350 BED FORENSIC HOSPITAL AT WESTERN STATE HOSPITAL

Predesign Report

OCTOBER 2020

architecture+ SRG

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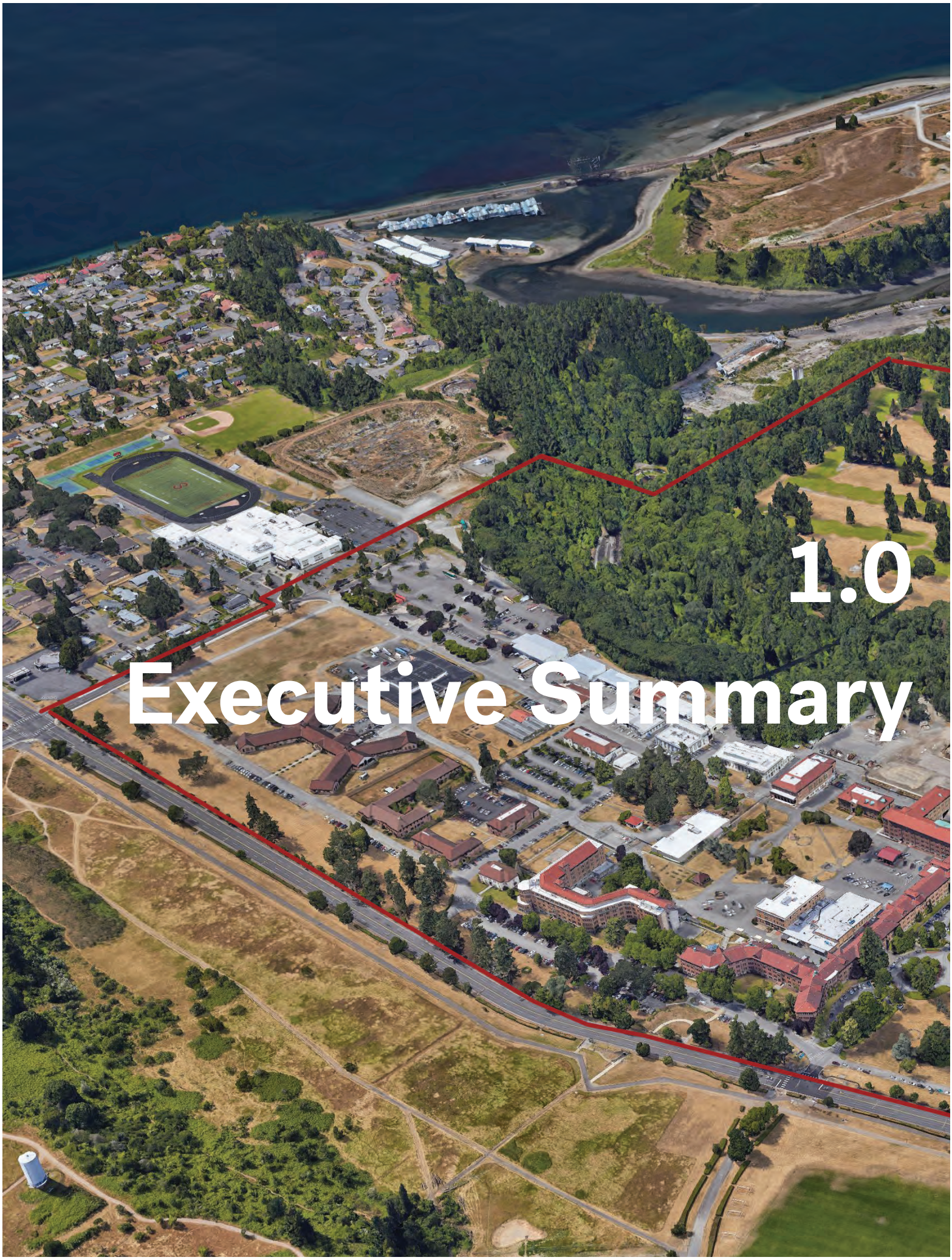

1.0 Executive Summary

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1.1 Introduction and Project Background

In May of 2018, Governor Jay Inslee came to Western State Hospital (WSH) to make a significant policy statement (see appendix A-17 for 2018 Policy Brief), launching a major shift in how the State of Washington will manage mental health going forward. This policy shift recognizes that the needs for patients committed on a 'civil' basis are different than the needs of patients with a 'forensic' commitment. Like other states, Washington State would like to implement a model of care to treat civilly committed citizens in non-institutional, community-based settings, thus creating a system wherein mostly forensic patients are in the State hospital. The Department of Social and Health Services (DSHS) - with other state agencies and community partners - is charged with developing new facilities to be distributed throughout the state to serve the civil commitment patients. Under the new policy, WSH itself is to be modernized with new facilities as a forensic center for excellence.

Figure 1: Washington State Governor Jay Inslee at Western State Hospital

This Predesign Report is the first major step to create new forensic hospital facilities needed to modernize the WSH campus recognizing that many of the existing facilities are outdated, in need of upgrades, and do not facilitate 21st century treatment practices.

Since the completion of the last adult patient care facility at WSH in 2000, the approach to mental health care has significantly evolved across the United States. Washington ranks 45th in capacity for appropriate mental health services while also ranking 48th for prevalence of mental illness within its population, in comparison to the rest of the country (Mental Health America MHA 2020 Rankings, https://www.mhanational.org/issues/ranking-states). WSH hospital facilities are no longer well-suited to accommodate the delivery of core mental health services. The State of Washington has recently adopted a new approach to mental health care, recognizing that the needs of "forensic commitment" patients (those accused of a crime) are different than those of "civil commitment" patients (those determined by the courts to be a potential danger to themselves or the public, but not accused of a crime). A core goal of the new state policy is to distribute services for civil commitment patients throughout the state, so that patients can be near family and community support. The model for this care is a combination of community hospitals and residential treatment facilities of 16 to 48 beds each. As new civil commitment facilities become available in western Washington, civil patient capacity at WSH will be reduced. Under this model, Western State Hospital itself will concentrate on treatment of forensic-commitment patients.

1.2 The Problem

Western State Hospital was initially constructed over 100 years ago. The majority of its adult patient care facilities were constructed prior to 1960 and are now over 60 years old, outdated, and no longer support Washington State's standards for mental healthcare and treatment programs necessary to restore patient's competency and access back into the community. In 2019, WSH lost its CMS (Centers for Medicare and Medicaid Services) Certification, costing the State of Washington approximately $53 Million per year in lost Medicare and Medicaid reimbursements. Renovating these aging buildings to meet CMS requirements is

Figure 2: Region Plan

Figure 3: Vicinity Plan

not feasible. Achieving CMS compliance and providing patients with the necessary care treatment programs will require new hospital facilities.

Western State Hospital is operating under statutory power requirements of Washington State and is not subject to specific requirements of the state of Washington for a psychiatric facility. Because Washington State wishes to receive Medicare and Medicaid funding in the future, the new hospital must meet the minimum standards for CMS Conditions of Participation (CoPs) and Conditions for Coverage (CfCs). As such, the new hospital will be subject to the Environment of Care standards established by the Joint Commission and as a result the FGI Guidelines, produced by the Facility Guidelines Institute. A comparison of the proposed hospital to a typical hospital meeting FGI Guidelines can be found in appendix A-04 - Western State Hospital: Cost Planning Models.

The 2019 Legislature directed DSHS to prepare a Predesign Study for a new hospital located on the Lakewood Campus. The project team recognizes the efficiencies of locating a new facility on the existing campus. Washington State currently owns the property which eliminates the time and expense of finding a new property. In addition, the campus houses the existing hospital to remain in Buildings 28 and 29, and related facilities directly connected to WSH operations, maintenance, food service, pharmacy, and administration. The existing campus also hosts expertly trained staff for a mental health facility that may not be as readily available at another location.

1.3 Mission Connection

This Predesign Report addresses the new Forensic Hospital only and excludes any decisions regarding the remaining buildings in the Central Campus, East Campus or Child Study and Treatment Center (CSTC). Decisions on those parts of the campus outside the analysis of this report will be forthcoming in the future and are not a part of this report.

Initial planning meetings with WSH and DSHS personnel focused on the mission of WSH and the goals for this project. Attendees focused on the need to construct a facility that is in compliance with CMS Conditions of Participation, a facility that contributes to the reduction of violence and aggression by the patient population, a place where leading clinicians in the field of mental health would love to work, and a facility that is a “Center of Forensic Excellence” for exemplary care (additional goals can be found in appendix A-10 Workshop 1 notes).

While constructing a facility that meets the minimum requirements established by the CMS Conditions of Participation is important to secure funding for facility operations and to improve the level of care provided by the hospital, the project team recognized an opportunity for the future Western State Hospital to provide a Center of Forensic Excellence. Through careful design and planning, this facility can help to provide a calming and healing environment that facilitates recovery. As a result, the facility would help to reduce violence between patients and provide additional safety to staff. This will help to minimize the length of patient stay in the hospital for competency restoration and will reduce the time new patients wait in jail until space opens to accommodate them.

A Center of Forensic Excellence will become the workplace of choice for mental health care workers and will help to increase staff retention within the hospital. While the creation of this facility will facilitate the ongoing change in culture throughout the campus in order to work within current care models, the project team feels that the change in culture will ultimately be rewarding to the staff and will increase the pride in their workplace. This will also help to eliminate the negative view and stigma of the hospital and will help to improve the relationship between the hospital’s visitors, patients, and the local community.

MISSION

As a Department we are tied together by a single mission: to transform lives. Each administration within DSHS has a refined focus on this mission. Individually we have the following missions:

- Aging and Long-term Support Administration – to transform lives by promoting choice, independence, and safety through innovative services.
- Behavioral Health Administration – to transform lives by supporting sustainable recovery, independence, and wellness.
- Developmental Disabilities Administration – to transform lives by creating partnerships that empower people.
- Economic Services Administration – to transform lives by empowering individuals and families to thrive.
- Financial Services Administration – to transform lives by promoting sound management of Department resources.
- Office of the Secretary – to transform lives by helping those who serve succeed.

VALUES

DSHS is also tied together by the following set of values:

- Honesty and Integrity – because leadership and service require a clear moral compass.
- Pursuit of Excellence – because it is not enough to get the job done, we must always challenge ourselves to do it better.
- Open Communication – because excellence requires teamwork and a strong team is seen, heard and feels free to contribute.
- Diversity and Inclusion – because only by including all perspectives are we at our best and only through cultural competency can we optimally serve our clients.
- Commitment to Service – because our challenges will always exceed our financial resources, our commitment to service must see us through.

VISION

- People are healthy
- People are safe,
- People are supported,
- Taxpayer resources are guarded

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2.0
Program Requirement

2.0 Program Requirement

2.1 The Program

DSHS Project No. 2020-403 authorizing the services for this Predesign required the consultant to coordinate with Washington State behavioral health experts to determine the Statewide demand for Forensic Health Services as a basis for the capacity of a new forensic hospital (between 250 and 350 beds) on the WSH Campus. Consideration of the continued use of WSH Buildings 27, 28 and 29 was also required in the bed capacity determination. The Predesign Team conducted multiple meetings with individuals from DSHS, BHA, FFA and RDA to coordinate its estimate of Program Size with their projections of Statewide Psychiatric Hospital Forensic and Civil Bed Needs (see Appendix A-09 for the Psychiatric Bed Need Report to the Legislature dated 3/26/20 and issued quarterly).

In summary, the FFA/RDA Report estimates a total of 582 Forensic beds needed at WSH by year 2027. Of this total, 183 beds are needed for NGRI (not guilty by reason of insanity) patients, and 399 beds are needed for competency restoration. The state hospitals provide forensic inpatient competency evaluation services when a court believes a mental disability may prevent a criminal defendant from assisting in their defense. Inpatient treatment for competency restoration is provided when the Judge finds the defendant not competent.

A civil commitment is a second avenue for admission to a state psychiatric hospital. The civil commitment process begins with an evaluation by a designated crisis responder who can commit a patient to a state hospital or community inpatient setting for a 72-hour evaluation if he or she is a danger to themselves or others due to a mental disorder. The state hospitals at Western and Eastern treat patients who have existing 90/180-day civil commitment orders on the civil side. The patients have already had their 72-hour evaluation, been detained for 14-days and received treatment in the community (usually at an E&T) and after the community files a petition for a 90 day order the patient might get placed at WSH/ESH.

Based-on this information and coordination with the DSHS agencies, the Predesign Team recommends the new Forensic Hospital include a total of 350 beds for competency restoration (see Bed Need Recommendation Memo which used the 10/1/19 Bed Need report, also attached, Appendix A-09) and be designed for the potential expansion of an additional 50 beds, if the projected total need of 399 proves accurate. Discussions with DSHS established a strategy to accommodate NGRI patients in Buildings 28 and 29 for the foreseeable future. To address the requirement for continued use of Building 27, this Predesign Report evaluates three options for siting the new Forensic Hospital:

- Option 1: Allows continued use of Building 27 for the foreseeable future.
- Option 2: Phases the construction of the new Forensic Hospital to extend the use of Building 27 until the first quarter of year 2026.
- Option 3: Allows the continued use of Building 27 until the second quarter of year 2023.

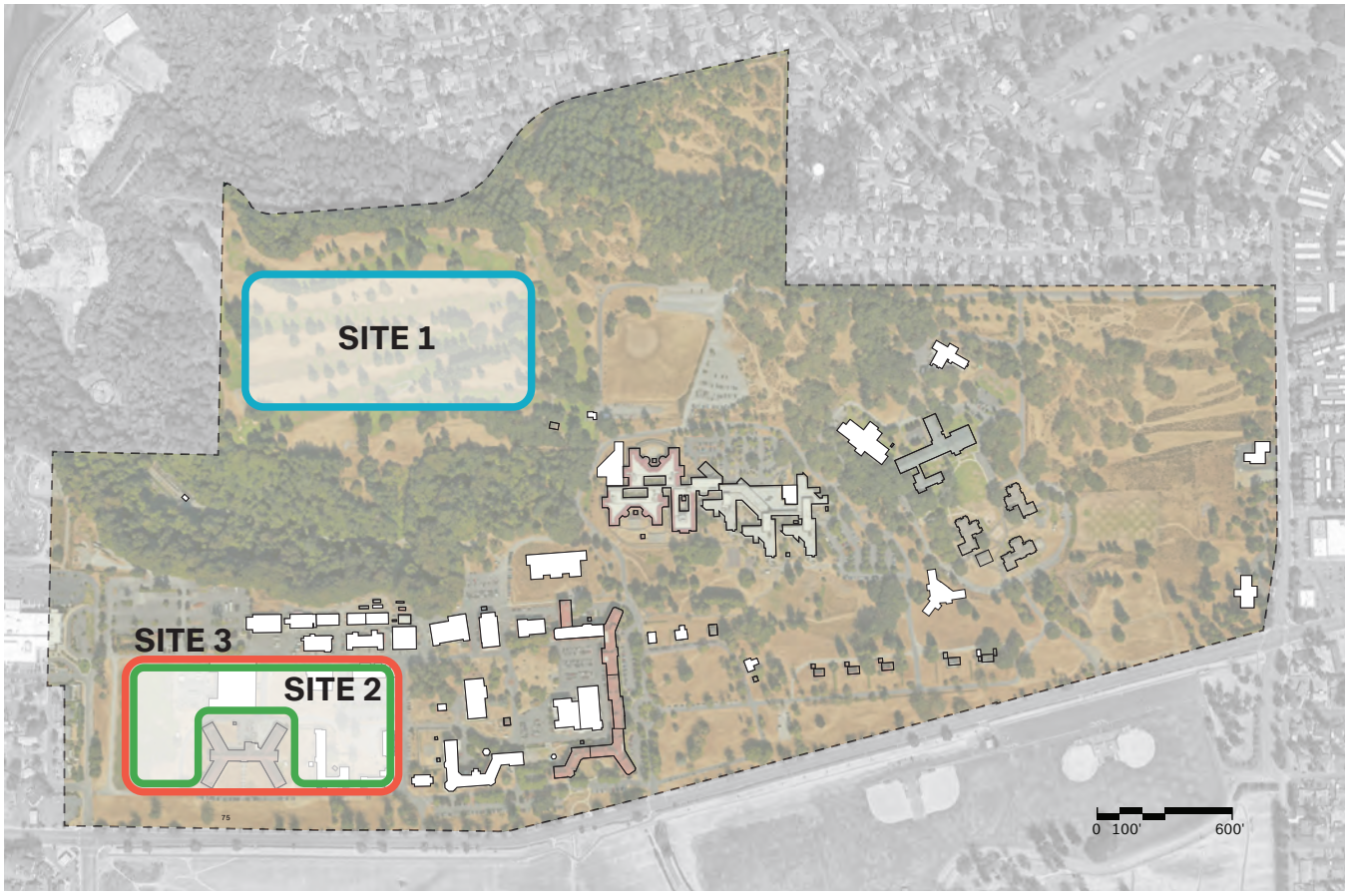

Figure 4: Site Options Plan

To complete the programming effort included in the Predesign Phase (see Appendix A-04 for the Project Space Program), the Predesign Team was directed by DSHS to include sufficient patient treatment, staff and support space to allow the operation of the overall WSH campus. This direction was in consideration of the existing aging facilities at WSH that would be phased-out of operation in the near future (see Appendix A-10 for Workshop Notes). Approximately 1,010 workstations and office space for administrative staff requiring dedicated workstations will be provided. In addition to the required administrative staff space; care desks, office space, team rooms, charting rooms, and other associated support for care staff will be included within the inpatient units for staff members that are part of the patient care team. The quantity of staff members utilizing these spaces will fluctuate between the three shifts of the direct care staff, which is reflected in the program.

In preparing this program, the project team utilized State of Washington Office of Financial Management State Facilities Workplace Strategies and Space Use Guidelines in allocating space for workstations, offices, conference, and support spaces. The program was also developed to meet the minimum space standards as referenced in the FGI Guidelines. Other tools utilized in the development of this program include a modeler for new psychiatric facilities (See appendix A-04 Space Program for 350 Bed New Building Capable

Western State Hospital Timeline

Pre-1840s	Steilacoom tribe active in the area
1840s	Early Euro-American settlers
1849-68	Site used as Fort Steilacoom
1871	Hospital established by Washington Territory as “Insane Asylum
1870s	Patients and staff clear nearby lands for agriculture, establishing vegetable gardens and orchards and starting a farming operation that would last until 1965.
1886-87	Administration Building #1 built
1889	Washington statehood; the facility is renamed Western State Hospital
1880s-90s	Significant growth in facilities
1914-16	Rock wall and gates built on south of campus
1930s-40s	Expansion utilizing WPA & CCC, including infrastructure upgrades, i.e. wells and pipe system.
1934-35	Main wing of Administration Building #2 built, with WPA grant, replacing earlier Administration Building on the site. Additional wings added over time.
1950s-60s	Expansion to west to meet growing need for additional wards. Former Military Cemetery remains relocated to S.F. Presidio, to accommodate commissary expansion.
1965	On-site Farm closed after declining use
1982	Building 29 constructed for geriatric patients
2000	Building 28, Center for Forensic Services, constructed

of Supporting the overall WSH campus), benchmark modeling tools for a new psychiatric hospital (See Appendix A-04 Cost Planning Model for Western State Hospital Benchmarking Modeling).

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3.0 Analysis of Alternatives

3.0 Analysis of Alternatives

3.1 Sites Studied

The WSH campus is comprised of approximately 288 acres. This acreage includes two zoning classifications, specifically, Open Space and Recreation and Public Institutional (see appendix A-08 Campus Functional Zones Map). All current DSHS facilities and operations reside in the Public Institutional zone (see appendix A-08 for WSH parcels and land use plan). Some areas of the campus create natural building challenges such as the swale south of the East Campus buildings, the steep slopes above Garrison Springs, and the lands adjacent to Historic Fort Steilacoom. Additional constraints include the historic buildings, cemetery, and existing power plant that reduces the options to the only locations viable for a new hospital.

A total of three site options were studied including locations in the North Campus Open Space Zone (former golf course) and two options located in the Southwest Campus Area. The differences between Option 2 and 3 address the concept of extending operations of Building 27.

Based on preliminary estimates, we believe that the Option 3 has the lowest total project cost and can be completed within a reasonable timeline. It is important that the new facility is operational as soon as possible to increase the funding available for operation of the hospital and to improve the level of patient care.

Figure 5: Western State Hospital Entrance

Figure 6: Western State Hospital Interior

NO ACTION ALTERNATIVE

The current state of mental healthcare in the State of Washington is in crisis. No action is not a reasonable alternative to protect the health and welfare of the citizens of Washington when considering the following statistics:

- Washington ranks 45th in the United States in capacity for appropriate mental health services while also having a high prevalence of mental illness within its population, in comparison to the rest of the country.
- In 2018, assault claims filed by WSH staff doubled from the prior two years. WSH also lost its CMS (Centers for Medicare and Medicaid Services) Certification, costing the Washington State $53 million per year in lost Medicare and Medicaid reimbursements. Renovating these aging buildings to meet CMS requirements is not feasible.
- WSH facilities are no longer well-suited to accommodate the delivery of core mental health services. Most of its adult patient care facilities were constructed prior to 1960 and are now over 60 years old, outdated, and are no longer able to support the Federal or State's standards for mental healthcare and treatment programs. The newest patient care facilities on the WSH Campus (Buildings 28 and 29) are 20 and 38 years old respectively, and were designed as secure hospitals, not behavioral health hospitals and not conductive to mental health treatment.
- In December 2018, Washington State Governor Jay Inslee presented his operating and capital budgets for a new vision for mental healthcare in Washington State. He proposed investment in the construction of new, smaller, community-based, civil commitment facilities throughout the State of Washington to reduce patient populations at the two major state operated hospitals (Western and Eastern) while also upgrading these aging hospitals to meet current behavioral health standards with a focus on forensic patient commitments.

A no action alternative will not achieve the Governor's vision and would result in increased risk to mental health patients, care givers, and citizens of the State of Washington.

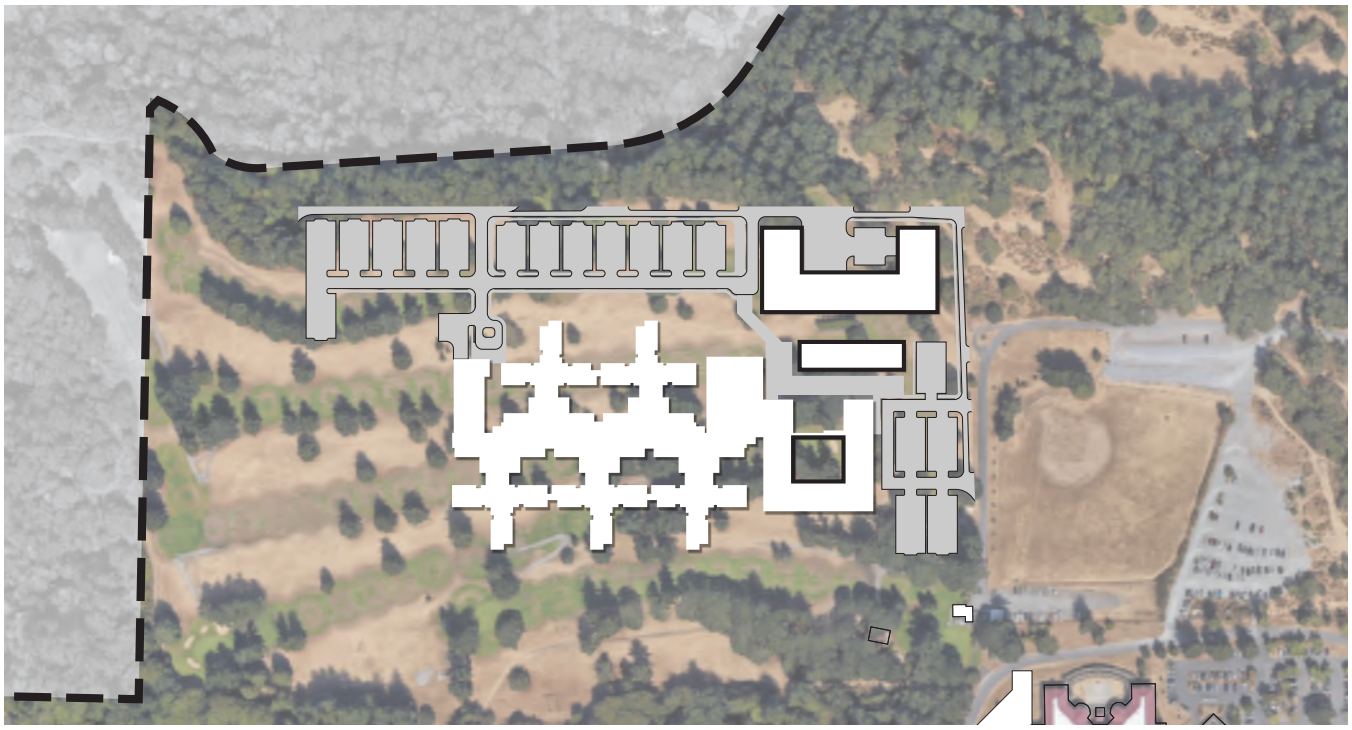


Figure 7: Option 1 Site

OPTION 1

Option 1 locates the Hospital complex on the former Greenfield golf course, and includes new roadways, parking areas, and utilities infrastructure. With few siting obstacles, this facility can be designed to optimize residential, treatment, and support spaces and adjacencies for efficient and therapeutic programming. Option 1 is estimated to be ready for occupancy by the 2nd Quarter of 2028, with a total construction cost of $512.2 million plus $128.0 million for soft costs (design, permits, construction contingency, sales tax, furniture and equipment, artwork, etc.) for a total project cost of $640.2 million. This option will allow the continued use of Building 27 for the foreseeable future.

ADVANTAGES AND DISADVANTAGES OF OPTION 1

Option 1 provides good information about the preferred layout of a new hospital facility on an unobstructed site. The golf course site is zoned as Open Space and Recreation by the City of Lakewood. Construction of a hospital (or any non-recreational use building) in the Open Space and Recreation zone is currently prohibited. In discussions with City leadership regarding the potential for rezoning the property, city planning staff have indicated that any development on the golf course is inconsistent with the City's goal to preserve open space and contrary to the intent of the Growth Management Act. Any DSHS application to rezone these parcels to allow for construction of a hospital building and accessory structures would certainly be denied. The only option for developing a new hospital on the golf course site would require the Washington State Legislature to exempt the WSH Campus from city zoning requirements. As a result, this option is expected to be the least viable of the three options.

Option 1 is also estimated to be second highest in cost due to the extension of new roads and utilities and second longest in duration out of the three options due to the protracted rezone process.

Figure 8: Option 2 Site

OPTION 2

Option 2 locates the new Hospital in the southwest corner of the WSH Campus bordered by Steilacoom Boulevard, Sentinel Drive, Settlers Drive, and Chapel Drive. While this option requires the eventual demolition of Building 27, it schedules the construction of the new hospital over two phases to extend its use. This option demolishes several buildings at the start of Phase One but keeps Building 27 intact for the first two years of construction. The first six wards, with a total of 150 beds, could be occupied by the 1st Quarter of 2026. Phase two constructs the remaining 250 beds and is estimated to be ready for occupancy by the 3rd quarter of 2028. Overall, this option has a total construction cost of $542.1 million plus soft costs of $135.8 million, for a total project cost of $677.7 million (see Page 22 for cost comparisons).

ADVANTAGES AND DISADVANTAGES OF OPTION 2

The advantage of Option 2 is that the operation of Building 27 would be extended for an additional two years beyond Option 3 and opens the first 150 beds one year earlier than Option 3, allowing for a phased start-up, which could serve as a place to house building 27 patients during demolition. There are several clinical disadvantages to pursing Option 2. Option 2 “unfolds” this compact plan resulting in an elongated, single-sided Main Street constructed in phases around Building 27. The changes to the building configuration required for Option 2 increase the building size by 28,000 square feet. While making these changes allows for the preservation of Building 27, Option 2 compromises the clinical advantages of Option 3 and will adversely impact patient care and operational efficiencies.

There are additional inefficiencies in Option 2 that result from adding 28,000 square feet of corridor. In addition to increasing initial project costs, ongoing maintenance and operations costs will also rise without an added benefit. The Option 2 configuration reduces the amount of land available on the west side of the hospital eliminating the opportunity to expand the number of

beds in the future. Option 3 allows for a future 50-bed addition to the west with space possible for up to 150 additional beds.

Option 2 cannot accommodate the required number of staff parking spaces in surface lots near the facility and may ultimately require construction of a multi-level parking garage to achieve the required proximity of parking to the hospital entries. The cost estimate for Option 2 does not include a parking structure which could cost as much as $23,000 per stall for 300 stalls. Lastly, the Option 2 design offers fewer opportunities for outdoor spaces accessible to patients compared to Options 1 and 3 because there are fewer courtyards.

The disadvantages of this option include:

- Increasing the size of the hospital by an additional 28,000 SF, increasing initial cost and long-term operating/maintenance costs.
- A single-loaded circulation spine which results in larger distances between patient therapy functions, requiring more staff labor and reduced flexibility in the use of space.
- Inefficient use of the available site resulting in excessive non-patient landscaped areas and fewer outdoor courtyards accessible to patients.
- The highest cost of the three options, and
- The longest duration of the three options.
- Building 27 will be immediately adjacent to a construction zone for two years compared to Option 1.
- Does not avoid the demolition of Building 27, only delays demolition two years compared to option 3.
- Option2 has less room for parking and less parking adjacent to the building and limited space for the solar array over surface parking.

For a more detailed explanation of these disadvantages, refer to the list of advantages for Option 3.

Figure 9: Option 3 Site

OPTION 3

Option 3 generally occupies the same land space as Option 2 but requires the demolition of Building 27 to begin in the second quarter of 2023 prior to the start of construction. Because construction activities do not need to work around an existing structure, the hospital configuration is appropriately sized and efficiently designed, like Option 1. This option eliminates 28,000 square feet of circulation corridors required in the less compact Option 2 and, consequently, reduces the construction cost and duration. Of the three options presented, Option 3 has the earliest completion and occupancy estimated by the first quarter of 2027. Construction costs include $496 million plus soft costs of $124 million, for a total project cost of $619 million (see Page 22 for cost comparisons).

ADVANTAGES AND DISADVANTAGES OF OPTION 3

Designing the physical structure and overall environment of care for the new hospital provides the opportunity to seek a design that offers the best chance of providing state of the art forensic care in a therapeutic environment. Option 3 is organized along a double-sided Main Street which is the central, organizing feature of both. All residential units, treatment malls, and support services are accessed from both sides of this central spine.

Several clinical advantages of Option 3 which feature the double-sided Main Street are listed below:

- Option 3 offers a concentration of neighborhood treatment malls in the double-sided Main Street. The benefits of a treatment mall-based therapeutic program have been well known since the development of the first "treatment mall" at the Middletown Psychiatric Center in the late 1980's. Such malls allow for the development of therapeutic programs offering individualized active treatment plans that are the hallmark of recovery-based psychiatric treatment. Over the past 20 years, a series of hospitals have been built that capitalize on the idea of the treatment mall by extending them into zones that are directly proximate to the inpatient residential unit and within the span of control of unit-based direct care staff. This strategy creates a more residential unit and a close-in "neighborhood" treatment mall. This type of design allows for a real variety of treatment milieus and maximizes patient access to care.

  Since 1995, several hospital designs have embraced the possibility of combining the care neighborhoods from individual units into care continuums involving extensible neighborhoods from multiple adjoining units. The best of these designs, as illustrated in Option 3, allows as many as six units on a floor to combine and reconfigure their neighborhoods to serve multiple units. In these options, as many as five or six such neighborhoods could be combined into a larger treatment mall offering significant flexibility in clinical care and treatment. To delay the demolition of Building 27 for 33 months, Option 2 unfolds the centralized Main Street into a single-sided corridor, thereby restricting the flexibility for neighborhood treatment malls to only two to three such combinations.

- Option 3 creates centralized care and treatment. Proximity of care to the residential setting correlates significantly with the number of patients who can access care away from the unit. The best long-stay psychiatric hospitals capitalize on this phenomenon by placing off-unit care of all types in a central location with as much proximity to the inpatient units as possible. Option 3 is an example of centralized care.
- The Option 3 building configuration is compact, efficient, and "right sized." In Option 2, the Main Street is nearly 50% longer, which extends the travel distance to central programs for more than half of the patients. Distribution of goods and services in the elongated basement level service corridor in Option 2 will similarly require more work, time, and transportation costs. The more efficient and centralized configuration of Options 1 and 3 allows DSHS greater discretion to dedicate resources to patient care.
- Option 3 is estimated to be the lowest cost of the three options.
- Option 3 is estimated to require the shortest duration to complete the project.

The only apparent disadvantage to Option 3, relative to the three options studied, is the early demolition of Building 27 in the second quarter of 2023.

MOST EFFICIENT OPTION

Option 3 is the most efficient option due to its lowest cost ($21.2 Million less than Option 1 and $58.7 Million less than Option 2) and shortest duration to occupancy. Option 3 also includes many clinical and operational advantages over Option 2.

3.2 Analysis of Alternatives

The table below highlights features for comparison among the three building options.

	OPTION 1 – GREENFIELD SITE AT GOLF COURSE	OPTION 2 - WEST END WITH DELAYED B27 DEMOLITION	OPTION 3 - WEST END WITH EARLY B27 DEMOLITION
LAKEWOOD ZONING	Open Space & Recreation hospital not permitted - high risk option	Public Institutional hospital facilities permitted no risk option	Public Institutional hospital facilities permitted no risk option
COMMUNITY INTEGRATION	Facility removed from public view	Integrated with community	Integrated with community
CLINICAL PROGRAMMING	Building configuration supports optimal clinical programming that is characteristic of state-of-the-art care	Building configuration does not support optimal clinical programming because of the elongated Main Street corridor	Building configuration supports optimal clinical programming that is characteristic of state-of-the-art care
BUILDING IMPACTS	Least impact to current hospital operations, remote from the remainder of the campus, and near an affluent neighborhood	Will impact hospital operations due to the demolition of occupied structures, near support services on campus	Will impact hospital operations due to the demolition of occupied structures, near support services on campus
PARKING LOTS	Included, close to entries	Not adequate, a parking structure may be required	Included, close to entries
BUILDING 27 DEMOLITION	Not required	1st Quarter of 2026	2nd Quarter of 2023
CONSTRUCTION COMPLETE	1st Quarter of 2028	2nd Quarter of 2028	4th Quarter of 2026
OCCUPANCY	About May 1, 2028	About August 1, 2028**	About February 1, 2027
ESTIMATED TOTAL COST*	$640.2 million	$677.7 million	$619.0 million
PRO/CON SUMMARY	– Incompatible zoning + Best therapeutic layout + Adequate staff parking + B27 remains operational – 5/1/2028 occupancy – 2nd highest cost – Rezone delays start of construction 18 months	+ Appropriate zoning – Least therapeutic layout – Parking garage required + B27 open to Q4 of 2025 – 8/1/2028 occupancy – Highest cost – Longest construction duration	+ Appropriate zoning + Best therapeutic layout + Adequate staff parking – B27 open to Q1 of 2023 + 2/1/2027 occupancy + Lowest cost + Shortest construction duration

*Costs were benchmarked to comparable projects using assumptions for a hospital building at $865/sf, an office building for the annex at $700/sf, and a manufactured building for the support annex at $450/sf. Other assumptions were a 15% allowance for net zero goals. See Section 5.1 for final cost estimate summary and appendix A02 for the cost estimate breakdown and C-100.

** 150 Beds open January 1, 2026

Figure 10: High Level Comparison of the Three Building Site Options

3.3 Cost Estimate

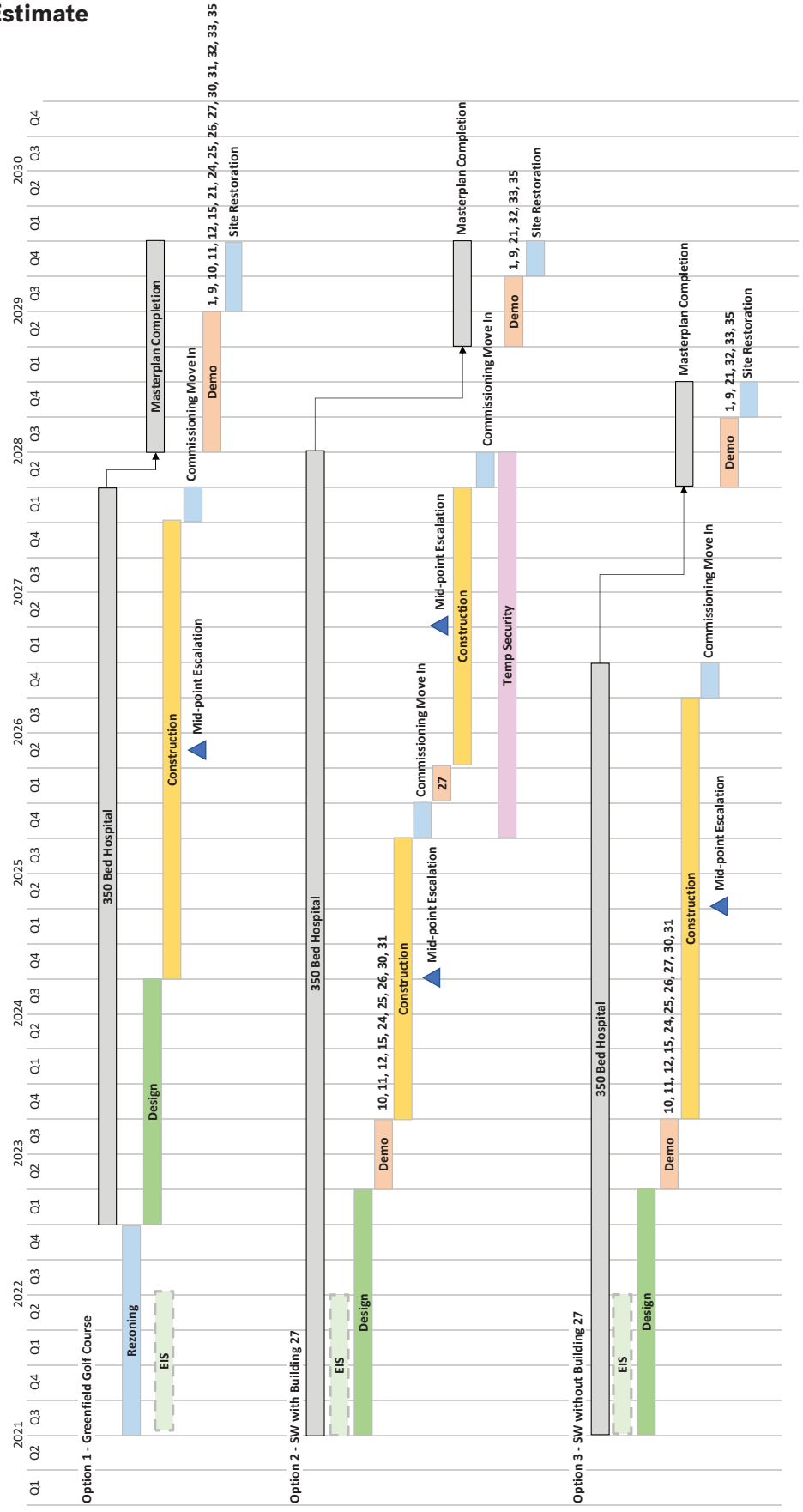
OPTION 1 – GREENFIELD		
Building	$464.2 M	561,398 SF
Hospital	$429.0 M	495,481 SF at $865/SF
Office Annex	$16.6 M	23,698 SF at $700/SF
Support Annex	$19.0 M	42,219 SF at $450/SF
Site	$48.0 M	Added $17 M (infrastructure)
Non-Construction	$128.0 M	1st Quarter of 2026
TOTAL	**$640.2 M**	

OPTION 2 – WITH BUILDING 27		
Building	$488.5 M	561,398 SF + 28,000 SF
Hospital	$452.8 M	523,481 SF at $865/SF
Office Annex	$16.6 M	23,698 SF at $700/SF
Support Annex	$19.0 M	42,219 SF at $450/SF
Site	$31.0 M	Phase 1 = $18.5 M Phase 2 = $12.5 M
Phasing	$22.7 M	Escalation, security
Non-Construction	$135.5 M	
TOTAL	**$677.7 M**	

OPTION 3 – WITHOUT BUILDING 27		
Building	$464.2 M	561,398 SF
Hospital	$428.6 M	495,481 SF at $865/SF
Office Annex	$16.6 M	23,698 SF at $700/SF
Support Annex	$19.0 M	42,219 SF at $450/SF
Site	$31.0 M	
Non-Construction	$123.8 M	
TOTAL	**$619.0 M**	

Figure 11: Project Cost Comparison

3.4 Schedule Estimate



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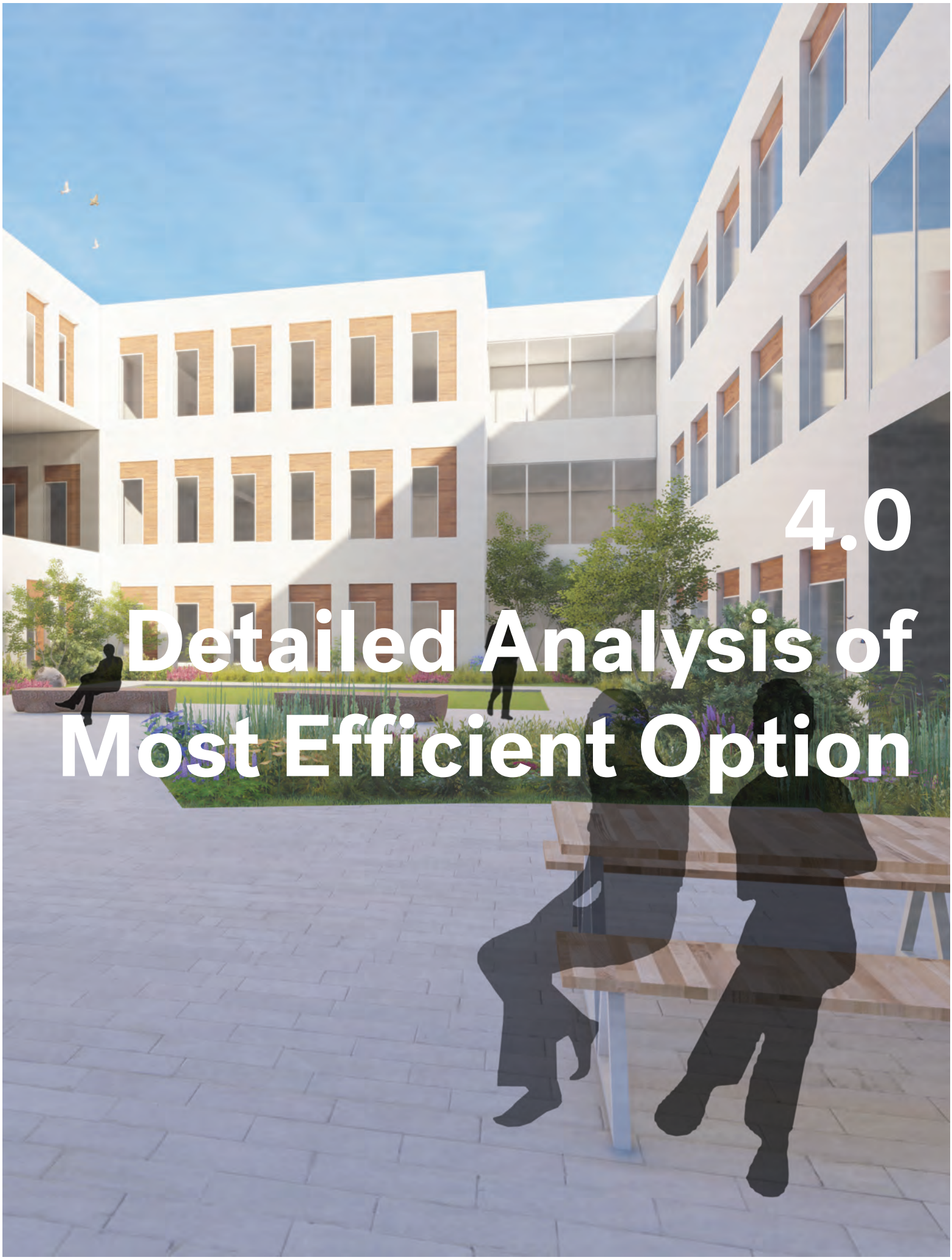

4.0 Detailed Analysis of Most Efficient Option

4.0 Detailed Analysis of Most Efficient Option

4.1 Location

More than a dozen options were explored to locate a new 350-bed forensic hospital on the WSH campus. Many of these options were proposed as new construction in the northeast corner of the campus east of the Child Study and Treatment Center or as an addition to the East Campus complex at Building 28 and/or Building 29. The northeast corner proved to be too small to accommodate a 350-bed hospital and associated parking. The options to expand north and/or south of the East Campus complex were challenging because that site is wedged between the ravine at Garrison Springs to the west, CSTC to the east, and the gulch to the south. Expansion to the north would have displaced existing parking with little space for replacement parking nearby. Additionally, construction immediately adjacent to, and connected to, the existing buildings would have serious impacts to the ongoing programs in those two buildings. See Appendix A-10 Master Plan Workshop 2 and 3 Notes.

This Predesign effort ultimately focused on the three options previously described. Though Option 1, the Greenfield Golf Course option, is inconsistent with current city zoning, it provides a comparison for constructing a new 350-bed hospital on an unencumbered site, either at WSH or elsewhere. Option 2, the two phase approach in the southwest corner, responds to the proviso that continued operation

Figure 12: View of WSH from Steilacoom Boulevard

of Building 27 be factored into hospital planning. Additionally, the federal court has a vested interested in continuing the 30-bed forensic program in the west half of Building 27. Option 2 explored phasing the new 350-bed hospital (150 beds + 200 beds) around Building 27, but ultimately requires the demolition of Building 27 before the second phase of construction. Option 3, constructed in a single phase, proved to be the least expensive of the three options and has the shortest overall construction duration. For the purposes of this report, Option 3 is more fully developed because it is the most efficient - in terms of cost and schedule - of the three options considered.

The site for the proposed forensic building is located at the southwest corner of the site fronted by Steilacoom Boulevard S.W. and Sentinel Drive, where existing Buildings 26 and 27 will be demolished to provide space for the new forensic hospital building. Fortunately, almost all of the large existing trees can be saved because they are located along the south and west perimeters of the site, beyond the footprint of the new building. The existing large trees are mostly native Oregon White Oaks, Douglas Firs and Madronas.

OCCUPANCIES

The hospital building includes 350 beds in an I-2 occupancy with approximately 1200 staff. The office annex building is a B occupancy with approximately 200 staff. The facilities support annex building is a B occupancy with approximately 300 staff.

4.2 Existing and Ongoing Studies

Existing studies provided in the Appendix include: the geotechnical report on anticipated soil and groundwater conditions on the campus, a natural resources reports and existing tree survey, and anticipated traffic impacts due to the construction of the new WSH hospital.

DSHS completed three Predesign Studies in December 2019 for community civil commitment Residential Treatment Facilities as part of the state's continuum of care. These predesigns evaluated siting options, program requirements, and estimated costs and schedules. One 48-bed facility is sited in Vancouver and a 16-bed facility is proposed at Maple Lane in southern Thurston County. Although not a leading contender, the WSH Campus is one of the locations that was evaluated and space preserved in the WSH Master Plan.

4.3 Building Footprint and Relationships

EASEMENTS AND SETBACKS

The building is located on the southwest part of the campus and is within the 75' setback from Steilacoom Boulevard SW on the south and the 100' setback from Sentinel Drive on the west. The two additional Inpatient Units proposed as part of the future expansion are also located within the setback limits.

The placement of the building helps create a large plant buffer to the streets on the south and west part of the buildings site. This also preserves the mature trees located along the edges of the site contributing to a peaceful environment for treatment.

4.4 Program - Nature of Space

The 350 beds contained within the new facility will be distributed across fourteen inpatient living units and supported by all of the following departments within one self-contained building:

- Living Units including Neighborhoods
- Patient Therapy/Activity Downtown
- Clinical Ancillaries
- Administrative Services
- Information Technology and Integration
- Facilities Management including Maintenance and Materials Management will be located in a separate building immediately adjacent to the new hospital, and connected by a support tunnel
- Administrative and space leased to others, not required to be located within the secure patient perimeter, will be located in a two-story office annex adjacent to the new hospital

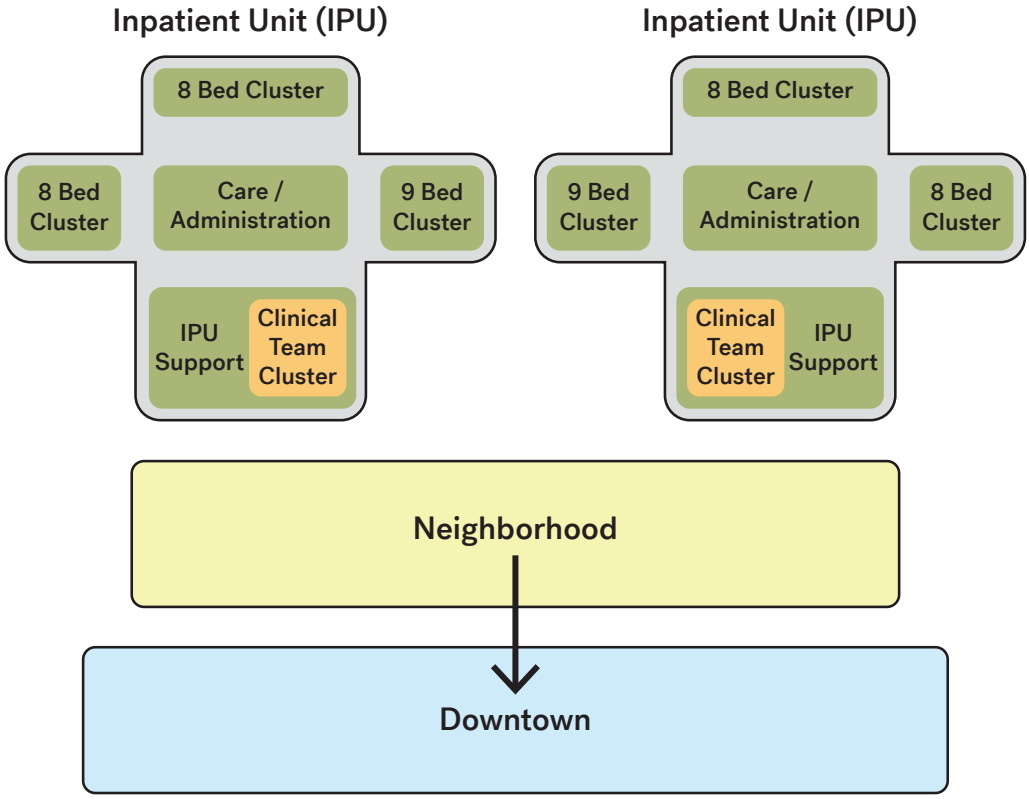

Figure 13: House, Neighborhood, Downtown Model Diagram

4.5 Space Needs Assessment

As described in the detailed space program (see A-04 for the Project Space Program), the proposed hospital is programmed at approximately 561,400 Building Gross Square Feet (BGSF). Each room within the hospital has been assigned a net square foot size (the usable area within a room's bounding walls). Each group of associated rooms, or sub-department, has been assigned a departmental grossing factor to account for walls and intra-departmental circulation. The departmental grossing factor ranges from 1.15 to 1.66 based on the function of the space and past project experience. An overall Building Grossing Factor has been applied to the cumulative departmental sub-total. This 1.3% Building Grossing Factor accounts for general building circulation (horizontal and vertical), exterior walls, and mechanical and electrical space. The proposed space program indicates a building of 561,398 square feet. This program describes the quantity and size of each room type proposed in the new hospital building and includes key notes regarding adjacencies of various rooms and sub-departments.

OPTION 3

The most efficient option has been laid out in a "house, neighborhood, and downtown" model. Inpatient "houses" serve as the main living spaces for patients. Patient bedrooms provide a private space for individuals within the inpatient units, while enclosed outdoor porches and activity rooms allow patients to engage others within their living environment. The "neighborhoods" are more public spaces utilized for programming, dining, and conferencing and are shared by patients within the inpatient units and by patients in the neighboring unit where possible. The Downtown is utilized for patient treatment and is shared by all 350 patients.

The various buildings form the boundaries of the exterior courtyards, creating a secure border around the outdoor spaces without the need for fencing (see A-07 for security diagrams). These internal courtyards create a therapeutic environment for healing allowing the hospital to not look or feel like a prison. The placement of these courtyards allows for a multitude of activities and creates exposure and views to the outdoors.

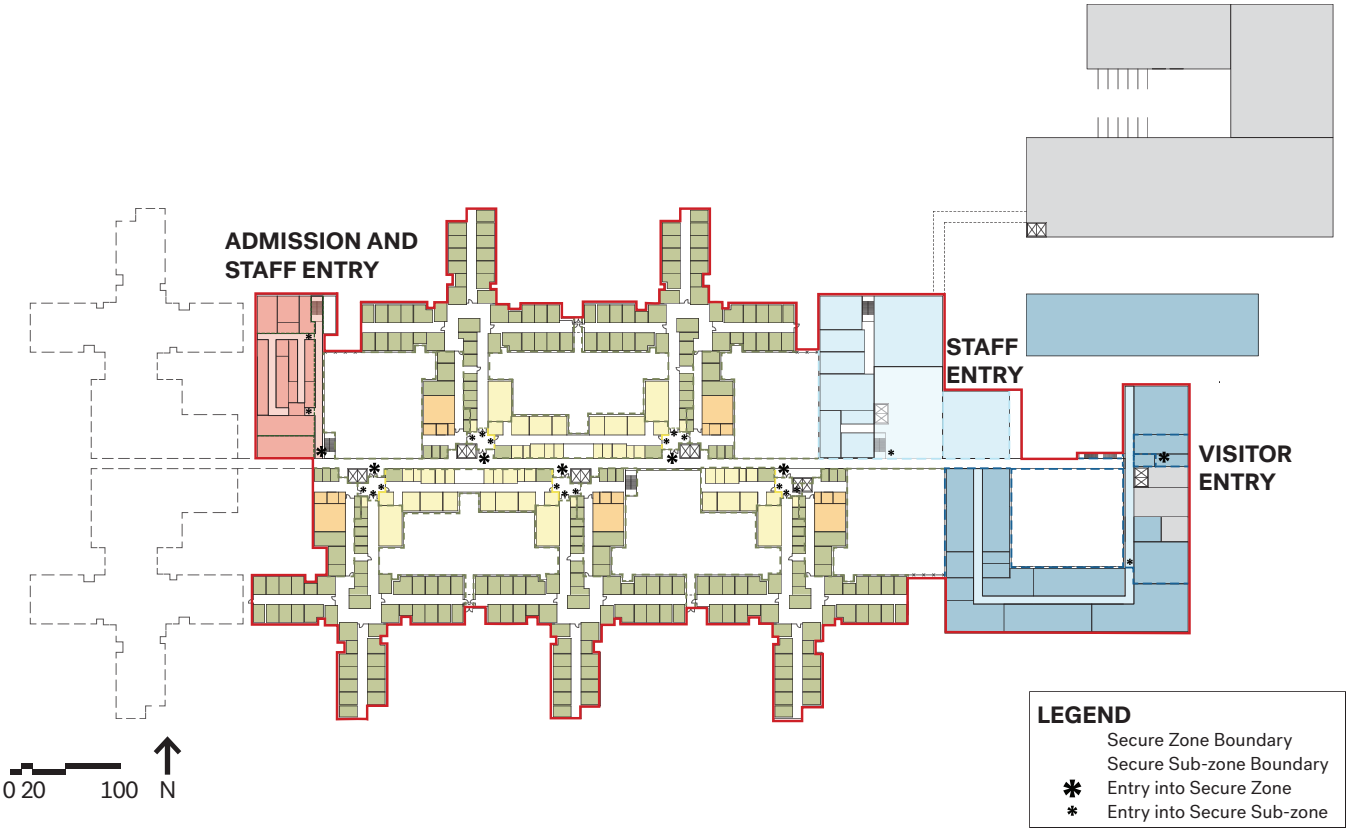

Figure 14: Security Diagram, Level 1

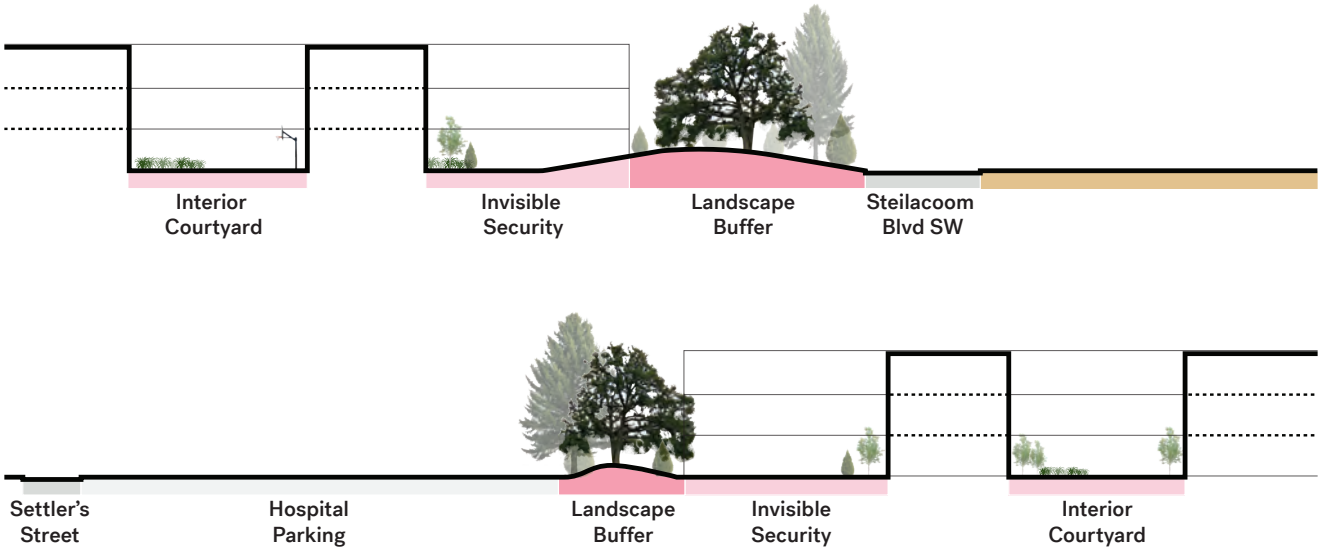

Figure 16: Conceptual Street Sections

DEPARTMENT PROGRAM	TOTAL DGSF
PATIENT UNITS - MENTALLY ILL	
Adult Units (14 units)	265,637
DEPARTMENT SUBTOTAL	**265,637**
PATIENT THERAPY/ACTIVITY	
Leadership	395
Occupational Therapy MH and Physical Rehab	499
Substance Use Disorder Treatment	1,446
Medical Equipment	166
Community Notifications	666
Staff Cafeteria/Café	3,393
Leisure Activities	13,083
Life Skills	4,196
Speech Language Services	166
Library/Resource Center	1,331
Barber/Beauty	354
Patient Store	494
Shared Support	8,541
DEPARTMENT SUBTOTAL	**34,731**
CLINICAL ANCILLARIES	
Reception/Registration	783
Admissions	2,263
Clinic/Physician Services	2,014
Dental Clinic	821
EKG	0
Lab/Phlebotomy	2,641
Physical Therapy	3,262
Radiology	0
Pharmacy	1,161
Infection Control	848
Shared Support	2,106
DEPARTMENT SUBTOTAL	**15,898**
DIETARY	
Kitchen/Support	333
DEPARTMENT SUBTOTAL	**333**
ADMINISTRATIVE SERVICES	
Hospital Administration	3,827
Clinical Administration	1,755
Finance Department	629
Contracts Management	296
Patient Accounts	546
Accounts Payable	380
Nursing Administration	2,106
Nursing Supervisors	0
Community Program	0
Public Relations	0
Human Resources/Payroll	2,064
Payroll-Time/Leave/Attendance	1,570
Employee Engagement	252
Patients' Rights	166
Patient Advocate	250
Court	2,298
Volunteers	629
Lobby Services	1,300
Visiting Center	2,028
Education & Conferencing	8,359
Staff Development	926
Forensic Evaluation/Navigation	6,061
Office of Forensic Mental Health Services (OFMHS)	1,212
Labor Relations	213
Video Conference Services	260
Developmental Disabilities Association	213
Home and Community Services	712
Attorney Generals Office	213
BHA Ombudsman	130
Office of Capital Programs	333
DEPARTMENT SUBTOTAL	**42,921**
INFORMATION TECHNOLOGY AND INTEGRATION	
Information Technology/MHIS	5,543
DEPARTMENT SUBTOTAL	**5,543**
QUALITY	
Medical Records	4,027
Release of Information	0
Records Retention	0
Research, Evaluation and Data Analysis	489
Quality Administration	2,196
Quality Coordinators & Survey Management/ Compliance	1,383
Lean & Process Improvement	489
Project Management	0
Clinical Risk Management Team	322
Abuse and Neglect Call Line	0
Investigations	645
Utilization Management	322
Enterprise Risk Management	322
Shared Support	1,963
DEPARTMENT SUBTOTAL	**12,159**
SPACE LEASED TO OTHERS	
Department of Assigned Council	260
Fort Steilacoom Historical Society	593
Clover Park @ CSTC	380
Northwest Justice	1,019
Pierce College Central TRC & Bldg 25	380
Pierce County Court (C-17)	380
RSN-Residential Service Network	1,591
SILAS	842
Washington State Library	130
WSH Historical Society	593
Department of Corrections	296
DEPARTMENT SUBTOTAL	**6,464**
FACILITIES MANAGEMENT	
Environmental Services	2,866
Laundry and Linen	1,700
Maintenance Shops: Campus	8,436
Maintenance Depot: Building	409
Transportation & Grounds	5,421
Central Medical Supply	0
Switchboard/Communications	469
Fire Alarm & Dispatch	0
Emergency Command Center and Supplies/Services	833
Security and Fire Safety	2,206
Materials Management (Campus)	18,619
Materials Management (Building)	2,116
Shared Support and Locker Facilities	2,611
DEPARTMENT SUBTOTAL	**45,685**
PROGRAM TOTAL	**561,398 BGSF**

OPTION 3 MAIN BUILDING PLAN TAKE-OFF	
Basement	38,120 BGSF
First Floor	169,043 BGSF
Second Floor	169,043 BGSF
Third Floor	117,700 BGSF
SUBTOTAL (MAIN BUILDING)	**493,906 BGSF**
SUPPORT BUILDINGS PLAN TAKE-OFF	
Office Annex First Floor	11,849 BGSF
Office Annex Second Floor	11,849 BGSF
Facilities Support Building	42,219 BGSF
SUBTOTAL (SUPPORT BUILDINGS)	**65,917 BGSF**
TOTAL BUILDING AREA PLAN TAKE-OFF	**559,823 BGSF**

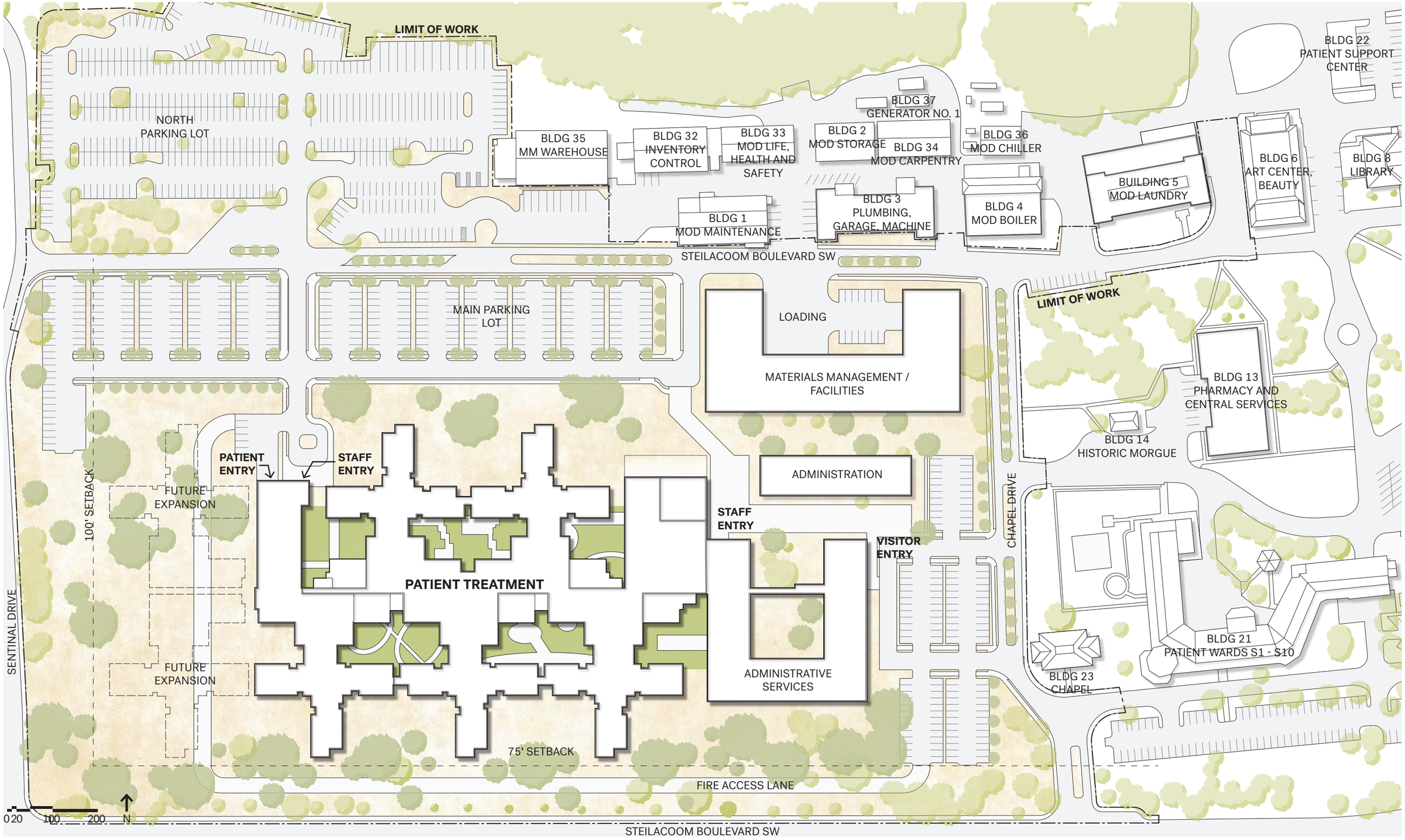

Figure 17: Site Plan

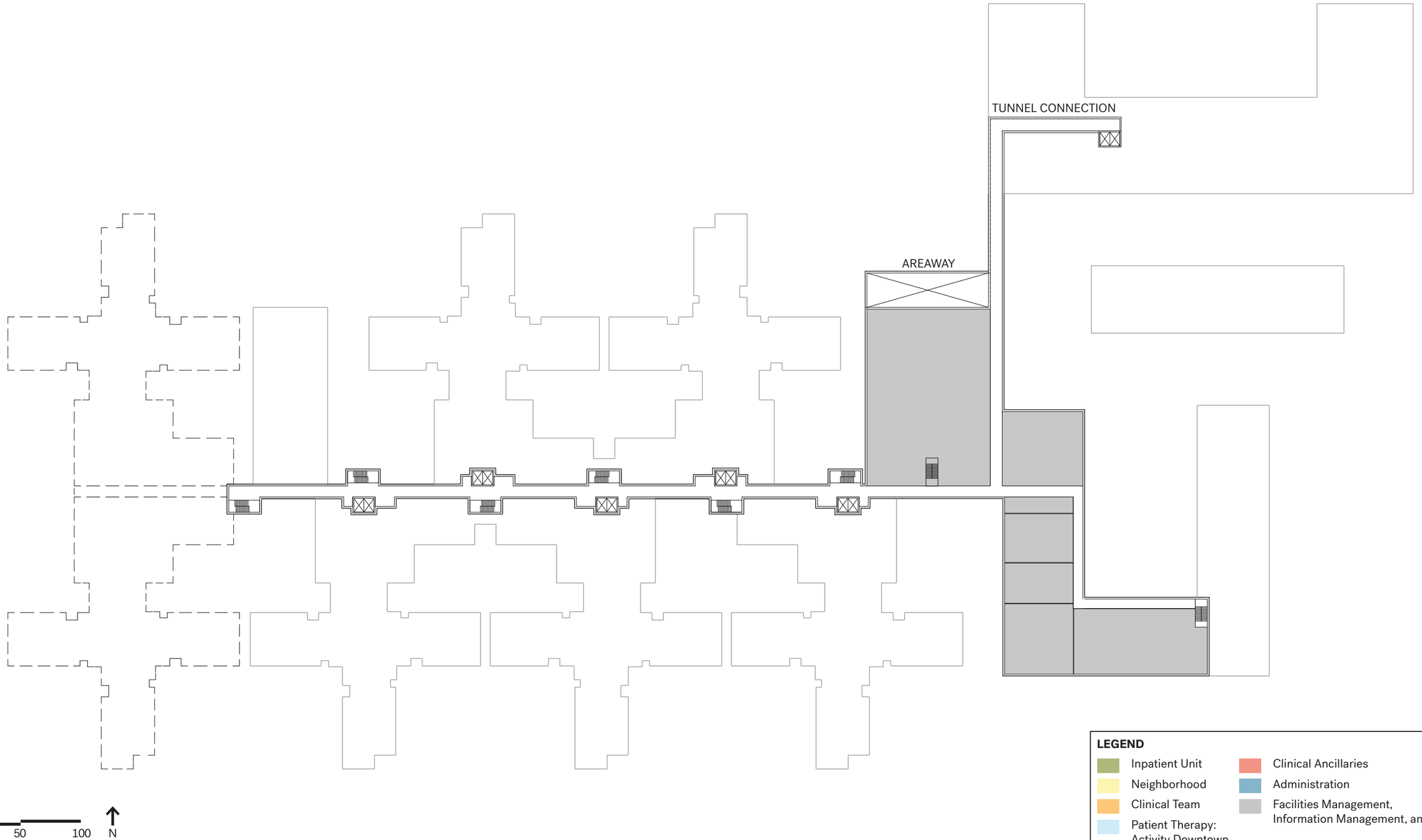

Figure 18: Overall Basement Plan

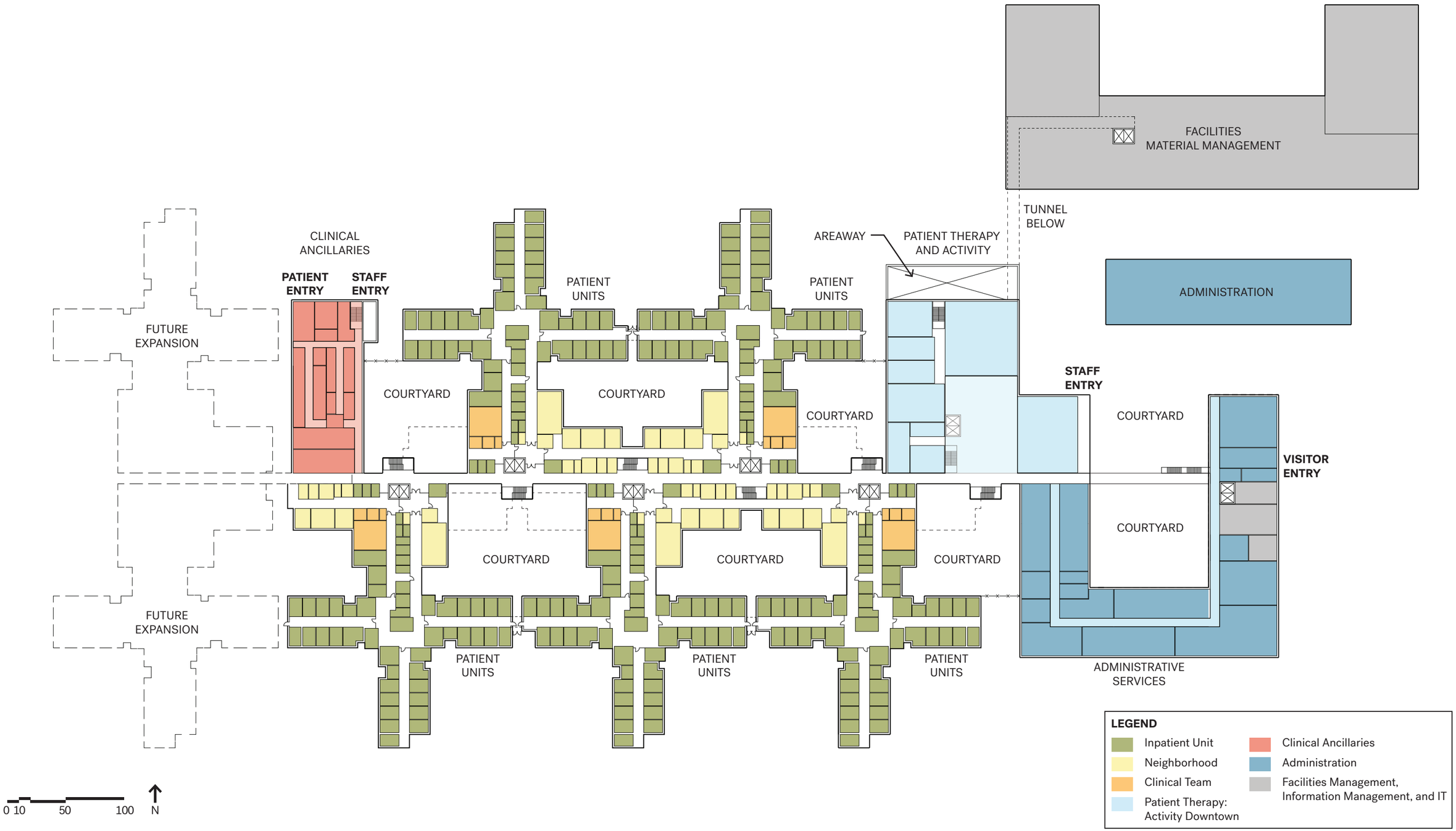

Figure 19: Overall Level 1 Plan

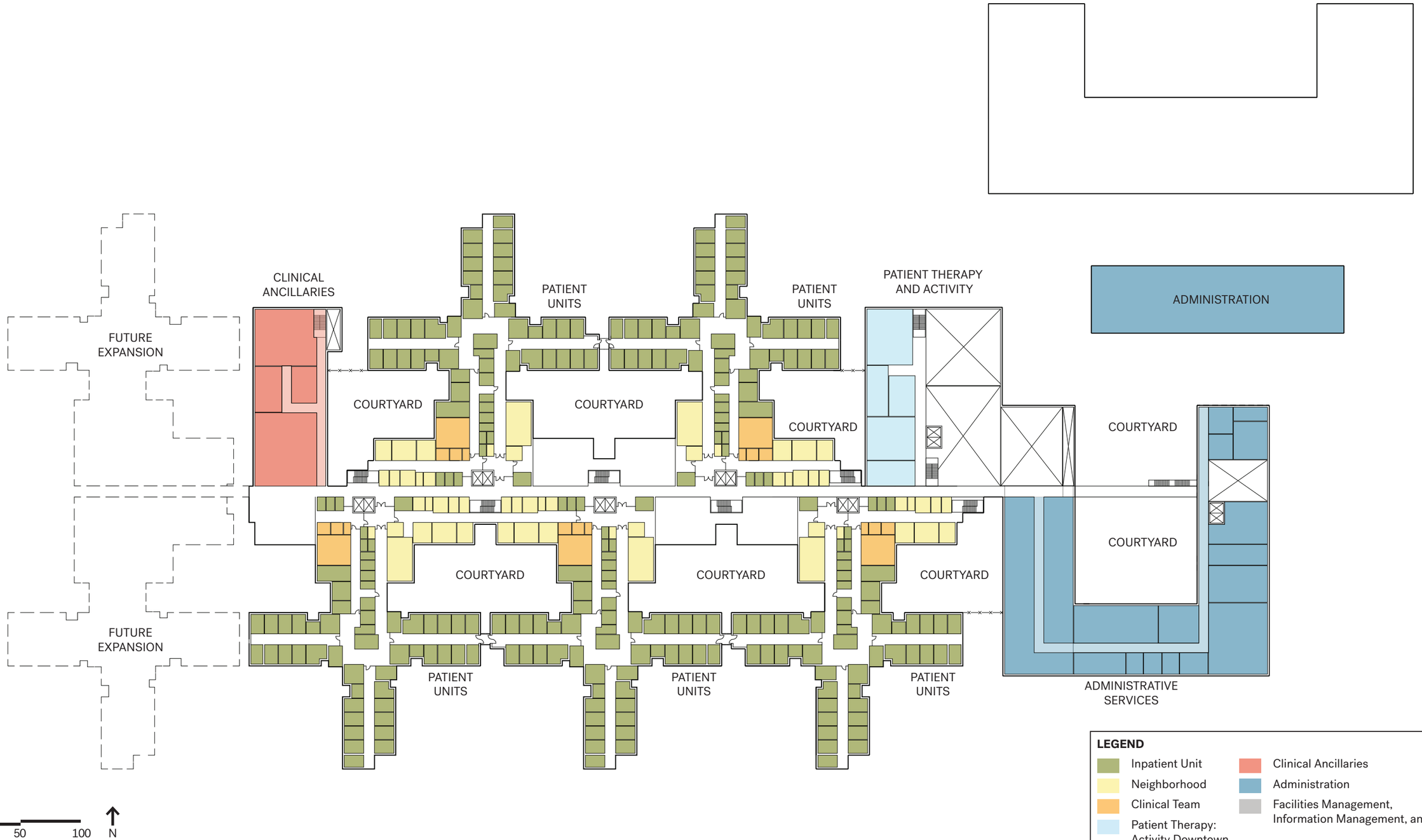

Figure 20: Overall Level 2 Plan

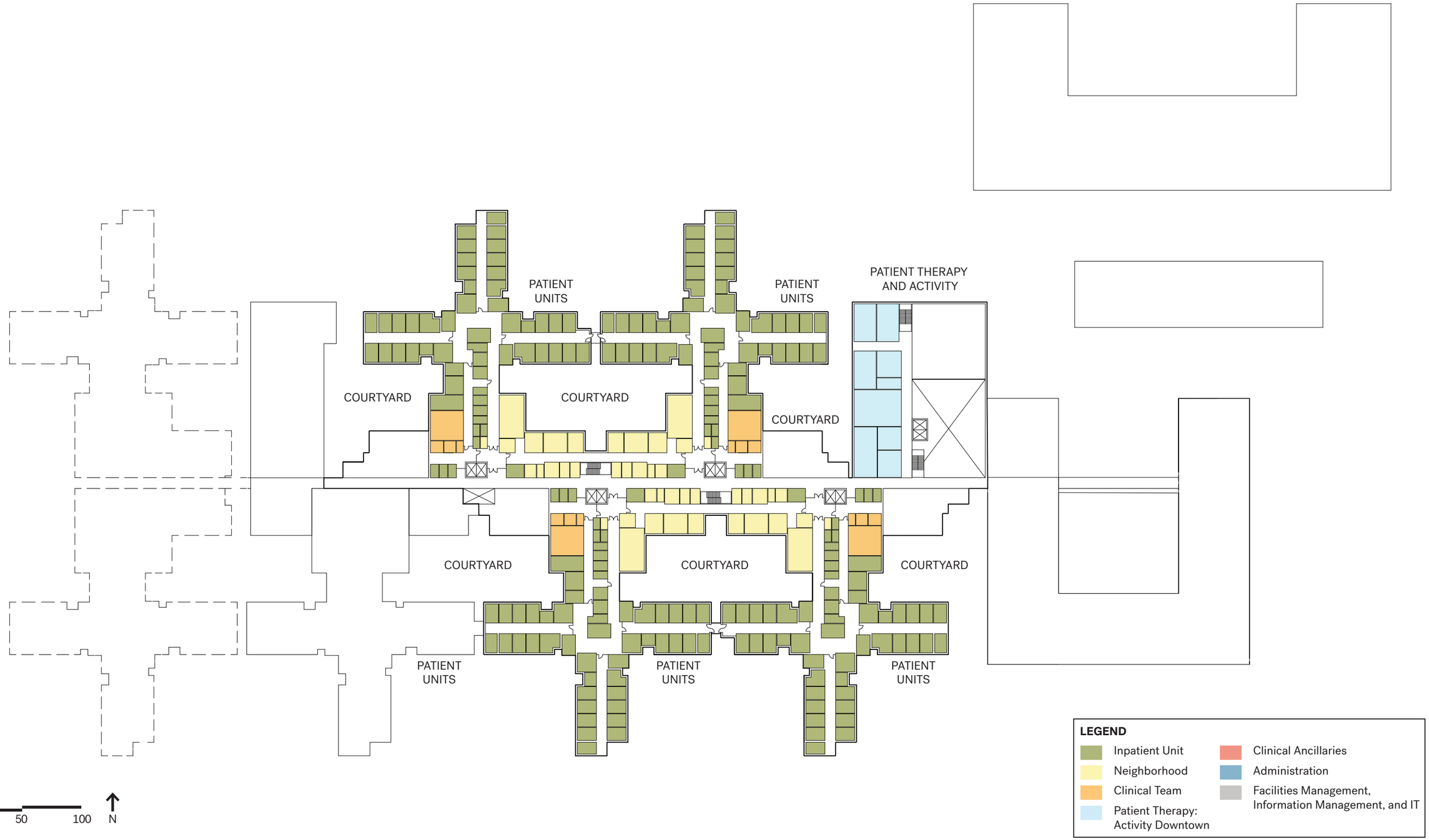

Figure 21: Overall Level 3 Plan

4.5.1 Inpatient/Therapy Space

INPATIENT UNIT AND NEIGHBORHOOD

The inpatient units will be organized in three sub-clusters that will function as independent living units. Sub-clusters will consist of eight or nine bedrooms, an activity room, a quiet activity room, and a porch. This more intimate collection of rooms will provide patients with living space devoted to a smaller group of neighbors that will be more manageable and natural in a residential setting. Each sub-cluster is visible from the nurse care area and is accessible through a shared corridor which connects the sub clusters to the "neighborhood" areas, containing social/therapy spaces shared by all 25 patients including consultation rooms, visiting rooms, multi-purpose spaces, activity/recreation spaces, group therapy rooms, classrooms, and the dining room. Nursing support spaces are secluded from the patient areas with an independent circulation path from the neighborhood/main circulation spline.

The inpatient units and neighborhoods will be arranged so each unit will have a shared outdoor space or roof terrace for patient use. Where possible, neighborhoods of adjacent inpatient units will be connected to allow

Figure 22: Typical Inpatient Unit

for flexibility of programming. The neighborhoods will establish secure zones for patient activity, and their adjacency to the inpatient units will encourage and facilitate a high level of participation in therapy for a maximum number of patients. Each inpatient unit is supported by a clinical team with office space clustered immediately adjacent to the nursing support spaces. This area fosters collaboration among the care team members and offers proximity to neighborhood spaces, allowing for efficient staff support and involvement with patients.

4.5.2 Downtown

The downtown zone features patient treatment spaces that serve and are shared by all 350 patients. These include: occupational therapy rooms, a gymnasium, music therapy space, a multipurpose chapel, art space, a greenhouse, a sensory group room, life skills learning space, general store, barber/beauty salon, and an open "winter garden" to connect the functions and provide space for large gatherings.

The downtown's functions, including hosting events with families and visitors, suggest a placement between the front door and the neighborhood/inpatient unit zone. Strategic positioning of the gym and winter garden will allow them to open to each other and create an area that supports large gatherings. The gym and winter garden will also benefit from a direct relationship to an exterior courtyard.

The greenhouse will function as an extension of the winter garden and could have programming outside as well if it is positioned on a secure courtyard. A limited number of staff offices associated with these programs will be at the edge of the downtown but will not interfere with the patient circulation or engagement.

Adjacent the winter garden and gym is the staff cafeteria and cafe space that will provide food and beverages for purchase by patients that have access to the downtown and staff from throughout the building. On site food options for staff is viewed as very important so that staff have the option of not going outside through security for every break. Visitors could also access the cafe, and the co-mingling of these groups is expected to contribute to destigmatization by providing common experiences.

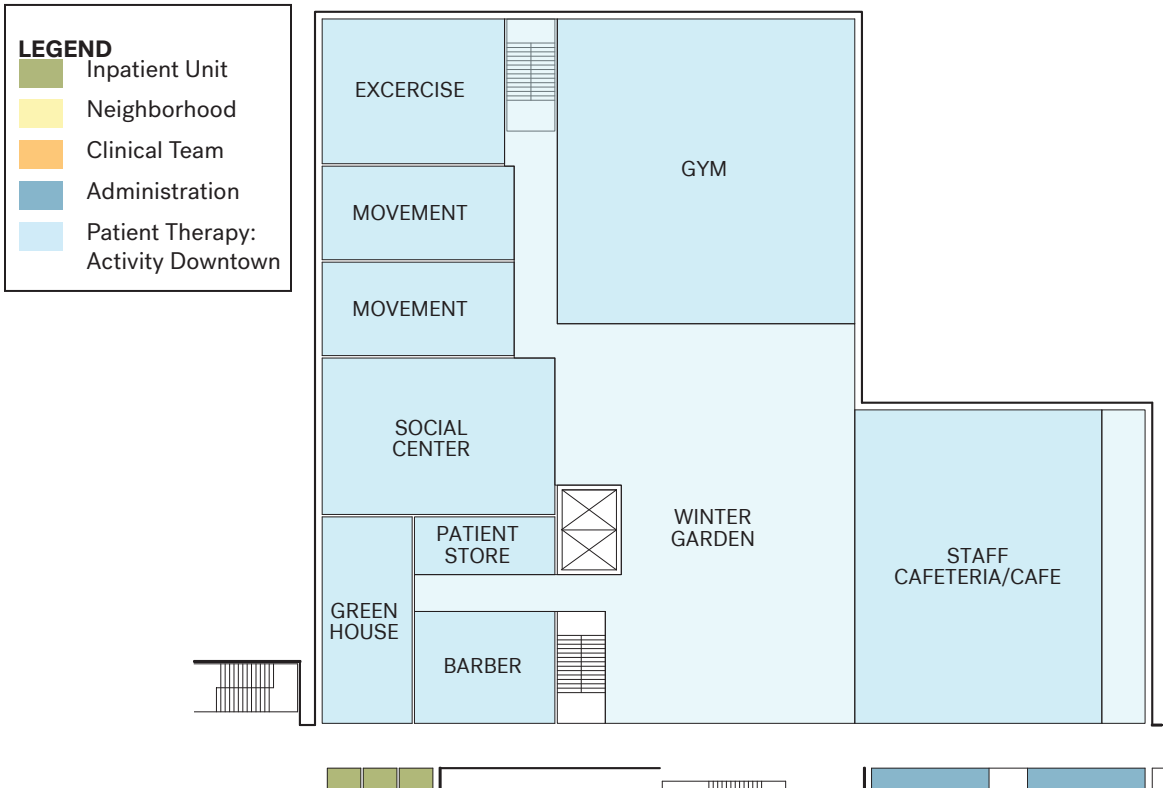

Figure 23: Downtown Level 1

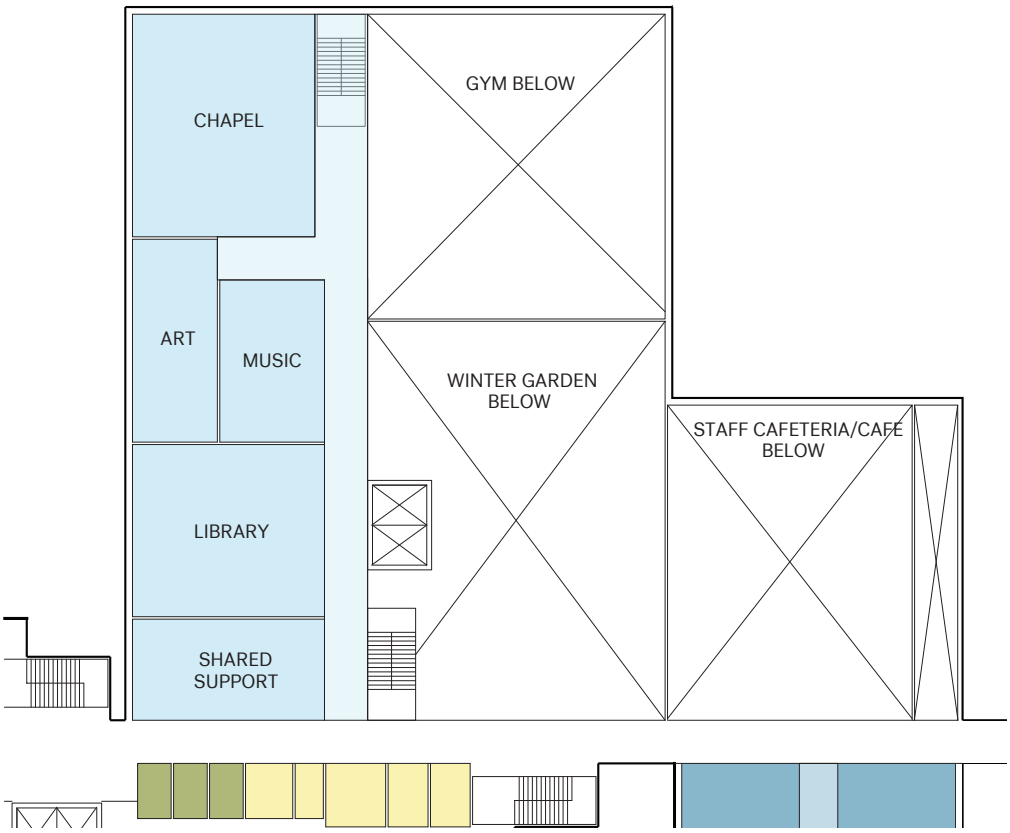

Figure 24: Downtown Level 2

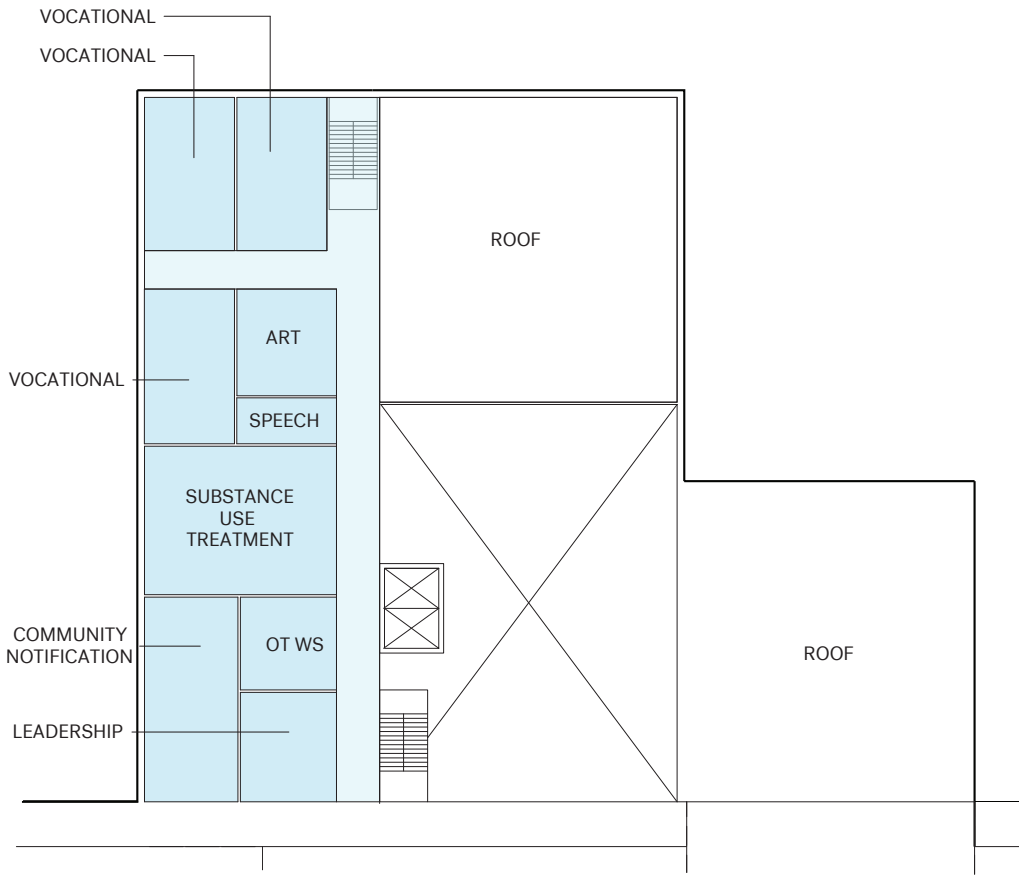

Figure 25: Downtown Level 3

4.5.3 Clinical Ancillaries

ADMISSIONS - MEDICAL CLINIC

The admissions suite will have two intake paths: one for staff and one for patients. Although the admissions suite will have dedicated spaces including an exam room, it will share many functions with the medical clinic: overflow exam room(s), clean and soiled utility, medication storage, and office supplies, where possible. Patients will be served by the medical and dental clinic within the hospital; entrance for patients will be through the main circulation spine of the building. As a result, the staff and patient flow between admissions and the clinic is important and should be as direct as possible while maintaining security and safety for everyone.

ADMISSIONS - LAB - MEDICAL CLINIC

The laboratory will have supplies that are used by both admissions and the medical clinic throughout the day. An efficient layout will place the lab near both admissions and the medical clinic. The laboratory is located immediately above admissions and the clinic spaces, accessed through a common stair. The laboratory will include a phlebotomy room for blood taking as well as several laboratory bays for Hematology, Urology/Serology, General Chemistry, Special Chemistry, a large open space for miscellaneous laboratory tasks, and various support spaces. Eleven lab offices for The Laboratory Director, Lab Manager, and Laboratory staff will be located immediately adjacent to the lab.

MEDICAL CLINIC WAITING

The medical clinic waiting room will accommodate patients waiting for medical and dental needs.

PHARMACY - OFFICE SUITE

A satellite pharmacy will supplement the main pharmacy currently located in the Kitchen, Commissary, Pharmacy and Central Services Building (Building 22). The majority of the medication orders will be delivered by pharmacy staff directly to the medication rooms on the inpatient units through the secure staff corridors within the units. At the supplemental pharmacy, the picking stations should be immediately adjacent to the dispensing area for workflow, while the dispensing area and pick-up counter function as a transaction space where nursing staff picks up supplemental medication orders from the pharmacy staff. An office suite housing the pharmacy workstations should be located immediately adjacent to the pharmacy for efficiency.

PHYSICAL THERAPY

Physical Therapy will be located on the second story of the Clinical Department, immediately adjacent to the main circulation spine, but outside of the patient perimeter. This suite will include an office for the Physical Therapy director, four workstations, the Physical Therapy Exercise area, and support spaces. The workstation suite will be centralized and surrounded by the Physical Therapy Exercise area to allow for direct observation of activities within the space. Most of the physical therapy for patients within the hospital will be related to acute episodes, so it is important for the space to be developed to facilitate staff engagement with the patients.

INFECTION CONTROL AND EMPLOYEE HEALTH SERVICES

Infection Control and Employee Health Services will be located on the second floor of the Clinical Department, outside the secure patient perimeter. This suite will house an office for Employee Health RN, workstations for Infection Preventionists, an office for an Industrial Hygienist. Offices will also function as meeting/care spaces, so no additional exam or treatment spaces are required. A waiting room with ten spaces will be shared by offices within the suite.

VEHICULAR SALLYPORT

A vehicular sallyport will be included on the first floor of Clinical Ancillaries. The vehicular sallyport will serve as an entry point for patients into admissions and will accommodate a standard ambulance and an adjacent exterior parking area for additional vehicles that may accompany the ambulance.

4.5.4 Administration

Administrative spaces will be located adjacent to the main entrance of the building and will be distributed over the first two stories of the building.

LOBBY SERVICES - COURTROOM

The courtroom will be located within the secure patient perimeter; however, because it also serves people coming from other facilities, it should be located near the building perimeter.

LOBBY SERVICES - VOLUNTEER SERVICES, VISITING CENTER

Volunteer services and the visiting center are primarily accessed by outside visitors. There is a functional benefit to these components being located off of the main lobby and outside the secure perimeter. For the security boundary, reference the Patient Visiting secure sub-zone on the security diagrams in Appendix A-07.

LOBBY SERVICES - SECURITY & SAFETY

The main entrance for the hospital will need to provide separate secure entrances for staff and visitors. Security will be positioned to provide supervision of the visitor's entrance as well as the lobby spaces. Visitor spaces associated with lobby services will be positioned to provide a degree of privacy while maintaining supervision.

HOSPITAL ADMINISTRATION

The core leadership team: Chief Executive Office (CEO), Deputy CEO of Clinical, Deputy CEO of Administration, Chief Operating Officer (COO), Deputy COO, Deputy Chief Financial Officer, Chief Public Affairs Officer, Chief Quality Officer, Deputy Chief Quality Officer, Chief of Security/Safety, Chief Clinical Officer, Center Directors, and support staff workstations will be co-located in an administrative suite with support spaces. This administrative suite will be located on the first floor of the administrative portion of the building, and will likely be located near other administrative functions. Access

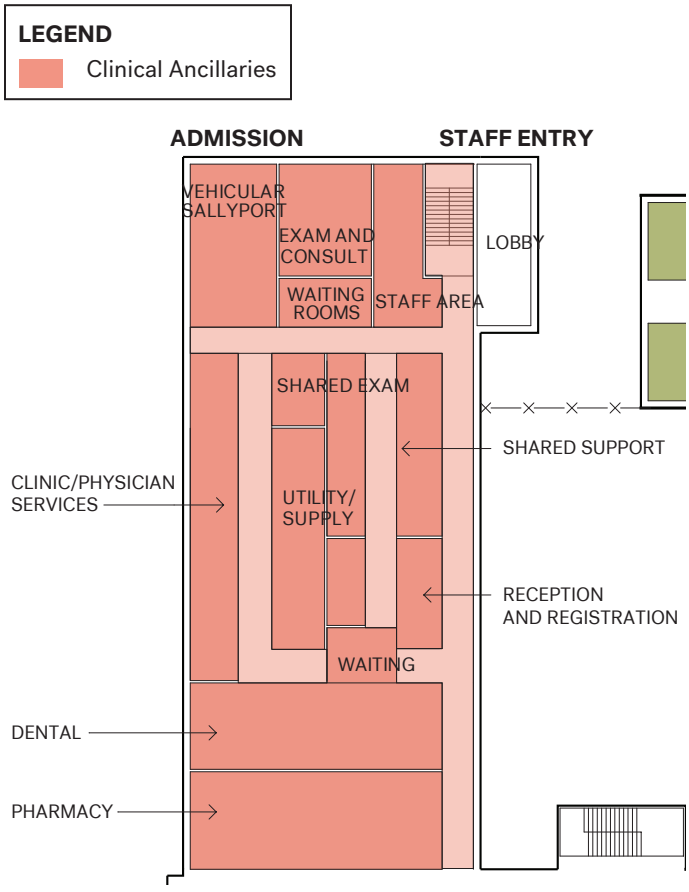

Figure 26: Clinical Ancillaries Level 1 Plan

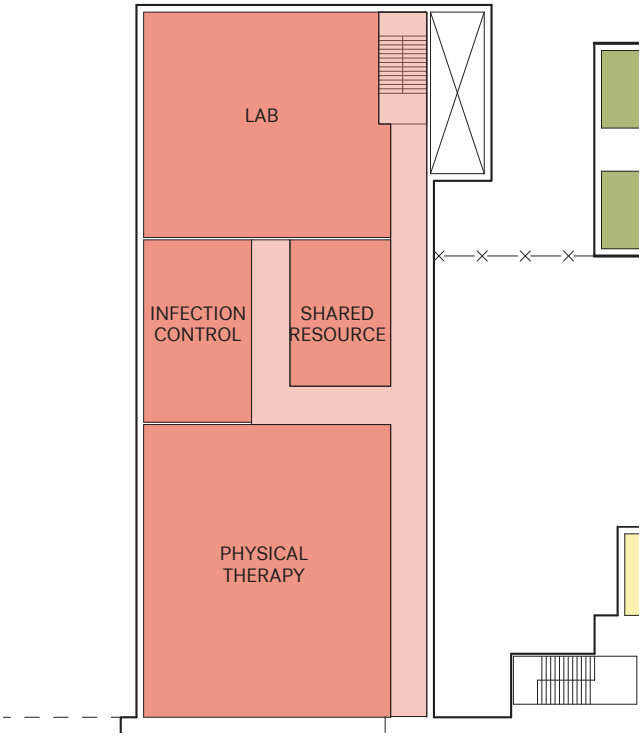

Figure 27: Clinical Ancillaries Level 2 Plan

to this suite will be separate from the secure patient circulation path through the downtown and treatment malls.

CLINICAL ADMINISTRATION

An administrative suite consisting of the Chief Medical Officer, Deputy Chief Medical Director, Chief of Psychiatry, Center Medical Director, Chief Clinical Officer, and support spaces will be located on the first floor of the administrative portion of the building. This suite will be located within the secure boundary of administration, but immediately adjacent to the main circulation spine of the building to allow for a direct path of travel to inpatient units.

NURSING ADMINISTRATION

A suite for Nursing Administration consisting of a Chief Nursing Officer, Assistant Chief Nursing Officer, Clinical Nurse Specialist, Nurse Educators, Nurse Manager for Education, four (4) RN4s, an RN3, and support staff will be located on the first floor of the administrative portion of the building. Similar to Clinical Administration, this suite will be located within the secure boundary of

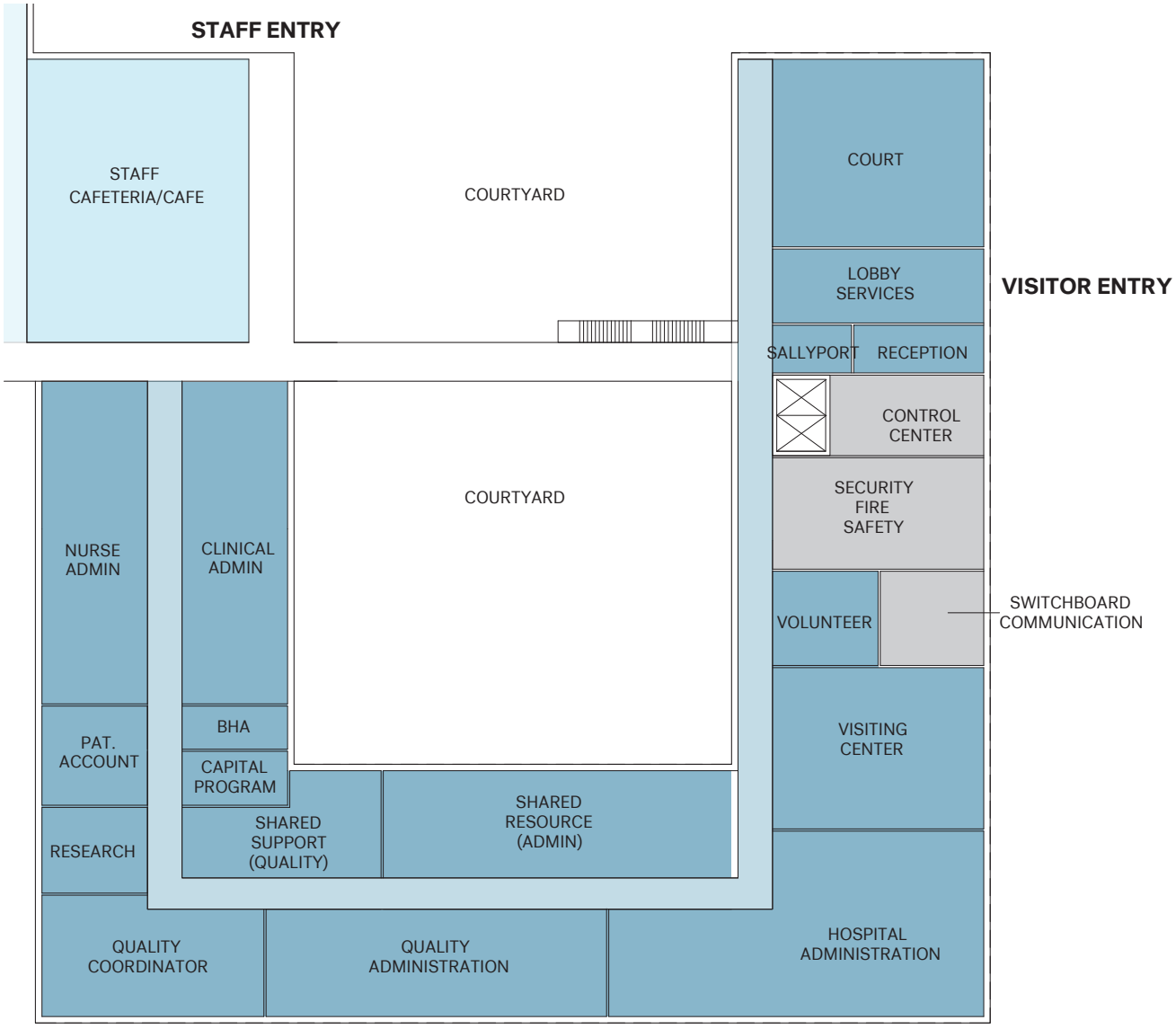

Figure 28: Administration Level 1 Plan

administration, but immediately adjacent to the main circulation spine of the building to allow for a direct path of travel to inpatient units.

EDUCATION AND CONFERENCING, STAFF DEVELOPMENT

A large suite for staff education and conferencing will be located on the second floor of the administrative building. This suite will include a large 150-seat conference/training room, two large meeting/ classrooms, a 20-seat computer training lab, and miscellaneous support spaces. This suite will be located immediately adjacent to the main circulation spline but outside of the secure patient perimeter. This space will be heavily utilized by staff throughout the hospital so direct access from main circulation is preferred. A small office suite for staff development, housing the Staff Development Manager as well as workstations for the Staff Development Administrative Secretary, Nurse Instructors, and Training Coordinators will be located immediately adjacent to the Education and Conferencing suite.

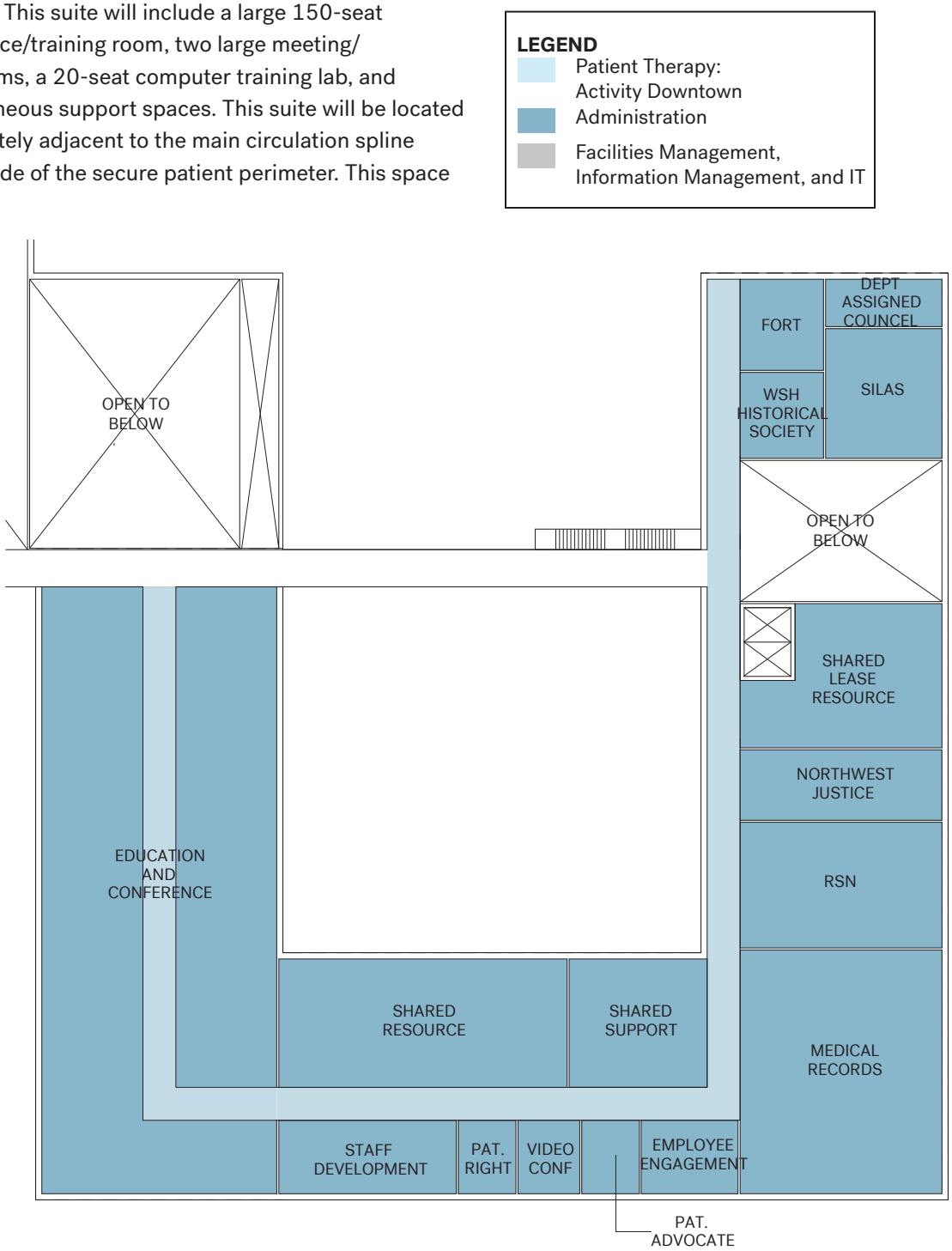

Figure 29: Administration Level 2 Plan

MISCELLANEOUS ADMINISTRATIVE SPACE

Additional miscellaneous administrative program including patient accounts, Employee Engagement, Patients' Rights Workstations, and Patient Advocate will be distributed throughout the administrative department on both floors as programmatic adjacencies are determined during the schematic design and design development phases.

OFFICE ANNEX

A standalone office annex will be developed to house administrative staff that do not require direct access to the building. This space will house the Finance Department, Contracts Management, Accounts Payable, Payroll-Time/Leave/Attendance, Human resources/ Payroll, Forensic Evaluation/Navigation, The Office of Forensic Mental Health Services (OFMHS), Labor Relations, the Developmental Disabilities Association, Home and Community Services, and the Attorney General's office. By separating these spaces from the main hospital, the construction costs associated with these spaces are considerably reduced as expensive construction materials and detailing related to Behavioral Health hospitals is not required for these spaces.

4.5.5 Building Support

Space for utilities and mechanical rooms, Materials Management, Materials Depot, Laundry/Linen, Environmental Services, and Information Technology have been included in the basement of the building. As there is no critical need for many of the support spaces to be included within the secure building perimeter, Physical Plant/Maintenance and additional Materials Management, including a loading dock will be located in a support annex building immediately adjacent to the main building. This building will be connected to the main hospital building with a secure tunnel accessed by a service elevator located adjacent to the loading dock.

Building support requires a clear circulation path to the inpatient units to facilitate efficient and timely delivery of meals, medication, and various supplies on a daily basis. A service corridor is included on the basement level connecting building support to all elevators serving the inpatient units, facilitating this efficient delivery and allowing for support circulation outside of the secure patient perimeter.

LOADING DOCK - LINEN / LAUNDRY - INPATIENT UNITS

Linen and laundry is currently located outside of the hospital. Trucks pick up soiled linen and deliver clean linen to and from the hospital as required. The soiled linen is taken to the laundry facility on campus for laundering and clean linen returned back to the hospital. As this method will not meet the guidelines established by CMS, a laundry/linen room will be included in the basement level immediately adjacent to the service corridor to the Inpatient Units. An easily navigable path from linen and laundry to the inpatient units is critical due to the frequency of cart traffic. Soiled linen carts are transported from the inpatient units daily and clean linen carts are delivered to the inpatient units daily.

LOADING DOCK - PHARMACY - INPATIENT UNITS

The pharmacy makes daily deliveries of medications to the inpatient units. Clear support access to the loading dock will maximize efficiencies.

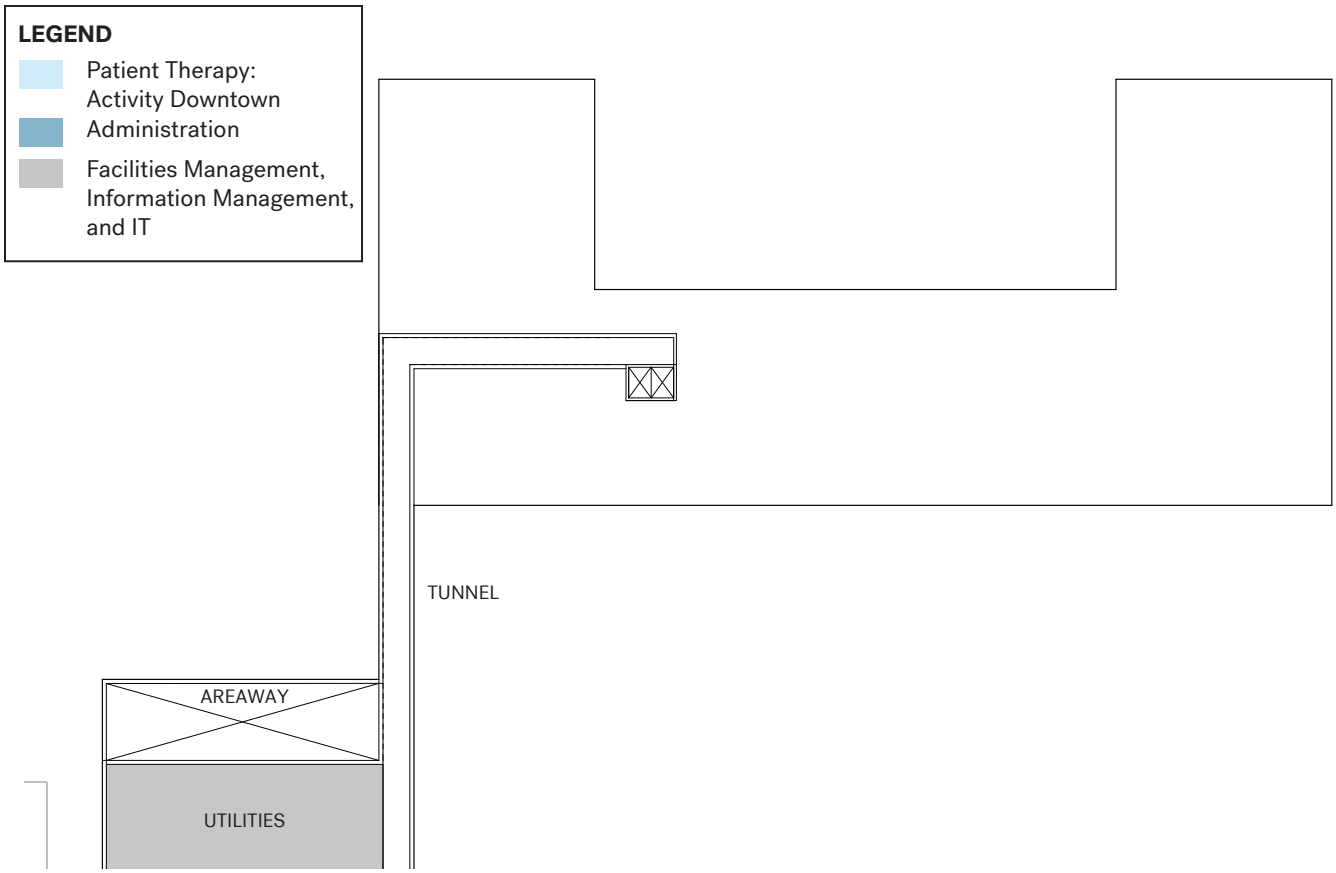

Figure 30: Facilities Management Basement Plan

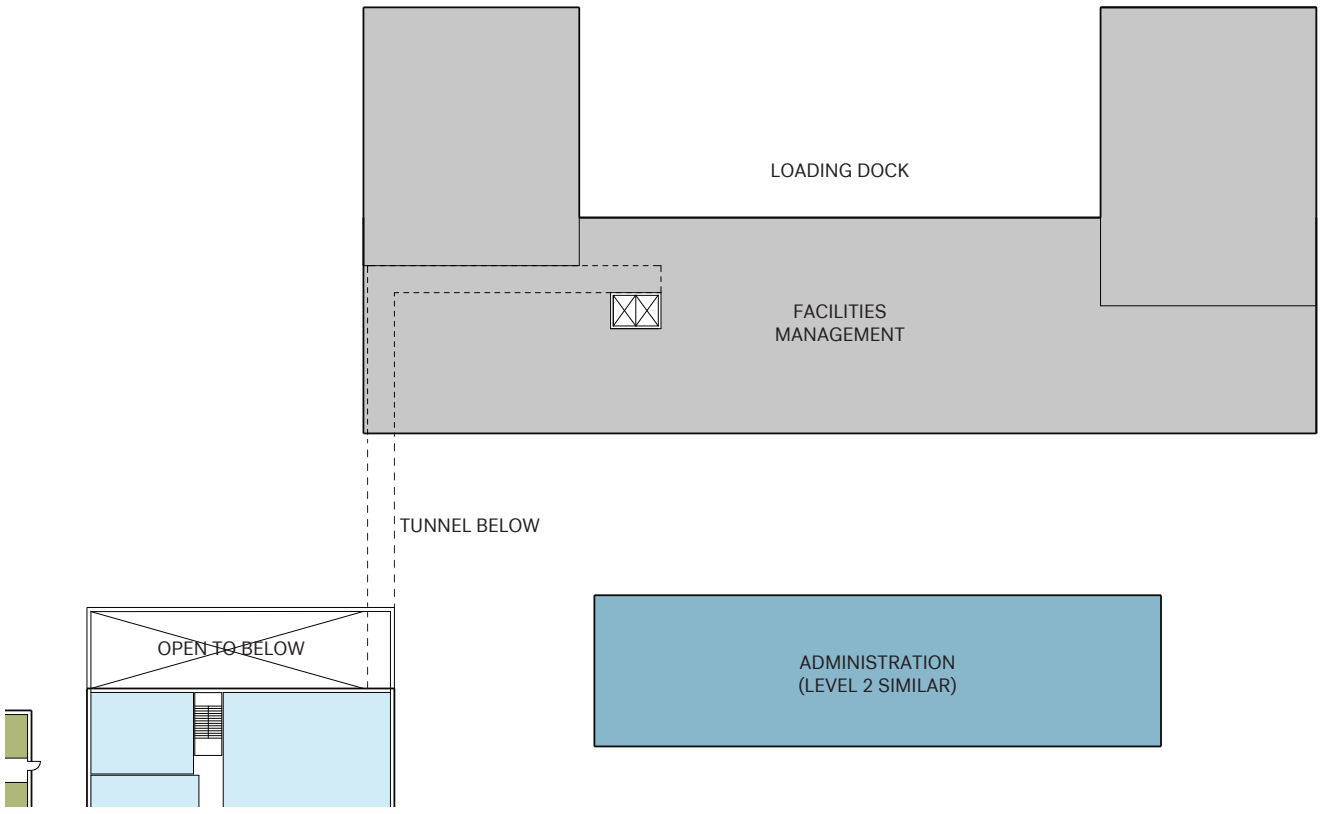

Figure 31: Facilities Management Level 1 Plan

4.6 Site Analysis

4.6.1 Landscape Design

APPROACH

The landscape will be designed to be sustainable and low maintenance while providing a peaceful and safe setting for patients and staff. All landscapes will be designed to meet the requirements of the Americans with Disabilities Act. The building will have a substantial set-back from the public and internal campus streets providing a large landscape buffer that takes advantage of the existing trees. Patients will have views of the enhanced landscape from the secure building while the distance from the street provides privacy.

Existing large trees in the perimeter buffer will be supplemented with additional natural tree plantings to increase this visual buffer. The substantial landscaped set-back will provide a visual amenity to the surrounding community. A low perimeter natural hedge will replace the crumbling existing stone wall and visually discourage public access to the grounds. Under the groves of existing and new trees in the landscape set-back there will be rough grass meadows with wildflowers providing a natural low maintenance landscape that will be a habitat for native birds and other animals. Around the perimeter of the building there will be low foundation plantings that separate and buffer the building from pedestrian paths.

Vehicular and pedestrian circulation will be held-back from the building. Within the building there are six courtyards for patients and one courtyard for the staff. The patient courtyards will provide spaces for socialization, recuperation, and recreation in the outdoors. Within the patient courtyards there are also opportunities for therapy gardens. Patient courtyards will be designed for safety with open site-lines. All tree and shrub plantings within the patient courtyards will be non-poisonous.

Figure 32: View of Porch

The staff courtyard will be designed to provide a peaceful space for breaks and socialization. All courtyards will have some covered spaces to provide shade and shelter from the sun and rain and to maximize the use of the space throughout the year.

MAINTENANCE

The perimeter buffer landscape area will be designed for low maintenance. The native rough grass meadows under the native tree groves can be mowed twice a year. The foundation plantings surrounding the building perimeters will be designed with shrubs that have natural forms that do not require regular pruning. Plantings within the courtyards will be designed to be more decorative and colorful and will require more maintenance than the perimeter landscapes.

IRRIGATION

The perimeter native groves of trees and rough grass meadows will require no irrigation. The native trees and shrubs within the perimeter are inherently drought tolerant and do not require irrigation. New native perimeter trees are to be planted in late fall to help them establish without irrigation. The foundation plantings around the building will also be drought tolerant, but some irrigation will be required for the first two to three

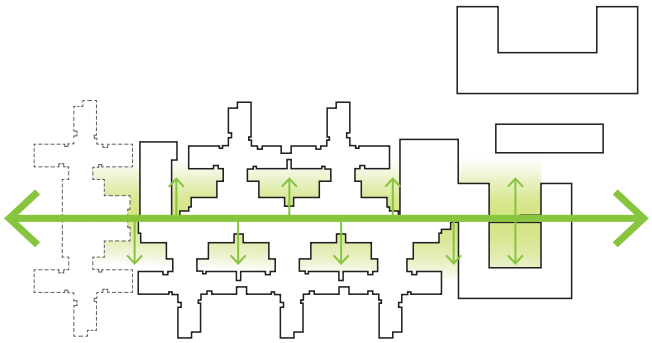

Figure 33: Landscape courtyard concept

Figure 34: View of Interior Courtyard

years for the plants to establish. After establishment, the irrigation can be turned-off, but is still available if there is a drought that threatens the survival of the plants. The courtyard landscapes that will be used by patients and staff will receive the most irrigation. A higher level of irrigation will provide a more lush and colorful landscape creating a more visually stimulating amenity space for the users.

HARD LANDSCAPE MATERIALS

- On-grade pedestrian pavements will be cast-in-place natural gray concrete with a medium broom finish for slip resistance and durability.
- On-structure pavement will be 30" x 30" precast pavers on pedestals to provide a flat surface and easy access for roof membrane repairs.
- Custom concrete seat walls will be included.
- Stairs and ramps will be cast-in-place concrete with steel stair nosings and stainless steel handrails.
- A 3" depth by 30" wide gravel maintenance strip with ¼" x 4" galvanized steel edger and filter-cloth will be installed along building facades for maintenance access. Natural mulch will be substituted for gravel at patient courtyards.
- Raised planters on-structure will be cast-in-place concrete with planter drains.
- Site furnishing will include but not be limited to: benches, tables, chairs, game-tables, trash receptacles and large decorative pots. All site furnishings within patient courtyards will be secured to the ground plane.

PLANTINGS:

- Perimeter trees will be native species to match those existing on-site. New native trees will be planted at smaller sizes (1" caliper) and staked. Native trees when planted in smaller sizes establish better than larger trees.
- All existing trees will be protected with tree fencing located at the drip-line of the individual trees.
- Courtyard trees will be non-poisonous flowering trees.
- All building foundation shrubs will be low drought tolerant species requiring minimal pruning.
- Perimeter meadow under the native trees will be planted with low growing drought tolerant grass seed mixes with wildflowers and native bulbs.
- Courtyard shrubs will be selected for seasonal color, low maintenance and being non-poisonous.

PLANTING SOILS

- All native trees planted in the perimeter landscape buffer will receive one-half of a yard of topsoil mixed with the existing native soil.
- New trees planted within the courtyards will receive three cubic yards of soil per tree.
- Rough grass meadows are to receive 3" of topsoil tilled-into the top 8" of existing soil.
- Building perimeter foundation plantings and courtyard plantings will receive 18" of new topsoil.
- All on-structure planters will be planted with light weight soil mix and drainage mats.

4.6.2 Structural Analysis

The WSH structure is anticipated to be founded on native medium dense sand with gravel interpreted as outwash sediments, commonly referred to as Steilacoom gravel. Observations indicate that 15 feet of fill may be encountered. We have assumed that fill material will be excavated to native soils for the building foundations. Alternative soil improvements such as soil mixing could be studied. Based on current assessment of the structural materials market the most economical structural system is anticipated to be post tensioned concrete framing in the Inpatient Units and treatment areas and composite steel framing in the longer span Administrative Services Spaces. Cross Laminated Timber (CLT), an emerging technology to use local resources is assumed for the office building.

The complex is an essential facility (Risk Category IV). The structural lateral system is proposed to include special reinforced ductile concrete core walls with a mixture of diagonally reinforced concrete and encased steel coupling beams over openings. The foundation for the lateral system is proposed as a mat foundation that will distribute the seismic forces through bearing on the underlying soil strata. This system will limit building drifts during a seismic event to the code drift limits.

4.6.3 Campus Utilities

SANITARY SEWER
EXISTING CONDITIONS

There is an existing primary sewer trunk line located north of the propose Forensic Hospital site in Settlers Street, which then discharges southwest through a 21-inch pipe to the public sewer system located at the intersection of Steilacoom Boulevard and Far West Drive SW.

The campus sewer system is privately owned and maintained and discharges to the public sewer system owned and operated by the City of Steilacoom.

PROPOSED CONDITIONS

The existing campus sewer system has capacity for new developments, particularly since some new developments will replace existing developments, thus offsetting some of the additional capacity requirements.

Portions of the facility that include food preparation facilities will need to include grease interceptors between the source of grease waste and the sewer main. These interceptors typically include exterior concrete vaults that will capture and retain grease. (Note: there is a separate campus food preparation and distribution system located in Building 22, so food preparation may not be necessary for this facility).

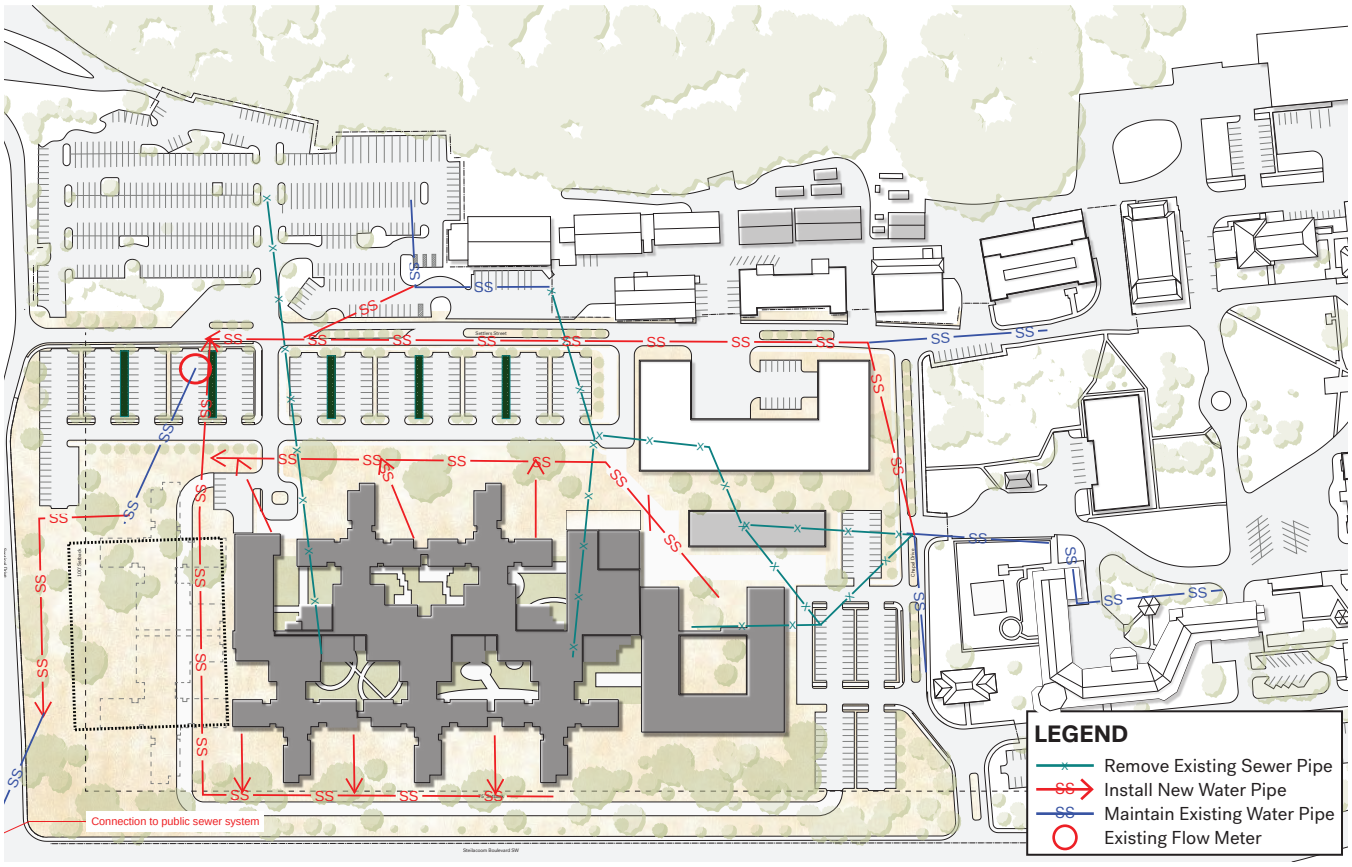

Figure 35: Proposed Sewer System

4.6.4 Mechanical Systems

THERMAL PLANT
GROUND SOURCE HEAT PUMP (GSHP)

Primary heating and cooling will be provided by a 600 ton "6-pipe" modular chiller connected with a closed pipe ground loop. The ground loop will consist of 200 vertical wells, 500ft deep and 20ft on center encompassing a field of approximately 80,000 sqft in the parking area. The well depth and spacing will be optimized during the design phase with test wells. Space will be allocated in the basement mechanical room for an additional 140 tons of chiller modules to support future expansion of two patient units. The well field will also have space for an additional 50 wells.

HEATING HOT WATER

Approximately 1,200gpm of heating hot water will be produced from the GSHP at 120°F and distributed to heating coils through the facility via the basement corridor spine. Air-handler coils will be sized for a 30°F delta-T and terminal reheat coils will be sized for a 20°F delta-T. Supplemental trim heating is required to balance the energy transfer with the ground loop. The supplemental heating will be provided by a 6,300 MBH modular air-source heat pump (ASHP) capable of operating in heating only or cooling only mode. The heat pump will be located on the roof of the building housing the main mechanical room. Heating hot water will be distributed from 4 end suction pumps, each sized at 400gpm, located in the main basement mechanical room along with ancillary equipment including inline air & dirt separator, expansion tanks, side-stream filter, and chemical feeder. A separate 30% propylene glycol water loop is anticipated to be needed for the ASHP, and it would be connected with the main heating system with a plate-and-frame heat exchanger.

Heat pump compressor technology is currently limited to around 80-90°F of lift, which may not be capable of meeting the heating demands at very low winter temperatures. Heat pump compressor technology is currently evolving to meet the demands of all-electric buildings and may be feasible of higher lifts by the time this project gets to final design. To combat this compressor limitation, the ASHP would provide supplemental heating water down to 40°F outdoor air temperatures and then switch via valving to providing supplemental heating to the geo-field when below 40°F outdoor air temperatures.

Alternate supplemental heating options that are less efficient and contribute to more carbon release could be used in place of the GSHP or as backup just for extremely cold days. These options are not planned to be used but could include:

- Option 1: Two electric boilers sized at 900kW each (3,000 MBH). Additional normal power and emergency power electric system infrastructure is required to support the electric boiler option that is not currently included in the electrical narrative. The electrical infrastructure would have substantial cost impacts.
- Option 2: Two natural gas condensing boilers sized at 3,000 MBH each. Natural gas service to the building would be required for this option. Natural gas service is not planned for cooking and there is no new laundry services planned, so no natural gas service is anticipated.

CHILLED WATER

Approximately 1,200gpm of chilled water will be produced from the GSHP at 44°F and distributed to cooling coils through the facility via the basement corridor spine. Air-handler coils will be sized for a 16°F delta-T. Chilled water fan-coils serving electrical and telecom rooms would be sized for an 8°F delta-T. Supplemental trim cooling is not anticipated but the ASHP described above can operate in a cooling mode if needed.

SENSIBLE COOLING WATER

Terminal cooling will be provided by a sensible cooling water loop at 58°F. Each building will have a prefabricated mechanical room located on the roof next to the air-handlers that will house plate-and-frame heat exchangers to provide cooling source energy from the 44°F chilled water and deliver it to the 58°F sensible cooling water. The sensible cooling water loop will be dedicated to each building and will serve non-

condensing coils within chilled beams and sensible fan-powered air-terminals. The buildings are planned with sensible cooling water loops with an average size of 220gpm each.

AIR-HANDLING & DISTRIBUTION

SUPPLY AND EXHAUST AIR SYSTEMS

Each building will be provided with a dedicated outside air system (DOAS) located on the roof of the building. The total supply airflow for all buildings is estimated at 130,000cfm. The DOAS air-handler will provide 100% outdoor air to the building and consist of the following components:

- Supply Side – intake hood, MERV 8 prefilters, enthalpy wheel, heating hot water coil with coil pump, chilled water coil, fan array with dedicated VFDs, MERV 14 final filters, and controls/valving vestibule
- Relief Side – (configuration will be either stacked on top or on the side of supply tunnel) MERV 8 prefilters, fan array with dedicated VFDs, discharge louvers.

General exhaust for toilets, showers, tubs, housekeeping, lockers, etc. may be provided with roof mounted fans in lieu of using the relief side of DOAS air-handler. ASHRAE 62.1 limits the amount of exhaust from these spaces that can be sent through an enthalpy wheel, so further refinement will occur during the design phase. Stack exhaust discharges are currently anticipated for the clinical ancillary building to support laboratory functions. As a publicly owned property, the new Forensic Hospital is required to achieve LEED Silver Performance under V4 for New Construction, reduce embodied and operational carbon, and be zero energy-capable. The energy model is attached in the appendix as A-06 Preliminary Energy Model Report.

TERMINAL DISTRIBUTION

Variable volume air-terminals will provide airflow regulation at the zone level for each building. Variable air volume (VAV) air-terminals with no reheat coils will likely serve groups of approximately 4 similar room types on the same exterior exposure. Each patient room would be provided with an active chilled beam and a dedicated

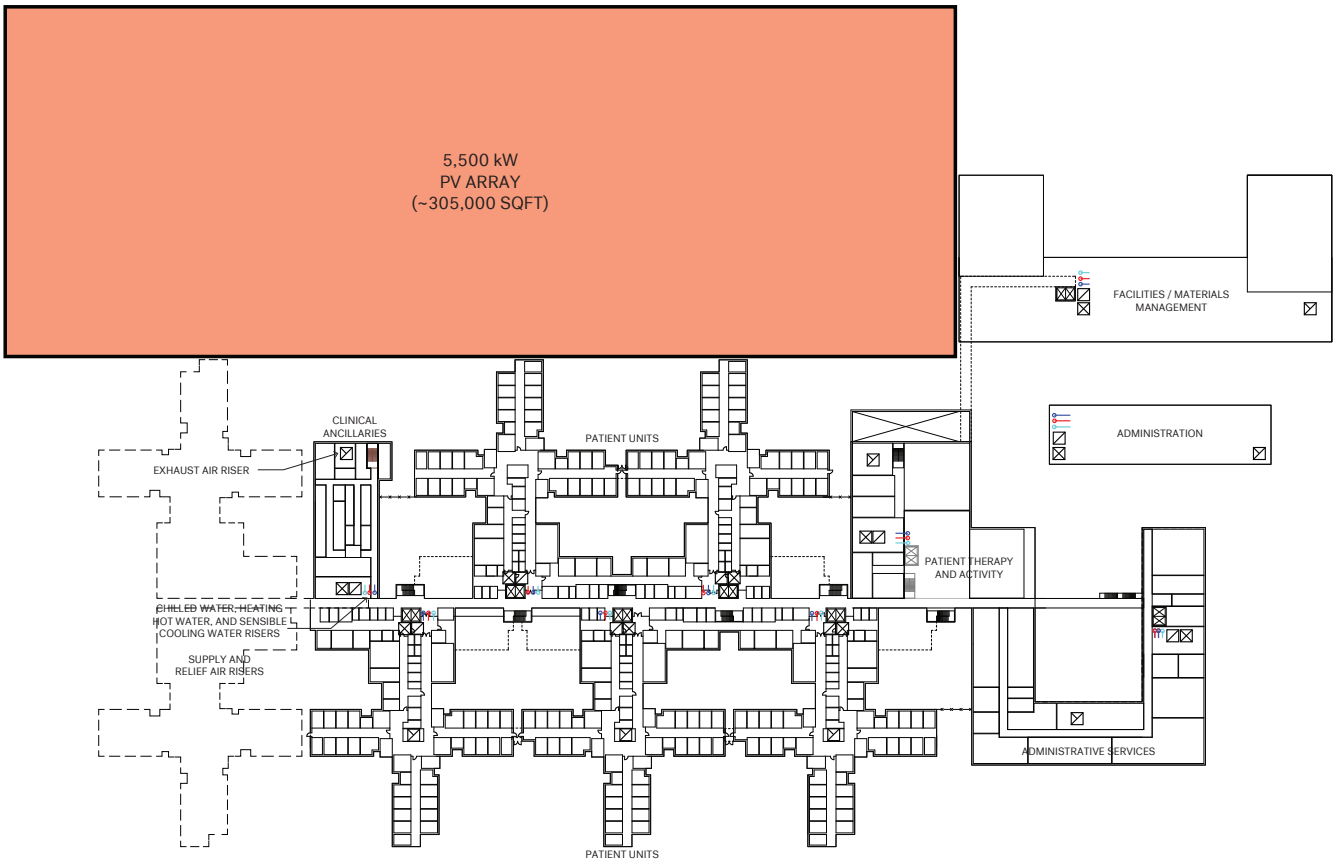

Figure 36: Proposed PV System

6-way control to allow switchover from heating to cooling. Corridors would be served by sensible fan powered terminal units with a non-condensing cooling coil and reheat coil. Other terminal heating and cooling equipment is planned like perimeter radiant and ceiling fans. Additionally, zones such as within the administrative building can be further evaluated to utilize operable windows.

NET ZERO ENERGY

SOLAR PHOTOVOLTAIC (PV)

The initial energy modeling is showing an energy use intensity (EUI) of around 35-40 EUI requiring approximately 5,000kW of PV capacity. The array would encompass approximately 300,000 sqft of area and would be mounted to a structure above the parking lot spaces. The energy model is attached in the appendix as A-06 Preliminary Energy Model Report.

4.6.5 Water Services

EXISTING CONDITIONS

Western State Hospital currently acts as their own Water District. All water supplied to and used by the Campus is owned, operated, and maintained by Western State Hospital. Their inventory includes two wells with storage tanks and a network of supply lines. Fire suppression (including fire hydrants and sprinkler systems) and domestic services are tapped from private water mains.

Water main sizes vary from four to eight inches and were constructed with various materials over time. Water mains and services have been extended for developments throughout the campus.

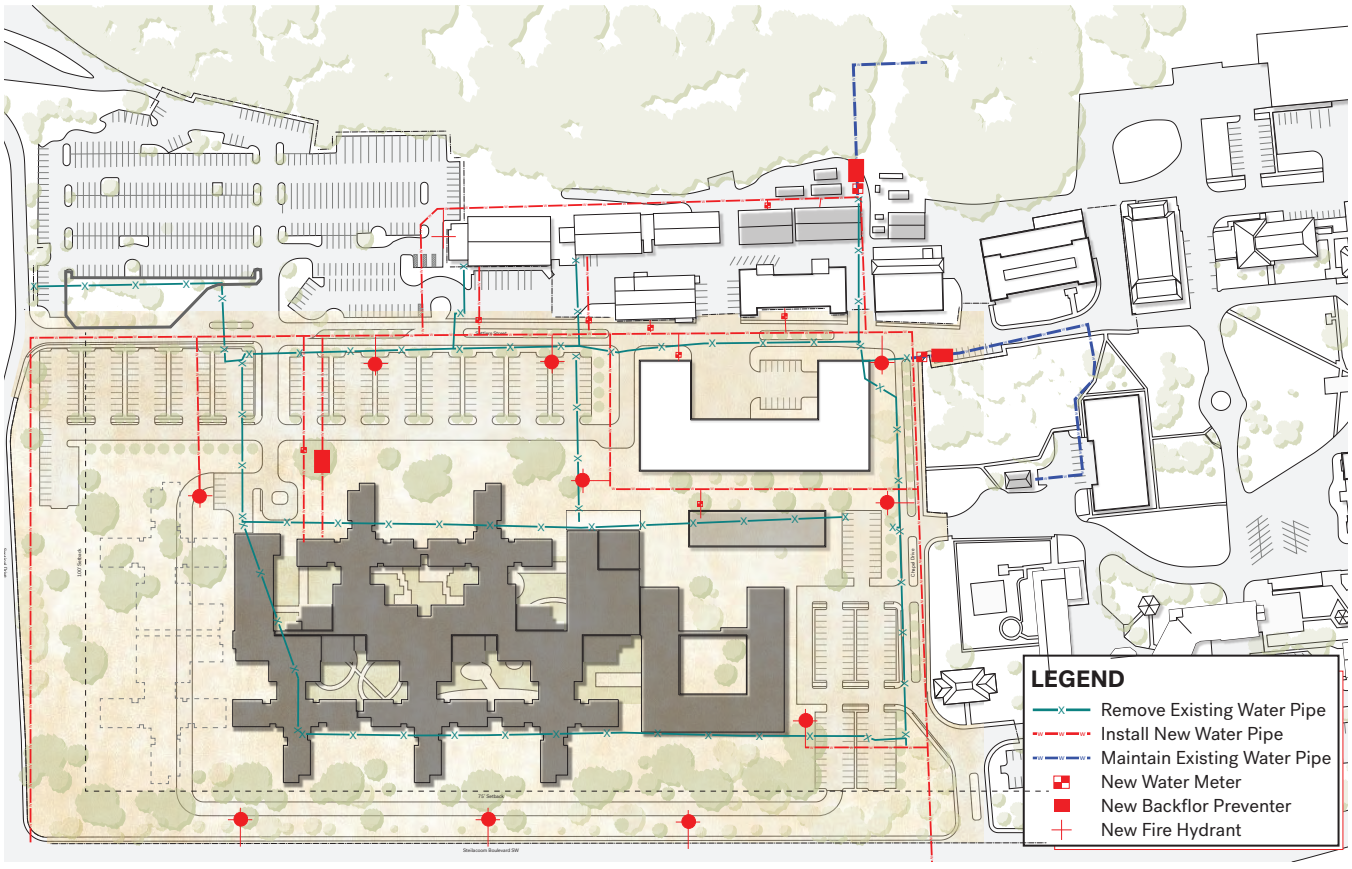

Figure 37: Proposed Water System

PROPOSED CONDITIONS
UTILITY RELOCATION AND EXTENSION

Western State Hospital is burdened by the ownership, operations, and maintenance required to sustain the campus water system. They would prefer to transfer this responsibility, and their water infrastructure, to a utility better suited to own, operate, and maintain a regional water system. Lakewood Water District (LWD) has expressed an openness to incorporating Western State Hospital into their service area,

Water service for the proposed building is planned to be tapped from the existing public main located in Steilacoom Boulevard and looped around the entire building development in order to provide adequate fire protection via fire hydrants. The loop will be completed at the existing water main in Steilacoom Boulevard. The existing campus water system is assumed to not be up to Lakewood Water District standards, so connecting the new main into the existing campus water system may not be viable without backflow prevention to isolate the new and existing water mains.

Domestic and fire services will be connected to this new water loop. A separate domestic water meter will be required for each building. Depending on how each of the building wings are designed for fire protection, they may each have their own separate fire connection. Building wings may be grouped together for fire service, or there may be a single fire service for the entire building. Fire services will consist of a backflow prevention device (typically located in a vault outside of the building), a fire department connection and post indicator valve accessible to the fire department, and a service connection to the building.

4.6.6 Plumbing Systems

The building design will include approximately 350 patient beds housed in four 3-story buildings and one 2-story building. There will be other support buildings such as, Clinical Ancillaries, Patient Therapy/Activities, Administrative Services, Café/Cafeteria, Materials Management, Maintenance Shop, Transportation/ Grounds, Laundry, Offices and Facilities Management Departments.

The following will describe the plumbing systems proposed for this facility. All the buildings will be served and connected by a basement tunnel system.

A Domestic Cold Water (CW) and Hot Water (HW) System: There will be two six-inch mains serving all the buildings and distributed via the tunnel. Each main will have the proper reduce pressure backflow preventions device, shutoff valves and pressure regulator valves assemblies. Each building will have a central plumbing room serving its respective building and where the main CW will be distributed to.
Within each plumbing room, the CW (A-06 Plumbing Plans) will then be distributed up to each plumbing fixture located within its respective building. Primary domestic hot water heating will be produced from high efficiency water-to-water heat pumps. Also, the domestic hot water system will include a 500 gallon storage tank and utilize electric resistance heater of about 250 KW system to maintain 140F water and then distributed up to its respective plumbing fixtures. A solar thermal system will also be utilized to minimize overall power energy consumption. A pumped piping recirculation system will be included and controls to maintain loop temperatures of about 120F hot water.

The building that houses the dental clinic and lab, will have an additional vacuum and compressed air systems.

B Waste and Vent System: Each plumbing fixture will be served with its own waste and vent line and sized accordingly per code.
The waste lines will then be collected and tie into main building four-inch risers and then exit the building below the first level and then run a six-inch waste line out to connect to the main sanitary sewer lines. Plumbing vents, one four-inch riser will run vertically and vent through roof.

C Building Rain Water System: Each building will have designated roof drains and overflow drains. The 3" roof drains and 3" overflow drains will then combine at the vertical and then distribute down through 4" risers. The risers will combine to a 6" main before it leaves the building below the first level and then run out to connect to the main storm water lines.

D Miscellaneous:

1 A new natural gas service will be required to serve the cafeteria if cooking appliances require it. To avoid greenhouse gases, the cooking appliances are intended to be all electric.

2 Alt 1: The base option uses water-to-water heat pumps as the first stage of domestic hot water heating with electric tanks as supplemental/backup heating. The heat pump source energy will be fed from the mechanical system heating hot water system. (The net-zero energy analysis includes the DHW pre-heat in the heating hot water load (using a HRC) and assumes each resident building will have a solar hot water collector on the roof.)

3 Alt 2: Provide a solar hydronic collector system (500 MBH capacity) to be a heating stage to be added to the base. There will be at least ten 4' x 10' panels for each Inpatient Building. The Net Zero Energy analysis assumes these panels will be provided. (The net-zero energy analysis includes the DHW pre-heat in the heating hot water load (using a HRC) and assumes each resident building will have a solar hot water collector on the roof.)

4 Alt 3: Provide a full 840 MBH natural gas boiler systems instead of the base, electric resistance boiler. This Alternate would require a new gas service to the building.

Refer to the plans and diagrams SKP-1, SKP-2, SKP-3 and SKP-4 located in Appendix A-06 HVAC System Plans for corresponding information.

4.6.7 Electrical Systems

NORMAL POWER

Power distribution will be divided between two areas of the WSH Forensic Hospital. The first area, which includes the patient units and clinical ancillary, will include (2) 4000A and (2) 3000A main switchgear. The second area, which includes the patient therapy/activity, facilities management and administrative services, will include (2) 4000A main switchgear. Main switchgear will be connected in a main-tie-main configuration for increased reliability of the electrical system and reduced shutdown duration during future maintenance. A 600A medium voltage switchgear will feed all main switchgear via low voltage transformers.

The normal distribution gear will supply 480V feeders to electrical rooms on every level throughout the facility for supporting downstream 277/480V loads (lighting, equipment, etc.) and transformers within these rooms for feeding 120/208V panelboards.

GENERATOR POWER

Two 2MW generators will support the essential electrical system for the entire WSH Forensic Hospital. These two generators will be paralleled together with additional capacity and floorspace to allow for one additional generator to be added in the future, which would allow for the entire hospital to be powered during a utility power outage. Two transformers will increase the voltage from the generators to feed a 600A medium voltage switchgear, which will be connected to the normal power switchgear in a main-tie-main configuration.

The essential electrical system (EES) distribution will consist of three branches to allow sequential transfer of power from the normal source to the generator source in order of priority and critical nature of the loads:

The Life Safety branch, which powers systems essential to life safety, will include one 800A ATS and switchboard (area #1) and two 400A ATS and switchboard (area #2). This branch will support egress lighting, the fire alarm system, door hardware and communication systems within the hospital.

The Critical branch, which powers systems that immediately affect the well-being of patients or are essential to clinical function, will include an 800A ATS and switchboard (area #1 only). This branch will support interior / exterior critical lighting, nurse call system, telecom, security and critical power within the hospital.

The Equipment branch, which powers mechanical systems that will not immediately endanger patients, will include one 1600A ATS and switchboard and one 1200A ATS and switchboard (area #1) along with one 1600A ATS and switchboard (area #2). This branch will support mechanical equipment such as elevators, fans, pumps, compressors, boilers, chillers, air handling units and miscellaneous kitchen equipment within the hospital.

The EES distribution gear will supply 480V feeders to electrical rooms on every level throughout the facility for supporting downstream 277/480V loads (lighting, equipment, etc.) and transformers within these rooms for feeding 120/208V panelboards.

LIGHTING

A complete lighting system for all indoor and outdoor illumination will be provided. The indoor and outdoor lighting systems will consist of LED lighting fixtures. Low-voltage controls with occupancy sensors and centralized time clock to be used.

4.6.8 Planned IT Systems

The information technology, clinical communications, and audiovisual systems will provide industry standard data, voice, audio, video, and wireless signal distribution throughout Western State Hospital. They will be typical of similar environments with inpatient psychiatric and clinical care spaces, and in keeping with industry standards organizations and best design practices.

Facilities are provided to assure new incoming service provider access, connectivity to campus distribution, growth and flexibility throughout the WSH campus. Systems will not only support the patient care and safety functions and, staff security but will also be designed to assure the business functions, educational and outreach opportunities, and visioning supportive of the reputation of WSH within the community.

SCOPE OF WORK

The structured cabling system for this facility will provide the backbone for the connection and operation of the information technology, clinical communications, and audiovisual systems described. This system will support voice and data applications using equipment supplied by WSH. The building structured cabling system will also be used to support other applications, including building automation and controls, access control and video.

The technology systems design will include provisions for using the building and campus data network for head-end networked communications for other systems including building automation and controls, access control, video, and fire alarm.

An overhead paging system will provide public address communications capabilities within the corridors, public spaces, and clinical staff areas of the facility.

The Building Automation System (BAS) will be connected to the WSH network with structured cabling to allow for access to the WSH network for management and control features on a unified network.

Audiovisual systems will be provided for public spaces (digital signage/way-finding design elements), conference rooms (meeting room, audio and video teleconferencing, and distance learning applications), patient gathering areas, exercise spaces, digital menu boards, and electronic notification systems within the public spaces and café/server areas, in addition to other elements as determined by the overall WSH design program.

4.6.9 Fire Protection Systems

FIRE SERVICE

An underground fire line will supply the sprinkler system in all of the new buildings. The design of the underground fire lines shall comply with NFPA 24.

Current water supply flow test data will be obtained from the Lakewood Water Department in order to determine the capacity and pressure of the water mains.

FIRE ALARM

The fire alarm system will be comprised of smoke detectors, heat detectors, duct detectors, manual pull stations, and audio/visual signaling devices.

FIRE PUMP

A fire pump is not anticipated for the project unless the water supply flow test data will not meet the building sprinkler system demands.

STANDPIPE SYSTEM

The buildings will be protected by a hydraulically designed, Class I Standpipe System without hoses or hose cabinets.

For manual standpipe systems in a fully sprinklered building, the standpipe system will be designed and hydraulically calculated to provide a flow of 250 gpm at 100 psi residual pressure at the highest fire department valve located on the most remote standpipe, when supplied by the local fire department apparatus through the fire department connection (FDC). An additional flow of 250 gpm will be added at the next highest valve on that standpipe. Finally, 250 gpm flows will be added at the 2 next remote standpipes, bringing the total to 1,000 gpm.

A 2-1/2" fire department valve will be provided on the stair's intermediate landing between each floor level.

Additional fire department valves will be provided on the roof and at other locations as required by Code or the local authority.

WET PIPE SPRINKLER SYSTEM

The buildings will be protected throughout with hydraulically calculated sprinkler systems, which except for special protection needs, will be wet pipe systems. All areas of the building will be protected per NFPA 13, including electrical rooms (i.e. switchgear rooms, transformer rooms, generator rooms, electrical closets, and similar rooms), loading docks, stair towers, exterior canopies, and mechanical rooms.

The type of sprinkler installed in a particular area will be selected by the Engineer and the Project Architect. Concealed sprinklers will be installed in administration areas. Anti-ligature sprinklers will be installed in patient areas. Pendent or upright sprinklers will be installed in areas without ceilings. Sidewall sprinklers will be provided only when other types cannot be utilized.

Areas subject to temperatures below 40°F will be protected by dry sprinklers when possible. If dry sprinklers cannot be provided, then a dry pipe sprinkler system will be installed.

4.6.10 Controls

BUILDING AUTOMATION SYSTEM (BAS)

All mechanical systems will have full DDC controls with BACnet. Integration with the electrical metering system, emergency power system monitoring, fire alarm monitoring, and lighting control system metering is required. Additional integration with operable windows and rooftop weather station may be required. All

hydronic systems will have BTU metering and trending. Additional metering of systems will be consistent with current code requirements.

Active smoke control system with a UL864 control system is assumed to support shelter in place operations for the facility during a fire/smoke event within an adjacent smoke compartment.

STEAM SYSTEMS

No steam systems are currently planned. Only small dental clinic sterilization is assumed to be from countertop localized electric sterilizers. No programs require humidification, and none is being planned. Electric steam generation or adiabatic humidification would be implemented if required.

4.6.11 Security

SCOPE OF SECURITY SYSTEMS DESIGN COMPONENTS

A The electronic Security Systems shall provide the capability of seamlessly integrating numerous security systems and applications including:
- GUI - Graphical User Interface Platform
- PLC - Programmable logic controller for electronic door control
- VMS/ CCTV - Video management system/ “CCTV” Closed Circuit Television System with digital imaging, analytics and video storage
- ICS - Intercom communications system
- AC/FMS - Access Control and Facility Alarm Monitoring (exterior and interior of buildings and Sallyport access control) and door locking/unlocking interface
- ID - Identification badging
- PAS - Personal assistance/alarm system (wireless) with fixed post panic buttons
- IDS - Intrusion Detection Systems- interior
- EGC - Electronic Gate/truck entrance control
- VM - Visitor Management

B Description of Integrated Physical security systems operation:

The Washington State Hospital shall be equipped with security Graphical User Interface (GUI) workstations that shall allow Security Control office personnel to monitor and control all security sub-systems from a single user interface. The event-monitoring screen shall display all system events on a user-programmable priority basis. Facility Graphical based maps, customized to the WSH facility, shall incorporate icons representing doors, asset portals, alarm points, etc., giving the operator a dynamic visual reference when system events occur. Controlled door locking and unlocking shall be accomplished through the GUI workstation with passcode protection and any supplemental Door Control consoles.

Each sub-system shall be configured as a combination of independent systems and integrated to provide the necessary operations but capable of stand-alone local operations in the event of major centralized systems failure.

1 GUI: Graphical User Interface System users shall be assigned to specific user groups to restrict system access. A user can be in more than one user group. Users inherit permissions from the group(s) they are a member of. System shall allow for restriction of functions as system setup (access to Management Console), schedule administrator, security administrator and system administrator.

The system shall allow users in the Security Control Center to view, control, alarm acknowledgment and alarm bypass functions for each field device and shall be individually assignable for users and/or user groups. System must allow for complete user partitioning. Systems that use ‘operator levels’ for control, acknowledge and bypass of individual devices are not acceptable as these do not allow for complete user partitioning. Domains are provided to partition the system into different sets of maps and icons. Users can be granted or denied access to domains. Domains shall be utilized to configure a large WSH overall site or multiple adjacent sites into smaller, easier managed sites.

The system shall utilize icons on graphical WSH facility maps for control of all devices. Systems that control devices using drop-down lists or menu/dialog box control of devices shall not be acceptable. All normal operations, such as calling cameras, opening doors, bypassing alarms, acknowledging alarms, shall be done using a 'point and click' operation.

Permissions can be modified via schedules. Users can be granted or denied permissions based on schedules created by system and schedule administrators. Users can be assigned schedules controlling when they can login to the system. The GUI System shall allow for direct loading and display of AutoCAD dwg and dxf drawings. Conversion of AutoCAD drawings to bitmaps or other formats for display is not acceptable. System shall allow the installer to change AutoCAD map background colors, layer colors (including hiding), scale and position from within the system software. It shall not require external programs to change these items.

System shall utilize secure network data transmission. System shall utilize secure user data storage, including encrypted passwords and hashed checksums to prevent database tampering.

2 PLC: Programmable Logic Control System interface provides the primary control and monitoring of door locking devices and events on the local level for control of the secure building envelope. The locking control system is implemented through the GUI and Security Control Center personnel. Graphic panel stations are utilized as safety officer control interface for both the Security Control Center systems and as locking control system door controls.

Electro-magnetic (electrified hardware) access-controlled doors shall be provided throughout the facility as listed in AC/FMS section. Electronic door locking hardware shall include: Electro-magnetic door locks, electronic door strikes, and electrified door hardware.

Capability to remotely unlock secure zone area control doors shall only be provided in the designated secure zones and sub-zone areas.

Nurse Station local controls– Patient zone area to control access through control doors as designated from Patient zones to Neighborhood zones and through local secure zones and sub-zone boundaries as designated.

3 VMS: VMS "CCTV" system shall be based on an IP technology with network configuration supported by an independent security IT network. Cameras shall be utilized as an assessment tool for the operators except as noted. The design shall not rely on a human element in order to initiate alarm conditions via observation of CCTV cameras. The design shall utilize electronic equipment to detect and transmit alarm condition staffed positions. CCTV cameras shall not be employed as a primary security device except for the analytic detection system which utilizes video motion detection technology. Select cameras shall be designated as "monitored" cameras based on the WSH facility needs.

Integration between the VMS and access control system shall allow the AC/FMS to call-up and control cameras, and start tours in response to system events. Integration with the digital video management system will allow users to tie an event generated on the VMS system recorders to a stored video clip.

The VMS/CCTV system cameras shall be provided for Non-Clinical use.

The VMS system shall provide coverage of all perimeter areas, Courtyards, employee and visitor entrances/exits (throughout the building). Patient/ Visitor zone and all hallways as well as key areas in the Pharmacy zone, Patient zones, Neighborhood zones, Downtown zones, and Public zones will be equipped with cameras.

Adjacent and inter-connected buildings i.e. Clinical Ancillaries, Patient Therapy/Activity, Facilities Management, and Office Annex will be equipped with VMS/CCTV interface cameras.

Access control and Intrusion alarm events shall be interfaced with the VMS system, with both types of events configured to provide automatic pan/ tilt/ zoom operation and local camera call up for image capture of an individual during the event.

Equipment essential to the operation of the security system should be located and protected to minimize exposure to hazards that could jeopardize its continued operation. Where appropriate, critical security equipment shall be backed up with redundant system operation and area environmental conditioning equipment.

4 IC: Video Intercom systems (ICS) shall be provided throughout the facility at locations where staff, visitors, and patients may require assistance to gain entry to controlled zones. Intercom remote (ICS) sub-station units shall be provided at all remote entry-controlled doors, and doors designated as approved remote entrances for "call for assistance" to the main Security Control Center or designated staffed location.

Video Intercom Master stations shall be provided at the Security Command center and Nurse stations to provide for remote communication with remote door sub-stations at Secure sub-zones.

VoIP Telephone interface for remote intercom units shall be provided at locations where roll over capability is required to contact staff related to the entry functions.

5 AC/FMS: Access control/facility monitoring system - electronic card access control system will be provided to support the facilities needs and operation. Card readers shall be located throughout the facility zones and electronically control access within the Secure Zone Boundary i.e. connecting corridors, secure rooms, entrances and exits, etc. of the WSH facility but not allow access through the secure envelope of the facility. i.e. Staff Administration zones, Entry into Secure zones, Downtown zones, stairwell exits, and interlocked doors, etc. Elevators shall be equipped with card readers to support controlled access and use of elevators.

Card readers shall be constructed or installed in a vandal resistant manner to reduce damage from abuse. The access control communication controllers shall provide stand alone operation and intelligent communication between controllers to support "local mode" operation in the event of a server or network failure. The access control system server operation shall be of a redundant server configuration to support the secure and critical operation of the facility. The AC/FMS system shall interface directly with the electronic locking system, PLC and control all doors equipped with electronic locking within the secure zone(s).

6 ID-Video Badging System: The system shall provide employee and patient ID badging client software to generate ID Cards. Software will support card templates, data fields, and will support Personnel record importing from external data sources. Badge design software will support template files, database import, text fields, and the importing of logos and video images in various formats. A digital video camera shall be incorporated for database input. The ID Station should be in the Staff Administration office area or Security Control Center.

An ID Card Printer and workstation for the generation of the double-sided proximity access control system ID cards will be provided for printing two sided cards. Biometric readers and/or combination cards are optional.

7 PAS: Personal alarm system: PAS alarm system will be provided throughout the WSH facility. This system is based on personal alarm transmitters that utilize RF radio frequency signaling. The system will be capable of identifying the actual area/zone of activation via corridor and zone/area mounted vandal proof and ligature resistant receiver units.

The PAS system will supply adequate alarm initiating staff devices (FOB's) for deployment by the facility. The system shall be a combination of a wired and wireless system technology utilizing local sensors throughout the facility.

Central monitoring of the PAS system shall be performed at the Security Control center and provide graphic alarm display of the building floor plans and the individual activating the system.

Code White “fixed post” push buttons shall be provided at designated areas and interfaced with the wireless PAS system for both public and employee use.

PAS Central monitoring systems shall be provided with redundant hot back up server and workstations as designated. Photo input capabilities shall be included for employee database set up and FOB issuing process.

8 IDS: Intrusion detection system(s) shall be provided as supplemental security systems to the AC/FMS. The IDS systems shall be comprised of independent intrusion control panels, keypads, passive infrared motion detectors, and door status switches in compliance with WSH and applicable DEA guidelines.

The IDS alarm output shall be integrated with the AC/FMS for central monitoring at the Security Control Center.

IDS systems shall be provided in the Pharmacy zone and IT zones, Server room, data closets, ancillaries zones and Material Management area as directed by WSH at a minimum. IDS system shall be connected through the facility telephone system to an off-site 24-hour manned UL listed Central Station.

9 EGC: Electronic gate control. Admissions/ Intake area dependent. To be evaluated if specifically required or if interlocking and control can be adequately configured and integrated with the PLC and AC/FMS systems.

10 VM: A centralized visitor management system shall be provided at the Main Reception desk and Security Control Center and support locations as designated by WSH administration for issuing self expiring visitor badges.

General: All security related systems and components shall be supported by emergency power circuits to insure reliability and continued operation in the event of building power failure. All security systems and components shall be provided with uninterruptible power supplies (UPS) or battery back up power supplies to support continued system operation for 2-hours minimum in the event of a power failure.

Added: To provide a comprehensive approach and adapt the latest state-of-the-art security technology to address new threats and vulnerabilities to the facility staff, patients, and visitors; the systems design documents will incorporate expansion and upgrade capabilities in the applicable systems.

NOTE: The process to “Future proof” the physical security systems design would be dependent on new technology releases and timeframe of the project for bidding and award for construction

Consideration will be given to design and specify the physical security systems utilizing the latest tested and approved technologies applicable to the WSH environment to address healthcare, physical security and environmental threats that may be encountered in the future i.e. personnel temperature monitoring, electronic systems, drug, and chemical infiltration that may be against facility policies, illegal or dangerous to the controlled environment and personnel.

Projected systems and budgetary cost:

1 Cell phone detection: Berkeley: Wall Hound $4000.00/ Sentry Hound: $7500.00 per entry location

2 Secure key ring sensor: Budget $15,000 - $30,000 per exit location and depending on system requirements and building environment. Plus: RFID tags: ~ $35.00 - $65.00 per tag.

3 Metal Detection-Garrett: Walk through: $5000.00 and Wand units $250.00

4 Combination Metal-Temperature- DHPace/KBB: Pricing requested.

5 Biometric sensors: CCTV with analytics, fingerprint readers, facial recognition: $750 - $2500 per device and some systems are software based and would provide expanded capability.

6 Security interlocking portals: Boon Edam, Saima, American Access: Budgets between $75,000 - $85,000 installed cost.

NOTE: CHA will investigate applicable systems and design a hybrid system combining biometrics and standard manufactured entry control systems to address the needs and requirements of the project.

Data sheets included in Appendix-14.

4.6.12 Stormwater Management

The design of the perimeter landscapes will be coordinated with the Civil Engineers to incorporate storm-water management strategies. Strategies may include: infiltration/rain gardens or sub-surface drainage structures.

EXISTING CONDITIONS

Western State Hospital is sited on gravely-sandy soils with a medium to high infiltration rates. Stormwater on campus therefore infiltrates into the ground.

PROPOSED CONDITIONS

The native soils within the site area of the Forensic Hospital are anticipated to be conducive for onsite, shallow infiltration systems. Site-specific geotechnical analysis will be required to determine infiltration rates in the native soil and site requirements (such as setback distances from sensitive areas).

Proposed systems will likely include a below-grade infiltration system such as a vault, pipe, modular chamber system or gravel trench. A pre-settling system such as a bioretention area (rain garden) will be required for stormwater runoff from new access drives and parking areas. Plaza areas will require a 'grit chamber' to remove fines from the stormwater prior to discharging to the infiltration system. All stormwater systems will be designed per the stormwater requirements as administered by the City of Lakewood.

4.6.13 Temporary Erosion Control

The City of Lakewood will require temporary sediment and erosion control during construction. This site is fairly level, and the soils are anticipated to be infiltrative, so complying with state and local sedimentation and erosion control standards should be achievable using standard practices.

Perhaps the most significant challenge will be to protect the proposed infiltration systems from compaction and/or contamination from construction activities. The perimeter will be protected with a silt fence. Thoughtful construction sequencing will be encouraged to minimize exposed soil, particularly during the rainy season. A construction exit and wheel wash will be required for trucks leaving the site. Existing building slabs or parking lots may be good working surfaces for a portion of the construction.

4.6.14 Site Ownership and Acquisition Issues

All site options explored are on the current WSH Campus, such that there are no site ownership issues. However, locating the new Forensic Hospital in Option 1 in the open space zone north of the main campus will require a prolonged rezoning effort with the City of Lakewood. Locating the new Forensic Hospital in the southwest corner of the WSH Campus in Options 2 and 3 avoids rezoning issues, with Option 3 being the most efficient building configuration.

4.6.15 Potential Issues with Surrounding Neighborhoods

The neighborhood is concerned with traffic impacting the local streets, so Option 3 has access to the site off Steilacoom Blvd SW, and includes new buildings nearer to the Chapel Gate Drive Entrance where enhanced accessibility with the turn lane and signalized intersection would support improvements to driveway traffic control off Steilacoom Blvd SW.

Outreach to the neighbors will include dedicated contacts within the project team to help communicate project details and receive comments from the community. The involvement of the General Contractor during the design phase will allow communication with the neighborhood well before the start of construction to help mitigate construction impacts. Given the large and important nature of this project, as well as the physical impact to the local economy of Lakewood because of the large workforce needed to staff this facility, a dedicated outreach coordinator will be needed throughout the design and construction process.

4.7 Potential Environmental Impacts

GREENSPACE AND NATURAL AMENITIES

RECREATIONAL USES

The former golf course is zoned by the City as Lakewood as Open Space and Recreation, Type 1 (OSR1). This category is intended for passive recreation, and limits any development to uses that are accessory to recreation. This area has historically been accessible to the public and this Predesign does not propose to alter that.

Other areas on the site are used for recreation, either by patients of WSH, or by others. For example, the CSTC facility includes a playfield to the east of the building complex, for use by patients of the facility. In recent years, a local club on the northeastern corner of the site has established a disc golf course, although no formal agreement has been made with WSH or DSHS for this land use.

OPEN SPACE AND TREATMENT

Managed open space supports treatment practice. Outdoor walks and recreation for patients provide many wellness benefits. The campus grounds are at times utilized for supervised walks. While the specific design is yet to be developed, the new forensic hospital will include courtyards and other appropriate open areas for patient activities. These will allow regular access to outdoor areas by patients.

HISTORICAL LANDSCAPE ELEMENTS

The Western State Hospital site has a unique character that reflects the pre-settlement period, historic site development and current development. There are large groves of Oregon White Oaks and individual Oregon White Oaks spread across the site that have been growing since pre-settlement times. There are also many large Douglas-fir trees across the site that are second growth trees; the old growth Douglas-firs were logged at the time of settlement. The old-growth oaks still exist because there was not a market for their wood. There are also many native Madrona trees growing across the site. The Madrona trees are faster growing and shorter lived that the Oaks and Firs and the oldest are around 100 years old.

With the development of the site rows of trees were planted along roads and hedges were planted between sites to delineate and organize spaces. This combination of existing old growth trees and the rows of street trees and hedges significantly contribute to the unique character of the site.
Some elements of the landscape have been identified in the Cultural Landscape Assessment report as contributing to the historic character of the Fort Steilacoom Historic District. The primary elements of concern are:

- The former settler cemetery
- The parade grounds east of Circle Drive and partially enclosed by the Fort-era cottages.

These facilities are not impacted by proposed projects under this Predesign plan. DSHS and WSH will continue to collaborate with the Historic Fort Steilacoom Association on measures to protect and restore the parade grounds, in relation to that organizations preservation and interpretation mission.

SENSITIVE LANDS

The ravine between the existing hospital and the former golf course has steep slopes and supports the Garrison Springs fish hatchery. No development is proposed in this area.

TREE RETENTION & PROTECTION

The new forensic hospital described in Options 2 and 3 has been sited in a previously developed area of the site, significantly reducing the potential impact on trees relative to other areas studied in Option 1.

The identified Oak tree stands on the site are indicated in (A-13 Tree Plan). Facilities anticipated in this Predesign plan have been sited to reduce impacts on the Oaks to the greatest extent possible. Impacts on the mature Oaks can be further reduced in implementation of the plan:

- As site-specific designs are prepared, care should be taken to avoid development of hardscapes and building footprints under the drip line of the oaks.
- Irrigation plans for future landscaped areas near the oak stands should avoid over-watering of the root zone.

The Western State Hospital site has significant groves of large existing trees, many of them older than the 19th century settlement of the site. These trees contribute to the character of the site and to the City of Lakewood and are subject to the City of Lakewood Municipal Code 18A.50.320 'Significant Tree Preservation'.

The Lakewood Municipal Code (LMC) considers any Quercus Garryana (Oregon White Oak) over 6 inch diameter (measured at 4.5' above ground) and any conifers or other deciduous tree species over 9 inch diameter to be 'Significant Trees' that are protected under the LMC.

During construction, all significant trees are to be protected by approved tree fencing located at the drip-line of the trees. There is to be no disturbance to the soil within the tree drip-line or materials stored within the drip-line.

A tree retention plan locating all significant trees by species, caliper of each tree and all tree drip-lines accurately located is required for project permitting. Any significant trees to be removed will need to be replaced according to a formula provided in the Code.

SITE MITIGATION

The WSH Masterplan includes a summary of potential environmental impacts in the SEPA checklist. Current environmental information is available in the following reports; Natural Resources Evaluation (PBS 2019), Geotech Report (Associated Earth Sciences 2017), Geotech Preliminary Draft (GeoEngineers 2020), WSH Cultural Landscape Assessment (Artifacts Architectural Consulting 2008), WSH Cultural Resource Management Plan (Artifacts Architectural Consulting 2011), Traffic Study (TSI 2020), Utility Review (AEI 2020). The project will conduct field studies to determine the presence or absence of Endangered Species Act listed plants, of which three species are possibly present; White-top aster, Common bluecup, and Giant chain fern. There are known noxious, invasive, and non-native plants that will require similar study. Potential impacts to migratory birds during their breeding season would also need consideration. The campus has experience with arsenic contaminated soil from the Tacoma Smelter Plume, which the project will need to determine the exact impact to mitigate. Noise impacts to the surrounding community, which is primarily residential and park/ public open space, will be consistent with ambient levels resulting from the traffic on the roads in the vicinity.

WETLAND AND SHORELINE ISSUES

The project site is not located within 200 feet of a shoreline, so the shoreline master program is not applicable.

REQUIREMENTS FOR EPA/EIS

This project will need to conduct an Environmental Impact Study (EIS).

4.7.1 Access Drives and Parking

A new access drive around the Forensic Hospital is being considered for this development. This road will extend east from Sentinel Street to Chapel Drive, where it will turn south and connect with Steilacoom Boulevard. This roadway may consist of two 11-foot drive lanes

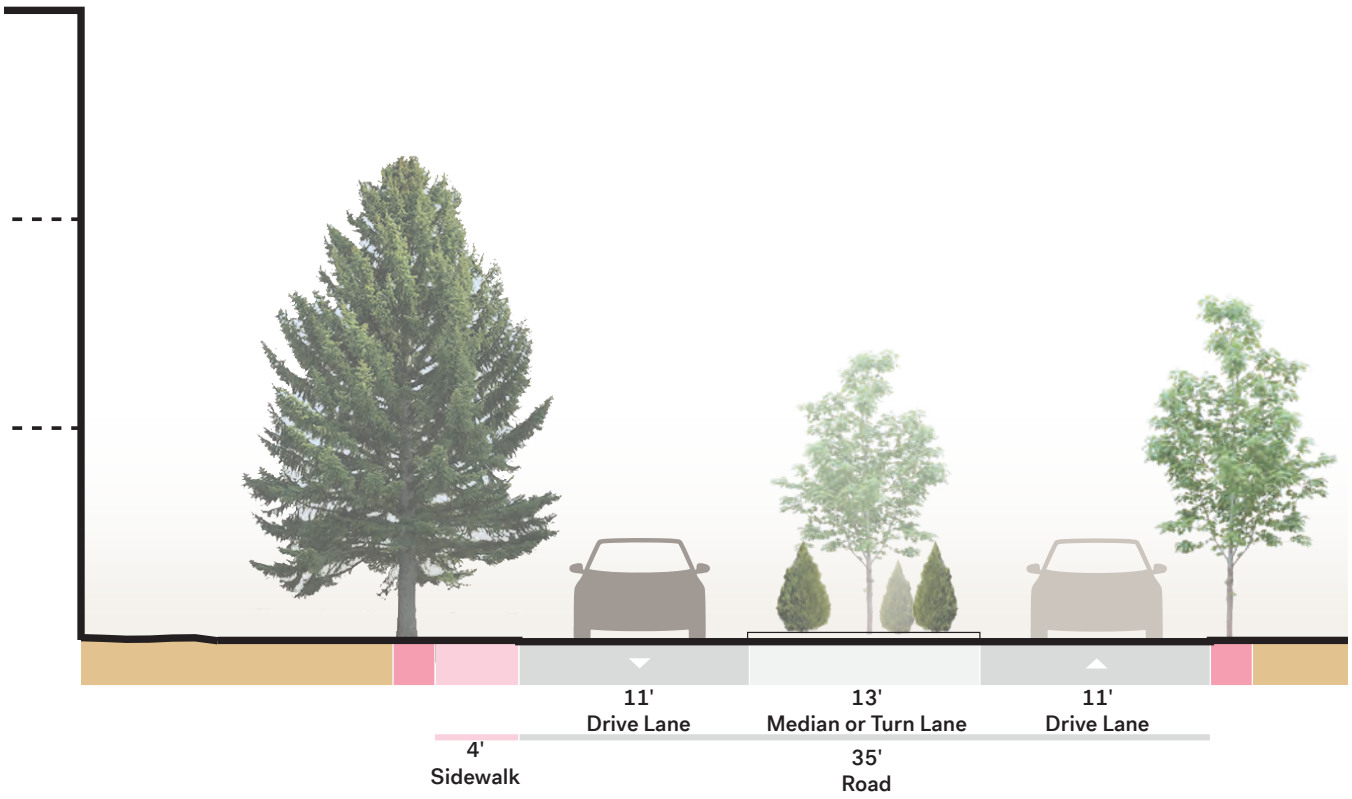

Figure 38: Proposed Campus Road Section

separated by a 13-foot median or turn lane. Curbs, gutters, sidewalks and landscape strips will be on one or both sides of the streets.

Access drives will need to be within 150 feet of the facility for fire truck access. Parking lots and ambulance access points may serve dual purposes for fire truck access.

Parking lots will be located off Chapel Drive to serve the Forensic Hospital. The parking lots will need to be placed on compacted subgrade.

4.8 Consistency with Applicable Long-term Plans

This project is identified as the new 350 bed Forensic Hospital and is therefore fully consistent with the Western State Hospital Master Plan. The most efficient project location is included in the Western State Hospital Master Plan as well.

4.9 Consistency with Laws and Regulations

- High-performance public buildings (Chapter 39.35D RCW)
- State efficiency and environmental performance, if applicable (Executive Order 18-01)
- Greenhouse gas emissions reduction policy (RCW 70.235.070)
- Archeological and cultural resources (Executive Order 05-05 and Section 106 of the National Historic Preservation Act of 1966)
- Americans with Disabilities Act (ADA) implementation (Executive Order 96-04)
- Compliance with planning under Chapter 36.70A RCW, as required by RCW 43.88.0301
- Information required by RCW 43.88.0301(1)

Figure 39: View of entrance through Administrative Building

4.10 Problems that Require Further Study

The use of wood construction, specifically prefabricated heavy timber systems such as cross laminated timber (CLT) should be studied for use in the I-2 Occupancy portions of the hospital building. This type of renewable material could be sourced within the region and facilitate the construction schedule.

The sequence of demolition of additional buildings beyond the limit of work of this project should be studied relative to the ongoing operations of the hospital to avoid disruptions and allow the hospital to remove aging infrastructure that would have a high cost of maintenance.

Further discussions during schematic design will explore the location of the court entrance and it's proximity to the main building entrance. A discreet entrance will be critical for the approach to the building for those attending court.

HVAC zones such as within the administrative building should be further evaluated to utilize operable windows for occupants. General exhaust will need further refinement during the design phase to improve the ability for heat recovery.

4.11 Requirements of Significant Components

Mental health hospitals have several significant components that are essential to the inpatient environment that are not necessarily identified in or required by the existing codes. Elements related to patient safety, operational efficiency, and well thought out design of the impatient environment are all important considerations when designing a mental health hospital. When all properly considered, these elements will reduce the demands made on staff and the facility in support of a more fragile and unpredictable patient population

Patient safety is an important issue at all psychiatric hospitals. In order to obtain CMS certification, and more importantly to improve the patient environment, spaces must be designed with patient safety in mind. All products subject to patient interaction including wall surfaces, plumbing fixtures, furniture, casework, electrical and mechanical devices, and many others must be thoroughly reviewed for use in inpatient settings. Products selected for use in inpatient settings must be tamper resistant, prevent the ability to obtain ligature points (through looping or wedging), must prevent weaponization of the product, and must resist the ability to store contraband. In addition, inpatient spaces must be thoroughly reviewed with patient safety in mind. After selecting well designed products that are identified as patient safe, the space must be designed so that the installation of a product or material does not create an unsafe condition due to their location within the space. For example, a soap dish installed too close to an adjacent wall might create a ligature point where a towel might be wedged. A desk installed too close to a window ledge might create a condition that allows the desk to be looped.

As part of the design of this hospital, operational efficiency and staff safety has been a major topic of conversation. For this reason, separate paths of travel for patients and staff have been developed into the inpatient units to prevent the need for unnecessary interaction with patients during medication or meal deliveries. These separate paths also allow for easier access by maintenance and housekeeping staff to the impatient units and adjacent neighborhoods. A main service corridor has been developed in the basement of the hospital connecting the facilities support building and associated loading dock directly to the elevators serving the impatient unit. This greatly improves the operational efficiency of the hospital by allowing for independent access to the inpatient units directly without waiting for spaces to be cleared. It also prevents unnecessary interaction between hospital staff and the patients, significantly improving the safety of both parties.

The overall design of the hospital can serve to facilitate patient care, reduce escalation, and to improve daily life of the patients and staff. The house, neighborhood, downtown model of design utilized for this hospital has been developed to facilitate the current models of care and to reduce the length of stay for competency restoration. The bedrooms, activity spaces, and porch are an intimate collection of rooms that provide patients with a more natural residential setting. This also allows these spaces to be sectioned off from other houses, with living space devoted to a smaller group of neighbors, making care more manageable for the care team. The neighborhoods will establish secure zones for patient activity, and their adjacency to the inpatient units will encourage and facilitate a high level of participation in therapy for a maximum number of patients. The downtown is an important element that will facilitate patient care and development. It centralizes spaces shared by all 350 beds and gives the hospital flexibility of use of the space for functions and large gatherings.

4.12 Building Commissioning

Commissioning is a quality assurance process in which vital building systems are reviewed, inspected and tested to ensure they meet the design intent and comply with relevant building codes. Required systems included in the commissioning process are mechanical, electrical, plumbing and energy submetering, unless specifically exempted by the relevant energy codes. Commissioning occurs in 3 phases; design, construction and acceptance. The design phase includes reviews of design documents to confirm that they meet the standards of the Owner Project Requirements (OPR) and the Basis of Design (BOD). The construction phase includes reviews of submittals as well as periodic site inspections to aid in identifying potential issues during construction. The acceptance phase includes functional performance testing, in which systems are tested in finished conditions to ensure that they are meeting design intent and performance standards before building turnover as well as Operation and Maintenance (O&M) manual reviews and confirmation of owner training.

Enhanced commissioning is a series of supplemental commissioning activities intended to assure continued comfort and energy performance of the building after

occupancy. Enhanced commissioning activities include verification and review of systems manuals, extended verification in the owner training process, seasonal testing of heating and cooling systems, a 10 month building performance review, and development of an ongoing commissioning plan (in addition to the required commissioning plan). Additional measures can include monitoring-based commissioning, in which energy and performance data are reviewed and the commissioning agent assists in implementation of the ongoing commissioning plan, and envelope commissioning in which the building's thermal envelope is included in the overall commissioning process.

4.13 Future Phases or Plans

The project allows for an additional two inpatient units footprints for a future 50 bed addition in either footprint. This would be a two story inpatient unit containing two wards similar to the other 25 bed wards.

Future phasing could also include additional demolition as the hospital consolidates operations into the new facilities. Future demolition not included in this phase could include Buildings 1, 9, 21, 32, 33, and 35.

4.14 Project Management and Delivery Method

4.14.1 GC/CM

JUSTIFICATIONS PER RCW 39.10.340

Subject to the process in RCW 39.10.270 or 39.10.280, public bodies may utilize the general contractor/ construction manager procedure for public works projects where at least one of the following is met:

1 Implementation of the project involves complex scheduling, phasing, or coordination;

   Response: A GC/CM is an integral part of an integrated project team model including WSH, DSHS, design consultant, specialty consultants, the GC/CM, and key subcontractors focused solely on the best interest of the project, WSH staff, and patients. A GC/CM can provide high-quality construction services to deliver a high-quality project safely, on time, and under budget as well as support community outreach and coordination on the overall project.

2 The project involves construction at an occupied facility which must continue to operate during construction;

   Response: A GC/CM can ensure the highest levels of safety, quality, and communication (team correspondence and on-site signage) are maintained at all times and that the current operations are not impacted.

3 The involvement of the general contractor/ construction manager during the design stage is critical to the success of the project;

   Response: A GC/CM will provide high-quality preconstruction consulting services including budgeting, cost estimating, project scheduling (including understanding WSH Master Plan), construction scheduling (including pull planning and multiple phasing), prioritization of work maximizing impact of dollars spent, phasing, logistics, collaboration with the design consultants,

collaboration with system consultants, collaboration with key sub-contractors, site investigations, assistance in the selection of materials and building systems, constructability review, and value-added building systems engineering. A GC/CM can provide integrated use of current design and construction technology including building information modeling and virtual design and construction to the benefit of the project. Assist in achieving high-performance design and construction goals.

4 The project encompasses a complex or technical work environment;

Response: Patient safety is a critical aspect of this project type and a GC/CM is uniquely positioned to implement best practices reviewed during the design phase, and communicated to the subcontractors throughout the construction phase. The GC/CM can take a leadership role in commissioning, staff training, maintenance and operations planning, and general owner move-in assistance.

5 The project requires specialized work on a building that has historic significance; or

6 The project is, and the public body elects to procure the project as, a heavy civil construction project. However, no provision of this chapter pertaining to a heavy civil construction project applies unless the public body expressly elects to procure the project as a heavy civil construction project.

REQUIREMENTS PER RCW 39.10.350

1 A public body using the general contractor/ construction manager contracting procedure shall provide for:

A The preparation of appropriate, complete, and coordinated design documents;

B Confirmation that a constructability analysis of the design documents has been performed prior to solicitation of a subcontract bid package;

C Reasonable budget contingencies totaling not less than five percent of the anticipated contract value;

D To the extent appropriate, on-site architectural or engineering representatives during major construction or installation phases;

E Employment of staff or consultants with expertise and prior experience in the management of comparable projects, critical path method schedule review and analysis, and the administration, pricing, and negotiation of change orders;

F Contract documents that include alternative dispute resolution procedures to be attempted before the initiation of litigation;

G Contract documents that: (i) Obligate the public owner to accept or reject a request for equitable adjustment, change order, or claim within a specified time period but no later than sixty calendar days after the receipt by the public body of related documentation; and (ii) provide that if the public owner does not respond in writing to a request for equitable adjustment, change order, or claim within the specified time period, the request is deemed denied;

H Submission of project information, as required by the board; and

I Contract documents that require the contractor, subcontractors, and designers to submit project information required by the board.

2 A public body using the general contractor/ construction manager contracting procedure may include an incentive clause for early completion, cost savings, or other performance goals if such incentives are identified in the request for proposals. No incentives granted may exceed five percent of the maximum allowable construction cost. No incentives may be paid from any contingency fund established for coordination of the construction documents or coordination of the work.

3 If the construction is completed for less than the maximum allowable construction cost, any savings not otherwise negotiated as part of an incentive clause shall accrue to the public body. If the construction is completed for more than the maximum allowable construction cost, the additional cost is the responsibility of the general contractor/construction manager.

4 If the public body and the general contractor/construction manager agree, in writing, on a price for additional work, the public body must issue a change order within thirty days of the written agreement. If the public body does not issue a change order within the thirty days, interest shall accrue on the dollar amount of the additional work satisfactorily completed until a change order is issued. The public body shall pay this interest at a rate of one percent per month.

5 For a project procured as a heavy civil construction project, an independent audit, paid for by the public body, must be conducted to confirm the proper accrual of costs as outlined in the contract.

PROCESS PER RCW 39.10.360

1 Public bodies should select general contractor/construction managers early in the life of public works projects, and in most situations no later than the completion of schematic design.

2 Contracts for the services of a general contractor/construction manager under this section shall be awarded through a competitive process requiring the public solicitation of proposals for general contractor/construction manager services. The public solicitation of proposals shall include:

A A description of the project, including programmatic, performance, and technical requirements and specifications when available;

B The reasons for using the general contractor/construction manager procedure including, if applicable, a clear statement that the public body is electing to procure the project as a heavy civil construction project, in which case the solicitation must additionally:

i Indicate the minimum percentage of the cost of the work to construct the project that will constitute the negotiated self-perform portion of the project;

ii Indicate whether the public body will allow the price to be paid for the negotiated self-perform portion of the project to be deemed a cost of the work to which the general contractor/construction manager's percent fee applies; and

iii Require proposals to indicate the proposer's fee for the negotiated self-perform portion of the project;

C A description of the qualifications to be required of the firm, including submission of the firm's accident prevention program;

D A description of the process the public body will use to evaluate qualifications and proposals, including evaluation factors, the relative weight of factors, and protest procedures including time limits for filing a protest, which in no event may limit the time to file a protest to fewer than four business days from the date the proposer was notified of the selection decision;

E The form of the contract, including any contract for preconstruction services, to be awarded;

F The estimated maximum allowable construction cost; and

G The bid instructions to be used by the general contractor/construction manager finalists.

3 A Evaluation factors for selection of the general contractor/construction manager shall include, but not be limited to:

i Ability of the firm's professional personnel;

ii The firm's past performance in negotiated and complex projects;

iii The firm's ability to meet time and budget requirements;

iv The scope of work the firm proposes to self-perform and its ability to perform that work;
v The firm's proximity to the project location;
vi Recent, current, and projected workloads of the firm; and
vii The firm's approach to executing the project.

B An agency may also consider the firm's outreach plan to include small business entities and disadvantaged business enterprises, and the firm's past performance in the utilization of such firms as an evaluation factor.

4 A public body shall establish a committee to evaluate the proposals. After the committee has selected the most qualified finalists, at the time specified by the public body, these finalists shall submit final proposals, including sealed bids for the percent fee on the estimated maximum allowable construction cost and the fixed amount for the general conditions work specified in the request for proposal. The public body shall establish a time and place for the opening of sealed bids for the percent fee on the estimated maximum allowable construction cost and the fixed amount for the general conditions work specified in the request for proposal. At the time and place named, these bids must be publicly opened and read and the public body shall make all previous scoring available to the public. The public body shall select the firm submitting the highest scored final proposal using the evaluation factors and the relative weight of factors published in the public solicitation of proposals. A public body shall not evaluate or disqualify a proposal based on the terms of a collective bargaining agreement.

5 The public body shall notify all finalists of the selection decision and make a selection summary of the final proposals available to all proposers within two business days of such notification. If the public body receives a timely written protest from a proposer, the public body may not execute a contract until two business days after the final protest decision is transmitted to the protestor. The protestor must submit its protest in accordance with the published protest procedures.

6 Public bodies may contract with the selected firm to provide services during the design phase that may include life-cycle cost design considerations, value engineering, scheduling, cost estimating, constructability, alternative construction options for cost savings, and sequencing of work, and to act as the construction manager and general contractor during the construction phase.

PROJECT MANAGEMENT AND IN-HOUSE STAFFING

This project will be managed by staff within DSHS/ Facilities, Finances, and Analytics Administration – Office of Capital Programs with guidance by the stakeholders from Behavioral Health Administration -Western State Hospital's departments and Maintenance and Operations Division. The DSHS Project Managers will be actively involved and take a lead role in final decisions for the project. Behavioral Health Administration and Western State Hospital staff will provide additional consultative support in partnership with other agencies and stakeholders, including the areas of historic preservation and protection of cultural resources, barrier-free design, sustainable building practices, and Maintenance and Operations Division.

Critical to the success of these projects is the involvement of the end users of the proposed facility. Membership should include representatives from dietary services, commissary, pharmacy and central supply.

ROLES AND RESPONSIBILITIES

The DSHS Project Manager (PM) is responsible for managing the design and coordinate construction contracts with the Department of Enterprise Services/ Engineering & Architectural Services staff. This person will organize and conduct the selection of the architecture/ engineering consultant, and contractor if a GC/CM process is implemented. The PM will follow through from design to construction to make sure that scope, schedule and budget is maintained. The PM will report to the Chief of Office of Capital Programs and DSHS Leadership group.

CONSULTANT SERVICES

After selecting a design team, the selected A/E team maintains full responsibility for the design. If GC/CM delivery construction method is selected, the GC/CM will be expected to guarantee the construction cost during the design phase. The GC/CM manages the bid process through competitive bid packages to subcontractors. Although the GC/CM will accept some risk in the construction phase, the Owner often shares the burden of un- foreseen market forces such as accelerated escalation of costs.

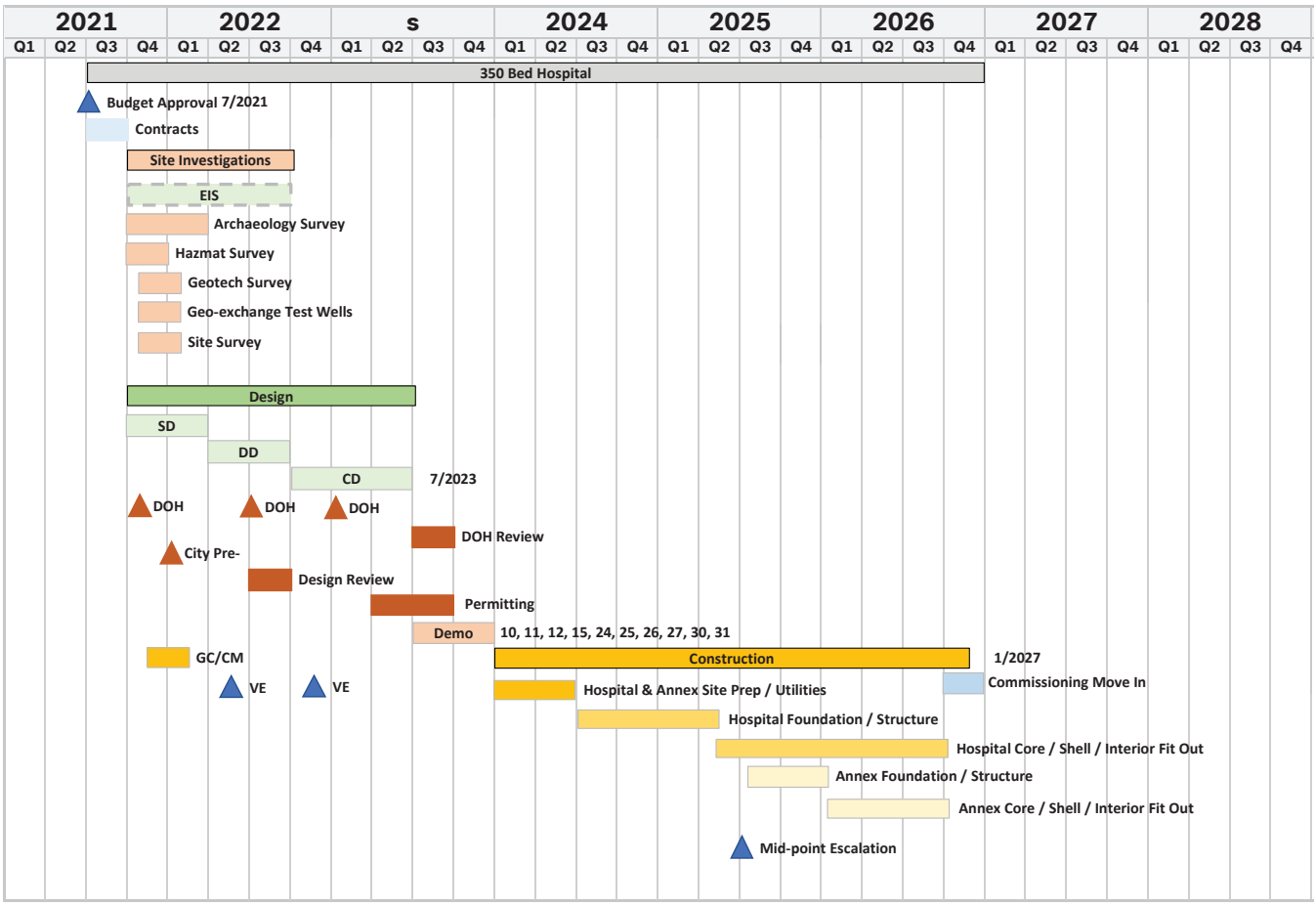

Figure 40: Option 3 Construction Schedule

4.15 Project Schedule

4.15.1 Milestones

The project schedule indicates a 24 month design phase including permitting, then a 42 month construction phase.

4.15.2 Value Engineering Analysis and Constructability Review

After a GC/CM is selected, they will be tasked with managing a value engineering (VE) effort during the design development and construction documents phases so that the VE items are included in the permit set. The GC/CM will also provide constructibility review during this time period.

4.15.3 Schedule Risks

Risks to the schedule may arise during the early site investigations phase and again during the demolition phase with unforeseen conditions.

4.16 Permitting

DEPARTMENT OF HEALTH LICENSING (DOH)

The number of patient beds in the hospital is [state mandated per RCW] and licensing is not required by a Certificate of Need (CON) process. The project schedule does not anticipate a CON process.

DOH CONFERENCES

A Preliminary Design Conference is indicated on the project schedule at the beginning of Schematic Design to review applicable requirements and interpretations, and to confirm the use of a Functional Program. The second review conference will be during the Design Development phase to compare the planning with the major components required by code, such as size of rooms, number and location of spaces, and any known compliance issues or alternative proposals. The third review conference will be during the middle of the Construction Documents phase to follow up on the previous submissions and address final design details.

DOH PLAN REVIEW

An intake conference will be conducted to orient the reviewer with the plans and confirm completeness of the submittal. The initial Plan Review is expected to take 25 business days. Electronic documents will be submitted to DOH with their Box site. At the conclusion of the plan review a post-review conference will be conducted to clarify the comments received from the plan reviewer and confirm how corrections should be made.

WASHINGTON STATE DEPARTMENT OF ECOLOGY

A National Pollution Discharge Elimination System (NPDES) permit is required for land disturbing activities during construction, particularly if stormwater will discharge offsite at anytime during the construction phase.

4.17 City of Lakewood

PLANNING DEPARTMENT

A pre-application conference will be requested with the Planning and Building departments. A Design Review will be required for new construction.

BUILDING DEPARTMENT

Early packages for demolition and site prep could be beneficial to the project schedule. Structural calculations, energy code forms, and soils report will accompany the submittal.

PUBLIC WORKS DEPARTMENT

A separate Site Development (PWE) permit will be required for the frontage improvements, review of the on-site street improvements, and the new traffic signal at Chapel Gate Drive and Steilacoom Boulevard. The project will need to confirm if WSDOT approval is also required for improvements to Steilacoom Boulevard (State Highway 512).

FIRE DEPARTMENT

A certificate of water availability and fire flow report will be required by the Fire Department, as well as review of emergency responder access to the building and coordination with security personnel.

COMMUNITY STAKEHOLDERS

During design and construction phases efforts will be made to keep the community informed of the ongoing work. This will include communication to the neighborhood associations, the high school administration, Pierce College, and the City of Lakewood.

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5.0
Project Budget Analysis - Most Efficient Option

5.0 Project Budget Analysis – Most Efficient Option

5.1 Cost Estimate

ASSUMPTIONS

The following cost estimate is a statement of reasonable and probable construction cost based on a start date of construction in July 2023 with 42 months of construction. Additional demolition of buildings 1, 9, 21, 32, 33, and 35 as identified in the Master Plan is not included in the work. Other exclusions include Signage, Furniture, Testing and Inspections, design fees, Commissioning, and environmental impact mitigation.

UNIFORMAT LEVEL II COST ESTIMATE

		BASE BID	
		$/SF	$x1,000
A - SUBSTRUCTURE			
A10	Foundations	14.97	8,402
A20	Basement construction	12.55	7,045
	A - SUBSTRUCTURE SUBTOTAL	**27.52**	**15,447**
B - SHELL			
B10	Superstructure	53.80	30,205
B20	Exterior enclosure	82.83	46,502
B30	Roofing	17.74	9,958
	B - SHELL SUBTOTAL	**154.37**	**86,665**
C - INTERIORS			
C10	Interior construction	58.66	32,163
C20	Stairs	1.84	1,009
C30	Interior finishes	25.39	13,919
	C - INTERIORS SUBTOTAL	**85.89**	**47,091**
D - SERVICES			
D10	Conveying systems	3.31	1,858
D20	Plumbing	18.88	10,602
D30	Heating, Ventilation and Air Conditioning (HVAC)	60.66	34,057
D40	Fire protection systems	5.80	3,255
D50	Electrical	105.17	59,043
	D - SERVICES SUBTOTAL	**193.71**	**106,206**
E - EQUIPMENT AND FURNISHINGS			
E10	Equipment	7.30	4,099
E20	Furnishings	8.75	4,911
	E - EQUIPMENT AND FURNISHINGS SUBTOTAL	**16.05**	**9,009**

			BASE BID	
			$/SF	$x1,000
F - SPECIAL CONSTRUCTION AND DEMOLITION			-	-
F10	Special Construction		-	-
F20	Selective demolition		-	-
	F - SPECIAL CONSTRUCTION AND DEMOLITION SUBTOTAL		-	-
G - BUILDING SITEWORK				
G10	Site preparation		14.10	7,913
G20	Site improvements		33.81	18,979
G30	Site civil/Mechanical utilities		5.24	2,944
G40	Site electrical utilities		9.03	5,070
G90	Other site construction		-	-
	G - BUILDING SITEWORK SUBTOTAL		62.18	34,906
	SUBTOTAL DIRECT COST		539.92	303,112
	CONTINGENCIES			
	Design & Estimating Contingency	10.00%	53.99	30,311
	Construction/Risk Contingency	3.00%	16.20	9,093
	Escalation Contingency	18.26%	98.58	55,345
	SUBTOTAL SUBCONTRACT COST		708.70	397,862
	GENERAL			
	NSS/Job Services/Site Logistics	3.50%	24.80	13,925
	SUBTOTAL		24.80	13,925
	GENERAL			
	General Conditions	3.50%	21.26	11,936
	Fee	2.50%	18.34	10,295
	Preconstruction Fees – EXCLUDED	0.00%	-	-
	SUBTOTAL		39.60	22,231
	SUBTOTAL CONSTRUCTION COST		773.10	434,017
	PERMITS, INSURANCES, BONDS & TAXES			
	Bid Document Reproduction	0.00%	-	-
	GC/CM P&P Bond	1.00%	7.73	4,340
	GL Insurance	1.00%	7.73	4,340
	Builder's Risk Insurance	0.50%	3.87	2,170
	Plan Review – EXCLUDED	0.00%	-	-
	Permit fees – EXCLUDED	0.00%	-	-
	B&O Tax, WA	0.47%	3.64	2,044
	B&O Tax, COS	0.22%	1.66	933
	WSST EXCLUDED	EXCLUDED		
	TOTAL PROBABLE CONSTRUCTION COST		797.73	447,845
	TOTAL PROJECT ESCALATED COST (PER C-100)			604,000

C-100

The Office of Financial Management (OFM) developed a Total Project Cost estimate based on the Maximum Allowable Construction Cost (MACC) estimate prepared by the consultant. The state of Washington's C-100 cost estimating model was used as the basis for this estimate, applying to consultant and project management fees, contingencies, and escalation.

A summary of estimated project costs is shown below. A detailed cost estimate using the OFM C-100 form can be found in the appendix.

5.2 Proposed Funding

SOURCES AND RECIPIENTS

The funding for predesign has been allocated by way of the 2017-19 biennial budget approved by the Washington State Legislature. The funding for design through construction is requested to be part of the 2021-23 biennial budget under review by the Washington State Legislature.

Management of the funding process is governed by the Office of Financial Management (OFM).

5.3 Facility Operations and Maintenance Requirements

IMPACT

Washington enacts budgets on a two-year cycle, beginning July 1 of each odd-numbered year. The budget approved for the 2021–23 biennium remains in effect from July 1, 2021 through June 30, 2023. By law, the Governor must propose a biennial budget in December, the month before the Legislature convenes in regular session. The biennial budget enacted by the Legislature can be modified in any legislative session through changes to the original appropriations. Since the inception of annual legislative sessions in 1979, it has become common for the Legislature to enact annual revisions to the state's biennial budget. These revisions are referred to as supplemental budgets.

State agencies are responsible for developing budget estimates and submitting budget proposals to the Governor. Once the budget is enacted by the Legislature and approved by the Governor, agencies implement approved policies and programs within the budgetary limits imposed by the legislation. Under Washington's budget and accounting statutes, individual agency directors are accountable for carrying out the legal intent of appropriations.

FTE JUSTIFICATION

The FTE justification is a twofold approach using historical staffing levels and new building elements as considerations. Current staffing levels were built over many years using work order data from corrective and preventative maintenance. FTE numbers are derived using the same theory.

With the mix of new and old buildings as well as a large square footage responsibility, facilities operations and maintenance encompasses a broad spectrum of services, competencies, processes, and tools required to assure the built environment will perform the functions for which a facility was designed and constructed. The new building will have many building elements and technologies that are currently not maintained on the campus.

Exact building systems have yet to be defined leaving the campus unable to gauge specific trade determinations. However, the campus feels comfortable with the number of FTE's requested and when more details of the design and building elements emerge, they will be better able to define individual trades as needed.

FIVE BIENNIA ESTIMATE

The expected annual operating cost of a 350 bed state hospital, excluding HR, Payroll staff, and MOD, is approximately $134,621,870 (Appendix A-02 Operating Cost for 350 Bed State Hospital).

The expected annual cost for HR and Payroll staff is $3,483,220 (Appendix A-02 Operating Cost for HR and Payroll).

The expected annual cost for MOD is $4,651,138 (Appendix A-02 Operating Cost for MOD).

The total expected annual cost is $142,756,228, which over a ten year period is $1,427,562,280.

5.4 Furniture, Fixtures, and Equipment

In the Inpatient Units, the furniture would include a bed, a chair, and a couch or upholstered bench. Inpatient Unit common area furniture in the activity and dining rooms would be art panels, TV's, chairs, sofas, and tables. Inpatient support functions would include built-in work surfaces, so chairs would be the only furniture. In the staff open offices the furniture would include a typical 8 x 8 workstation with a low partition, desk, chair, file cabinet and shelves. A typical office would include the desk, chair, guest chair, file cabinet and shelves. The courtyards and roof terraces would have fixed tables and benches. The equipment would include the therapy exercise and activity equipment (gym), café food service, materials management, housekeeping, grounds maintenance, and pharmacy. It is estimated that the FFE budget would be $18/sf.

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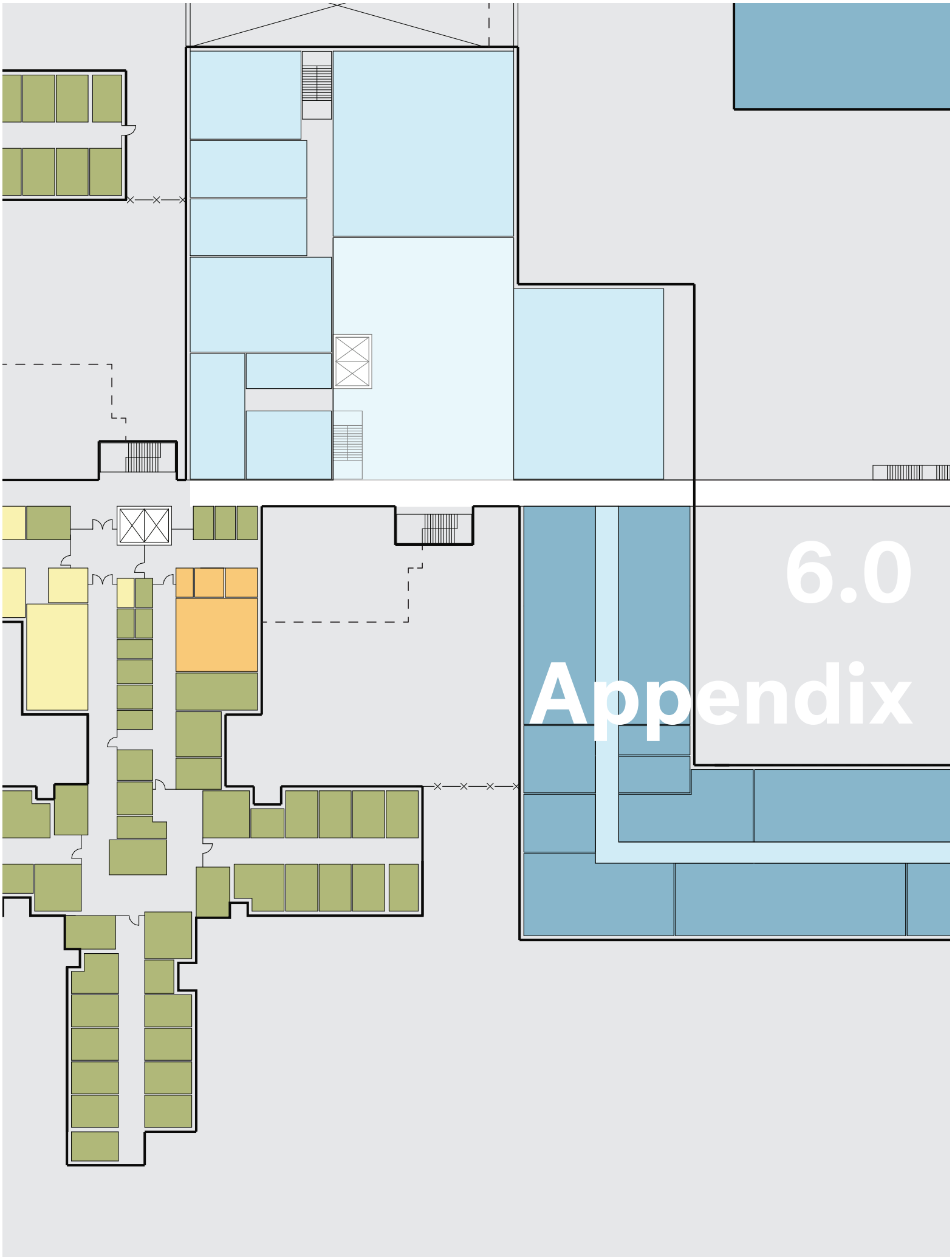

6.0 Appendix

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Appendix

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