800 ft^2	No
Old Power Plant	5,917 ft^2	No
Pinkerton Building	6,570 ft^2	No
Old Laundry/Old Rehab Eng./Storage	4,136 ft^2	No
Superintendent House	5,076 ft^2	No

The assessed value of the campus is required to evaluated against the full and fair cash value based on the CAMIS value assigned by DCAMM for the campus. The full and fair cash value of each building is required to be prorated based on the square footage of each building to the square footage of the entire campus. If the cost of construction for the building undergoing renovation exceeds 30% of the CAMIS value replacement cost of the building, the entire building is required to be fully accessible in accordance with 521 CMR. Please note that variances with 521 CMR can be pursued where there is technical infeasibility or the cost to correct existing accessibility deficiencies does not provide occupants with a substantially greater level of accessible compared to the cost.

4. Building Information

Gates Unit

Hazardous Means of Egress
No hazardous means of egress were observed in the building. An adequate number of exits are provided at all times and no hazardous conditions were observed at the time of the survey.

Occupancy Classification
It is our understanding that the building houses patients on a permanent basis. However, the patients are not receiving medical treatment and rather receive custodial care by staff who are present 24/7. Therefore, the building consists of Group I-1 Condition 2 (Institutional), Group A-2 (Assembly), and Group A-3 (Assembly) primary occupancies (780 CMR 308.4.1.1, 303.3, & 303.4). The accessory occupancies present are Group S-2 (Storage) (780 CMR 304.1, 311.3). The occupancy classifications should be confirmed with the hospitals BBI Sheet.

Construction Type
Existing Condition: The building is constructed with concrete bearing walls and cement slab above. Based on observations during the site survey, the building is minimally Type IB construction (780 CMR 602.2). A fire-resistance rated separation is shown within the assembly spaces on the life safety plans, however this separation does not appear to have been maintained as a fire-resistance rated wall.

Scope of Work: Patient sleeping areas within licensed hospital facilities are required to consist of Type IB construction (M.G.L. Ch. 111 S. 51). A change in occupancy to a higher hazard may trigger an increase in construction type (MEBC 1012.5). An addition to the building would need to comply with the requirements for new construction (MEBC 1101.1). It is anticipated that any renovation is within the allowable height and area limitations for the given occupancies based on Type IB Construction.

Vertical Openings
The building contains a stair to the unoccupied crawl space below. The stair is enclosed in 2-hour rated construction as shown on the life safety plans.

Sprinkler Protection
The building is protected throughout by an automatic sprinkler system. The water supply connections, main drain/auxiliary drain, and control valves are located in the crawl space/basement.



FIGURE 2: SPRINKLER SYSTEM

Fire Alarm

The building is provided with a fire alarm system consisting of pull stations and A/V devices, and smoke detection in corridors and patient rooms. The building has a dedicated fire alarm control panel which reports back to a central point at the guard station and the power plant. The fire alarm panel is shown in the following figure:



FIGURE 3: GATES FACP

The locations of various fixtures are shown in the following figure which is provided at the FACP:

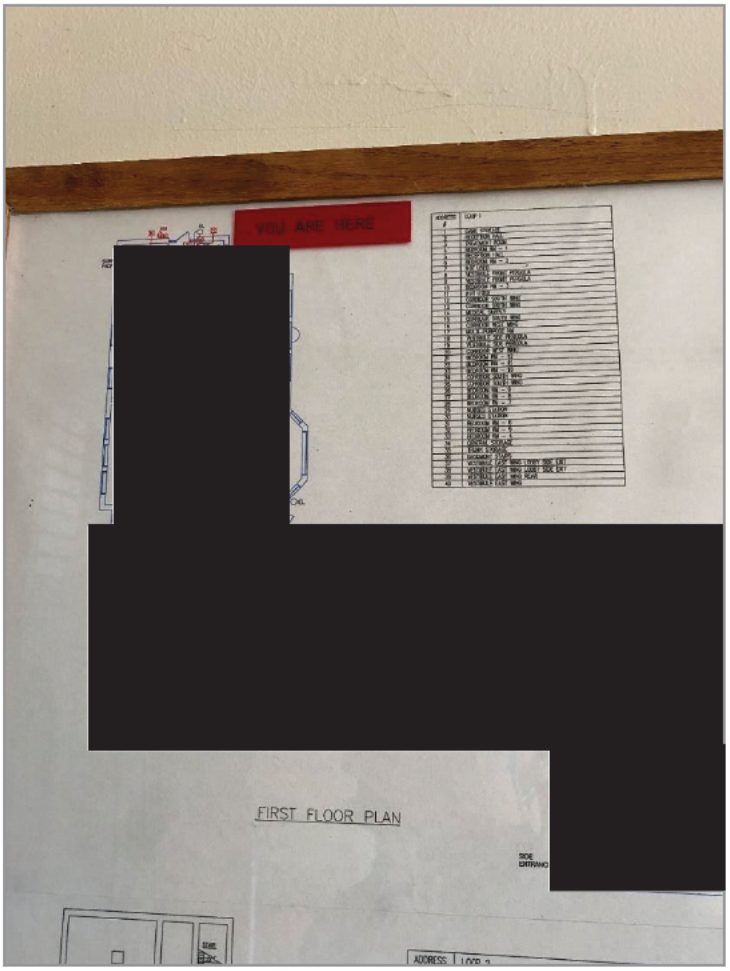


FIGURE 4: GATES UNIT FIRE ALARM DEVICES

Number of Means of Egress
Existing Condition: The building is provided with five exits that discharge to the exterior of the building. This is adequate to support the occupant load of the building based on the calculated occupant load and egress capacity in accordance with 780 CMR. The means of egress have been maintained and no hazardous conditions were observed for the buildings. [redacted]

Scope of Work: A change in occupancy to a higher hazard may trigger an increase in the number of means of egress (MEBC 1012.4). An addition to the building would need to comply with the requirements for new construction (MEBC 1101.1).

Exit Signage
Exit signage is provided throughout the building denoting the exit access paths to various exits.



FIGURE 5: EXISTING EXIT SIGNAGE

Emergency Lighting

Emergency lighting is provided throughout the building through battery backup fixtures.



FIGURE 6: EMERGENCY LIGHTING FIXTURES

Accessibility

The CAMIS replacement value for the Gates Building is $3,619,600. If the cost of any renovation work on the Gates building exceeds 30% of this value, or $1,085,880, then the entire building is required to be accessible in accordance with 521 CMR.

Finnegan Gym / Pool Complex

Hazardous Means of Egress

The following hazardous means of egress were observed during the survey. Regardless of the scope of work, the building official has the authority to cite the following conditions and require upgrades where they are deemed hazardous relative to a building environment being safe and healthy (780 CMR 102.6.4).

- Room #630 is only provided with one marked means of egress which leads to the exterior. The doors back into the building are required to be provided with exit signage in order to provide two means of egress for the room (780 CMR 1006.2.1).

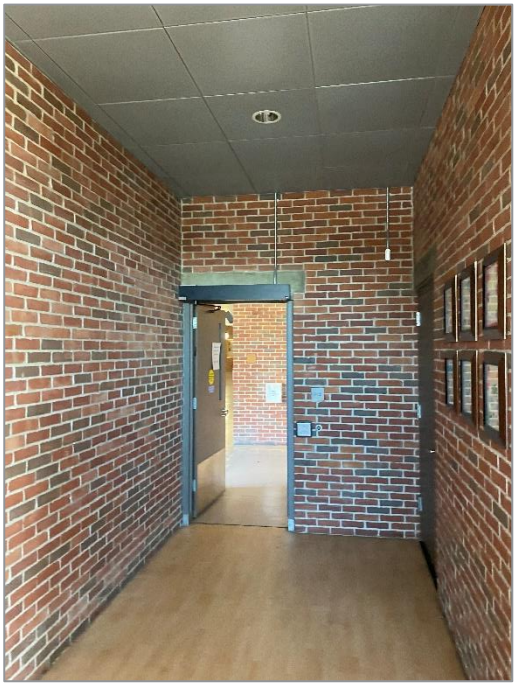


FIGURE 7: EXIT SIGNAGE REQUIRED

- The sliding doors plan north, plan east, and plan west that lead to the exterior are provided with deadbolts on the egress side. Manually operated flush bolts or surface bolts which require more than one operation to open the door are not permitted (780 CMR 1010.1.9.4).

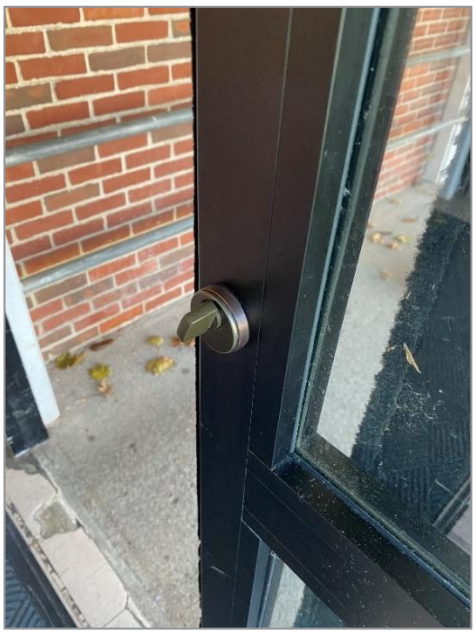


FIGURE 8: MANUAL LOCK IN EGRESS DOOR

- The triple exit doors plan north and plan east do not lead directly to a paved path and contains a step at the door. The exit discharge is required to provide a direct and unobstructed access to a public way (780 CMR 1028.5).

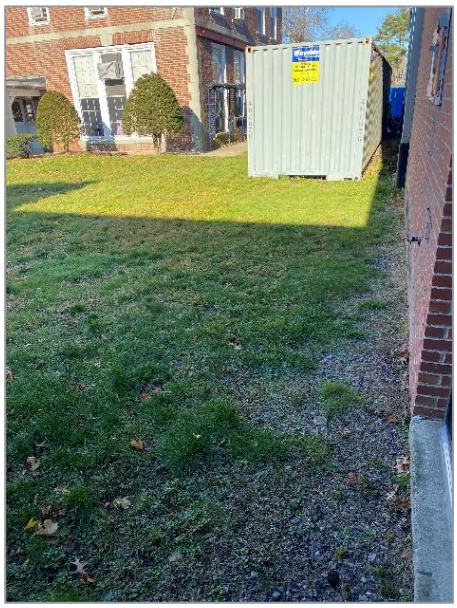


FIGURE 9: EXIT DISCHARGE PATH

- The triple exit doors plan north and plan east are provided with small lips. Door thresholds much not exceed ½ inch in height. Raised thresholds greater than ¼ inch are required to be beveled and are required to be level on both sides of doors (780 CMR 1010.1.6-7).



FIGURE 10: EXCESSIVE THRESHOLD AT EXTERIOR DOOR

- The double exit doors plan north out of the gymnasium required excessive force to open. Door opening force must not exceed 15 pounds and must be readily operable at all times (780 CMR 1010.1.3).



FIGURE 11: EXIT DOORS WHICH REQUIRE EXCESSIVE FORCE

Occupancy Classification
The building consists of Group A-2 (Assembly), Group A-3 (Assembly), Group A-4, Assembly, Group A-5, Assembly and Group S-2 (Storage) primary occupancies (780 CMR 303.3, 303.4, & 311.3). The building contains Group B (Business) as an accessory occupancy (780 CMR 304.1).

Construction Type
Existing Condition: The swimming pool portion of the building is constructed with a wood roof and brick exterior, and the remainder of the building appears to be minimally constructed with unprotected steel structure. Based on observations during the site survey, the building is minimally Type IIIB construction as no building separations are provided (780 CMR 602.3). It should be noted that the swimming pool portion of the building appears to be separated from the remainder of the building utilizing a 2-hour separation and 90-minute opening protectives, however the classification of this separation was not confirmed.

Scope of Work: A change in occupancy to a higher hazard may trigger an increase in construction type (MEBC 1012.5). An addition to the building would need to comply with the requirements for new construction (MEBC 1101.1). Based on the area limitations for Group A spaces, it is likely that fire walls or an upgrade to construction type would be needed if a change of occupancy to a higher hazard or an addition were to occur.

Vertical Openings
Two enclosed exit stairs and one elevator shaft were observed within the building.

Sprinkler Protection
Existing Condition: The building is not protected throughout by an automatic sprinkler system. Existing hose connections are provided in various areas throughout the building, however it is our understanding that those connections are no longer in service. The building also contains a commercial hood ANSUL suppression system in the commercial kitchen.



FIGURE 12: EXISTING HOSE CONNECTION

Scope of Work: Massachusetts General Law, M.G.L Chapter 148 Section 26G requires that sprinkler protection be provided in buildings over 7,500 square feet that undergo major alterations, which is typically enforced as any significant renovation within the building. This requirement is enforced by the head of the Fire Department.

Fire Alarm

The building is provided with a fire alarm system consisting of pull stations and A/V devices. The fire alarm control panel is located within the janitor closet Room X01 adjacent to the dining hall. The fire alarm control panel is shown in the following photo:



FIGURE 13: FINNEGAN FACP

Number of Means of Egress

Existing Condition: The building is provided with ten exits that discharge to the exterior of the building and one exit stair that discharges to the interior of the building on the First Floor. The Ground Floor is provided with three exits that discharge to the exterior of the building and one exit stair that discharges to the interior of the building. This is adequate to support the occupant load of the building based on the calculated occupant load and egress capacity in accordance with 780 CMR.

Scope of Work: A change in occupancy to a higher hazard may trigger an increase in the number of means of egress (MEBC 1012.4). An addition to the building would need to comply with the requirements for new construction (MEBC 1101.1).

Exit Signage
Exit signage is provided throughout the building, except where deficiencies are specifically noted.

Emergency Lighting
Dedicated emergency lighting fixtures were not observed throughout the building. It is our understanding that generator power is provided for all patient care areas, but not the Finnegan building.

Scope of work: Any reconfiguration of space or project work which encompasses at least 50% of the floor area of the building will require emergency lighting to be provided within the work area (MEBC 805.7.1).

Accessibility
The CAMIS replacement value for the Finnegan Recreation Complex Building is $22,597,250. If the cost of any renovation work on the Gates building exceeds 30% of this value, or $6,779,175, then the entire building is required to be accessible in accordance with 521 CMR.

Baylies Cottage Unit

Hazardous Means of Egress
No hazardous means of egress were observed in the building. An adequate number of exits are provided at all times and no hazardous conditions were observed at the time of the survey.

Occupancy Classification
It is our understanding that the building houses patients on a permanent basis. However, the patients are not receiving medical treatment and rather receive custodial care by staff who are present 24/7. Therefore, the building consists of Group I-1 Condition 2 (Institutional), Group A-2 (Assembly), Group A-3 (Assembly), Group B (Business) and Group S-2 (Storage) primary occupancies (780 CMR 308.4.1.1, 303.3, 303.4, 304.1 & 311.3).

Construction Type
Existing Condition: The building is constructed with a masonry exterior and concrete bearing walls with wooden roof. The Facility BBI sheet lists the building as Type IIA/Type II(111). The wooden roof is not permitted within a Type II building unless it is fire-retardant treated (780 CMR 603.1-1.3) or is considered heavy timber (780 CMR Table 601 footnote c). It should be confirmed with the structural engineer whether the wood roof qualifies for one of these two exceptions.

Scope of Work: A change in occupancy to a higher hazard may trigger an increase in construction type (MEBC 1012.5). An addition to the building would need to comply with the requirements for new construction (MEBC 1101.1). It is anticipated that any renovation is within the allowable height and area limitations for the given occupancies based on Type IIA Construction, however it should be noted that a change of licensing status could affect the construction type requirements relative to M.G.L. Ch. 111 S. 51 for the license of a hospital.

Vertical Openings
Based on field observations, the building does not contain vertical openings. It should be noted that a previous vertical opening existed between Level 1 and the Basement, however this stair was sealed off with what appears to be construction equivalent to the floor construction of the building.

Sprinkler Protection
The building is protected throughout by an automatic sprinkler system. The building contains a fire department connection at the rear stair exit door.

Fire Alarm
The building is provided with a fire alarm system consisting of pull stations and A/V devices, and smoke detection in corridors and patient rooms. The building has a dedicated addressable fire alarm control panel which reports back to a central point at the guard station and the power plant. The fire alarm panel is shown in the

following figure and is located in the Basement rear stair (which is no longer a stair):

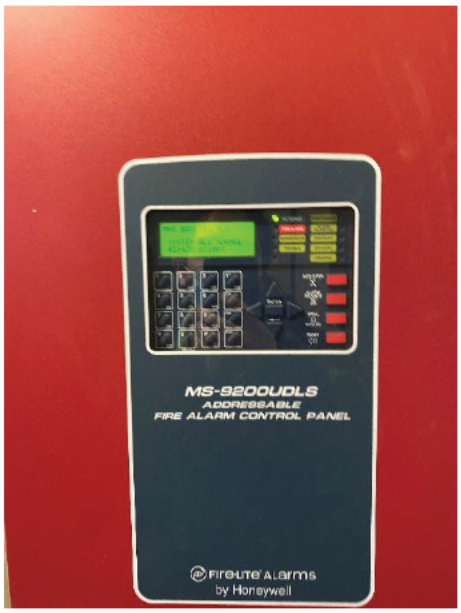


FIGURE 14: BAYLIES COTTAGE UNIT FACP

Number of Means of Egress
Existing Condition: The building is provided with two exits on the first floor and two exits in the basement that discharge to the exterior of the building. This is adequate to support the occupant load of the building based on the calculated occupant load and egress capacity in accordance with 780 CMR. The means of egress have been maintained and no hazardous conditions were observed for the buildings. [redacted]

Scope of Work: A change in occupancy to a higher hazard may trigger an increase in the number of means of egress (MEBC 1012.4). An addition to the building would need to comply with the requirements for new construction (MEBC 1101.1).

Exit Signage
Exit signage is provided throughout the building denoting the exit access paths to various exits.



FIGURE 15: BAYLIES EXIT SIGNAGE

Emergency Lighting

Dedicated emergency lighting fixtures were not observed throughout the building. It is our understanding that generator power is provided for Baylies and Ellis, so it is our understanding that the generator serves the emergency lighting for the building.



FIGURE 16: GENERATOR SERVING BAYLIES AND ELLIS

Scope of work: Any reconfiguration of space or project work which encompasses at least 50% of the floor area of the building will require emergency lighting to be provided within the work area (MEBC 805.7.1).

Accessibility
The CAMIS replacement value for Baylies Cottage Unit is $4,600,000. If the cost of any renovation work on Baylies Cottage Unit exceeds 30% of this value, or $1,380,000, then the entire building is required to be accessible in accordance with 521 CMR. Note that a detailed accessibility audit was completed by KMA on 7/21/2015 for information regarding specific accessibility deficiencies (5 deficiencies noted) associated with the building.

Ross Cottage Unit

Hazardous Means of Egress
No hazardous means of egress were observed in the building. An adequate number of exits are provided at all times and no hazardous conditions were observed at the time of the survey.

Occupancy Classification
It is our understanding that the building houses patients on a permanent basis. However, the patients are not receiving medical treatment and rather receive custodial care by staff who are present 24/7. Therefore, the building consists of Group I-1 Condition 2 (Institutional), Group A-2 (Assembly), Group A-3 (Assembly), Group B (Business) and Group S-2 (Storage) primary occupancies (780 CMR 308.4.1.1, 303.3, 303.4, 304.1 & 311.3).

Construction Type
Existing Condition: The building is constructed with a masonry exterior and concrete bearing walls with wooden roof. The Facility BBI sheet lists the building as Type IIA/Type II(111). The wooden roof is not permitted within a Type II building unless it is fire-retardant treated (780 CMR 603.1-1.3) or is considered heavy timber (780 CMR Table 601 footnote c). It should be confirmed with the structural engineer whether the wood roof qualifies for one of these two exceptions.

Scope of Work: A change in occupancy to a higher hazard may trigger an increase in construction type (MEBC 1012.5). An addition to the building would need to comply with the requirements for new construction (MEBC 1101.1). It is anticipated that any renovation is within the allowable height and area limitations for the given occupancies based on Type IIA Construction, however it should be noted that a change of licensing status could affect the construction type requirements relative to M.G.L. Ch. 111 S. 51 for the license of a hospital.

Vertical Openings
Based on field observations, the building does not contain vertical openings. It should be noted that a previous vertical opening existed between Level 1 and the Basement, however this stair was sealed off with what appears to be construction equivalent to the floor construction of the building.

Sprinkler Protection
The building is protected throughout by an automatic sprinkler system. The sprinkler control valve for the building is located in the sub basement. The building contains a fire department connection at the rear stair exit door.

Fire Alarm
The building is provided with a fire alarm system consisting of pull stations and A/V devices, and smoke detection in corridors and patient rooms. The building has a dedicated fire alarm control panel located within the rear stair (which no longer

serves as a stair) which reports back to a central point at the guard station and the power plant. The fire alarm control panel is shown in the following figure:



FIGURE 17: ROSS FIRE ALARM CONTROL PANEL

Number of Means of Egress

Existing Condition: The building is provided with two exits on the first floor and two exits in the basement that discharge to the exterior of the building. This is adequate to support the occupant load of the building based on the calculated occupant load and egress capacity in accordance with 780 CMR. The means of egress have been maintained and no hazardous conditions were observed for the buildings. [redacted]

Scope of Work: A change in occupancy to a higher hazard may trigger an increase in the number of means of egress (MEBC 1012.4). An addition to the building would need to comply with the requirements for new construction (MEBC 1101.1).

It should be noted that the existing life safety plans for the building indicate that there are three exits on Level 1. However, one of the exits on site (second exit from the day room/lobby onto the side patio) is marked with a “NO EXIT” sign such that it is not utilized as an exit.

Exit Signage

Exit signage is provided throughout the building denoting the exit access paths to various exits.

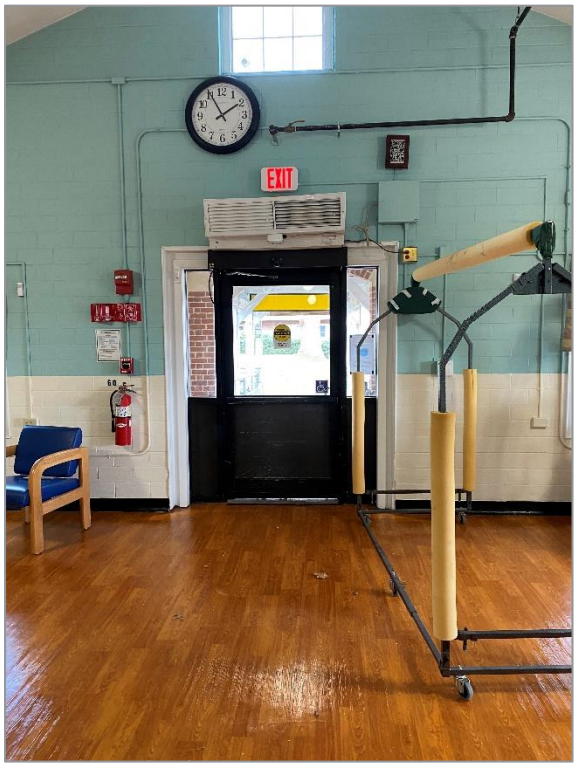


FIGURE 18: ROSS EXIT DOOR

Emergency Lighting

Dedicated emergency lighting fixtures were not observed throughout the building. It is our understanding that generator power is provided for Ross and Gates.

Scope of work: Any reconfiguration of space or project work which encompasses at least 50% of the floor area of the building will require emergency lighting to be provided within the work area (MEBC 805.7.1).

Accessibility

The CAMIS replacement value for the Ross Cottage Unit is $4,600,000. If the cost of any renovation work on the Ross Cottage Unit exceeds 30% of this value, or $1,380,000, then the entire building is required to be accessible in accordance with 521 CMR. Note that a detailed accessibility audit was completed by KMA on 7/21/2015 for information regarding specific accessibility deficiencies (9 deficiencies noted) associated with the building.

Ellis Cottage Unit

Hazardous Means of Egress

At the time of the survey, a path outside of one of the basement level exits was observed to be in partial disrepair as shown in the figure below:



FIGURE 19: ELLIS COTTAGE HAZARDOUS MEANS OF EGRESS

Occupancy Classification

It is our understanding that the building houses patients on a permanent basis. However, the patients are not receiving medical treatment and rather receive custodial care by staff who are present 24/7. Therefore, the building consists of Group I-1 Condition 2 (Institutional), Group A-2 (Assembly), Group A-3 (Assembly), Group B (Business) and Group S-2 (Storage) primary occupancies (780 CMR 308.4.1.1, 303.3, 303.4, 304.1 & 311.3).

Construction Type

Existing Condition: The building is constructed with a masonry exterior and concrete bearing walls with wooden roof. The Facility BBI sheet lists the building as Type IIA/Type II(111). The wooden roof is not permitted within a Type II building unless it is fire-retardant treated (780 CMR 603.1-1.3) or is considered heavy timber (780 CMR Table 601 footnote c). It should be confirmed with the structural engineer whether the wood roof qualifies for one of these two exceptions.

Scope of Work: A change in occupancy to a higher hazard may trigger an increase in construction type (MEBC 1012.5). An addition to the building would need to comply with the requirements for new construction (MEBC 1101.1). It is anticipated that any renovation is within the allowable height and area limitations for the given occupancies based on Type IIA Construction, however it should be noted that a change of licensing status could affect the construction type requirements relative to M.G.L. Ch. 111 S. 51 for the license of a hospital.

Vertical Openings
Based on field observations, the building does not contain vertical openings. It should be noted that a previous vertical opening existed between Level 1 and the Basement, however this stair was sealed off with what appears to be construction equivalent to the floor construction of the building.

Sprinkler Protection
The building is protected throughout by an automatic sprinkler system and contains a fire department connection at the rear stair exit door.

Fire Alarm
The building is provided with a fire alarm system consisting of pull stations and A/V devices, and smoke detection in corridors and patient rooms. The building has a dedicated fire alarm control panel which reports back to a central point at the guard station and the power plant. The fire alarm panel is shown in the following figure:



FIGURE 20: ELLIS COTTAGE FACP

Number of Means of Egress
Existing Condition: The building is provided with two exits from the first floor and two exits from the basement that discharge to the exterior of the building. This is adequate to support the occupant load of the building based on the calculated occupant load and egress capacity in accordance with 780 CMR.

Scope of Work: A change in occupancy to a higher hazard may trigger an increase in the number of means of egress (MEBC 1012.4). An addition to the building would need to comply with the requirements for new construction (MEBC 1101.1).

Exit Signage
Exit signage is provided throughout the building denoting the exit access paths to various exits.

Emergency Lighting
Dedicated emergency lighting fixtures were not observed throughout the building. It is our understanding that generator power is provided for Baylies and Ellis.

Scope of work: Any reconfiguration of space or project work which encompasses at least 50% of the floor area of the building will require emergency lighting to be provided within the work area (MEBC 805.7.1).

Accessibility
The CAMIS replacement value for Ellis Cottage Unit is $4,600,000. If the cost of any renovation work on Ellis Cottage Unit exceeds 30% of this value, or $1,380,000, then the entire building is required to be accessible in accordance with 521 CMR. Note that a detailed accessibility audit was completed by KMA on 7/21/2015 for information regarding specific accessibility deficiencies (12 deficiencies noted) associated with the building.

Bradford Building

Hazardous Means of Egress
No hazardous means of egress were observed in the building. An adequate number of exits are provided at all times and no hazardous conditions were observed at the time of the survey.

Occupancy Classification
It is our understanding that the building houses patients on a permanent basis. However, the patients are not receiving medical treatment and rather receive custodial care by staff who are present 24/7. Therefore, the building consists of Group I-1 Condition 2 (Institutional), Group A-2 (Assembly), Group A-3 (Assembly), Group B (Business) and Group S-2 (Storage) primary occupancies (780 CMR 308.4.1.1, 303.3, 303.4, 304.1 & 311.3).

Construction Type
Existing Condition: According to an existing conditions report, the building is constructed of a masonry envelope with a steel and concrete frame. The hospital BBI sheet lists a construction type of Type I(332), which is equivalent to Type IA per 780 CMR. A 2-hour fire-resistance rated separation is provided between the Bradford building and the connected Nelson Building, however it is our understanding that the buildings are of equivalent construction types.

Scope of Work: A change in occupancy to a higher hazard may trigger an increase in construction type (MEBC 1012.5). An addition to the building would need to comply with the requirements for new construction (MEBC 1101.1). It is anticipated that any renovation is within the allowable height and area limitations for the given occupancies based on Type IA Construction.

Vertical Openings
The building contains two stairs and an elevator shaft. The stairs are enclosed in 2-hour rated construction as shown on the life safety plans. Opening protectives are noted to be 90-minute rated, however some openings had deficiencies associated with missing door/frame labels.

Sprinkler Protection
The building is protected throughout by an automatic sprinkler system. Sprinkler control valves are located in various areas throughout the building.



FIGURE 21: BRADFORD BUILDING CONTROL VALVE

Fire Alarm

The building is provided with a fire alarm system consisting of pull stations and A/V devices, and smoke detection in corridors and patient rooms. The building has a dedicated fire alarm control panel which reports back to a central point at the guard station and the power plant. The fire alarm panel is shown in the following figure.

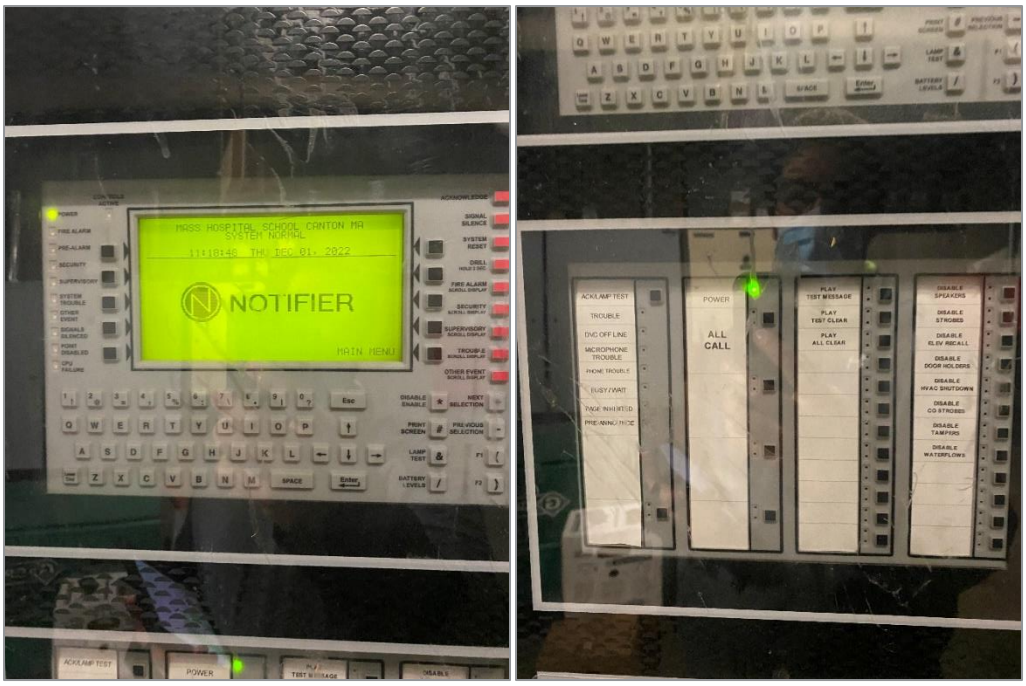


FIGURE 22: BRADFORD/NELSON FACP

The locations of various fixtures are shown in the following figure which is provided at the FACP:

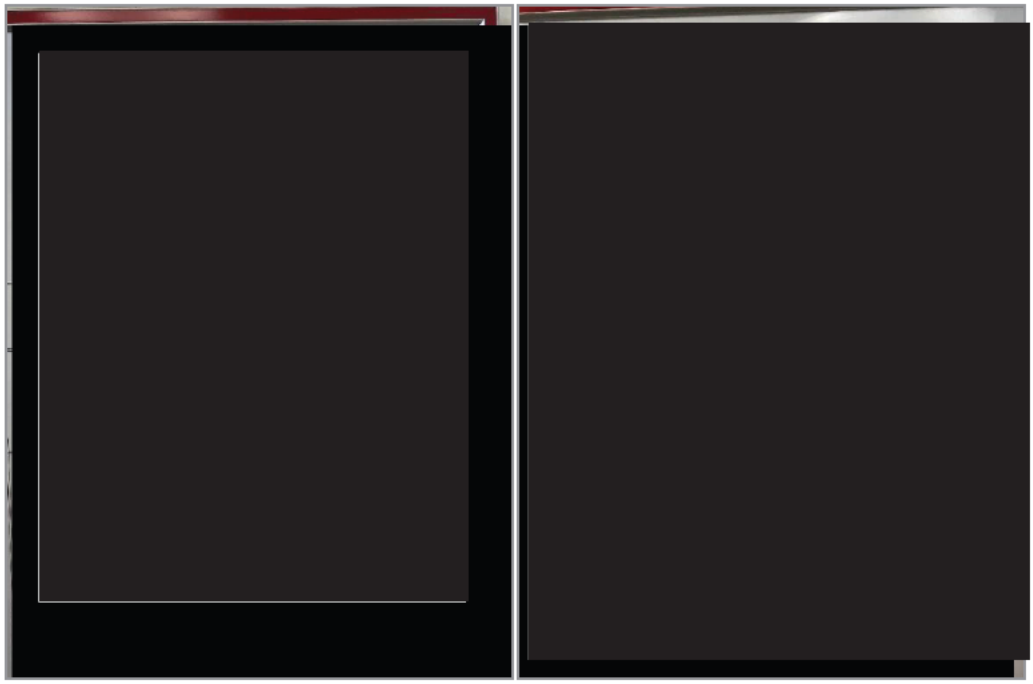


FIGURE 23: BRADFORD/NELSON FIRE ALARM DEVICES

Number of Means of Egress
Existing Condition: The building is provided with six exits that discharge to the exterior of the building on each floor and two exits through the building separation into the Nelson Building. Although the buildings contain three stairways, none of the stairways are a marked means of egress as both floors have exits directly to the exterior. The means of egress have been maintained and no hazardous conditions were observed for the buildings.

Scope of Work: A change in occupancy to a higher hazard may trigger an increase in the number of means of egress (MEBC 1012.4). An addition to the building would need to comply with the requirements for new construction (MEBC 1101.1).

Exit Signage
Exit signage is provided throughout the building denoting the exit access paths to various exits.

Emergency Lighting
It is our understanding that emergency lighting is provided throughout the building through a generator.

Accessibility

The CAMIS replacement value for Bradford is $30,268,000. If the cost of any renovation work on the Bradford building exceeds 30% of this value, or $9,080,400, then the entire building is required to be accessible in accordance with 521 CMR. Note that a detailed accessibility audit was completed by KMA on 7/21/2015 for information regarding specific accessibility deficiencies (12 deficiencies noted) associated with the building.

Nelson Building

Hazardous Means of Egress
No hazardous means of egress were observed in the building. An adequate number of exits are provided at all times and no hazardous conditions were observed at the time of the survey.

Occupancy Classification
It is our understanding that the building houses patients on a permanent basis. However, the patients are not receiving medical treatment and rather receive custodial care by staff who are present 24/7. Therefore, the building consists of Group I-1 Condition 2 (Institutional), Group A-2 (Assembly), Group A-3 (Assembly), Group B (Business) and Group S-2 (Storage) primary occupancies (780 CMR 308.4.1.1, 303.3, 303.4, 304.1 & 311.3).

Construction Type
Existing Condition: According to an existing conditions report, the building is constructed of a masonry envelope with a steel and concrete frame. The hospital BBI sheet lists a construction type of Type I(332), which is equivalent to Type IA per 780 CMR. A 2-hour fire-resistance rated separation is provided between the Nelson building and the connected Bradford Building, however it is our understanding that the buildings are of equivalent construction types.

Scope of Work: A change in occupancy to a higher hazard may trigger an increase in construction type (MEBC 1012.5). An addition to the building would need to comply with the requirements for new construction (MEBC 1101.1). It is anticipated that any renovation is within the allowable height and area limitations for the given occupancies based on Type IA Construction.

Vertical Openings
The building contains two stairs and an elevator shaft. The stairs are enclosed in 2-hour rated construction as shown on the life safety plans. Opening protectives are noted to be 90-minute rated, however some openings had deficiencies associated with missing door/frame labels.

Sprinkler Protection
The building is protected throughout by an automatic sprinkler system. Sprinkler control valves are located in various areas throughout the building.

Fire Alarm
The building is provided with a fire alarm system consisting of pull stations and A/V devices, and smoke detection in corridors and patient rooms. The building has a dedicated fire alarm control panel which reports back to a central point at the guard station and the power plant. The fire alarm panel is shown in the following figure.

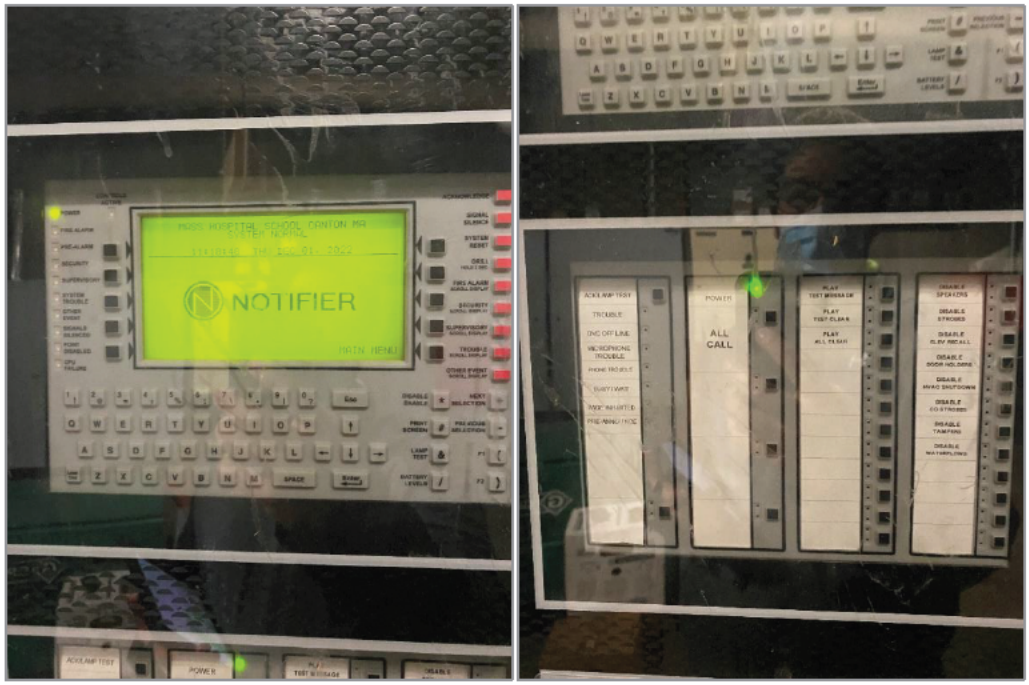


FIGURE 24: BRADFORD/NELSON FACP

The locations of various fixtures are shown in the following figure which is provided at the FACP:



FIGURE 25: BRADFORD/NELSON FIRE ALARM DEVICES

Number of Means of Egress

Existing Condition: The building is provided with six exits that discharge to the exterior of the building on each floor and two exits through the building separation

into the Nelson Building. Although the buildings contain three stairways, none of the stairways are a marked means of egress as both floors have exits directly to the exterior. The means of egress have been maintained and no hazardous conditions were observed for the buildings. [redacted]

Scope of Work: A change in occupancy to a higher hazard may trigger an increase in the number of means of egress (MEBC 1012.4). An addition to the building would need to comply with the requirements for new construction (MEBC 1101.1).

Exit Signage
Exit signage is provided throughout the building denoting the exit access paths to various exits.

Emergency Lighting
It is our understanding that emergency lighting is provided throughout the building through a generator.

Accessibility
The CAMIS replacement value for the Nelson building is $66,378,000. If the cost of any renovation work on the Nelson building exceeds 30% of this value, or $19,913,400, then the entire building is required to be accessible in accordance with 521 CMR. Note that a detailed accessibility audit was completed by KMA on 7/21/2015 for information regarding specific accessibility deficiencies (12 deficiencies noted) associated with the building.

Existing Building Summary – Administration Building

Existing Use and Occupancy:	Primary Use(s): Group B, Business; Group S-2, Storage; Group F-1, Moderate-hazard Factory Industrial (Kitchen)	Accessory Use(s): N/A
Special Use(s):	N/A	
Construction Type:	The building is constructed of a masonry exterior as well as wood floors with lath & plaster. Based on observations during the site survey, the building is minimally Type IIIB construction by the standards of the 9th edition of 780 CMR.	
Building Separations:	No building separations were observed within the building as Administration is not connected to any adjacent buildings.	
Height:	3 Stories with a basement	
Area:	Maximum footprint area: Approximately 12,995 ft^2 Aggregate Area: 41,966 ft^2	
Vertical Openings:	The building contains 4 interior staircases, two of which are enclosed.	
Automatic Sprinkler System:	Based on field observations, the building is protected by an automatic sprinkler system.	
Fire Alarm System:	A fire alarm control system is provided throughout the building. Voice notification, A/V notification, and pull-stations were all observed in the building. Smoke detectors were also observed throughout.	
Means of Egress:	The building is provided with eight exits that discharge to the exterior of the building which includes a fire escape stair from the second floor, and another from the third floor.	
Hazardous Means of Egress:	Based on field observations, the two fire escape stairs are in disrepair and are required to be repaired and maintained if they are to be considered means of egress. The fire escape from Level 2 needs to provide a clear path and the broken step from Level 3 needs to be repaired. See Figures 2 & 3 below.	



Figures 26 & 27: Fire Escape Stairs from Levels 2 and 3 of the Administration Building

Additionally, the exit from the basement level was (1) not illuminated, (2) obstructed by miscellaneous items, and (3) missing a railing leading up to the exit corridor. See Figure 4 & 5 below.



Figures 28 & 29: Basement Level Exit from the Administration Building

Exit Signage and Emergency Lighting:	Based on field observations of the building illuminated exit signage and emergency lighting are provided in the building.

Accessibility:	The CAMIS replacement value for the Administration building is $37,769,400. If the cost of any renovation work on the Administration building exceeds 30% of this value, or $11,330,820.00, then the entire building is required to be accessible in accordance with 521 CMR.

Existing Building Summary – Brayton High School

Existing Use and Occupancy:	Primary Use(s): Group E, Education; Group A-1; Group A-3, Assembly; Group S-2, Parking	Accessory Use(s): Group B, Business
Special Use(s):	N/A	
Construction Type:	According to the existing building report, the building is comprised of a concrete frame, enclosed by insulated masonry walls and non-insulated steel frame glazing systems. Based on this, the building is minimally Type IB construction.	
Building Separations:	No building separations were observed within the building as Brayton School is not connected to any adjacent buildings.	
Height:	1 Story with a basement parking garage	
Area:	108,312 ft^2	
Vertical Openings:	Based on field observations and provided floorplans, the building contains two vertical openings, one of which is an enclosed staircase for roof access.	
Automatic Sprinkler System:	Based on field observations, the building is not protected by an automatic sprinkler system.	
Fire Alarm System:	Based on field observations, a fire alarm control system is provided in the building. Pull stations, A/V appliances, and smoke detection were all observed.	
Means of Egress:	The building is provided with 15 exits that discharge to the exterior of the building.	
Exit Signage and Emergency Lighting:	Based on field observations of the building, exit signage and emergency lighting are not provided.	
Accessibility:	The CAMIS replacement value for the Brayton High School is $70,402,800. If the cost of any renovation work on the Brayton High School exceeds 30% of this value, or $21,120,840, then the entire building is required to be accessible in accordance with 521 CMR.	

Existing Building Summary – Donovan Building

Existing Use and Occupancy:	Primary Use(s): Group B, Business; Group S-2 Light Hazard Storage.	Accessory Use(s): Group A-3, Lounge
Special Use(s):	N/A	
Construction Type:	Based on field observations, the building is constructed of a masonry envelope with a steel and concrete frame. Based on this, the building is minimally Type IIB construction by the standards of the 9th edition of 780 CMR.	
Building Separations:	No building separations were observed within the building as the Donovan Building is not connected to any adjacent buildings.	
Height:	3 Stories with a basement	
Area:	Maximum footprint area: Approximately 11,445 ft^2 Aggregate Area: 44,703 ft^2	
Vertical Openings:	Based on field observations, the building contains 3 enclosed staircases and an elevator shaft.	
Automatic Sprinkler System:	Based on field observations, the building is not provided with an automatic sprinkler system.	
Fire Alarm System:	Based on field observations, a fire alarm control system is provided throughout the building. Pull-stations and A/V notification were all observed within the building. Smoke detectors were also observed.	
Means of Egress:	The building is provided with three enclosed exit stairs which all discharge directly to the exterior as well as three exits on Level 1 that discharge to the exterior of the building.	
Exit Signage and Emergency Lighting:	Based on field observations of the building, illuminated exit signage and backup battery emergency lighting is provided throughout.	
Accessibility:	The CAMIS replacement value for the Donovan Building is $17,881,200. If the cost of any renovation work on the Donovan Building exceeds 30% of this value, or $5,364,360.00, then the entire building is required to be accessible in accordance with 521 CMR.	

Existing Building Summary – Elementary School

Existing Use and Occupancy:	Primary Use(s): Group E, Educational	Accessory Use(s): Group B, Office
Special Use(s):	N/A	
Construction Type:	The building is constructed of masonry exterior with unprotected wood roof construction. Based on field observations and the existing conditions report, the building is minimally Type IIIB construction by the standards of the 9th edition of 780 CMR.	
Building Separations:	No building separations were observed within the building as Elementary School is not connected to any adjacent buildings.	
Height:	1 Story	
Area:	Maximum footprint area: Approximately 5,739 ft^2 Aggregate Area: 5,739 ft^2	
Vertical Openings:	Based on field observations, the building does not contain vertical openings.	
Automatic Sprinkler System:	Based on field observations, the building is provided with an automatic sprinkler system.	
Fire Alarm System:	Based on field observations, a fire alarm control system is provided throughout the building. Pull-stations and A/V notification were all observed within the building. Smoke detectors were also observed within the main corridor.	
Means of Egress:	The building is provided with nine exits that discharge to the exterior of the building. Six of these exits are provided in each classroom throughout the building.	
Exit Signage and Emergency Lighting:	Based on field observations of the building, illuminated exit signage and emergency lighting is provided throughout.	
Accessibility:	The CAMIS replacement value for the Elementary School is $3,730,350. If the cost of any renovation work on the Elementary School exceeds 30% of this value, or $1,119,105, then the entire building is required to be accessible in accordance with 521 CMR.	

Existing Building Summary – New Barn (formerly Horse Barn)

Existing Use and Occupancy:	Primary Use(s): Group U, Utility	Accessory Use(s): N/A
Special Use(s):	N/A	
Construction Type:	According to the building certificate, the building is Type VB construction.	
Building Separations:	No building separations were observed within the building as Horse Barn is not connected to any adjacent buildings.	
Height:	1 Story with a mezzanine	
Area:	Maximum footprint area: Approximately 3,050 ft^2 Aggregate Area: 3,050 ft^2	
Vertical Openings:	Based on field observations the building contains a two-story vertical opening into the mezzanine level.	
Automatic Sprinkler System:	Based on field observations, the building is not protected by an automatic sprinkler system.	
Fire Alarm System:	Based on field observations, a fire alarm control system is not provided throughout the building.	
Means of Egress:	The building is provided with two exits that discharge to the exterior of the building.	
Exit Signage and Emergency Lighting:	Based on field observations of the building, exit signage and emergency lighting is not provided.	
Accessibility:	The CAMIS replacement value for the horse barn is $1,220,000. If the cost of any renovation work on the Indoor Riding Arena exceeds 30% of this value, or $366,000, then the entire building is required to be accessible in accordance with 521 CMR.	

Existing Building Summary – Indoor Riding Arena

Existing Use and Occupancy:	Primary Use(s): Group A-3, Assembly	Accessory Use(s): Group U, Utility and Miscellaneous
Special Use(s):	N/A	
Construction Type:	According to the existing building report, the building is comprised of a pre-manufactured steel building frame supported by a concrete foundation. Based on this, the building is minimally Type IIB construction by the standards of the 9th edition of 780 CMR.	
Building Separations:	No building separations were observed within the building as Indoor Riding Arena is not connected to any adjacent buildings.	
Height:	1 Story with a mezzanine.	
Area:	Maximum footprint area: Approximately 14,416 ft^2 Aggregate Area: 14,416 ft^2	
Vertical Openings:	Based on field observations the building contains a vertical opening into the mezzanine level.	
Automatic Sprinkler System:	Based on field observations, the building is not protected by an automatic sprinkler system.	
Fire Alarm System:	Based on field observations, a fire alarm control system is provided throughout the building. Horn/strobes, pull-stations, and A/V notification were all observed within the building. Heat and smoke detectors were also observed throughout.	
Means of Egress:	The building is provided with three exits that discharge to the exterior of the building.	
Exit Signage and Emergency Lighting:	Based on field observations of the building, illuminated exit signage and emergency lighting is provided in the building.	
Accessibility:	The CAMIS replacement value for Indoor Riding Arena is $5,045,600. If the cost of any renovation work on the Indoor Riding Arena exceeds 30% of this value, or $1,513,680, then the entire building is required to be accessible in accordance with 521 CMR.	

Existing Building Summary – Morrison Hall

Existing Use and Occupancy:	Primary Use(s): Group S-2	Accessory Use(s): N/A
Special Use(s):	N/A	
Construction Type:	The building is constructed of masonry exterior with unprotected steel and wood interior construction. Based on field observations, the building is minimally Type IIIB construction by the standards of the 9th edition of 780 CMR.	
Building Separations:	No building separations were observed within the building as Morrison Hall is not connected to any adjacent buildings.	
Height:	2 Stories	
Area:	Aggregate Area: 10,712 ft^2	
Vertical Openings:	Based on field observations the building contains a two-story vertical opening.	
Automatic Sprinkler System:	Based on field observations, the building is not protected by an automatic sprinkler system.	
Fire Alarm System:	Based on field observations, a fire alarm control system is provided throughout the building. Pull stations and A/V notification were observed within the building.	
Means of Egress:	The building is provided with five exits that discharge to the exterior of the building.	
Exit Signage and Emergency Lighting:	Based on field observations of the building, exit signage and emergency lighting is not provided in the building.	
Accessibility:	The CAMIS replacement value for Morrison Hall is $9,105,200. If the cost of any renovation work on Morrison Hall exceeds 30% of this value, or $2,731,560, then the entire building is required to be accessible in accordance with 521 CMR.	

Existing Building Summary – New Power Plant

Existing Use and Occupancy:	Primary Use(s): Group S-2, Storage	Accessory Use(s): N/A
Special Use(s):	N/A	
Construction Type:	The building is constructed of CMU blocking with unprotected steel and metal decking. Based on the existing condition report as well as observations during the site survey, the building is minimally Type IIB construction by the standards of the 9th edition of 780 CMR.	
Building Separations:	No building separations were observed within the building as New Power Plant is not connected to any adjacent buildings.	
Height:	1 Story with a mezzanine	
Area:	Maximum footprint area: Approximately 5,800 ft^2 Aggregate Area: 5,800 ft^2	
Vertical Openings:	Based on field observations the building contains a two-story vertical opening into the mezzanine.	
Automatic Sprinkler System:	Based on field observations, the building is not protected by an automatic sprinkler system. The building contains a fire pump which serves the sprinkler protected buildings on the campus.	
Fire Alarm System:	Based on field observations, a fire alarm control system is provided in the building. Pull stations, visual appliances, and alarm bells were all observed.	
Means of Egress:	The building is provided with 3 exits that discharge to the exterior of the building.	
Exit Signage and Emergency Lighting:	Based on field observations of the building, illuminated exit signage and emergency lighting is provided in the building.	
Accessibility:	The CAMIS replacement value for the New Power Plant is $4,930,000. If the cost of any renovation work on the New Power Plant exceeds 30% of this value, or $1,479,000, then the entire building is required to be accessible in accordance with 521 CMR. (applicable to public only)	

Existing Building Summary – Old Power Plant

Existing Use and Occupancy:	Primary Use(s): Group S-2, Storage	Accessory Use(s): None
Special Use(s):	N/A	
Construction Type:	The building is constructed of a masonry exterior and supporting steel construction. Based on observations during the site survey, the building is minimally Type IIB construction by the standards of the 9th edition of 780 CMR.	
Building Separations:	No building separations were observed within the building as Old Power Plant is not connected to any adjacent buildings.	
Height:	1 Story	
Area:	Aggregate Area: 5,917 ft^2	
Vertical Openings:	Based on field observations the building contains no vertical openings.	
Automatic Sprinkler System:	Based on field observations, the building is not protected by an automatic sprinkler system.	
Fire Alarm System:	Based on field observations, a fire alarm control system is provided in the building. Pull stations, A/V appliances, and smoke detection were all observed.	
Means of Egress:	The building is provided with two exits that discharge to the exterior of the building.	
Exit Signage and Emergency Lighting:	Based on field observations of the building, exit signage and emergency lighting are not provided.	
Accessibility:	The CAMIS replacement value for the Old Power Plant is $5,029,450. If the cost of any renovation work on the Old Power Plant exceeds 30% of this value, or $1,508,835, then the entire building is required to be accessible in accordance with 521 CMR. (applicable to public only)	

Existing Building Summary – Pinkerton Building

Existing Use and Occupancy:	Primary Use(s): Group E, Educational	Accessory Use(s): Group S-2, Storage
Special Use(s):	N/A	
Construction Type:	Based on field observations, the building is constructed of CMU blocking. Based on this, the building is minimally Type IIB construction by the standards of the 9th edition of 780 CMR.	
Building Separations:	A 2-hour separation was observed as Pinkerton is connected to both the Finnegan and Old Rehab Engineering buildings.	
Height:	2 Stories	
Area:	Aggregate Area: 6,570 ft^2	
Vertical Openings:	Based on provided floorplans, the building has an enclosed stair and an elevator shaft.	
Automatic Sprinkler System:	Based on field observations, the building is not provided with an automatic sprinkler system.	
Fire Alarm System:	Based on field observations, smoke detectors are provided, however no other fire alarm system was observed.	
Means of Egress:	The building is provided with two exits, one of which has occupants egress through Finnegan.	
Exit Signage and Emergency Lighting:	Based on field observations of the building, illuminated exit signage and is provided throughout, although no emergency lighting fixtures were provided.	
Accessibility:	The CAMIS replacement value for Pinkerton Building is $4,270,500. If the cost of any renovation work on the Pinkerton Building exceeds 30% of this value, or $1,281,150, then the entire building is required to be accessible in accordance with 521 CMR.	

Existing Building Summary – Old Laundry / Old Rehab Eng. / Storage

Existing Use and Occupancy:	Primary Use(s): Group S-2, Light Hazard Storage	Accessory Use(s): N/A
Special Use(s):	N/A	
Construction Type:	The building is constructed with masonry exterior walls and wood interiors. Based on observations during the site survey, the building is minimally Type IIIB construction by the standards of the 9th edition of 780 CMR.	
Building Separations:	No building separations were observed within the building as it is not connected to any adjacent buildings.	
Height:	1 Story	
Area:	Aggregate Area: 4,136 ft^2	
Vertical Openings:	Based on field observations the building does not contain any vertical openings.	
Automatic Sprinkler System:	Based on field observations, the building is not protected by an automatic sprinkler system.	
Fire Alarm System:	Based on field observations, a fire alarm control system is provided in the building. Pull stations and A/V notification devices were observed as well as smoke detection.	
Means of Egress:	The building is provided with two exits that discharge to the exterior.	
Exit Signage and Emergency Lighting:	Based on field observations of the building, illuminated exit signage is provided.	
Accessibility:	The CAMIS replacement value for the Superintendent's House is $2,688,400. If the cost of any renovation work on the Superintendent's House exceeds 30% of this value, or $806,520, then the entire building is required to be accessible in accordance with 521 CMR.	

Existing Building Summary – Superintendent House

Existing Use and Occupancy:	Primary Use(s): Group B, Business	Accessory Use(s): N/A
Special Use(s):	N/A	
Construction Type:	The building is constructed with masonry exterior walls and wood interiors. Based on observations during the site survey, the building is minimally Type IIIB construction by the standards of the 9th edition of 780 CMR.	
Building Separations:	No building separations were observed within the building as it is not connected to any adjacent buildings.	
Height:	2 stories with a basement	
Area:	Maximum footprint area: Approximately 1,900 ft^2 Aggregate Area: 5,076 ft^2	
Vertical Openings:	Based on field observations the building contains 4 vertical openings including two main stairs, a stair to the basement, and a stair to the attic.	
Automatic Sprinkler System:	Based on field observations, the building is not protected by an automatic sprinkler system.	
Fire Alarm System:	Based on field observations, a fire alarm control system is provided in the building. Pull stations and A/V notification devices were observed as well as smoke detection.	
Means of Egress:	The building is provided with three exits that discharge to the exterior of the building.	
Exit Signage and Emergency Lighting:	Based on field observations of the building, exit signage and emergency lighting are not provided.	
Accessibility:	The CAMIS replacement value for the Superintendent's House is $2,030,400. If the cost of any renovation work on the Superintendent's House exceeds 30% of this value, or $609,120, then the entire building is required to be accessible in accordance with 521 CMR.	

Appendix A: MGL c. 148 S 26G Memorandum

The Commonwealth of Massachusetts
Executive Office of Public Safety and Security
Fire Safety Commission
Automatic Sprinkler Appeals Board
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MEMORANDUM

TO: **Interested persons**

FROM: **Commonwealth of Massachusetts, Fire Safety Commission's Automatic Sprinkler Appeals Board**

DATE: **October 14, 2009**

RE: **Advisory regarding recent amendments to M.G.L. c. 148, s. 26G (Chapter 508 of the Acts of 2008) which requires enhanced sprinkler protection in certain buildings which total more than 7,500 gross square feet in floor area.**

Introduction

Because of the unique characteristics of each building construction project, the Board realizes that it is not possible to address all aspects of this law in a single guidance document. As the Board hears appeals based upon the newly revised law, the Board anticipates that some of the conclusions found in this document may be subject to further review and possible modification. Accordingly, persons should closely monitor further guidance and decisions from the Board regarding this matter.

The Commonwealth of Massachusetts' Fire Safety Commission and the Automatic Sprinkler Appeal's Board (hereinafter referred to as "the Board"), has received several requests for guidance regarding the recent amendments to M.G.L. c.148, s.26G (Chapter 508 of the Acts and Resolves of 2008), which requires an adequate system of automatic sprinklers to be installed in certain buildings or structures totaling more than 7,500 square feet. Under s. 26G, this Board has jurisdiction to hear appeals from orders issued by heads of the fire department who are charged with enforcing the law. Under the authority of M.G.L. c. 30A, s. 8, the Board is issuing this advisory guidance document to assist heads of fire departments and building owners to understand the basic requirements of this law.

In developing this document, the Board has used its best efforts in developing guidance consistent with the language of the statute, legislative intent, related cases and common sense. This

document is not intended to be the final word on this matter or meant to be a substitute for a good faith, reasonable interpretation of the statute by the head of the fire department. In determining whether a building is subject to this law, the head of the fire department should make fair, consistent and well-reasoned determinations, based upon the reading of the law and the specific factors that exist for a particular building.

1. How did the law change?

The law changed in two significant ways. First, the law will now be applied uniformly throughout the state in all cities and towns. The provisions of M.G.L c. 148, s. 26G, in various forms, have been law since 1982. However, until this recent amendment to M.G.L. c. 148, s. 26G (c. 508 of the Acts of 2008), the law only applied within those cities and towns that adopted the law by local option. However the law now applies to all municipalities on a statewide basis.

The second major change expanded the instances in which sprinkler systems will be required. The law limits the installation of sprinklers to new buildings and buildings subject to major alterations or additions if said buildings feature more than 7,500 gross square feet in floor area. Under the old law, the construction of an addition required sprinklers in the "addition only." The new law requires sprinklers to be installed based upon the building's sum total of square feet (s.f.) in floor area "in the aggregate." As an example, under the new law, if you have an existing building that has 5,000 s.f. of floor area and you are constructing a 3,000 s.f. addition, you will now be required to install an adequate sprinkler system throughout the building, since the building will now total over 7,500 s.f. in the aggregate (8,000 s.f.).

2. Why was the law changed?

The legislative activity to amend the provisions of M.G.L. c. 148, s. 26G arose in the aftermath of a tragic commercial building fire, which occurred in Newton, Massachusetts in February, 2000, resulting in the death of five individuals. It was the Legislature's intent to apply the law throughout the state. This reasoning is based upon the long-standing, fire safety principal that sprinklers save lives. Additionally, there was the desire to eliminate a perceived loophole, which existed in the old s. 26G. Under the old law, if you were only constructing an addition to a building without any major modifications to the existing building, a sprinkler system was required in the "addition only" if the addition itself contained over 7,500 s.f. in floor area. A building could have been added to by means of a series of smaller additions (7,500 s.f. or less) over the course of many years, resulting in the significant enlargement of the original building without the need to ever install sprinklers.

3. When does the law take effect?

The new law clearly applies to "the construction of buildings, structures or additions or major modifications thereto which total, in the aggregate, more than 7,500 gross square feet ***permitted after January 1, 2010***". (Sec. 6, c. 508 of the Acts of 2008). Therefore, if the date of the issuance of the permit is after January 1, 2010, the enhanced requirements will be applicable.

4. What type of buildings or structures are covered by the law?

The law, in general applies to "every building and structure…" and does not specify which particular use groups or building classifications are subject to the law. However the law does include several specific exemptions. The law does not apply to:

- Buildings or additions used for residential purposes;
- Rooms or areas of a telephone central office equipment building when such rooms or areas are protected with an automatic fire alarm system;
- Open-air parking structures, defined as: buildings, structures, or portions thereof, used for parking motor vehicles and having not less than twenty- five per cent of the total wall area open to atmosphere at each level, utilizing at least two sides of the structure; and
- Buildings used for certain agricultural purposes, as defined in M.G.L. c. 128 s. 1A.

Additionally, the statute contains some exceptions, if certain conditions or circumstances exist. They include:

- Buildings or structures, or certain areas of such buildings or structures, where the discharge of water would be an actual danger in the event of a fire, the head of the fire department shall permit the installation of such other fire suppressant systems as are prescribed by the state building code in lieu of automatic sprinklers; and
- No such sprinkler system shall be required unless sufficient water and water pressure exists.

It should also be noted that buildings owned by the Commonwealth are generally not subject to the provisions of s. 26G. In accordance with long standing case law and confirmed by a fairly recent Opinion of the Attorney General (No. 00/01-1), buildings owned by the state are not subject to the statutory requirements of laws such as s. 26G, unless there is express statutory language indicating that the state is subject to the law. However, buildings that are owned by state authorities or other similar entities created by the Legislature, may not necessarily be considered "state owned" and therefore exempt. In such situations, the particular statute creating the authority or entity should be reviewed by the head of the fire department with the assistance of the town attorney to determine if an exemption exists.

5. Does the law apply retroactively to all existing buildings, which are within the scope of the law?

No, the Legislature intended to give some protection to owners of existing or older buildings against the large expense of installing sprinklers by requiring the installation only upon some triggering event. The law is only triggered if: (1) a new building or structure is constructed or (2)

an addition is built onto an existing building or structure or (3) major alterations or modifications are planned for an existing building. Additionally, it should be noted that the building must total more than 7,500 gross s.f. in floor area, in the "aggregate" (existing building and addition). In short, if you are not constructing a new building, adding onto an existing building or undertaking major alterations to an existing building, or if the building does not total more than 7,500 gross s.f. in the aggregate, you are not required to install sprinklers under this particular law.

6. What method is used to determine if a building totals, in the aggregate, more than 7,500 gross square feet in floor area?

The statute specifically states that for the purposes of this law, "the gross square footage of a building or structure shall include the sum total of the combined floor areas for all floor levels, basements, sub-basements and additions, in the aggregate, measured from the outside walls, irrespective of the existence of interior fire resistive walls, floors and ceilings". It should be noted that this calculation is unique and is somewhat different from the method used in the state building code, which in general, uses interior measurements to determine floor area.

7. Is a sprinkler system always necessary when there is an addition to a building, which is within the scope of the law?

It will depend upon how large the building will be after the addition is built. If an addition is being constructed to an existing building and the addition creates a building with a combined total of more than 7,500 s.f. "in the aggregate", an adequate system of sprinklers will now be required throughout the building (addition and the existing building), without regard to the existence or extent of alterations, if any, to the previously existing building.

The legislative activity to amend the provisions of M.G.L. c. 148, s. 26G arose in the aftermath of a tragic commercial building fire, which occurred in Newton, Massachusetts in February 2000, resulting in the death of five individuals. The elimination of the limiting words "addition only," in the old law and the requirement that the square footage determination be conducted "in the aggregate", indicates the clear intent of the Legislature to require the enhanced sprinkler protection throughout the building when the building is added to and if the gross s.f. of the addition, combined with the existing building, totals more than 7,500 s.f. "in the aggregate." If the building, including the new addition, totals less than 7,500. s.f., sprinklers are not required under the provisions of this law.

8. Is a sprinkler system always required if renovations are taking place in a building, which is within the scope of the law?

This depends upon whether the renovations are considered ***"major"*** alterations or modifications, as those terms are used in the statute. The Board realizes that the determination to install sprinklers, is often difficult and should be decided on a case-by-case basis, based upon the unique characteristics of the building and the nature and extent of the work. However, the Board suggests that such decisions be made in a predictable and consistent manner throughout the Commonwealth. Therefore, the Board suggests that fire officials, in deciding if "major alterations or modifications" are taking place, should be guided by the Massachusetts Appeals Court case

Congregation Beth Shalom & Community Center, Inc. v. Building Commissioner of Framingham et. Al., 27 Mass. App. Ct. 276 (1989).

In this case, the Court discussed the meaning of the terms "major alterations" as those words are used in M.G.L. c. 148, s. 26G. (It should be noted that those terms remain in the law, notwithstanding the amendments to s. 26G) The Court said that the terms "major alterations" shall include "any work, not repairs, which is "major" in scope or expenditure, and which results in changes affecting a substantial portion of the building". In its decision, the Court looked at the nature of the planned work and would require sprinklers throughout the building if "the extra cost of installing sprinklers would be moderate in comparison to the total cost of the work contemplated…" or "if the physical work being done is of such scope that the additional effort to install sprinklers would be substantially less than would have been if the building were intact."

At this time, it is the intent of the Board to consider the following factors established in the Congregation Beth Shalom case, to determine whether "major" alterations or modifications are taking place, thus requiring sprinklers to be installed throughout a building in accordance with M.G.L. c. 148, s. 26G.

A. What is the nature of the actual work?

- Is the planned physical work the type of work that would make the effort to install sprinklers substantially less than it would have been if the building were intact?

- Is the work merely minor repairs or cosmetic vs. major alterations? Examples of "major" alterations or modifications, include, but may not be limited to:

    - The demolition or reconstruction of existing ceilings or installation of suspended ceilings;

    - The removal and/or installation of sub flooring, not merely the installation or replacement of carpeting or finished flooring;

    - The demolition and/or reconstruction or repositioning of walls or stairways or doorways; or

    - The removal or relocation of a significant portion of the building's HVAC, plumbing or electrical systems involving the penetration of walls, floors, or ceilings.

B. What is the scope of the work or cost/ benefit of sprinkler installation?

This involves a review of the scope of the major alterations or modifications. Does it affect a substantial portion of the building? This requires a review to determine how much of the building is being affected by the work; **or** a determination that the cost of installing sprinklers is moderate in comparison to the total cost of the work.

To assist fire officials, building owners and construction project managers in making decisions, the Board has established the following two presumptions that may be used to determine if the scope or the cost of the planned alterations or modifications are "major" thus requiring sprinklers to be installed throughout a building.

1) Major alterations or modifications are reasonably considered major in scope when such work affects thirty-three (33) % or more of the "total gross square footage" of the building, calculated in accordance with section 26G.

2) Major alterations or modifications are reasonably considered major in scope or expenditure, when the total cost of the work (excluding costs relating to sprinkler installation) is equal to or greater then thirty-three (33) % of the assessed value of the subject building, as of the date of permit application.

It is the conclusion of the Board, at this time, that if the nature of the work is the type of work described in **A and** also meets at least one of the two presumptions described in **B** above, then it can be reasonable to conclude that the alterations or modifications are "Major", thus requiring sprinklers throughout the building.

The Board is aware that buildings and circumstances vary from one project to another and that it would be unreasonable to expect that a single set of criteria could reasonably apply to all situations. Therefore, this list of described factors is not necessarily all-inclusive, but is meant to provide a common sense guideline for fire departments and building owners to determine if a sprinkler system is probably required under the provisions of this particular law.

9. What if the work is not "major" in scope for this particular permitted project, but appears to be part of a long-range plan?

If the specific permitted alterations or modifications are not considered "major," as described, but appear to be one phase of a series of modifications being conducted over a reasonably short period (i.e. 5 years or less), it may be reasonable to conclude that such work could be part of a long range project resulting in "major alterations" to the entire building, or a substantial portion of it, thus triggering the sprinkler requirements. Although this occurrence may be rare, fire officials should be aware of future and past recent projects to determine if there is a series of planned projects that, taken together, may be considered "major" alterations or modifications, which would trigger the sprinkler requirements.

10. The statute states that "no such sprinkler system shall be required unless sufficient water and water pressure exists". How is it determined if there is a lack of sufficient water and water pressure?

This language, creating an apparent exemption for situations involving lack of sufficient water and water pressure, has remained unchanged in the new amendments. In determining cases in which this issue has been raised, the Board has been guided by the Massachusetts Appeals Court case of *Chief of the Fire Department of Worcester v. John Wibley, et al. 24 Mass. App. Ct. 912 (1987).*

In that case the court concluded that:

> "The term "sufficient water and water pressure exists" means that the owner of a building or addition to which the statute applies must have access to a source of water sufficient to operate an adequate system of sprinklers, or the exemption applies. The source may be either on the land on which the new building or addition is constructed or off the land, provided that it is legally available to the owner of the building or addition."

In the Wibley case, the court, in agreeing with the fire chief, concluded that sufficient water and water pressure existed, notwithstanding the fact that the source of water was not on the owner's land, but was legally available by means of a connection requiring the excavation to a legally available water main located 500 yards away.

11. Who has the responsibility to enforce the sprinkler installation requirements of this new law?

Under both the old and new version of M.G.L. c. 148, s. 26G, the head of the fire department is given the statutory authority to enforce the law.

12. What action should be taken by the head of the fire department at this time?

It is recommended that the head of fire department coordinate with the local building official and confirm that the building official is aware of the new law, its applicability and the statute's unique method of determining a building's total floor area. Additionally, it is suggested that procedures be established to assure that the building official communicate to the appropriate fire department personnel the existence of construction activities to buildings in excess of 7,500 s.f., which may be subject to the provisions of M.G.L. c. 148, s.26G. Once the head of the fire department determines that a planned building construction project is subject to s. 26G, the building owner/construction manager should be informed of the determination and the reasons for it by a written notice signed by the head of the fire department. The notice should also contain the information about the ability to appeal such determination to the Commonwealth's Automatic Sprinkler Appeals Board within 45 days of the receipt of such notice.

13. How are appeals filed with the Board?

The law allows for any person aggrieved by an interpretation, order, requirement or direction of the head of the fire department, (or the failure to so act) to file an appeal with the Automatic Sprinkler Appeals Board. Such appeals must be filed ***within 45 days*** after receiving service of notice of the head of the fire department's determination. The Board has a formal application form that must be completed by the person seeking the appeal. In addition to the application form, a detailed statement of the basis for the appeal, a copy of the chief's determination and an appeal application fee ($100.00) must accompany each application. Automatic Sprinkler Appeals Board application forms may be obtained by calling: 978-567-3181 or on the web at www.mass.gov/dfs (right side of the page Mass. Automatic Sprinkler Appeals Board).

14. What are the Board hearings like?

Members of the Commonwealth's Fire Safety Commission hold hearings of the Automatic Sprinkler Appeals Board. The hearings are informal and the strict rules of evidence used in a court of law are not used. The hearings require the presence of the appellant and the head of the fire department or their agent or attorney. The parties should be fully prepared to present their positions at the hearing. All plans, drawings, photographs expert findings/analysis or any other documents, information and testimony and arguments should be presented at the hearing to assist the Board in making its findings and determination.

GALE ASSOCIATES: HISTORIC PRESERVATION REPORT

Revised July 14, 2023

1. Historic Preservation

1.1 Pappas Study – Phase 2

INTRODUCTION

Pappas Historic Preservation Study includes the evaluation of the Pappas Rehabilitation Hospital for Children (PRCH) campus, located in Canton, MA. Gale has performed a review of the original plans, reports, documents, and similar data provided by Gensler, and has also conducted research of the Federal, State and Local Historic Commissions and Registries. The PRHC campus is listed in the Massachusetts Historical Commission's (MHC) Inventory of Historic Assets of the Commonwealth (Inventory) as Inventory No. CAN.A and has been determined eligible for listing in the National Register of Historic Places by MHC staff. Locally, the facility is regarded as historically significant, and Gale was able to review the applications for historic designation. Below is a summary of the historical data identified for this study.

The Pappas Rehabilitation Hospital for Children

The Pappas Rehabilitation Hospital for Children (PRHC), as it is known today, was originally established in 1904 by Chapter 446 of the Acts of 1904, as the Massachusetts School and Home for Crippled and Deformed Children. In 1907, the facility was renamed the Massachusetts Hospital School by Chapter 226 of the Acts of 1907 and opened its doors with the admission of 104 children under the direction of Dr. John E. Fish who served as the school's superintendent until 1946. In April of 2016, Governor Charles D. Baker signed Chapter 87 of the Acts of 2016 into law, renaming the facility to the Pappas Rehabilitation Hospital for Children. The Act acknowledged Dr. Arthur Pappas as a long-standing advocate for children and for his vast contributions to the hospital's mission as well as to the Commonwealth.

According to the Canton, MA public works historical site, the facility was expanded in 1920 with the purchase of one hundred acres of land. Today, the facility is comprised of 60 acres which supports the 31 campus buildings totaling approximately 457,000 sf of space for clinical, educational, residential, recreational, administration/office, and infrastructure uses, according the DCAMM Existing Conditions Assessment and Energy and Water Feasibility Study for the Massachusetts Hospital School, dated September 24, 2014. Architecturally, the campus is recognized for its pergola-like walkways which connect all the major buildings and allow for unobstructed movement for the children to travel between them.

PRHC was designed specifically for children with physical disabilities. Today, PRHC is a Joint Commission-accredited, pediatric hospital serving children and young adults (ages 7-22) operated by the Department of Public Health (DPH). The hospital provides medical, rehabilitative, educational, recreational, habilitative, transitional, and complementary alternative medical services to clients with multiple disabilities, assisting them to achieve their optimal level of independence in all aspects of life.

Priority Buildings at PRCH

The following buildings have been identified by Gensler, DCAMM, and the Owner to be of historical significance or of critical importance to the campus.

Baylies Cottage

Baylies Cottage is an approximately 11,500 square foot patient services structure built in 1935, according to Table 1 of the DCAMM Existing Conditions Assessment and Energy and Water Feasibility Study for the Massachusetts Hospital School, dated September 24, 2014. Based on Gale's review of available documents and historic agencies, listed above, the building does not appear to have a historic designation other than the MHC Inventory listing.

Bradford Building

The Bradford Building is an approximately 30,300 square foot patient services structure built in 1954, according to Table 1 of the DCAMM Existing Conditions Assessment and Energy and Water Feasibility Study for the Massachusetts Hospital School, dated September 24, 2014. Based on Gale's review of available documents and historic agencies, listed above, the building does not appear to have a historic designation other than the MHC Inventory listing.

Ellis Cottage

Ellis Cottage is an approximately 11,500 square foot patient services structure built in 1931, according to Table 1 of the DCAMM Existing Conditions Assessment and Energy and Water Feasibility Study for the Massachusetts Hospital School, dated September 24, 2014. Based on Gale's review of available documents and historic agencies, listed above, the building does not appear to have a historic designation other than the MHC Inventory listing.

Gates Cottage

The Gates Cottage is an approximately 9,000 square foot residential structure built in 1950, according to Table 1 of the DCAMM Existing Conditions Assessment and Energy and Water Feasibility Study for the Massachusetts Hospital School, dated September 24, 2014. Based on Gale's review of available documents and historic agencies, listed above, the building does not appear to have a historic designation other than the MHC Inventory listing.

Finnegan Recreational Complex

The approximately 35,000 square foot gymnasium and pool facility, known as the Finnegan Recreational Complex, was built in 1982, according to Table 1 of the DCAMM Assessment, dated September 24, 2014. Based on Gale's review of available documents and historic agencies, listed above, the building does not appear to have a historic designation other than the MHC Inventory listing.

Morrison Hall

Morrison Hall was constructed in 1912, and is approximately 11,000 square feet, according to Table 1 of the DCAMM Assessment, dated September 24, 2014. The building appears to be a two-story renaissance revival style brick masonry building with a timber framed gable roof and original wood windows with true divided lites. Based on Gale's review of available documents and historic agencies, listed above, the building does not appear to have a historic designation other than the MHC Inventory listing. Please note that PRHC staff expressed an interest in preserving the structure as an important part of the campus.

Nelson Building

The Nelson Building is an approximately 66,400 square foot patient services structure built in 1962, according to Table 1 of the DCAMM Existing Conditions Assessment and Energy and Water Feasibility Study for the Massachusetts Hospital School, dated September 24, 2014. Based on Gale's review of available documents and historic agencies, listed above, the building does not appear to have a historic designation other than the MHC Inventory listing.

Ross Cottage

Ross Cottage is an approximately 11,500 square foot patient services structure built in 1935, according to Table 1 of the DCAMM Existing Conditions Assessment and Energy and Water Feasibility Study for the Massachusetts Hospital School, dated September 24, 2014. Based on Gale's review of available documents and historic agencies, listed above, the building does not appear to have a historic designation other than the MHC Inventory listing.

Review and Compliance Procedures for PRCH

The Pappas Rehabilitation Hospital for Children (PRHC) is listed as the Massachusetts Hospital School (Inventory No. CAN.A) in the Massachusetts Cultural Resource Information System (MACRIS) database. The Massachusetts Historical Commission (MHC) issued an opinion on June 18, 2003 that PRCH is eligible for listing in the National Register of Historic Places (NRHP) under criteria A and C on the local and state levels, however more information is required to determine designation and National Registry nomination. The Owner should be aware that previous and proposed construction projects which impact the existing buildings will impact eligibility for historic designation status. Future work should follow the Secretary of the Interior's Standards and Guidelines.

State agencies are required to file a Project Notification Form (PNF) with MHC for all projects with limited exceptions. The MHC regulations are broadly applicable to state projects and include notification requirements even if the project does not appear to affect State Register properties. MHC will determine if State Register properties exist within a project's area of potential impact. MHC review will extend to the entire project. Refer to MHC's regulations at 950 CMR 71.04(1).

Once a PNF has been submitted, MHC will review the form and return their review comments to the project proponent in writing. If MHC makes a *Determination of Adverse Effect*, a consultation process will ensue with the goal of identifying appropriate mitigation measures and entering into a Memorandum of Agreement among the interested parties. It is our understanding that it is the intent of MHC to preserve historic components that are contributing to the building's historic importance and impacts to those components should be performed in accordance with the applicable Secretary of the Interior's Standards. If a *Determination of No Adverse Effect* is made by MHC in response to the PNF filing, no further review by MHC is required.

In addition to the MHC review, 950 CMR 71.04(3) references the Massachusetts Environmental Policy Act (MEPA) which requires review of certain state agency actions to assess environmental impacts, including impacts to historic properties. In the absence of either a *Determination of No Adverse Effect* by MHC or a project-specific *Memorandum of Agreement* with MHC, MEPA review is required if the project includes demolition of all or any exterior part a historic structure listed in the State Register of Historic Places or MHC's Inventory. Refer to the MEPA review thresholds applicable to historical resources at 301 CMR 11.03(10)(b)1.

Information on Accessibility Compliance
DCAMM Statewide Accessibility Initiative

Accessibility Summaries for Facility Condition Assessments

The Commonwealth of Massachusetts and its agencies are required to comply with the nondiscrimination obligations of the Americans with Disabilities Act (ADA) and the accessibility requirements of the Massachusetts Architectural Access Board. The legal requirement to remove barriers in existing facilities is dependent on several factors including the original date of construction, renovation history, and use of the facility.

Title II of the ADA requires programs, services, and activities to be accessible to persons with disabilities. In facilities that predate the ADA regulations (effective date 1992), *Program Accessibility* may be considered as an alternative to removing all barriers within a facility. The ADA permits a public entity flexibility by allowing both structural and nonstructural methods of achieving *program accessibility* provided equal programs, services, and activities are provided for persons with disabilities in the most integrated setting possible. While *Program Accessibility* is permitted, full barrier removal is a preferred strategy whenever possible because it provides more inclusive use of facilities.

The following is a comprehensive list of mitigations for known architectural barriers. Alternative solutions may be possible. The listing is intended to provide useful information within the context of a Facility Condition Assessment. Actual project scope and technical requirements may differ depending on the overall project criteria developed from this information. Final design decisions must be made by a design professional in consultation with the authority having jurisdiction. This document alone can inform but is not sufficient to qualify as an ADA Self-evaluation or Transition Plan.

[end]

General Notes:

- **Ratings are based on the SAI FCA Priority and Rankings Program**

Nelson/Bradford Building:

1) **Replace all exterior thresholds (Priority 1)**
   COST ESTIMATE NOTE: Exterior thresholds (12)

2) **Replace exterior landing (Priority 1)**
   COST ESTIMATE NOTE: Concrete exterior landing (60 sqft)

3) **Install interior vestibule mats to mitigate half inch rise at threshold (Priority 2)**

4) **Remove concrete curb under all hallway hand sinks (Priority 2)**
   COST ESTIMATE NOTE: Remove concrete curb (4)

5) **Major renovation to all staff toilet rooms (Priority 2)**
   COST ESTIMATE NOTE: Expand toilet rooms (4)

6) **Raise hallway sinks (Priority 2)**
   COST ESTIMATE NOTE: Raise sinks to 27" clearance (4)

7) **Replace knob hardware with lever hardware (Priority 1)**
   COST ESTIMATE NOTE: Door levers (60)

8) **Replace threshold in dental waiting room toilet (Priority 2)**

Bradford First Floor

Note: Toilet rooms between bedrooms have no accessibility. Modification of some or all these toilet rooms may be required depending on the level and cost of alterations in the building. Other multi-user toilet rooms may need additional study.

1) **Major renovation to ground floor single user toilet room in waiting area (Priority 1)**
   COST ESTIMATE NOTE: Toilet room expansion (1)

2) **Major renovation to all other toilet rooms in the building (Priority 2)**

Gates Unit

Note: Major renovation and room expansion of bathroom and closet
The bathroom and closet require approximately 18 inches extra in depth and relocation of fixtures

1) **Replace exterior door thresholds (Priority 2)**

2) **Replace noncompliant door hardware with lever handles (Priority 2)**
   COST ESTIMATE NOTE: Door levers (6)

3) **Replace kitchen counter and sink with accessible kitchen sink including knee clearance (Priority 3)**

4) **Modify stove top apron to provide knee clearance of 27" (Priority 3)**

5) **Major renovation of staff toilet room within multipurpose room (Priority 3)**

6) **Replace sink in nurses' station (Priority 3)**

7) **Modify three resident bedrooms rooms 1, 2, and 3 (Priority 2)**

8) **Modify nine resident bedrooms (rooms 4-12) (Priority 2)**

9) **Reverse door swing to provide 18 inches on the latch/pull side in room 4-12(Priority 2)**
   COST ESTIMATE NOTE: Reverse door swing (4)

10) **Modify men's and women's multiuser toilet rooms (Priority 2)**
    COST ESTIMATE NOTE:
    - Install 48-inch grab bars (2)
    - Replace room entry doors with 40-inch clear opening (2)

Ross Cottage

1) **Modify entry door exterior landing and threshold (Priority 1)**
   COST ESTIMATE NOTE:
   - Concrete landing and threshold (60 sqft)
   - Door and threshold (1)

2) **Install accessible kitchen sink with knee clearance (Priority 3)**

3) **Modify egress door threshold (Priority 2)**
   COST ESTIMATE NOTE: Exterior threshold (1)

4) **Reverse the door hinge/latch for 18-inch clearance on the poolside near room six (Priority 2)**

5) **Replace 32-inch clearance doors with 40-inch clear doorway into shower rooms and bathroom (Priority 2)**
   COST ESTIMATE NOTE: Door and door frame (2)

6) **Major renovation to the multiuser toilet room (Priority 1)**
   COST ESTIMATE NOTE:
   -Replace toilet partitions (2)
   -Replaced toilet fixtures including plumbing (2)
   -Relocate heating element.

7) **Major renovation to staff public toilet room in the laundry area (Priority 2)**
   COST ESTIMATE NOTE: Toilet room expansion (1)

Ross Cottage Lower Level

1) **Replace the exterior door landing and threshold (Priority 1)**
   COST ESTIMATE NOTE:
   - Concrete ramp and landing (20 linear feet)
   - Replace threshold (1)

2) **Major renovation of staff toilet room on the lower level (Priority 3)**

3) **Replace doorknobs with lever handles (Priority 2)**
   COST ESTIMATE NOTE: Door lever (6)

Baylies Cottage Upper Level

1) **Modify entry door exterior landing and threshold (Priority 2)**
   COST ESTIMATE NOTE:
   - Concrete landing and threshold (60 sqft)
   - Door and threshold (1)

2) **Install accessible kitchen sink with knee clearance (Priority 2)**

3) **Modify egress door threshold (Priority 2)**
   COST ESTIMATE NOTE: Exterior threshold (1)

4) **Reverse the door hinge/latch for 18-inch poolside clearance room six (Priority 3)**

5) **Replace 32-inch clearance doors with 40-inch clear doorway into shower rooms and bathroom (Priority 3)**
   COST ESTIMATE NOTE: Door and door frame (2)

6) **Major renovation to the multiuser toilet room (Priority 2)**
   COST ESTIMATE NOTE:
   - Replace toilet partitions (2)
   - Replaced toilet fixtures including plumbing (2)
   - Relocate heating element in accessible stall
   - Raise sinks to 27" clearance (4)

7) **Major renovation staff public toilet room in the laundry area (Priority 3)**
   COST ESTIMATE NOTE: Toilet room expansion (1)

Baylies Cottage Lower Level

1) **Replace the exterior door landing and threshold (Priority 1)**
   COST ESTIMATE NOTE:
   - Exterior concrete landing (5 sqft)
   - Exterior threshold (1)

2) **Major renovation of staff toilet room on the lower level (Priority 2)**

3) **Replace doorknobs with lever handles (Priority 2)**
   COST ESTIMATE NOTE: Door levers (6)

Ellis Cottage Upper Level

1) **Modify entry door exterior landing and threshold (Priority 1)**
   COST ESTIMATE NOTE:
   - Concrete landing (60 sqft)
   - Exterior door and threshold (1)

2) **Install accessible kitchen sink with knee clearance (Priority 3)**

3) **Modify egress door threshold (Priority 3)**
   COST ESTIMATE NOTE: Exterior door and threshold (1)

4) **Reverse the door hinge/latch for 18-inch poolside clearance room six (Priority 3)**

5) **Replace 32-inch clearance doors with 40-inch clear doorway into shower rooms and bathroom (Priority 2)**
   COST ESTIMATE NOTE: Door and threshold (2)

6) **Major renovation to the multiuser toilet room (Priority 2)**
   COST ESTIMATE NOTE:
   -Replace toilet partitions (2)
   - Replaced toilet fixtures including plumbing (2)
   - Relocate heating element in accessible stall

7) **Major renovation staff public toilet room in the laundry area (Priority 3)**
   COST ESTIMATE NOTE: Toilet room expansion (1)

Ellis Cottage Lower Level

1) **Replace the exterior door landing and threshold (Priority 1)**
   COST ESTIMATE NOTE: Exterior concrete ramp and landing (15 linear feet)

2) **Replace doorknobs with lever handles (Priority 1)**
   COST ESTIMATE NOTE: Door Levers (6)

Finnegan Recreational Complex

1) **Minor renovation to the men's and women's multiuser toilet room (Priority 2)**
   COST ESTIMATE NOTE: Replace toilet partitions (2)

2) **Modify the brick wall at the radio room to provide clearance at the door (Priority 2)**

3) **Modify the brick wall at the lobby office to provide clearance at the door (Priority 2)**

4) **Replace exterior threshold in the entertainment room (Priority 2)**

5) **Major renovation of the staff toilet room in the entertainment room (Priority 2)**
   COST ESTIMATE NOTE: Toilet room expansion (1)

6) **Install automatic door openers at pool entry (Priority 2)**

7) **Relocate toilet in the men's locker room TO 18" on center (Priority 2)**
   COST ESTIMATE NOTE: Toilet relocation (1)

8) **Relocate The toilet room partitions in the women's locker room (Priority 2)**

9) **Relocate toilets in the women's locker room to be 18 inches on center (Priority 2)**
   COST ESTIMATE NOTE: Toilet relocation (1)

APPENDIX B

PHOTO SET

NELSON BUILDING | EXTERIOR, ELEVATIONS



PARTIAL EAST ELEVATION



PARTIAL EAST ELEVATION



PARTIAL EAST ELEVATION



PARTIAL EAST ELEVATION



NORTH ELEVATION



PARTIAL WEST ELEVATION

NELSON BUILDING | EXTERIOR, ELEVATIONS



PARTIAL WEST ELEVATION

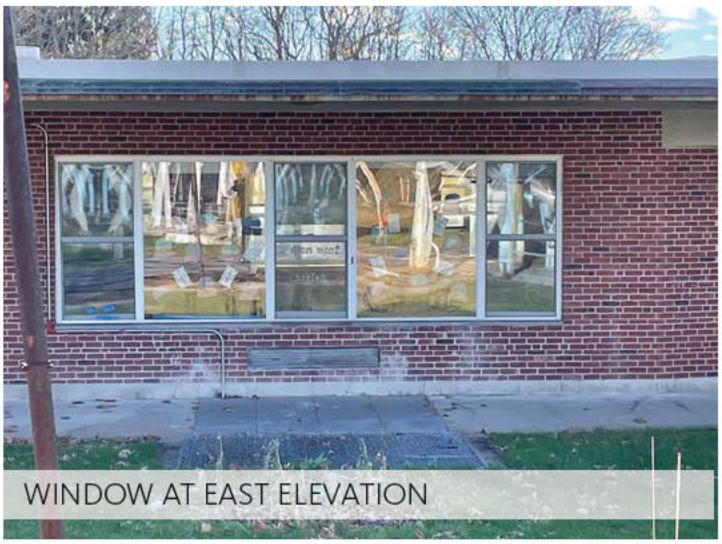


PARTIAL WEST ELEVATION

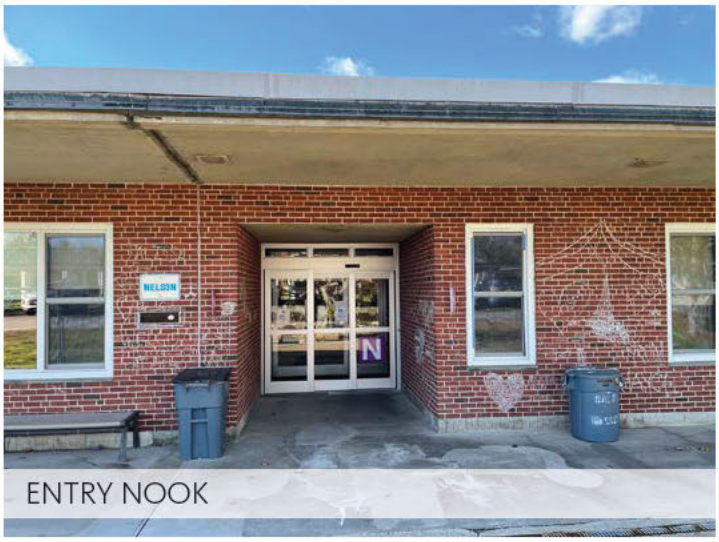
NELSON BUILDING | EXTERIOR, DETAILS



CRACKED CONCRETE FOUNDATION



WINDOW AT EAST ELEVATION



ENTRY NOOK



SEALANT AGED OUT AT EXPANSION JOINT



EXPANSION JOINT AT CANOPY



REBAR EXPOSED AT EDGE OF CONCRETE CANOPY

NELSON BUILDING | EXTERIOR, DETAILS



NELSON BUILDING | INTERIOR



BATHING ROOM



NURSE'S STATION



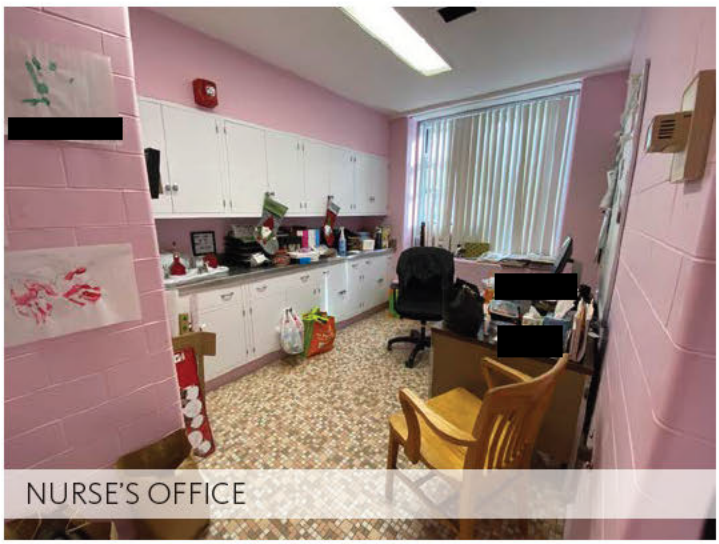
LEVEL 1 PLAYROOM



LEVEL 1 CORRIDOR

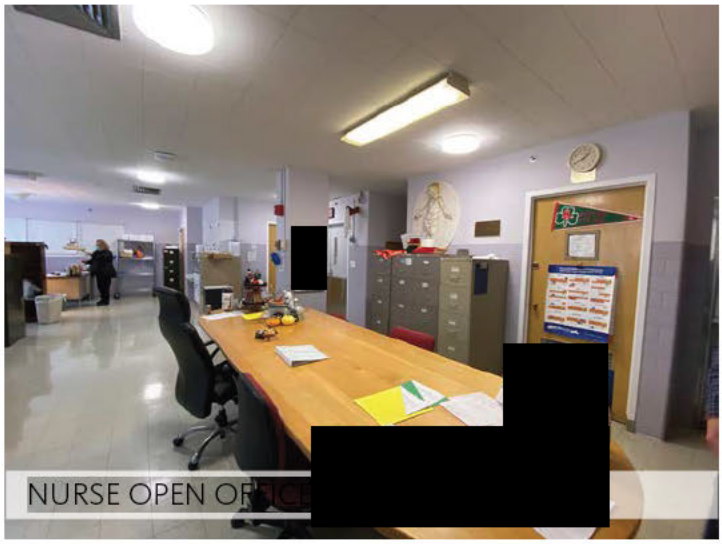


DC CAFE



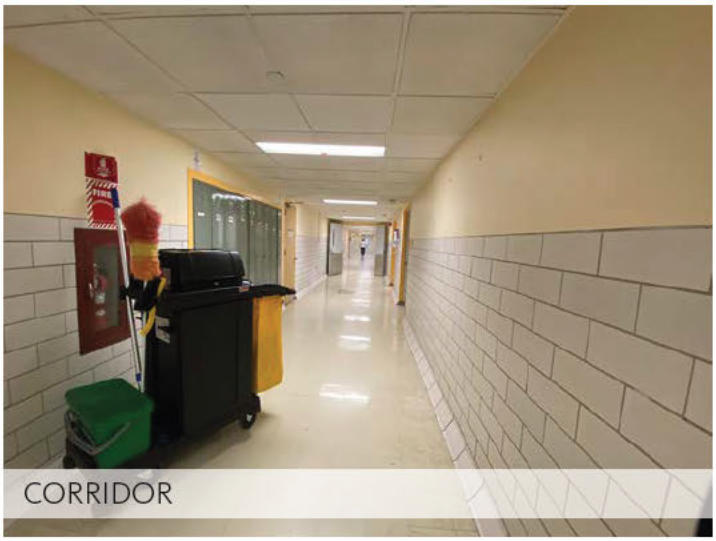
NURSE'S OFFICE

NELSON BUILDING | INTERIOR

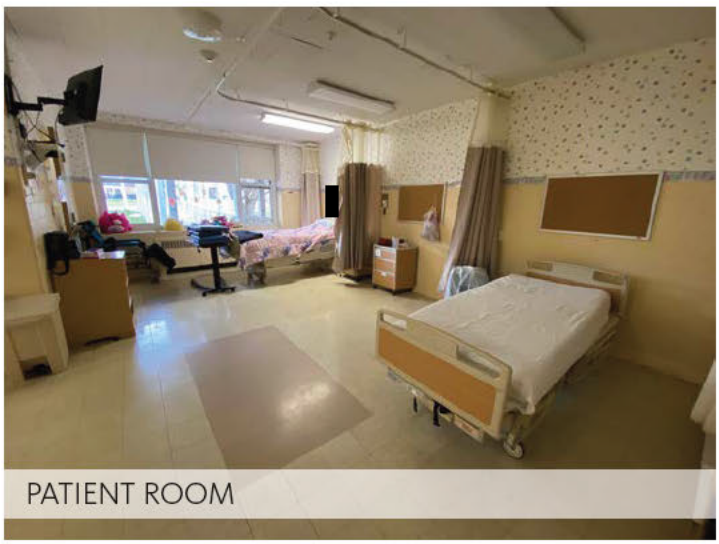

NURSE OPEN OFFICE


SERVERY


DINING ROOM


CORRIDOR


PATIENT RESTROOM


PATIENT ROOM

NELSON BUILDING | INTERIOR



PATIENT ROOM



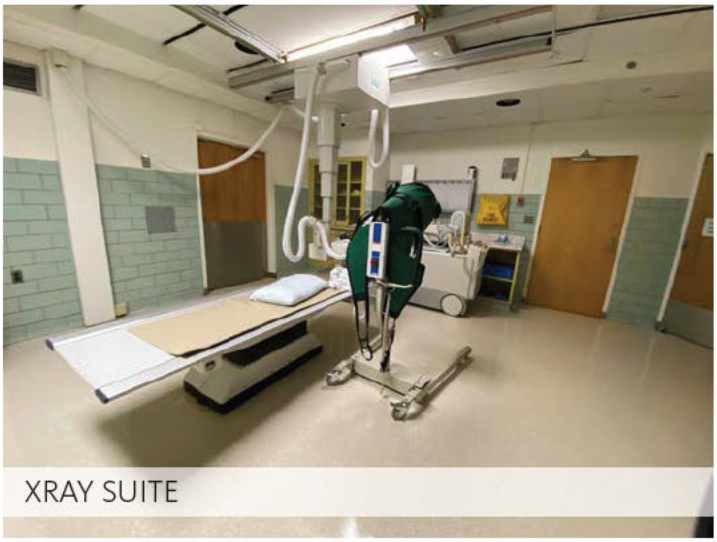
LEVEL 1 UNUSED RECEPTION SPACE



HOUSEKEEPING



OCCUPATIONAL THERAPY ROOM



XRAY SUITE

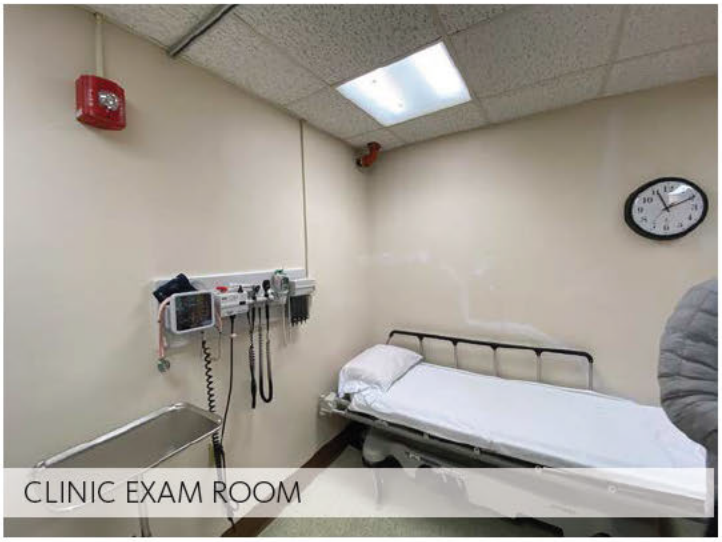


OPERATING ROOMS USED AS STORAGE

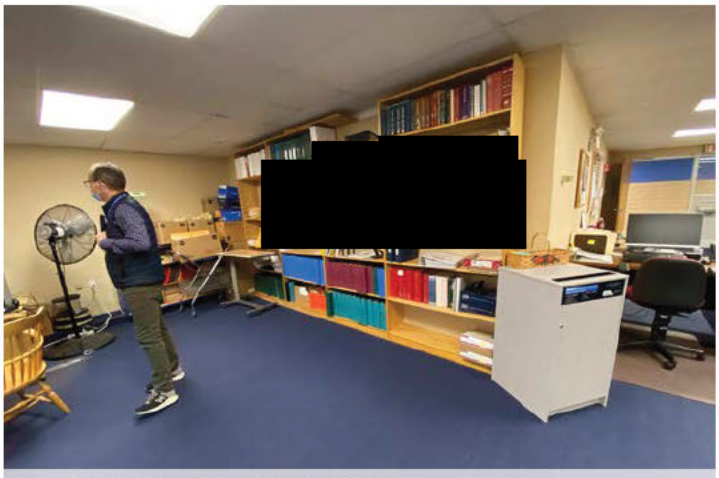
NELSON BUILDING | INTERIOR



LARGE OPEN ROOM



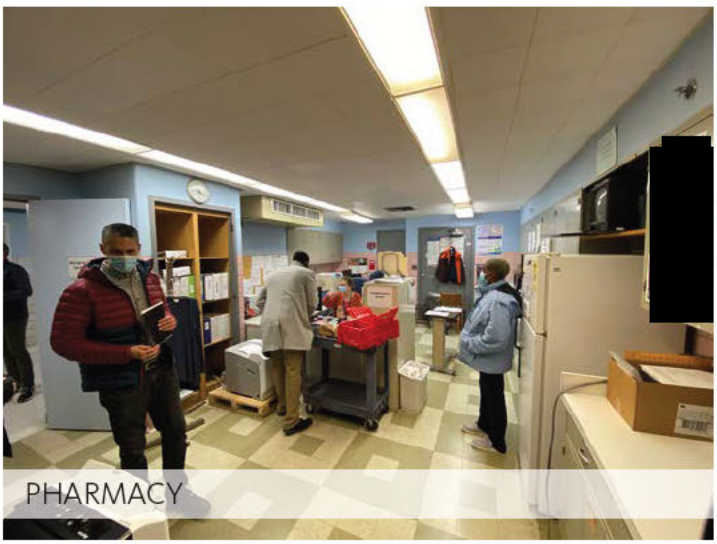
CLINIC EXAM ROOM



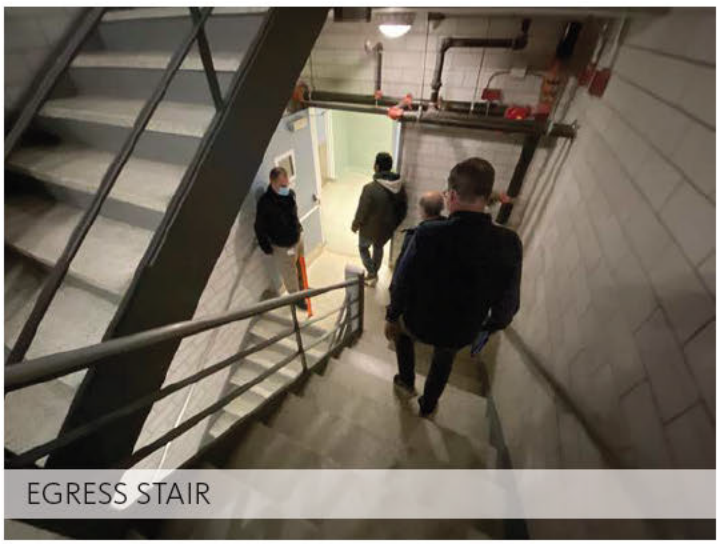
MEDICAL RECORDS ROOM



RESTROOM



PHARMACY



EGRESS STAIR

BRADFORD BUILDING | EXTERIOR, ELEVATIONS


PARTIAL WEST ELEVATION


PARTIAL SOUTH WEST ELEVATION


SOUTH WEST ELEVATION


SOUTH ELEVATION


PARTIAL SOUTH ELEVATION


SOUTH EAST ELEVATION

BRADFORD BUILDING | EXTERIOR, ELEVATIONS



NORTH ELEVATION



PARTIAL NORTH WEST ELEVATION

BRADFORD BUILDING | EXTERIOR, DETAILS





SPALLED CONCRETE WALKWAYS



SPALLED CONCRETE RAMP



SPALLED CONCRETE WALKWAYS



ROOF MEMBRANE IN LEVEL 2 COURTYARD



PEELING PAINT AT CANOPY

BRADFORD BUILDING | EXTERIOR, DETAILS



SOUTH ENTRANCE INTO BRADFORD



RUST JACKED STEEL LINTEL



WINDOW SCREENS AGED



SOUTH ENTRANCE CANOPY



BROKEN LOUVERS IN BASEMENT



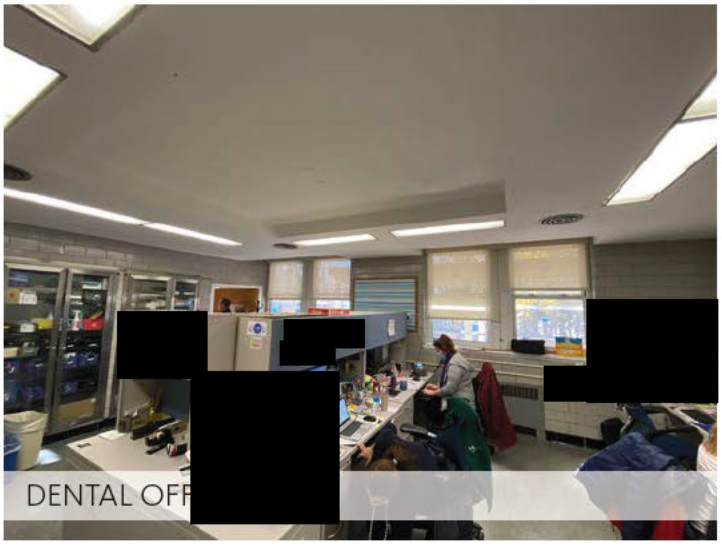
NORTH ENTRY CANOPY

BRADFORD BUILDING | INTERIORS


LEVEL 1 CORRIDOR



ENTRY VESTIBULE


DENTAL OFF


DENTAL WAITING ROOM


DENTAL RADIOLOGY SUITE


DENTAL OPERATORY ROOM

BRADFORD BUILDING | INTERIORS



DENTAL SUITE TOILET



DENTAL STORAGE ROOM



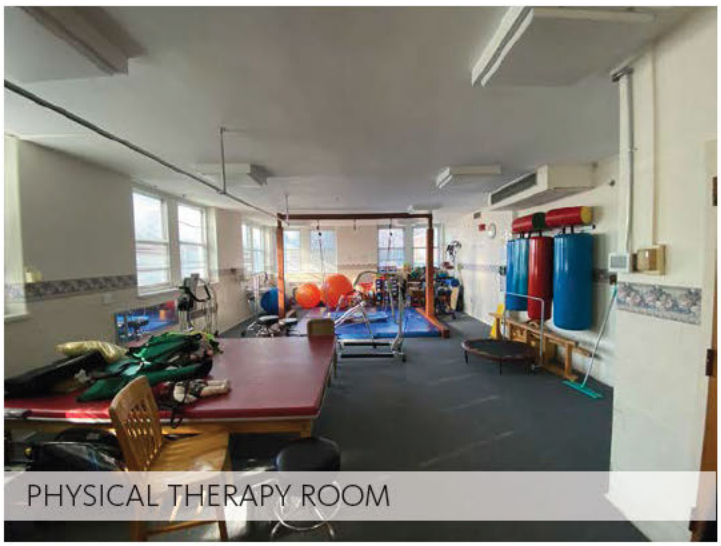
CLINIC RECEPTION



NATURAL THERAPY ROOM



PHYSICAL THERAPY ROOM



PHYSICAL THERAPY ROOM

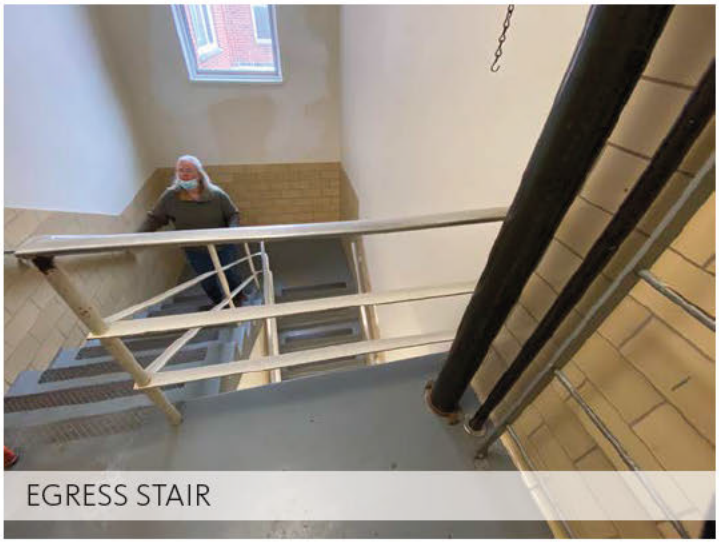
BRADFORD BUILDING | INTERIORS



PHYSICAL THERAPY EQUIPMENT



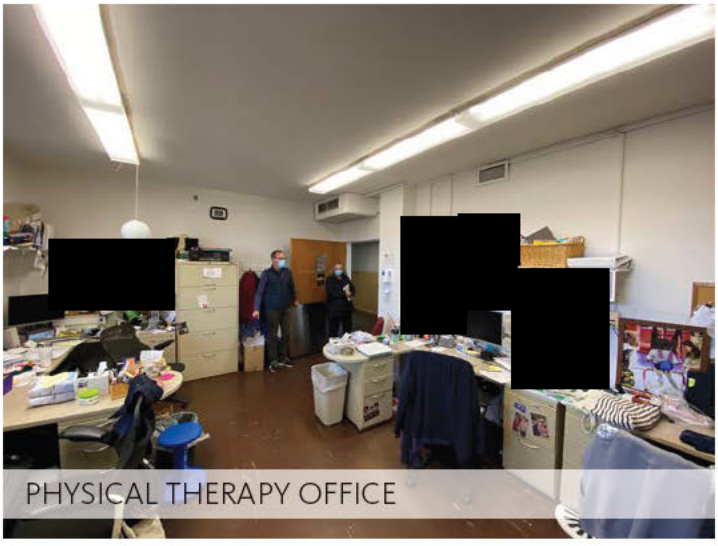
RESTROOM



EGRESS STAIR



PHYSICAL THERAPY CORRIDOR



PHYSICAL THERAPY OFFICE



DENTAL MEDICAL STORAGE

GATES UNIT | EXTERIOR, ELEVATIONS



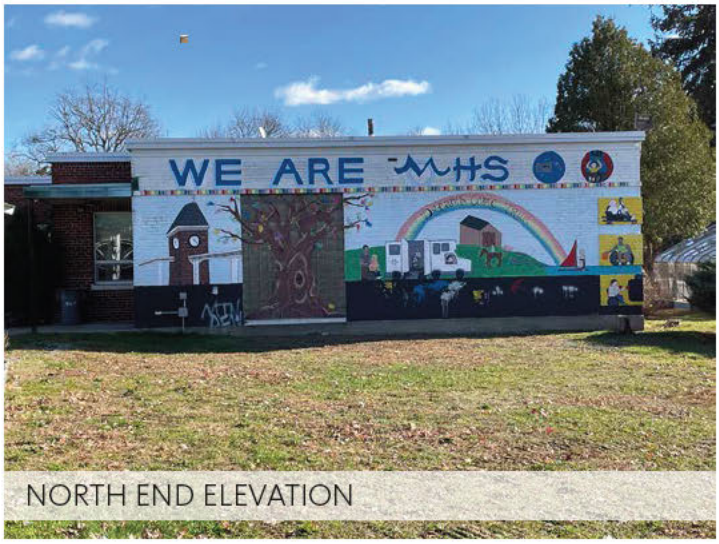
NORTH ELEVATION



EAST ELEVATION



PARTIAL SOUTH ELEVATION



NORTH END ELEVATION



EAST ENTRY ELEVATION



NORTH ENTRY

GATES UNIT | EXTERIOR, ELEVATIONS



WEST ELEVATION



SOUTH END ENTRY



SOUTH EAST INSIDE CORNER



NORTH END ELEVATION

GATES UNIT | EXTERIOR DETAILS



REPOINT CHIMNEY



RUSTED STEEL LINTEL



ALUMINUM WINDOWS



WATER DAMAGED SOFFIT

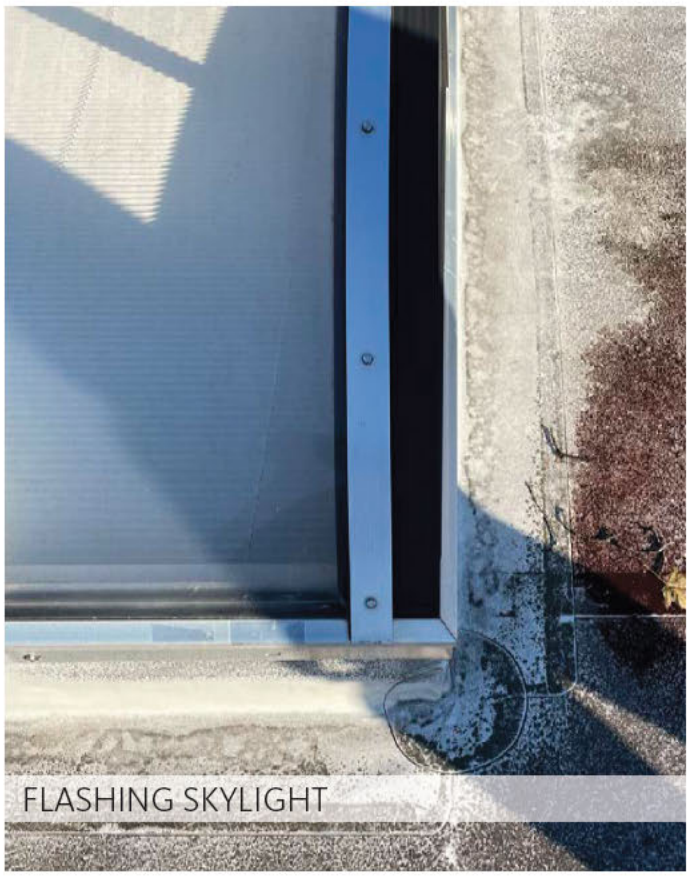


SINGLE PANE GLAZED ENTRY

GATES UNIT | EXTERIOR DETAILS



MEMBRANE ROOF



FLASHING SKYLIGHT



ENTRY CANOPY

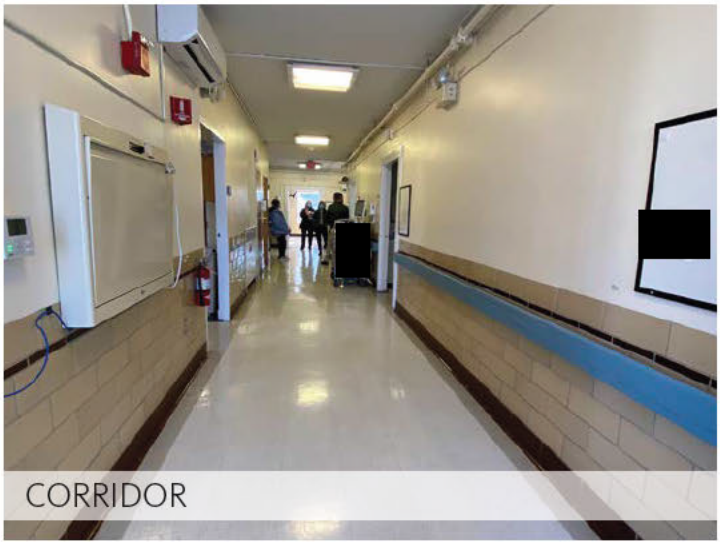
GATES UNIT | INTERIOR



COMMUNITY ROOM



COMMUNITY ROOM



CORRIDOR



BATHING ROOM

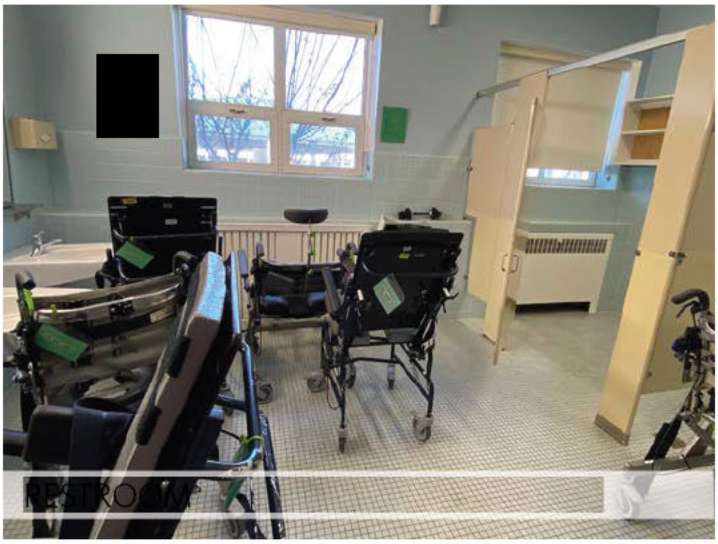


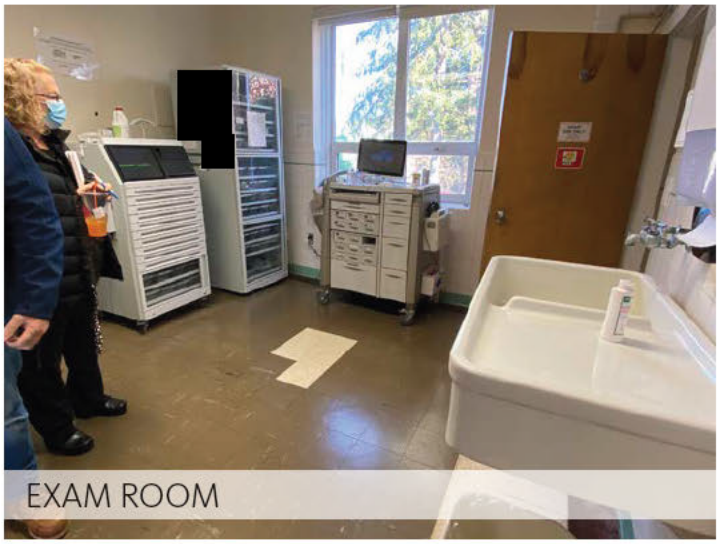
BASEMENT



CHAIR STORAGE

GATES UNIT | INTERIOR


RESTROOM


EXAM ROOM

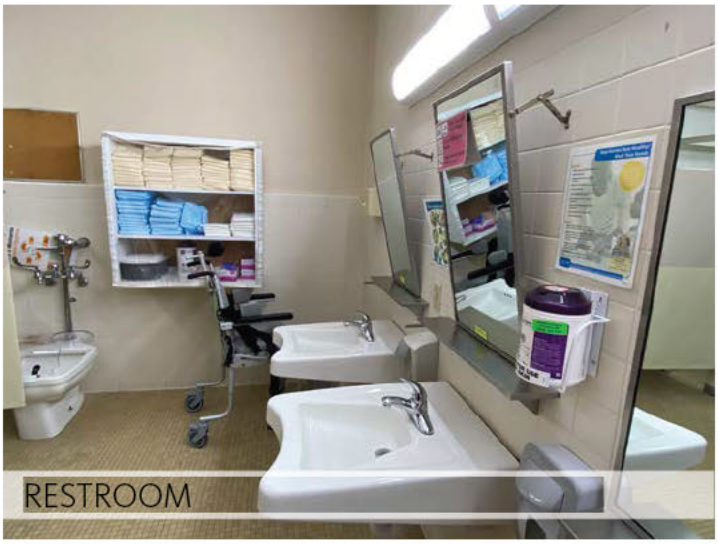

ENTRY DOOR


DINING AREA

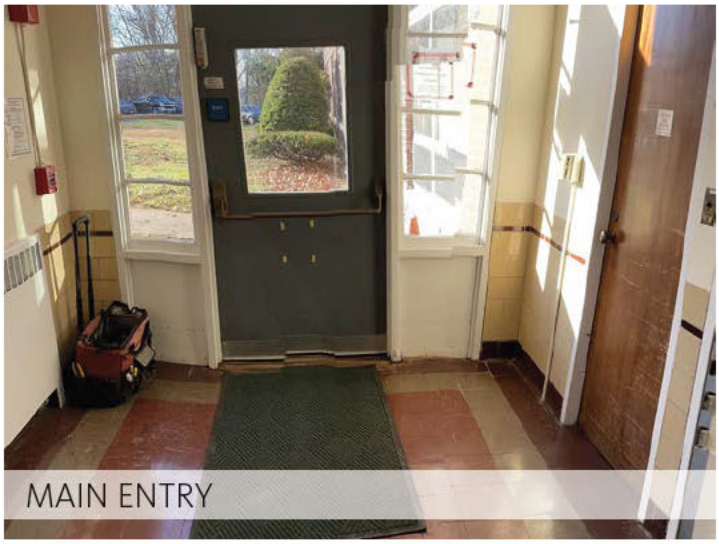

DINING AREA


ELECTRICAL ROOM

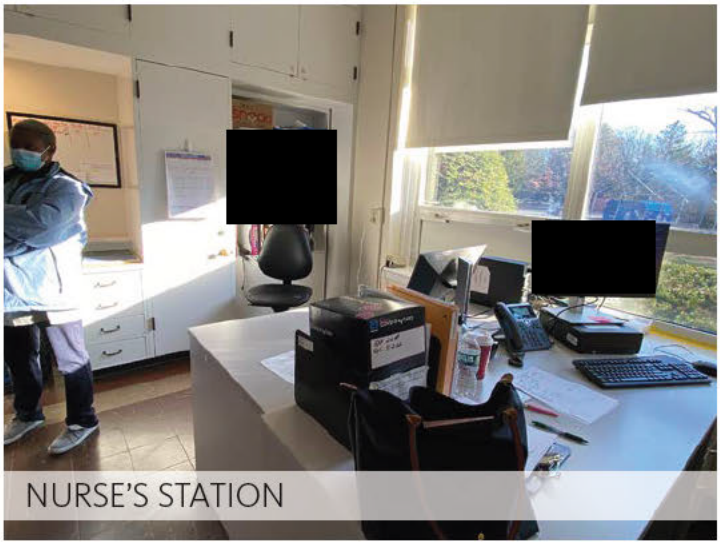
GATES UNIT | INTERIOR



RESTROOM



MAIN ENTRY



NURSE'S STATION



NURSE'S STATION



CHAIR CHARGING STATION



PATIENT ROOM



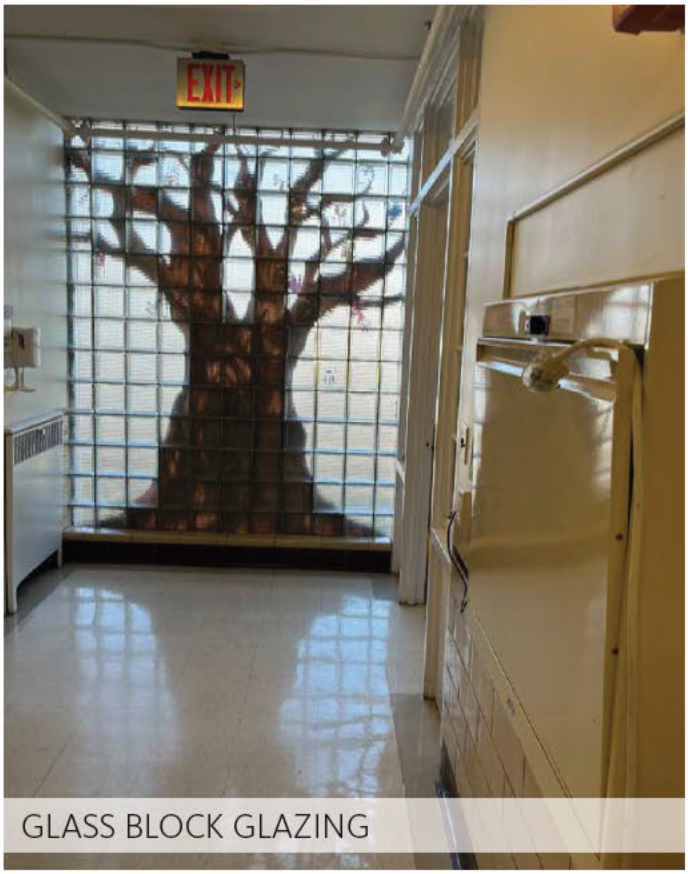
LOBBY



LAUNDRY

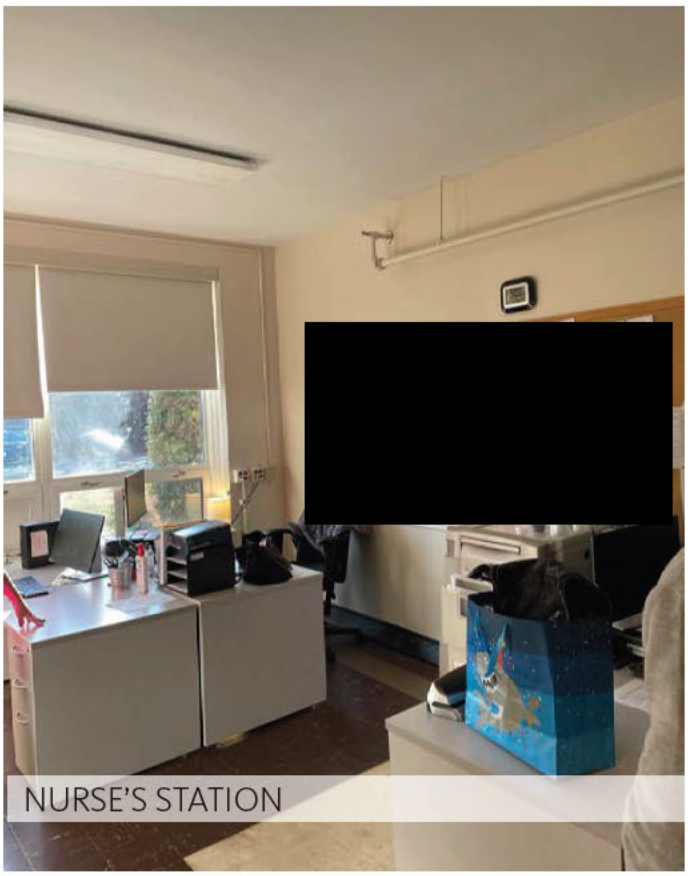


ALARM PANEL



GLASS BLOCK GLAZING

GATES UNIT | INTERIOR



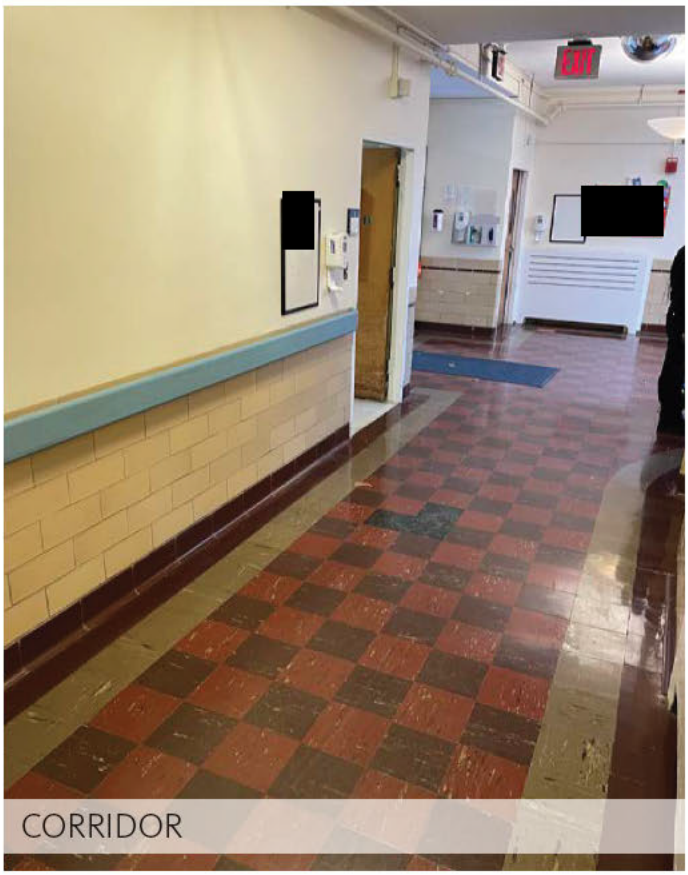
NURSE'S STATION



PATIENT ROOM



CORRIDOR DETAIL



CORRIDOR

ROSS COTTAGE UNIT | EXTERIOR, ELEVATIONS



PARTAIL WEST ELEVATIOIN



PARTIAL NORTH WEST ELEVATIONS



WEST ENTRY ELEVATION



NORTH EAST CORNER ELEVATIOIN



EAST ELEVATION



SOUTH ELEVATION

ROSS COTTAGE UNIT | EXTERIOR, DETAILS



SPALLING AT CONCRETE WALKWAY



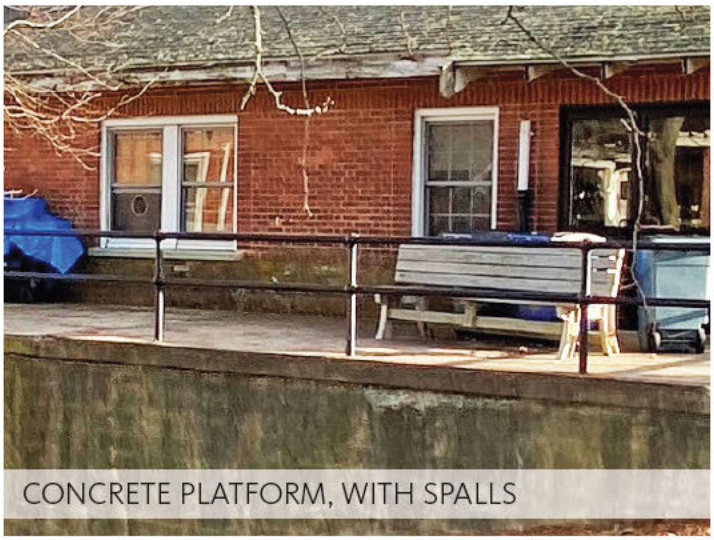
BRICK JOINTS REQUIRE REPOINTING



SPALLING AT CONCRETE PLATFORM



FUNGUS GROWTH OVER BRICK



CONCRETE PLATFORM, WITH SPALLS



MONITOR

ROSS COTTAGE UNIT | EXTERIOR, DETAILS



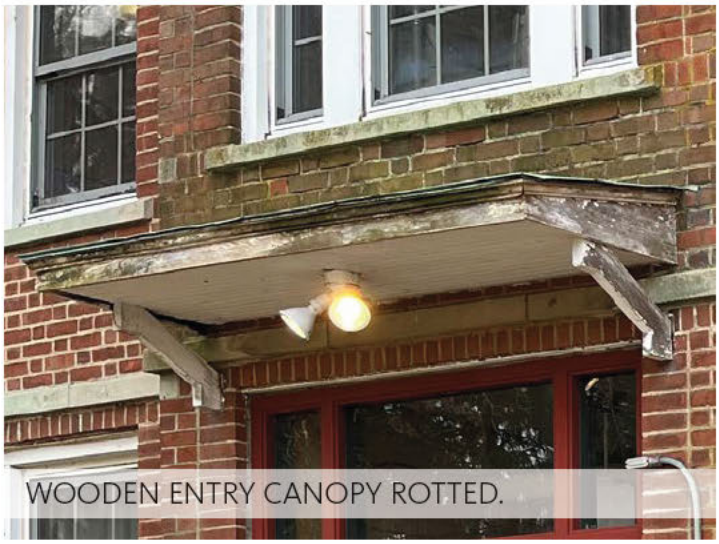
PRECAST SILL HAS SPALLED EXPOSING REBAR



SPALLING AT CONCRETE CONNECTION



ROOF FASCIA BOARD HAS ROTTED OR REMOVED



WOODEN ENTRY CANOPY ROTTED.

ROSS COTTAGE UNIT | INTERIORS

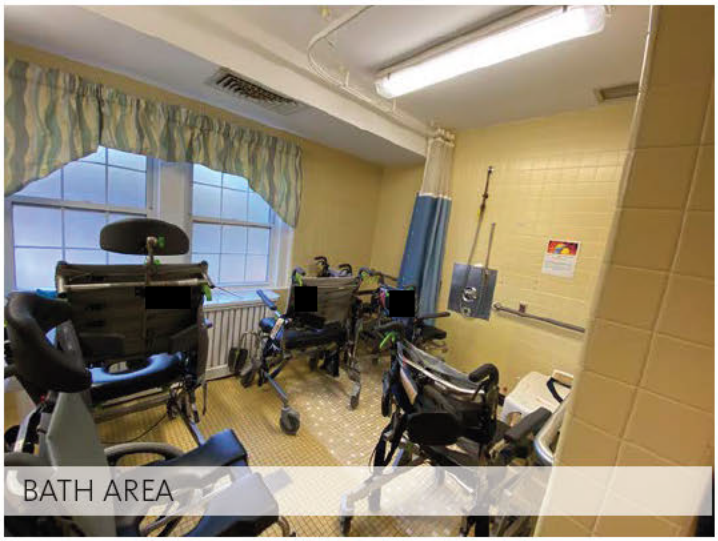

ENTRY VESTIBULE


DAY ROOM


DAY ROOM FIREPLACE


KITCHEN + DINING AREA


COOKING AREA


BATH AREA

ROSS COTTAGE UNIT | INTERIORS



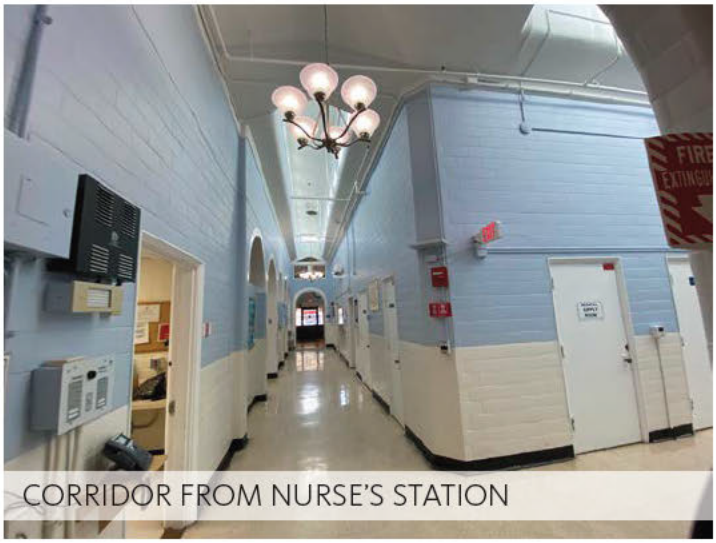
LAUNDRY SPACE



LOWER LEVEL



PATIENT ROOM



CORRIDOR FROM NURSE'S STATION



NURSE'S OFFICE



TOILET

ELLIS COTTAGE UNIT | EXTERIOR, ELEVATIONS



SOUTH ELEVATION



EAST ELEVATION



NORTH EAST ELEVATION



NORTH ELEVATION



PARTIAL NORTH WEST ELEVATION



WEST ELEVATION

ELLIS COTTAGE UNIT | EXTERIOR, ELEVATIONS



SOUTH ELEVATION

ELLIS COTTAGE UNIT | EXTERIOR, DETAILS



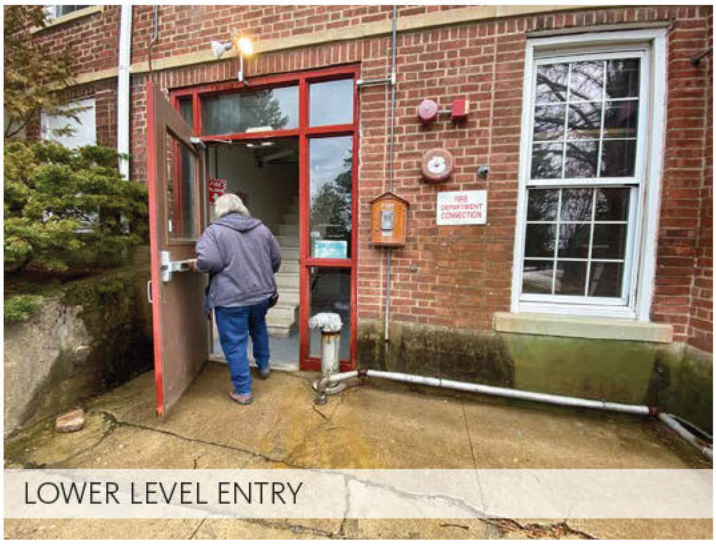
ROTTED ROOF FASCIA BOARD



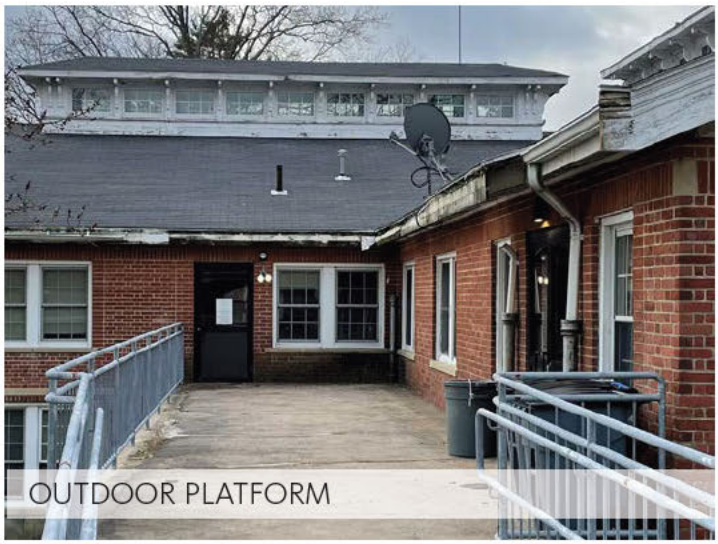
ENTRY PORTAL



LARGE CHIMNEY



LOWER LEVEL ENTRY



OUTDOOR PLATFORM



WORN OUT ROOF TILES

ELLIS COTTAGE UNIT | EXTERIOR, DETAILS

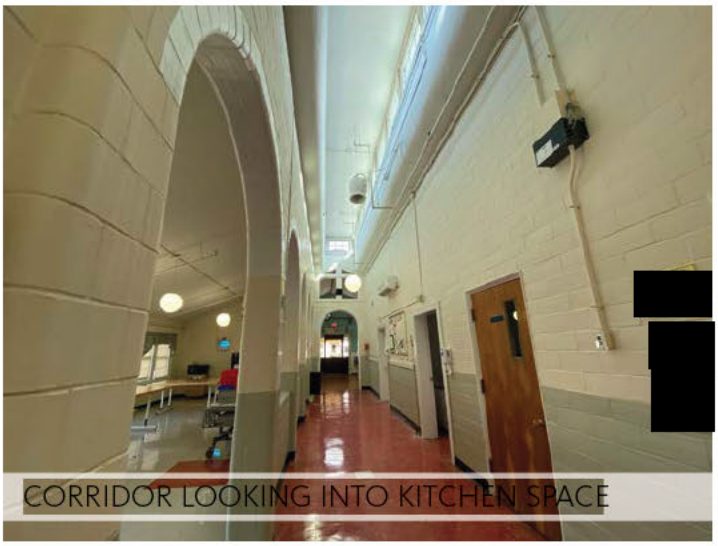


CONCRETE SPALLED AT TERRACE RAILING



ROOF FASCIA

ELLIS COTTAGE UNIT | INTERIORS



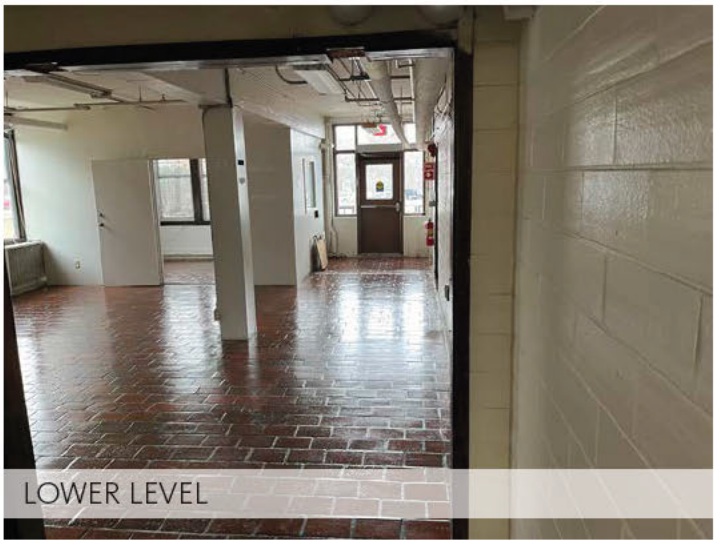
CORRIDOR LOOKING INTO KITCHEN SPACE



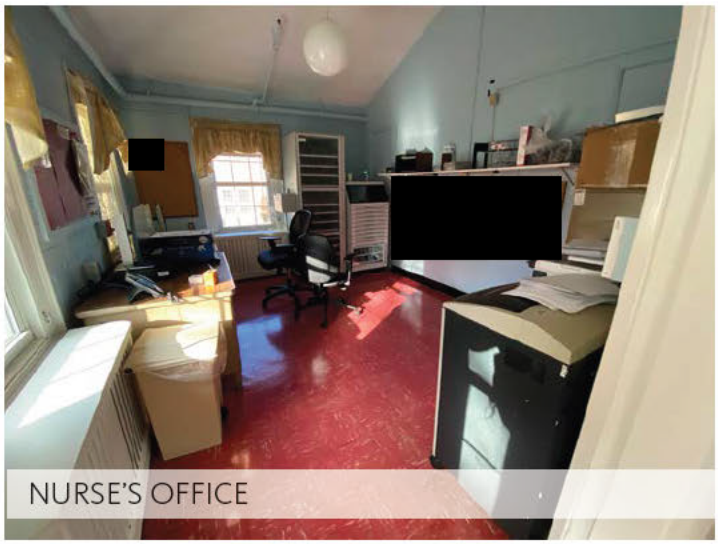
DINING AREA



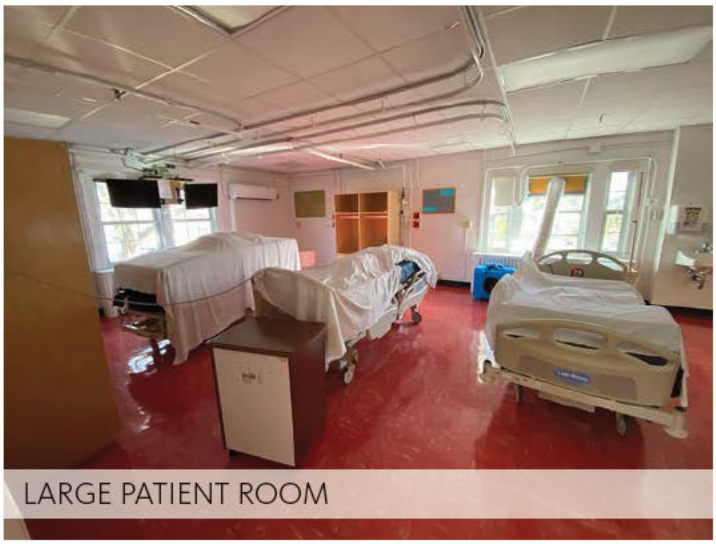
DAY ROOM



LOWER LEVEL

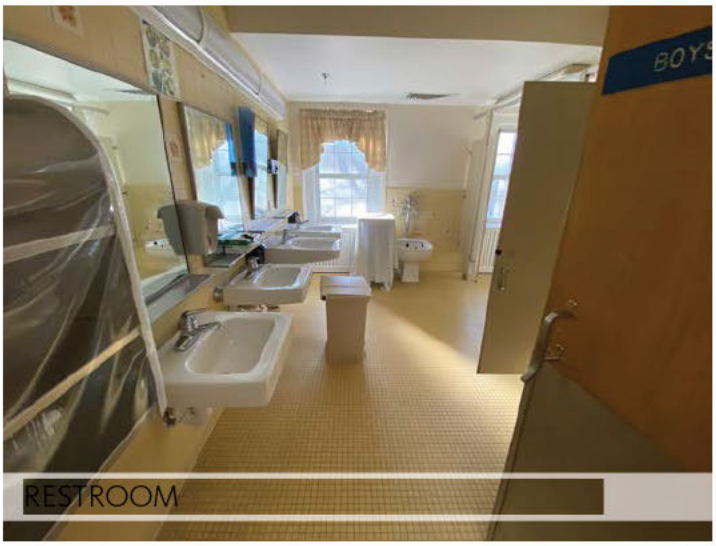


NURSE'S OFFICE



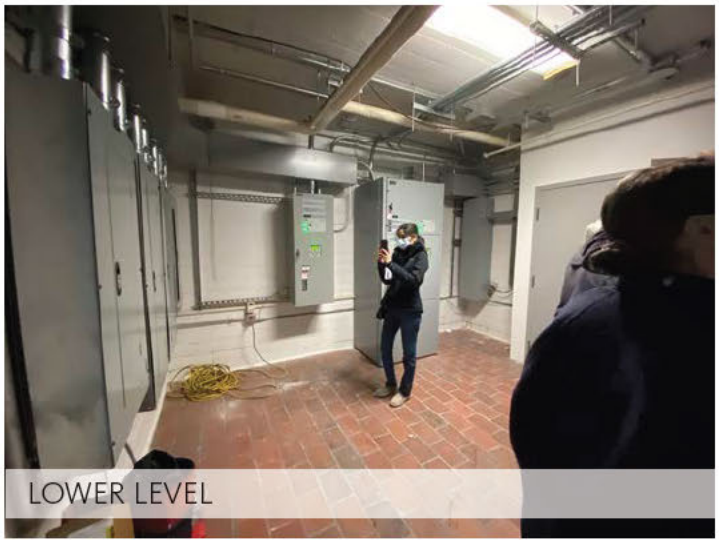
LARGE PATIENT ROOM

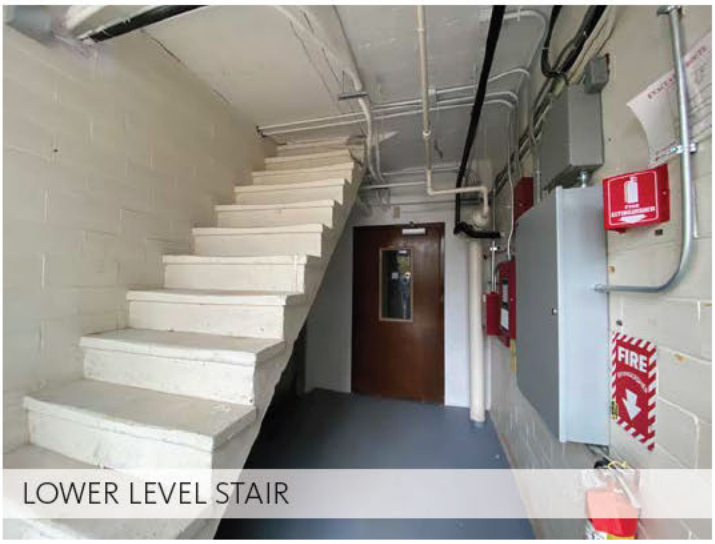
ELLIS COTTAGE UNIT | INTERIORS



RESTROOM


BATHING AREA


LOWER LEVEL



LOWER LEVEL STAIR

BAYLIES COTTAGE UNIT | EXTERIOR, ELEVATIONS



SOUTH ELEVATION



EAST ELEVATION



PARTIAL NORTH EAST ELEVATION

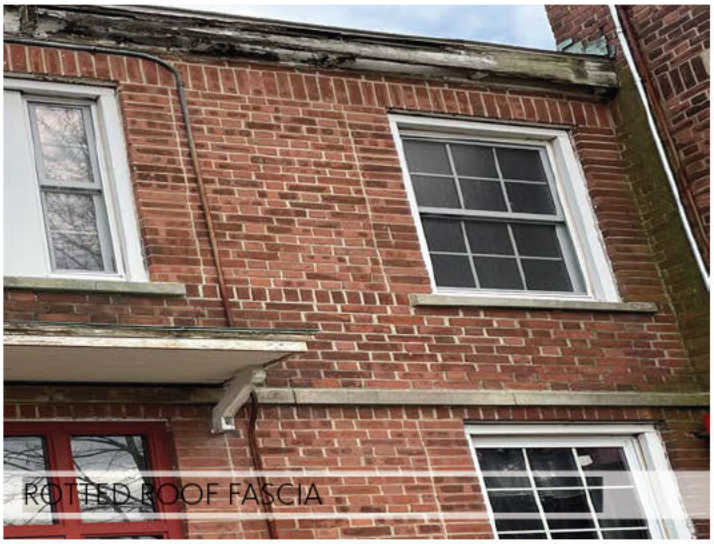


WEST ELEVATION



NORTH ELEVATION

BAYLIES COTTAGE UNIT | EXTERIOR, DETAILS



ROTTED ROOF FASCIA



CRACKED BUILDING FOUNDATION WALL



PRECAST CONCRETE SPALLED EXPOSING REBAR



ENRTY CANOPY ROTTED.

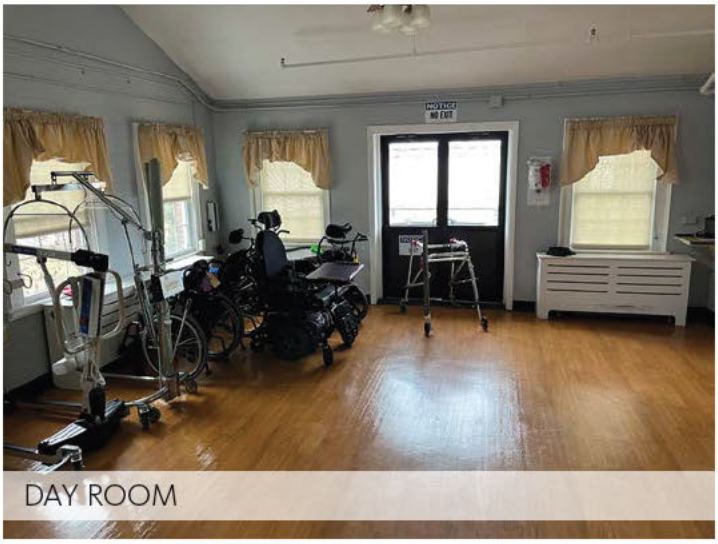
BAYLIES COTTAGE UNIT | INTERIORS



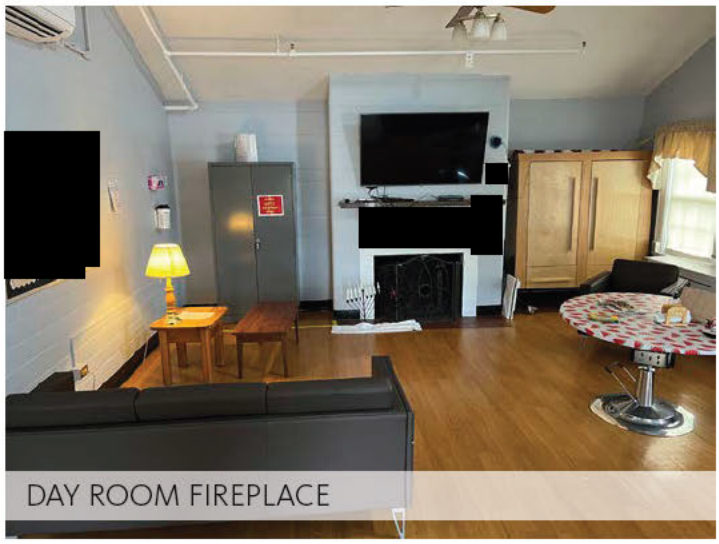
MAIN CORRIDOR LOOKING INTO KITCHEN



KITCHEN + DINING AREA



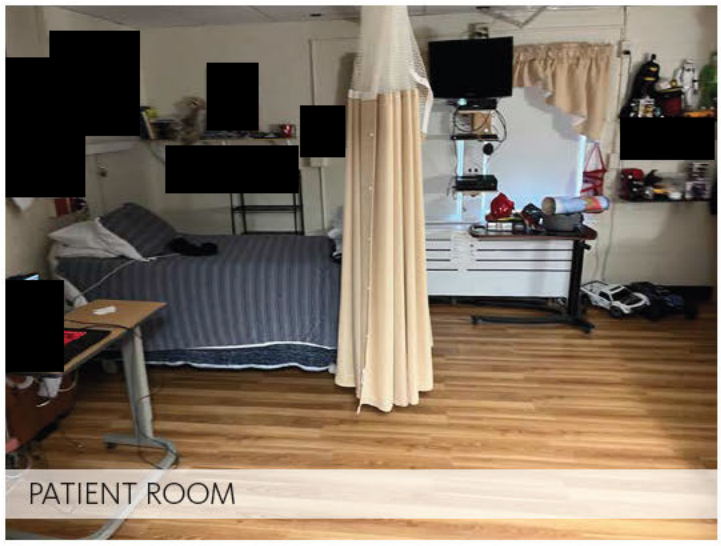
DAY ROOM



DAY ROOM FIREPLACE

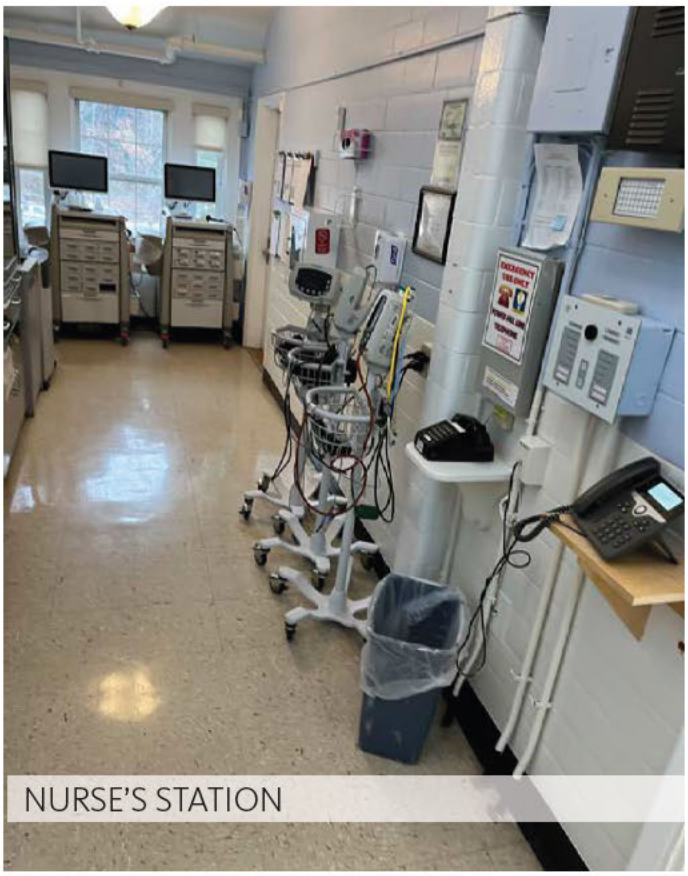


LAUNDRY SPACE

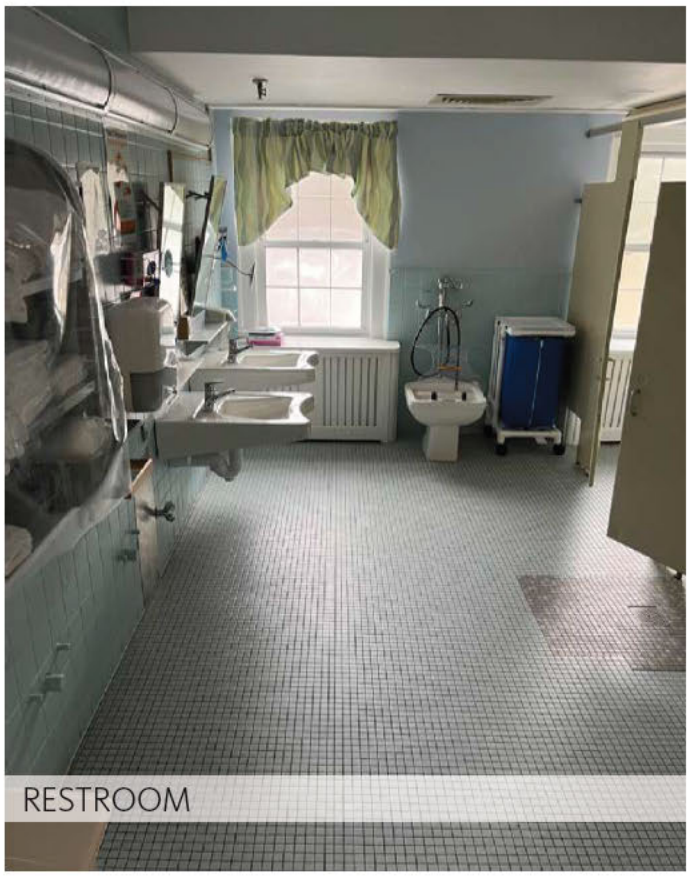


PATIENT ROOM

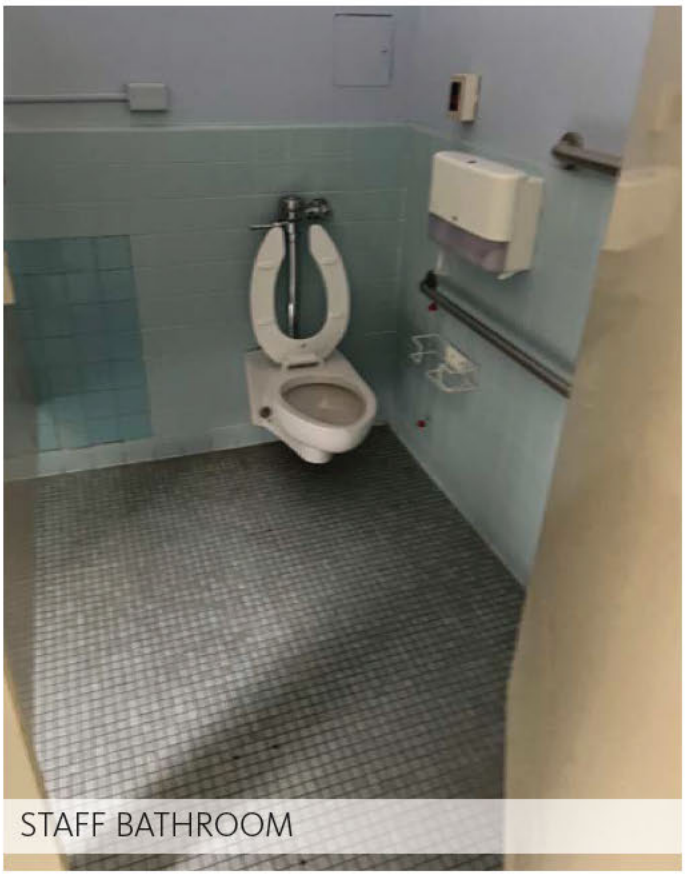
BAYLIES COTTAGE UNIT | INTERIORS



NURSE'S STATION



RESTROOM



STAFF BATHROOM



CORRIDOR

FINNEGAN GYM/POOL COMPLEX | EXTERIOR ELEVATION


NORTH WEST ELEVATION


SOUTH ELEVATION W/ GREENHOUSE


EAST ELEVATION


WEST ELEVATION


SOUTH ELEVATION


SOUTH WEST ELEVATION

FINNEGAN GYM/POOL COMPLEX | EXTERIOR DETAIL



EXPANSION CRACKS AT TOWER CORNER



BRICK MASONRY LEANING OUTWARD



GUTTER TORN OFF FROM SNOW LOADS

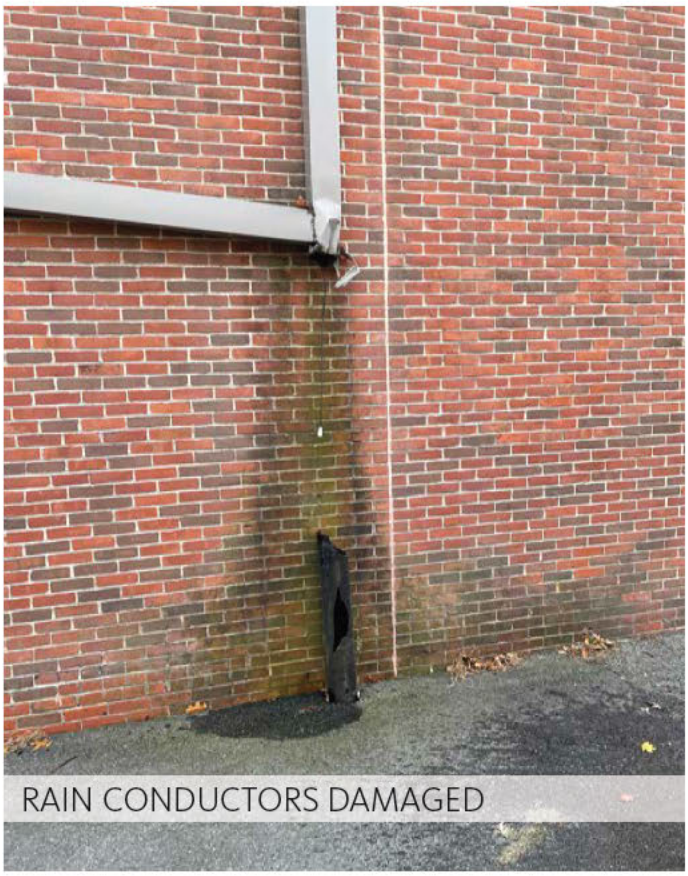


STAINS WHERE GUTTERS ARE GONE

FINNEGAN GYM/POOL COMPLEX | EXTERIOR DETAIL



ROOF MEMBRANE



RAIN CONDUCTORS DAMAGED



SEALANT AT CLERESTORY

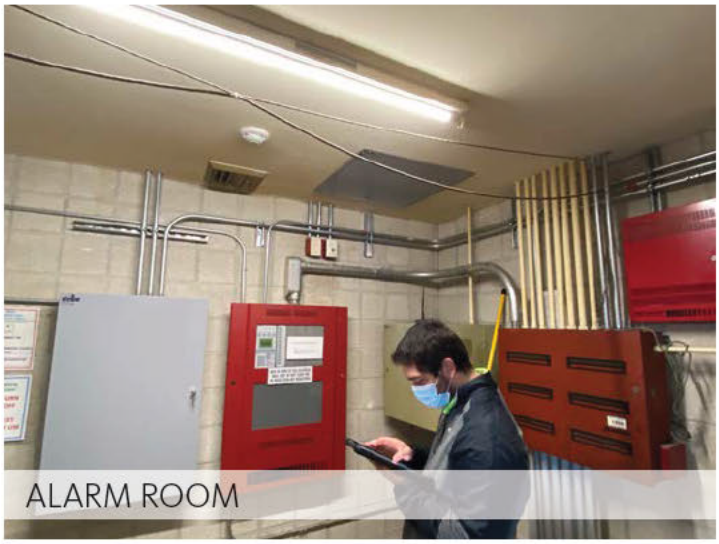


ROOF DETAIL

FINNEGAN GYM/POOL COMPLEX | INTERIOR



CHANGING AREA



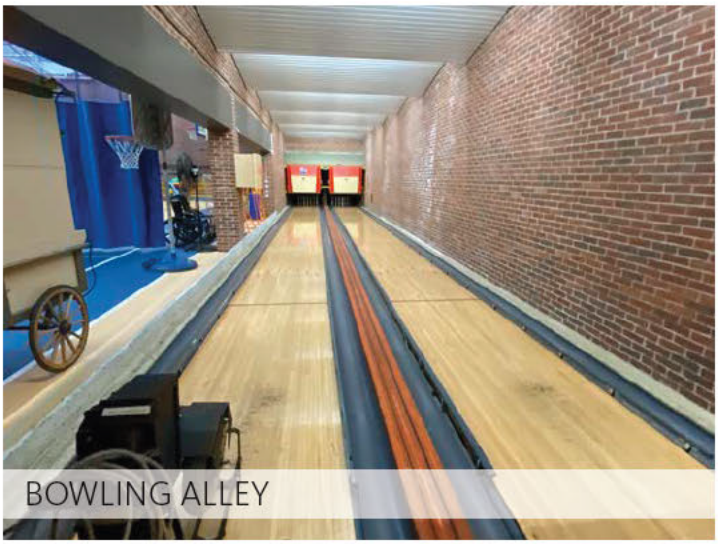
ALARM ROOM



GAME ROOM



BASEMENT



BOWLING ALLEY



ENTRY

FINNEGAN GYM/POOL COMPLEX | INTERIOR



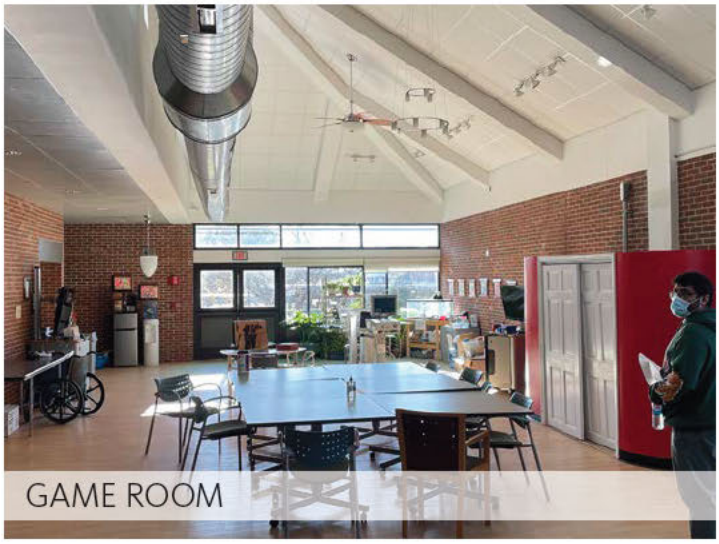
GAME ROOM



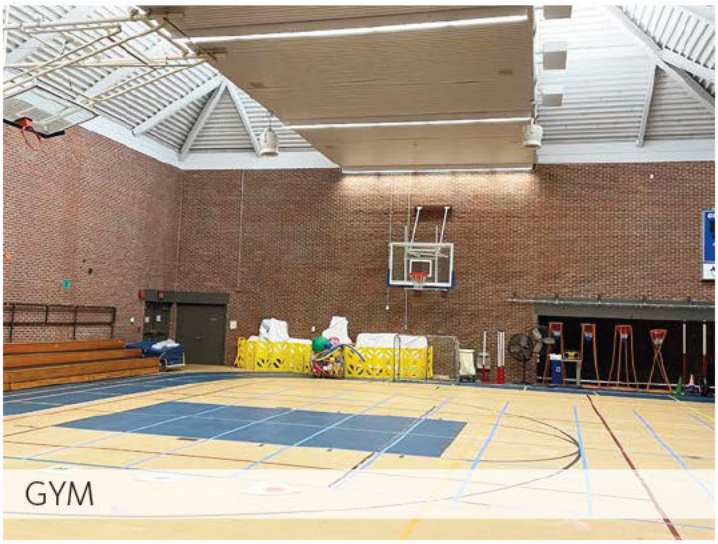
LOCKER ROOM



GREEN HOUSE



GAME ROOM

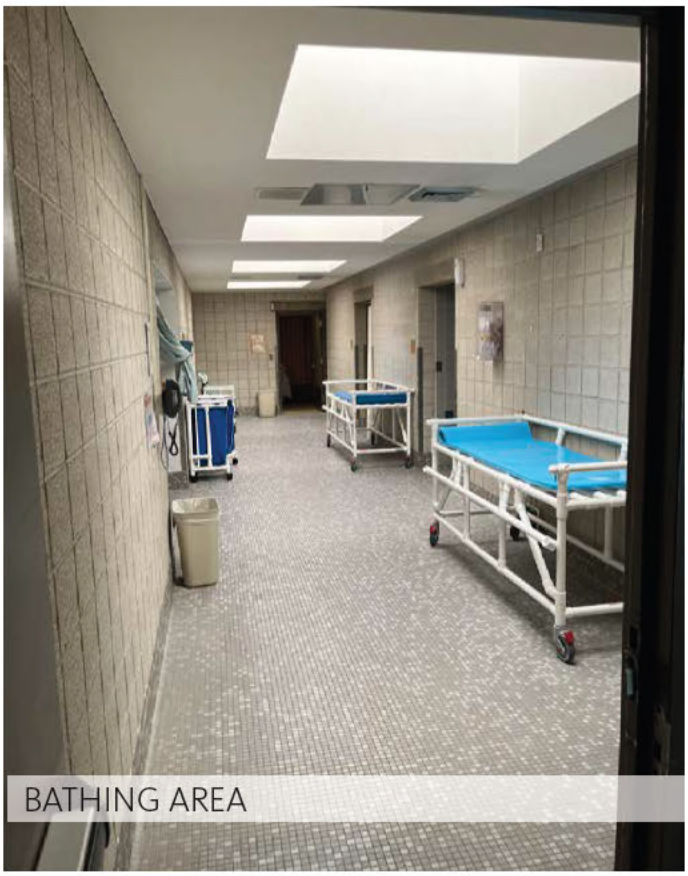


GYM



LOBBY

FINNEGAN GYM/POOL COMPLEX | INTERIOR



BATHING AREA



SHOWER

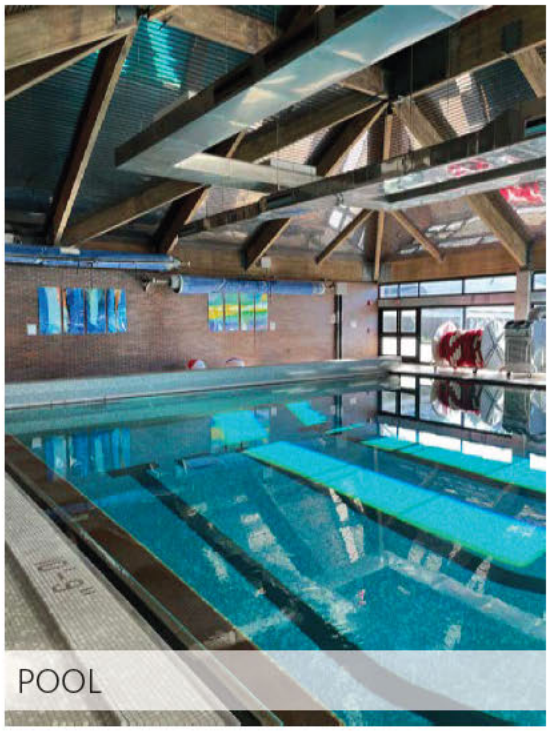


CHANGING AREA



GRILL

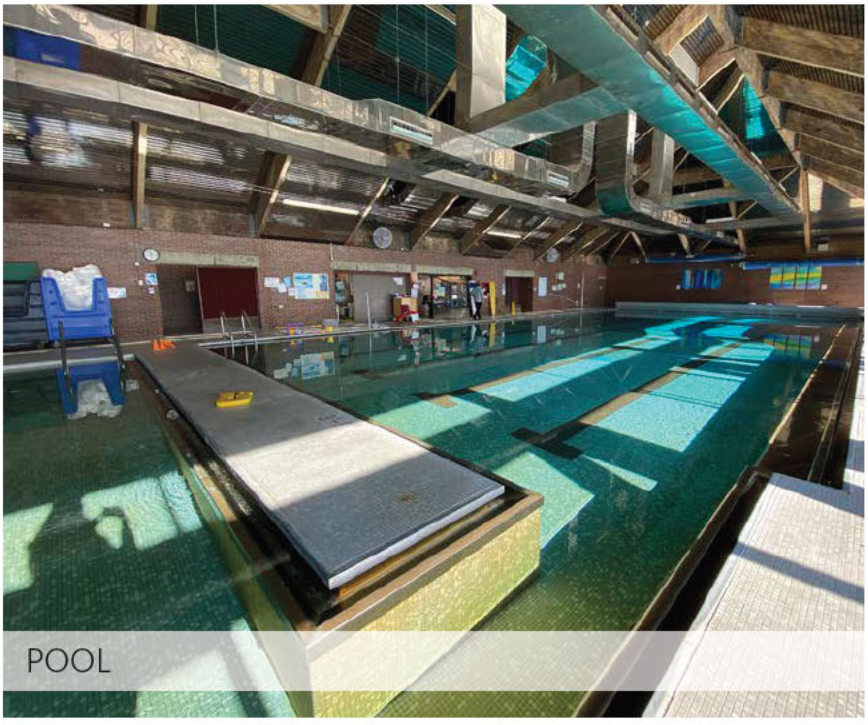
FINNEGAN GYM/POOL COMPLEX | INTERIOR



POOL



POOL



POOL

APPENDIX C

MEETING NOTES

Meeting Notes

Gensler

Project	EHS2301: Facility & Program Assessment – Pappas, Taunton, and Tewksbury Campuses	**Project Number**	11.7782.000
Meeting Location ☒ **Via Telephone**	Microsoft Teams	**Meeting Date and/or Time**	November 4, 2022 9:00 am–9:45 am
Meeting Subject	Kick Off Meeting with DCP & DPH Leadership	**Meeting Number**	01
		File	1MN
		This is page	1 of 2
Present	Pamela H. Couchon, DPH Valenda Liptak, DPH Fatima Watt, Pappas Ganesh Ramachandran, DCP Robert Ricchi, DCP Betty Chen, Gensler Matt Tharp, Gensler Ken Fisher, Gensler		
Distribution	Those present		
Prepared by	Betty Chen	**Date Issued**	November 4, 2022

Gensler will rely on these notes as the approved record of matters discussed and conclusions reached during this meeting unless written notice to the contrary is received by Gensler within seven calendar days of the issue date of these meeting notes.

Discussion	**Action / Decisions Pending / Follow up**
01. Introductions • Introduced attendees.	

02. Scope Overview
• Reviewed overall project scope, including Phase 1 Pilot and Phase 2 full study.
  • Betty, Ganesh & Rob confirmed the goal of Phase 1 Pilot is to conduct a "trial" run of deliverables to ensure information is suitable and relevant, as this project is different from typical DCAMM facilities conditions assessments.
• Reviewed list of deliverables.
• Reviewed milestones.
• Discussed other considerations (as suggested by Val)
  • There should be an assessment of goals for the three hospital organizations.
  • Review if some buildings should be demo'd
  • Consider contracted vendors such as concerns for mold on Tewksbury Campus – should these programs be shut down in the next five years or so?
  • Consider campus footprint downsizing.
  • Review utilization, historic status.
	Gensler to include suggested considerations in programmatic and existing conditions review, as well as on staff interview questions.

Project	EHS2301: Facility & Program Assessment – Pappas, Taunton, and Tewksbury Campuses	**Project Number**	11.7782.000
Meeting Date	November 4, 2022 9:00 am–9:45 am	**This is page**	2 of 2

Discussion	**Action / Decisions Pending / Follow up**
03. Schedule Overview • Reviewed draft project schedule. • Reviewed proposed meetings – timing and occurrences. • Reviewed which meetings are expected to be on site. • Reviewed submission milestones. • Discussed DCAMM, DPH and other stakeholders review turnaround timelines.	

04. Preparation for Pappas
• Introduced Dr. Fatima Watt – CEO of Pappas.
• Discussed Pappas staff who should attend introductory meeting, on site meetings, and host for consultant walkthroughs.
  • Rick Pollara, Facilities (may consult with him to suggest other staff to include)
  • Clinical representative
  • Consider CCO (recently started role) and/or CNO (Interim)
  • Power Plant facilities representative
  • Recreation facilities representative
  • Staff engaged with strategic thinking and staff interested in building & redevelopment projects.
  • Core team to be around 4-5 staff.
• Discussed Gensler and consultants will visit campus on multiple occasions over approx. 1 week during Task 3 Building & Campus Analysis. Will require a staff to escort during walkthroughs.
• Target to schedule kick-off meeting for next week.
	Dr. Watt to provide a list of key Pappas staff to attend project meetings and reviews.

05. Draft Critical Buildings List
• Reviewed draft buildings list and discussed key factors in establishing criticality
  • Consider if a facility is 24/7 but also what types of programs are 24/7 – e.g. a 24/7 patient care building should take precedence over a 24/7 farmhouse.
  • What is the utilization percentage?
  • What year was it build? (or what decade if exact date can't be found)
• Reviewed draft list of "critical buildings" (5-7) for each campus.
• Suggestions:
  • Add column for percentage occupied (Val suggestion)
  • Update "critical?" column to a scale of 1-3 with 1 indicating most critical. (Ganesh suggestion)
	Gensler to update draft buildings list for further discussion at upcoming meetings.

Meeting Notes

Gensler

Project	EHS2301: Facility & Program Assessment – Pappas, Taunton, and Tewksbury Campuses	**Project Number**	11.7782.000
Meeting Location ☒ **Via Telephone**	Microsoft Teams	**Meeting Date and/or Time**	November 17, 2022 9:00 –10:15 am
Meeting Subject	Kick Off Meeting for Phase 1 (with Pappas)	**Meeting Number**	02
		File	1MN
		This is page	1 of 4
Present	Pamela H. Couchon, DPH; Valenda Liptak, DPH; Fatima Watt, DPH; Arthur May, DPH; Christin Santiago, DPH; Debra A. Beaudette, DPH; Anna Demoko, DPH; Robert Ricchi, DCP Betty Chen, Gensler; Alan Estabrook, Gensler; Matt Tharp, Gensler; Michael Lorimer, Arup; Andrew Woodward, Arup; Zach Blanchard, Code Red; Chelsea S. Vollmer, Gale Associates; Brian Creamer, Nitsch; Jim Ruell, Pristine; Hina Ansari, Pristine; Pam Shadley, Shadley Associates		
Distribution	Those present Jenny Burton, DCP; Richard Pollara, DCP; Brian H. Neely, Gale Associates; Golam Mustafa, Pristine; Ken Fisher, Gensler		
Prepared by	Betty Chen	**Date Issued**	November 22, 2022

Gensler will rely on these notes as the approved record of matters discussed and conclusions reached during this meeting unless written notice to the contrary is received by Gensler within seven calendar days of the issue date of these meeting notes.

Discussion	**Action / Decisions Pending / Follow up**

01. Introductions
- Introduced attendees.

02. Scope Overview
- Briefly reviewed overall project scope and deliverables.
- Confirmed Phase 1 will focus on two buildings: Gates Building and Finnegan Recreational Complex.

03. Schedule Overview
- Briefly reviewed project schedule.
- Reviewed proposed meetings – timing and occurrences.
- Confirmed which meetings are expected to be on site.
- Discussed DCAMM & DPH review period.

04. Site Visit Preparation
- COVID protocol:
    - Masks are required at patient areas.
    - Site security will supply masks and guide to parking area & huddle locations
    - COVID test will be conducted upon arrival – security will direct us to testing area.
    - Testing will be a rapid test swab, estimated to take 15-25 minutes to administer.

Project	EHS2301: Facility & Program Assessment – Pappas, Taunton, and Tewksbury Campuses	Project Number	11.7782.000
Meeting Date	November 17, 2022 9:00 –10:15 am	This is page	2 of 4

Discussion	Action / Decisions Pending / Follow up

• No vaccination requirements.
• Confirmed proposed dates, time, and durations of site visits
  • Thursday December 1: 8am – 4pm
  • Friday December 2: 8am-1pm (if required)
  • Monday December 5 & Tuesday 6 will be back up days if Joint Commission is onsite during Dec 1-2 window.
• Rob and Arthur indicate facilities staff can accompany consultants and we can split into two groups.
• Fatima, Arthur & Rick state that an early start works for them. Target time is 8 AM.
• Alan clarified we will be looking at more than just the two pilot buildings during these site visits.
• Consultant requests:
  • Jim Ruell (Pristine) requests facilities personnel familiar with electrical systems to be available to discuss building systems.
  • Michael Lorimer (Arup) – Suggest MEP go off in one group.
	Rob will send out meeting holds.

• Gensler to provide list of attendees	Betty will send over attendee list.

05. Facility Overview
• Pappas Hospital
  • Overview of programs and services provided.
  • Serve children and young adults.
  • Large open campus with lots of patients with mobility challenges. Most patients are in wheelchairs.
  • Patients are ranging from 7-22 years old
  • Interdisciplinary team, full medical services including nursing, specialty, physical, occ therapy, complimentary and alt medication, recreational therapy
  • Want to have an opinion about what we are capable of
  • Focus on program developments, what the site can house and accommodate.
  • Note: Very old campus, CRITICAL: would like to look at which buildings are not worth the investment.
  • Val states that there are summary documents available that they can provide.
• Vendors
  • Tufts Dental
  • Easter Seals
  • Aramark Food services
  • Various State Agencies in Donovan Building
  • Stables shared with Department of Conservation & Renovation (DCR)
  • Schools serve patients only,
	Fatima to provide summary documents by early next week. (Rob has followed up with Fatima as of Week of November 28)

Project	EHS2301: Facility & Program Assessment – Pappas, Taunton, and Tewksbury Campuses	Project Number	11.7782.000
Meeting Date	November 17, 2022 9:00 –10:15 am	This is page	3 of 4

Discussion	Action / Decisions Pending / Follow up

• 49 patients is the current census (5 years ago there were 103 patients but had to change during covid).
• Fatima notes that the overall capacity will be determined by the final study.
• All residential buildings are 24/7 buildings. Ellis is not in use currently but will become 24/7 in a few weeks.
• Facilities
  • Arthur can provide overview of building systems. Gensler should have the package in previously shared background files.
  • Arthur: Central Utility Plant provides services for the campus. Would like to look at more reliable services.
• Exterior Considerations
  • Gates and cottages need attention.
  • We will have access to the roofs.
  • Recreation Building = Sandfill Roof.
  • Best to review roof in the afternoon.
• Accessibility and Mobility on Campus
  • Geoff: space to be therapeutic, with tree plantings, open campus feel to help normalize experience, beautiful in all seasons, worn buildings diminishes the experience.
  • Functionality of the pergola - protects kids from elements.
  • There aren't many mobility barriers, it has been improved over time, but could still have improvements such as ramp grades, good having a variety of environments for PT to help kids with mobility challenges.
  • Christin: from the outside it doesn't look like kids belong here, buildings don't look friendly to kids, would be good to improve that aesthetic, reduce institutional feel, want to express care and compassion.
  • Animal program - horses, pigs, goats etc. – patients can't access once there is a bit of adverse weather.
  • Would like pathways to barn to be more accessible.
  • Fatima: Would like to see safe areas in the event of active shooter situation
• Pond
  • 150 acre manmade reservoir, has dock.
  • Big part of summer program, boating activity, accessible sailing/canoeing/kayaking/fishing, nature trail around waterfront.
  • Presents programmatic challenges as adjacent neighbors use [redacted].
	Consultants will review provided background files and inform DCAMM if there are any info missing.

Project	EHS2301: Facility & Program Assessment – Pappas, Taunton, and Tewksbury Campuses	Project Number	11.7782.000
Meeting Date	November 17, 2022 9:00 –10:15 am	This is page	4 of 4

Discussion	Action / Decisions Pending / Follow up

• Nelson Building
  • Nelson - ground floor: offices, direct care clinical spaces, central supply spaces, outpatient treatment center (clinical, office and storage).
  • Higher levels are patient spaces, offices for department of social work, nursing, dental staff, patient care space, dining room.
  • Dining room has been converted to patient area.
• Parking
  • Looks well served. Where are the highest demands?
  • Would like more covered parking. The school right now is the only place with covered parking.
  • Would like to see charging station, currently there aren't any.
  • Some complaints about lighting on shorter days of the year. No incidents recently but it's still concerning for people in the evenings
  • Deb: limited parking near Nelson and Ross buildings for nursing there in evenings on night shifts.
• Snow Removal/Storage
  • Pappas has snow removal team but outside contractor does majority of the work.
  • Not enough storage in certain locations.
  • Would like covered access.
  • Pinch points are where there is 24/7 nursing coverage, barn, drop off/pick up points for patients.
• Historic Preservation
  • Admin Building has designations.
  • Maybe Elementary School? Consultant to verify.
 	
06. Other Discussions
• Andrew (ARUP): Any photo Restrictions?
  o No children in photos. For staff: ask permission first.
• Zach (Code Red) – Is there a list of which buildings have licensed programs?
• Christin states that the lack of AC is a big concern.
  o At Recreation Building, the locker rooms are the biggest problem. Also the gym has very loud fans.
• Arthur: Recreation Building AC was part of the energy project but was removed. Energy project done sometime between 5 years old – current day.
• Schools function on the typical Mass. School Calendar.
	Pappas to provide list of licenses programs.

Meeting Notes

Gensler

Project	EHS2301: Facility & Program Assessment – Pappas, Taunton, and Tewksbury Campuses	**Project Number**	11.7782.000
Meeting Location ☒ **Via Telephone**	Microsoft Teams	**Meeting Date and/or Time**	December 8, 2022 2:00 –3:20 pm
Meeting Subject	Pilot Leadership Interview: Campus & Critical Building (with Pappas)	**Meeting Number**	03
		File	1MN
		This is page	1 of 5
Present	Fatima Watt, DPH; Christin Santiago, DPH; Debra A. Beaudette, DPH; Rick Pollara, DPH; Geoffrey Reinhold, DPH; Michelle Sweeny; Debra Dunn, DPH; Pamela H. Couchon, DPH Jenny Burton, DCP; Robert Ricchi, DCP Betty Chen, Gensler; Mary Coughlin, Gensler; Alan Estabrook, Gensler; Patricia Nobre, Gensler; Carolin Shannon, Gensler		
Distribution	Those present Ken Fisher, Gensler; Matt Tharp, Gensler; Prem Mehta, Gensler		
Prepared by	Betty Chen	**Date Issued**	December 12, 2022

Gensler will rely on these notes as the approved record of matters discussed and conclusions reached during this meeting unless written notice to the contrary is received by Gensler within seven calendar days of the issue date of these meeting notes.

Discussion	**Action / Decisions Pending / Follow up**

01. Introductions

- Introduced attendees.
- Meeting goal: Evaluation and alignment of future direction. Validation of on-site findings.

02. The Pappas Campus

- Vision Overview & Goals
  - What works well? What might change that would support your kids into the future?
  - Debra B: support patients with more intense needs.
  - What needs are out there we could fulfill, and whether we could support them or not?
  - Would buildings be able to support ventilation? In wall suction, med gas, etc.
  - Our current patient buildings are old, and the patient rooms are small for today's equipment.
  - Lack of electrical in some areas with powered chairs.
  - Geoffrey: multiple environments, would be great to bring more patients that need these types of facilities, be inclusive as possible for kids that need therapeutic and medical interventions.
  - Jenny: There is a strong variety of therapeutic environments.
  - Some patient units don't have MERV-13 and Mech with outside air delivery.
  - Equity across buildings, right now there aren't the same opportunities for residents across buildings.
  - Taking patients with behavioral needs. (short or long term goal?)
    - Fatima: closer than further, we are looking at this. Behavior health will be sooner term than more complex medical needs
  - Respite care, is this short or long term? Somewhere in the middle.
  - Medical complexity is our bread and butter *now*, we might continue to expand this. More *acute* medical complexity needs, this is probably on the longer-term vision side.

Project	EHS2301: Facility & Program Assessment – Pappas, Taunton, and Tewksbury Campuses	Project Number	11.7782.000
Meeting Date	December 8, 2022 2:00 –3:20 pm	This is page	2 of 5

Discussion	Action / Decisions Pending / Follow up

- Facilities, Clinical Programs & Flows
  - Three types of flows:
    - Intake to discharge
    - Morning to night (day in the life)
    - Special events: visits, events
  - Intake/Admission Process:
    - Once there is a candidate, we do a pre-evaluation.
    - Prepare for arrival, get equipment in place.
    - Meet to review dietary needs.
    - Aim to establish connections with them and their families.
    - Trying to help patients not feel overwhelmed, see a few familiar faces for admission day.
    - Process on admission day: meet the team, settle in, therapists step in when it makes sense.
  - Opportunities (Intake/Admission):
    - Michelle: from a physical space, we have a process.
    - We don't have a very nice welcoming space, currently use clinical rooms or Nelson outpatient exam rooms.
    - It would be nicer to have a warm, welcoming first impression space.
    - Being in an exam room isn't the nicest place to get welcomed to some place you will be living for a long time.
    - Campus is a beautiful space, views, how can we leverage this?
    - Old buildings have small windows! We don't get to take advantage.
    - Dana Farber, when they renovated they added and enlarged windows.
    - If we can have the feeling of the outdoors and see surroundings, that would be an opportunity.
  - Arrival on Campus
    - Currently, patients find their way to the campus.
    - Alan: Where is dropoff? What is the physicality of getting patients in?
      - Parking currently in outpatient parking (Bradford Nelson), after initial intake patients are walked to their unit.
      - If a patient is returning, they generally arrive outside of unit in various parking units and do the walkway to get to specific buildings
    - Where are kids usually coming from? Suddenly or planned or both?
      - All of the above, it's planned with a date. Could be from home or from another inpatient setting.
      - Sometimes they arrive with very little.
      - In the future, we will have very few if any kids coming from home. Goal is to have all will come from specialty or acute care settings.
  - Opportunities (First impressions):
    - What we would like to communicate when kids come in: This is a safe space for them, many of them have been in lots of settings.
    - When you drive by, or start to come in, the buildings look so old it's scary.
    - One patient called it "the devil's layer" = the outside of the buildings doesn't communicate the care and compassion of what's given here.
    - We put the playground out front to improve welcoming message.
    - Sense of community is big, they are part of the crowd, not in the margins.

Project	EHS2301: Facility & Program Assessment – Pappas, Taunton, and Tewksbury Campuses	Project Number	11.7782.000
Meeting Date	December 8, 2022 2:00 –3:20 pm	This is page	3 of 5

Discussion	Action / Decisions Pending / Follow up

- Want kids to identify with the others on their unit, that they feel like they are in the right place.

- Day in the life:
  Kids get up between 6-7, get respiratory treatments, medication.
  - Can be time consuming to get kids up.
  - Around 9, sent to school until lunch.
  - Go back to school after lunch until 3pm.
  - After school, activities in the afternoon.
  - With the therapies, we are on the units in the morning as well as kids are getting ready (OTs, daily skills, PTs: brisk walk).
  - Team is cycling in and out of building they are assigned to. A lot of activity before going to school.
  - Therapies follow kids to school in some cases, work in hallways or our own therapy space.
  - Activities vary in location and content – could be in main rec building with pool or gym, could be at barn with animal care, mobility skills outside, etc. smaller individualized programming.
  - Day full of transitions and movement and traveling.
  - Patients get showered at night, they also need changing, bathing at lunch and other times of the day.
- Opportunities (Day to day)
  - Might be a consideration to see if we have areas where we can do more in the same place for patients that don't or can't travel well or safely.
  - Multi-use spaces.
- Other facilities improvements? More technical improvements?
  - Headwalls will be required for respiratory patients.
  - In ceiling lifts.
  - Different built-in equipment in bathrooms.
  - Improved storage spaces, right now social spaces are reduced because they are being used as storage.
  - Gates unit is a good example.
  - Safety, and safety around the waterfront – want to make sure this is included.
  - Above road walkways, pergola, elevated bridges.
  - In-room storage for chairs would be ideal for nursing.
  - There are a lot of transitions now, chairs, showers – there is a lot of back and forth now and reducing this would be helpful
  - Shower, bathrooms: is a dormitory setting helpful?
  - Larger helpful, big rooms are great. Sometimes 2 nurses per patient.
  - Struggle to have available sinks for hand washing.
  - Shared bathroom isn't helpful from nursing perspective.
- Strengths
  - Animal program.
  - Pavilion is a nice space, but only available in the warmer months.

Project	EHS2301: Facility & Program Assessment – Pappas, Taunton, and Tewksbury Campuses	Project Number	11.7782.000
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Discussion	Action / Decisions Pending / Follow up

03. Patient care facilities discussion

- Blue buildings on campus map show 24/7 patient buildings.
- Will Ellis also be a 24/7 residential facility
    - Ellis is going to be opened, now we use that as a swing unit. Whatever we do in other units we would want to have done here
- Ross is highest level of independent skills
- Try to group kids not necessarily by age, but patients working on the same types of skills
- Suggestion: could tear down Ellis and Baylies and built a new building.
- Struggling with smaller units, no break area for nurses, really small nursing office.
- Currently nurses take break in laundry room, this is an infection control issue.
- There is a lot of wasted space, and not enough space for what we use it for.
- Could be a renovation that links units and renovates them.
- What is the process to access Ellis and Baylies? From Admin through walkway to these buildings is the safest.
- Ross has newer kitchen, kids are more independent with cooking – this is why the unit is a bit different.
- Stopped taking patients in due to covid, see patient population increasing.
- Part of the question…what is our capacity? We don't have a good sense of true capacity
- As a state facility, we don't have bed licenses.
- 65-75 is known capacity now. 2014 we have 103, and that was already down from where they had been.
- Rec building houses many critical programs and services.

04. Gates Building

- Snakelike design is not ideal for patient monitoring.
- Patients are not clear from nursing station.
- Laundry on one end.
- Patients in the dining room.
- There's a lot of back and forth in the building.
- Logistical reorg might be helpful (Alan).
- Student/patient commented on need for congregating areas.
- TV room seemed to be a kind of pass through to dining room.
- Big cabinet that divides dining areas is not ideal.
- Some bathrooms are not big enough for kids in wheelchairs.
- Congregate bathrooms are not well laid out for multiple users.
- Everything is antiquated from a nursing perspective for clinical needs.
- Disconnect between design and clinical needs/Clinical needs need to inform design.
- Some of the rooms are bigger than most, well lit.
- Built-ins for patient storage and in room charging work well.
- Hallways are not as wide as we would like, but do allow for patients to take a walk around.
- Just had an upgrade – split system – doesn't address make up air requirements.
- Don't have air exchange rates we should have.
- Temperature is better now with split systems.
- DCAMM energy project – what has already been put into this building? What can grow?
    - Needs AHUs.
- Patients want quiet space.

Project	EHS2301: Facility & Program Assessment – Pappas, Taunton, and Tewksbury Campuses	Project Number	11.7782.000
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Discussion	Action / Decisions Pending / Follow up

- On that unit, nurse's station is a room so you can't see the patients. You have to be in the hallways, from nursing perspective it is difficult. Sight lines need to be improved.
- Hallway monitoring, video. Have camera on the doorways for security.
- With cameras, you may have to have a nurse there to watch the monitor. Could also be watched from security
- No locks on the buildings?
    - Have door alarms, so if someone goes out it alarms. No lockdown units. No delayed egress.
    - Local alarm goes off if someone leaves. Need to replace doors. Current new beds would be wider than current entrance doorways. Don't evacuate in beds.
- When we evacuate, put fire blankets, bring out through the door. It would be nice if a patient could be brought out on a bed.
- Given these are one story buildings, evacuating on beds would be ideal.
- Pavilion:
    - Ice damage to pavilion roof last year.
    - Largely used as congregating space, rec activities, graduation.
    - Kids like to hang there and socialize in the summer.
    - Eat there together in the summer together.
- Divided kitchen dining room, pass through laundry room – should reconfigure in a more efficient way.
- A lot of unused space behind gates and between road, could be addition to take serpentine quality away and centralize nursing.

05. Other Discussions

- Question: will AC be added in all the buildings in the future?
    - Nelson has AC, didn't replace all the fan coil units, only those in the patient rooms
    - All other patient units have spilt systems.
    - Rec has AC in JV café and snack bar.
    - Currently updating and replacing Pool pack (AC de humid for indoor pool) would like to expand to the gym itself and the school.
    - School has sporadic AC (Brayton building).
    - Ideally would like AC in every building.
- In Nelson, we have different height toilets, wall drain, not floor.
    - Standard toilet heights would be helpful.
    - Currently highest is 22" and goes down to 14".
- Currently have older analog nurse call systems, would be good to get a more modern system – with ability to page to the nurse.

Pappas Rehabilitation Hospital for Children

PRHC Workshop

December 08, 2022

PAPPAS REHABILITATION HOSPITAL
FOR CHILDREN
3 Randolph Street, Canton, MA 02021
781-828-2440

AGENDA

5 mins	**Introductions**	
45 mins	**The Pappas Campus**	**Vision & Model of Care** **Facilities & Flows** **Critical Buildings Identification**
30 mins	**The Gates Building**	**Vision** **Facilities Strengths, Weaknesses, + Opportunities** **Critical Features**
5 mins	**Wrap up & Next Steps**	

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INTRODUCTIONS

PRHS / DCAMM

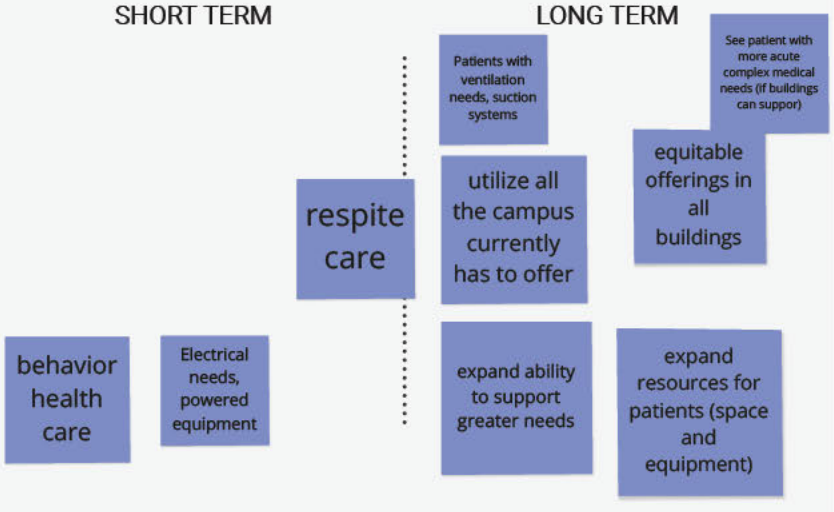
Fatima Watt	**Michelle Sweeney**
Debra Beaudette	**Pamela Couchon**
Richard Pollara	**Rob Ricchi**
Geoffrey Reinhold	**Jenny Burton**
Christin Santiago	
Debra Dunn	

Gensler

Betty Chen	Project Lead
Alan Estabrook	Project Architect
Prem Mehta	Project Designer
Patricia Nobre	Principal + Director of Strategy Lab
Caroline Shannon	Strategy Manager
Mary Coughlin	Strategist

VISION + MODEL OF CARE

What is your **vision** for the both the short and long term future of PRHC?



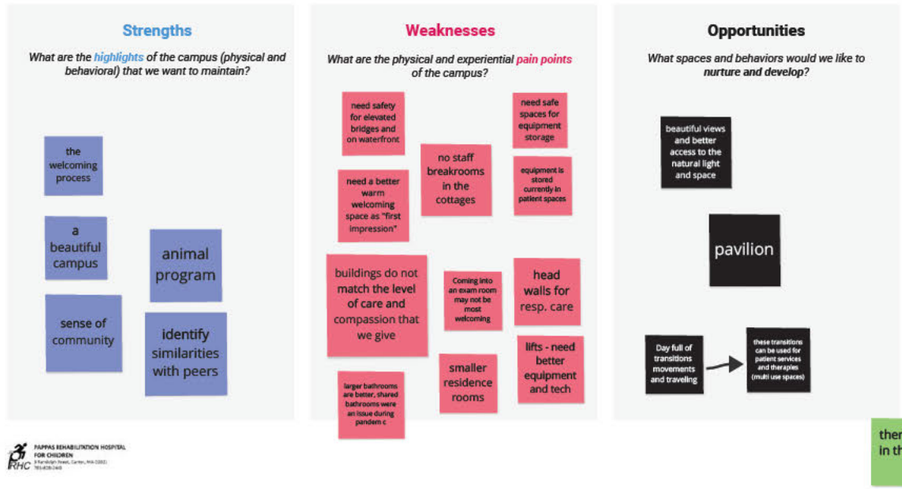
PRHC Mission Statement

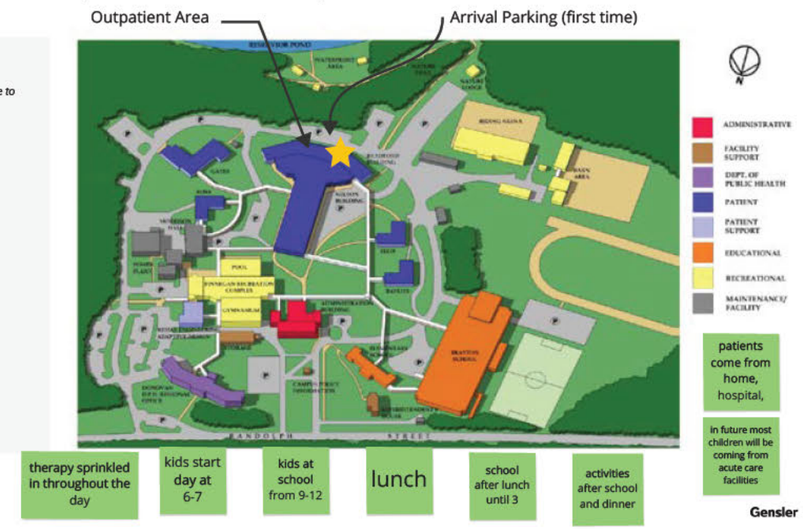
> *To provide **medical, rehabilitative, educational, recreational, habilitative, transitional, and complementary alternative medical services** to children and young adults with multiple disabilities, assisting them to achieve their optimal level of independence in all aspects of life.*

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CAMPUS FACILITIES + FLOWS

Walk us through your model of care. What is the user experience from arrival to departure?



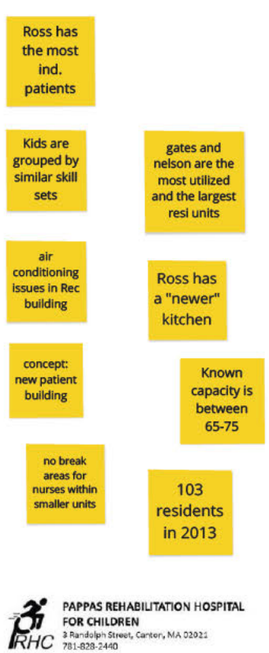


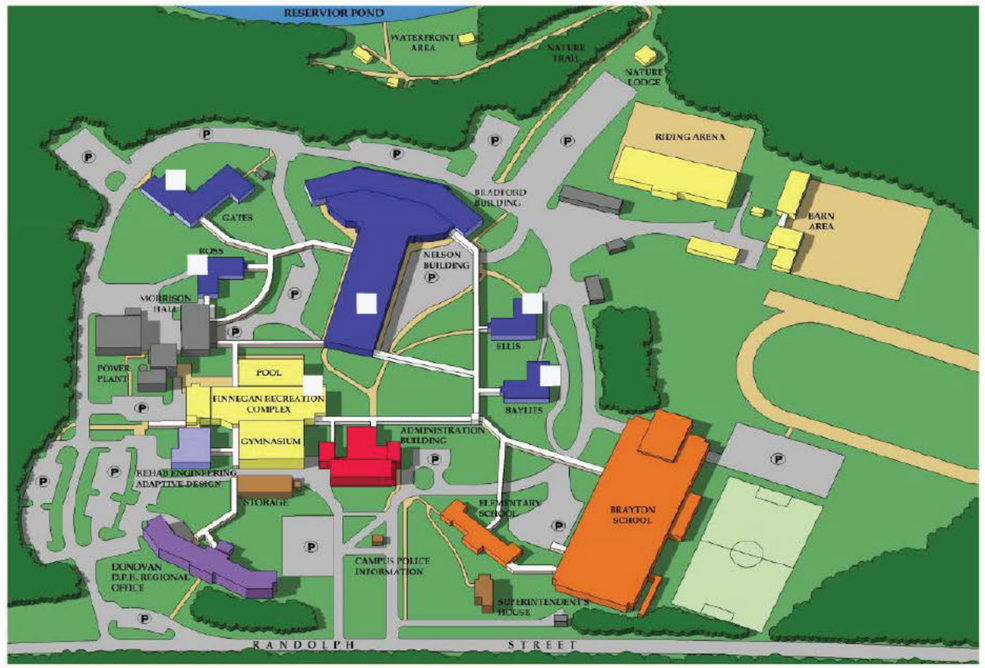
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CRITICAL BUILDINGS IDENTIFICATION

What are the **top 5 buildings** that you think need to be addressed?

Add your top picks into the chat and we will tally the votes on the map







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THE GATES BUILDING

Strengths

*What are the **highlights** of the physical facility and experience that we want to maintain?*

- Bright rooms
- Pavillion
- pavilion is a multi use community space esp during summer
- good patient storage in resi rooms

Weaknesses

*What aspects of the physical building and building experience are **pain points** for its users?*

- Laundry not in best location
- Need to clear up pathways
- Hallways can be wider
- bathrooms + rooms are not laid out well for clinical needs of the patients
- snake like design not ideal for nurse movement
- nurse station needs visibility to patients
- a lot of obstacles in the path interrupting patient experience
- split air system while newer can be better
- entry doors need to be replaced bc new beds that need to be purchased are wider than the door frames

Opportunities

*What spaces and behaviors would we like to **nurture and develop**?*

- safety - cameras
- it would be nice to be able to evacuate by bed in the future

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THE GATES BUILDING - Critical Features

If you could choose only one or two elements of the Gates Building to change, what would they be?

- design a more efficient laundry, kitchen, nurses station, living room
- additional storage
- expanded more accessible nurses station

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THE GATES BUILDING - Vision

What is your **vision** for the future of the Gates Building ? (program and experience)

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PROGRAM	Residential
YEAR CONSTUCTED	1950
GSF	9,049 GSF
# of FLOORS	1 Floor
24/7 OPERATION	Yes



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