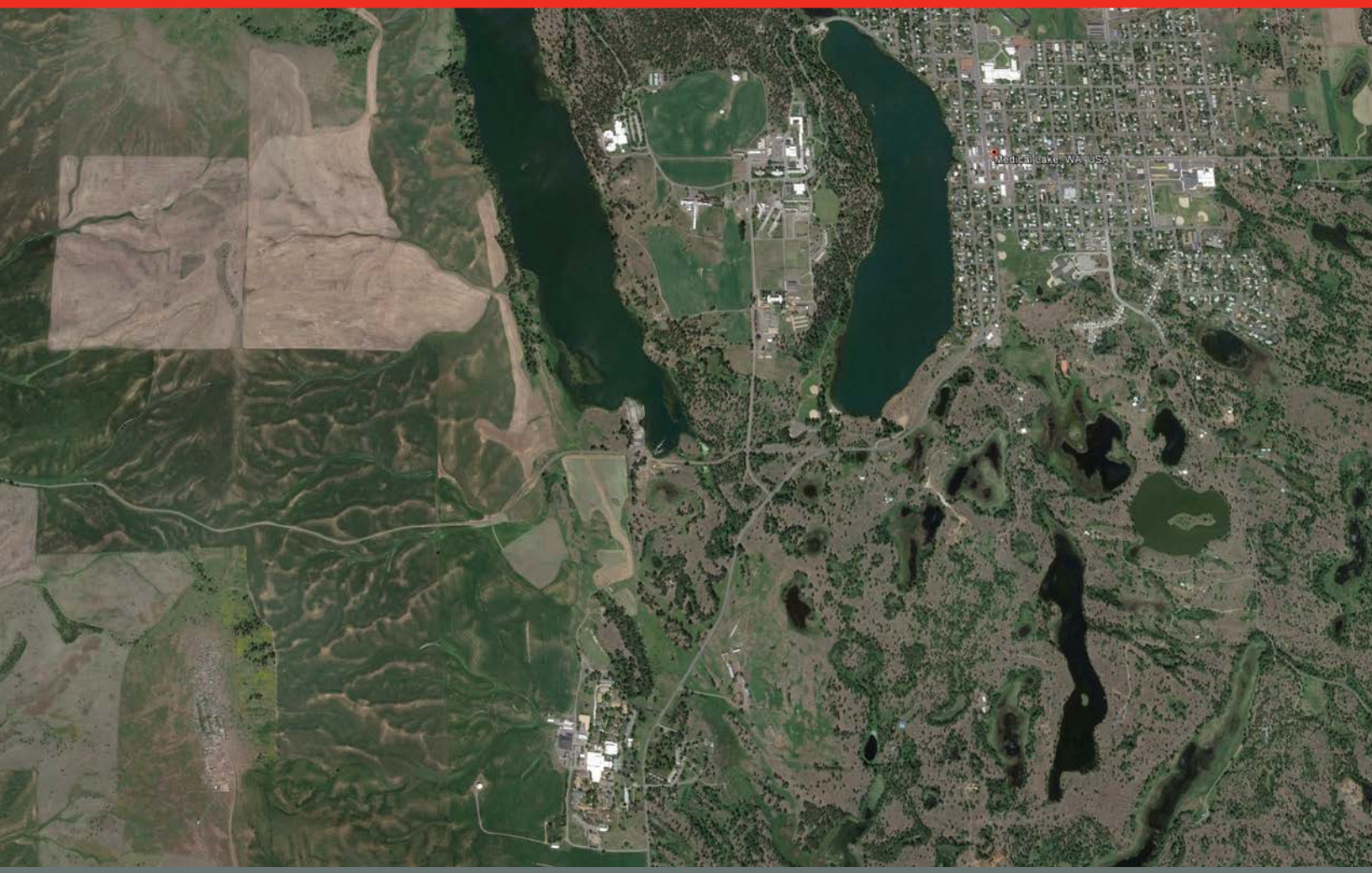
2014

August 22, 2014

Medical Lake Campus

Infrastructure Master Plan Report

Project # 2014-415



NAC | ARCHITECTURE

Washington State
Department of Social
& Health Services

Medical Lake Campus
Infrastructure Master Plan

Final Report

August 22, 2014
State Project # 2014-415
NAC # 111-14011

Acknowledgements and Planning Team

Administration

Jane Beyer, Assistant Secretary, DSHS Behavioral Health and Service Integration Administration
Evelyn Perez, Assistant Secretary, DSHS Developmental Disabilities Administration
Vann R. Smiley, Director, DSHS FSA OSSD

Project Sponsors

Robert Hubenthal, DSHS, FSA OSSD, Assistant Director, Capital Facilities Management
T**erri Sinclair-Olson**, DSHS, OSSD, Capital Programs Chief, Capital Facilities Management

Project Oversight Team

Robert Hubenthal, DSHS, FSA OSSD, Assistant Director, Capital Facilities Management
Terri Sinclair-Olson, DSHS, OSSD, Capital Programs Chief, Capital Facilities Management
Dorothy Sawyer, Eastern State Hospital Chief Executive Officer
Tony DiBartolo, Lakeland Village Superintendent
Jim Collen, Consolidated Support Services, Facilities Manager

Advisory Committee

Brian Sims, legislative staff for Senate Ways and Means Committee
Steve Masse, legislative staff for House Capital Budget Committee
Maurice Perigo, Office of Financial Management Capital Budget Staff

Office of Capital Programs Project Manager

Kelly Lerner, Architect

Planning and Design Consultant Team

NAC|Architecture, Prime Architects
DeNeff, Deeble, Barton Associates, Associate Architects
Trinity Health Group, Masterplan Architects
Taylor Engineering, Civil Engineers
Structural Design Northwest, Structural Engineers
MW Consulting Engineers, Mechanical Engineers
Pennell Consulting Inc., Electrical Engineers
FP Engineering, Fire Protection Engineers
Esvelt Environmental Engineering, Environmental Engineers

Table of Contents

1.0 EXECUTIVE SUMMARY

1.1 Introduction, Objective and Scope

Introduction

The Medical Lake Campus, located near the City of Medical Lake, Washington includes three distinct campuses, each with differing uses; Eastern State Hospital, Lakeland Village and Pine Lodge. Eastern State Hospital (ESH) is a 287-bed state hospital which serves 20 eastern Washington counties.

ESH is owned and operated by the State of Washington under the administration of the Department of Social and Health Services (DSHS). The hospital provides evaluation and inpatient treatment for individuals with serious or long-term mental illness that have been referred to the hospital through the Regional Support Network (RSN) system or through the criminal justice system. ESH is accredited by Joint Commission and certified by the federal Centers for Medicare and Medicaid Services (CMS).

ESH has three units, the Adult Psychiatric Unit (APU), the Forensic Services Unit (FSU) and the Geropsychiatric Unit (GPU). The APU provides inpatient hospitalization for adults 18 to 50 years old who are severely mentally ill and are committed for evaluation and treatment by a civil court proceeding. Capacity in the APU is 90 beds and at the time of this study, census in the APU was 89 patients.

The FSU houses patients that enter the forensic (legal) unit in the hospital through the criminal justice system. Evaluation and treatment services are provided for adults prior to their trial, after they are convicted, or after they are acquitted by reason of insanity. Capacity in the FSU is 101 beds and at the time of this study, census in the FSU was 94 patients.

The GPU provides psychiatric evaluation and treatment for individuals 50 years of age and older or persons under 50 years of age with medical concerns. Capacity in the GPU is 120 beds and at the time of this study, census in the GPU was 83 patients.

The APU and FSU are located in the Eastlake building and the GPU is located in the Westlake building.

Lakeland Village (LV) is a state operated 24-hour care facility that provides training, education and healthcare for individuals with developmental disabilities. The facility is certified for 60 Nursing Facility (NF) beds and 190 Intermediate Care Facility (ICF) beds for Individuals with Intellectual Disabilities (ID). The average census in the NF is 65-85 and 120-140 for ICF.

People who receive services at Lakeland Village have a wide range of needs, from profound physical and mental challenges to dual diagnosed conditions, such as intellectual disabilities and mental illness. The Nursing Facility provides active treatment through nursing, occupational and physical therapy and leisure activities. The ICF/ID provides active treatment through habilitation programming in residential, vocational, leisure therapy and behavior support modalities as well as medical and nursing services and therapies. The facility also provides short term respite services.

The LV campus also includes three apartment buildings which house the "College in Residence Volunteer" (CIRV) program. This program offers local college students campus housing in exchange for 15 hours of volunteer work weekly. The students focus on enhancing social interactions with residents and educate other students about people with developmental disabilities.

The Pine Lodge facilities were previously operated by the Department of Corrections (DOC) and the campus was the location of their Pre-Release program. DOC vacated the campus several years ago and the majority of the buildings now are used by Consolidated Support Services (CSS) for shops, the auto-pool, storage and administration.

Objective

The objective of this master plan is to address failing infrastructure at the Medical Lake Campus as required by ESHB 5035, Section 2011. In addition, the plan is to develop options and make recommendations with the goal of reducing the capital costs of upgrading failed and failing infrastructure at the Medical Lake Campus. Consideration should be given to how best to effectively reduce the

facilities and infrastructure footprint by consolidating programs and implementing shared services between Eastern State Hospital and Lakeland Village where practical. To achieve these goals, the planning efforts include an assessment of program use and physical condition of facility assets (buildings and infrastructure) developing a plan for reducing the infrastructure footprint while still delivering high quality services to patients and clients. The planning should reflect the short, mid and long term vision and goals for each respective campus. In addition, immediate needs that may affect safety and/or security of patients, clients, families and staff should be identified.

The information provided by this master plan is to be used to develop the Department's ten year capital plan for the Medical Lake Campus.

Scope

(From the Project Plan dated January 28, 2014. Items that have been clarified or revised from the original plan are indicated by italics)

INFRASTRUCTURE

1. Identify and verify condition of infrastructure systems serving Eastern State Hospital, Lakeland Village & Pine Lodge:
   - Water systems including wells and distribution system
   - Sanitary sewer systems including pipes, lift stations and wastewater treatment
   - Stormwater systems
   - Electrical systems including everything from transformers and distribution to panels
   - Steam plants, boilers and steam distribution system and controls
   - Roads
   - IT cabling systems
   - Fire alarm systems
   - Security systems
   - Emergency backup power systems
   - Code compliance assessment
2. *Provide adequate information to allow the State to update the Facility Inventory and Condition Assessment Program (FICAP) with condition of infrastructure/systems.*
3. Research and document service agreements with City of Medical Lake on water, sanitary sewer and stormwater systems.

BUILDINGS

1. Verify condition of all campus buildings:
   - Structural assessment
   - Envelope assessment – floors, walls, windows, roof
   - Interior finishes assessment
   - Energy Use Intensity (EUI) by building (where possible or records exist)
   - Code compliance analysis
   - HVAC systems and controls assessment
   - Use intensity by space and by program
2. Provide adequate information to allow the State to update Facility Inventory and Condition Assessment Program (FICAP) with condition of buildings
3. Prepare DAHP assessment for any buildings where demolition is recommended and where required by DAHP.

PROGRAMS AND SPACES

1. Interview DSHS staff to identify program and support space needs – current and future (executive level through front line level staff).
2. Identify current occupied versus unoccupied spaces.
3. Identify unmet space needs for program delivery by space and by program.

REPORT AND RECOMMENDATIONS

1. Develop options for reducing footprint of institutional campuses by consolidating programs to reduce service delivery and utility costs including order of magnitude costs.
2. Develop options for shared utilities and services including order of magnitude costs.
3. Develop options for sharing program services including order of magnitude costs.
4. Prepare demolition plans with order of magnitude costs.
5. Prepare condition assessment of existing buildings and infrastructure developed by performing field inspections and reviewing existing data.
6. Develop Short Term Plan (5-year), Mid Term Plan (10-year) and Long Term Plan (25-year) for:
   a. Reducing footprint of institutional campuses by consolidating programs to reduce service delivery and utility costs
   b. Sharing utilities and services
   c. Sharing program services and spaces
   d. Addressing and prioritizing repair and replacement needs
5. Recommend replacement and consolidation strategies and estimate the necessary investment needed to ensure the long term viability of the campus infrastructure under changing campus needs, including sustainability goals and financial issues.
6. Estimate the amount of funding needed to improve the life safety aspects of the infrastructure systems, reduce further deterioration of infrastructure components, comply with current life and safety codes and ensure that utility systems operate as designed and as needed for long term.
7. Develop Infrastructure master plan and renewal investment strategy with proposed phasing – immediate needs and prioritized projects.

1.2 DSHS/Eastern State Hospital and Lakeland Village Mission and Vision Statements

DSHS Mission:
To Transform Lives.

DSHS Vision:
People are healthy, People are safe, People are supported, Taxpayer resources are guarded.

Eastern State Hospital Mission:
Eastern State Hospital is a key partner in assisting adults with psychiatric illness in their recovery through expert inpatient treatment whenever needs exceed community resources.

Eastern State Hospital Vision:
1. To create a place of safety and respect for the people we serve and all staff.
2. To work with those we serve in a trauma informed and safe environment in which person-centered treatment is always the goal.
3. To reduce the use of seclusion and restraint so that the environment promotes a partnership in healing.
4. To provide current, evidence-based and effective inpatient treatment interventions, programs and activities that promote recovery.
5. To provide services that empower individuals, instill hope, support self-discovery and independence and provide opportunities for growth, recovery and return to the community.

Lakeland Village (DDA) Mission:
To transform lives by creating partnerships that empower people.

Lakeland Village (DDA) Vision:
Safe, healthy individuals, families and communities.

1.3 Methodology/Approach/Materials Presented

For The Medical lake Campus Infrastructure Master Plan, NAC|Architecture's team of architects and engineers followed a regimented process that included the following process and steps:

1. Information gathering: The team began the process by assembling relevant information in the form of facility drawings, past reports and studies, historic and cultural information/registrations and restrictions and other related information.
2. Facility/Infrastructure Assessments/Recommendations: Architects and engineers spent several weeks investigating and evaluating the existing infrastructure systems and facilities by reading reports, performing facility walkthroughs, interviewing facilities personnel, evaluating utility records, running cameras through utility pipes and performing visual inspections of infrastructure systems conditions. All gathered information was recorded on Facility Assessment Forms, on drawings and photographic records. From the assessments, a comprehensive list of projects was developed that categorized projects by campus and urgency as described in Sub-Section 1.5.
3. Existing Plans/Program Space: All facility plans were drafted and program areas identified to establish existing square footage by program and identify possible areas for reduction and/or decompression.
4. Steering Group Meeting #1: A meeting was held in Olympia with the Steering Group on March 5, 2014 to establish strategic objectives and for the planning team to gain an understanding of the priorities from the State leadership. Directions from that meeting were:

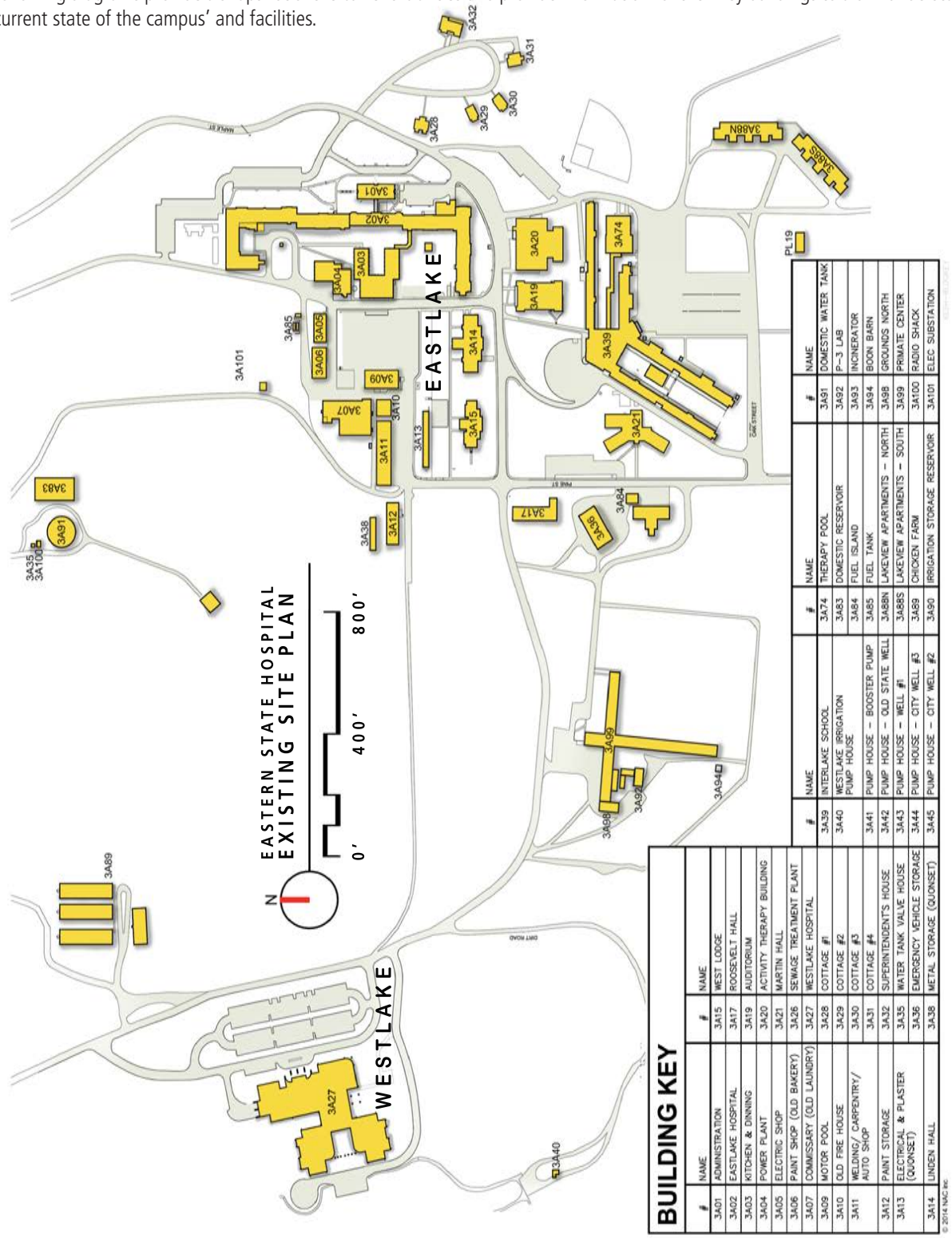
    a. Master Plan must identify priorities in the context of an overall plan
    b. Preempt unexpected infrastructure emergencies
    c. Define "Immediate", "Short Term" and "Long Term" needs
    d. Reduce building footprint for operational efficiency
    e. Target opportunities to reduce operational cost
    f. Future Demand — Accommodate changes in future demand for services
    g. Partnering — Look for opportunities between ESH and LV
    h. Data-Driven — Let data drive the decisions
    i. Life Cycle vs. Initial Costs — Consider optimum life-cycle costs
    j. Risks — Target potential risks including the risk of non-action

5. Administration and Staff Interviews: During March and April 2014, NAC conducted interviews of over 25 administrators and key staff to identify current operations, potential operational changes and perceived needs/changes for each campus/department under their leadership.
6. Market Assessment and Program Analysis: Based on data received from the State and using industry benchmarks, a projection of demand for services at Eastern State Hospital and Lakeland Village was developed to assess market/demand for services and to establish bed counts for each campus based on the demand (see Section 2).
7. Initial Recommendations: Based on all of the data gathered, an initial comprehensive list of infrastructure and program recommendations was developed and organized by urgency.
8. Steering Group Meeting #2: A second meeting was held in Olympia on May 12, 2014 to review initial recommendations and receive feedback from the Steering Committee. From this meeting a Summary of Recommendations was developed.
9. Preliminary Infrastructure Master Plan: Based on the Market Assessment and Program Analysis and the infrastructure and program recommendations, preliminary planning drawings, project descriptions and Order of Magnitude Project Budgets were developed. Alternatives for projects were developed where appropriate.
10. Review by Campus Leadership: On Thursday June 5, 2014, the Initial Recommendations were presented to the Campus leadership for final review and comment. Alternatives were selected and a final list of projects was determined.
11. The Draft Final Infrastructure Master Plan was submitted to the State on June 16, 2014.
12. Modifications were made to the Master Plan document and Final was submitted to the State on August 29, 2014.

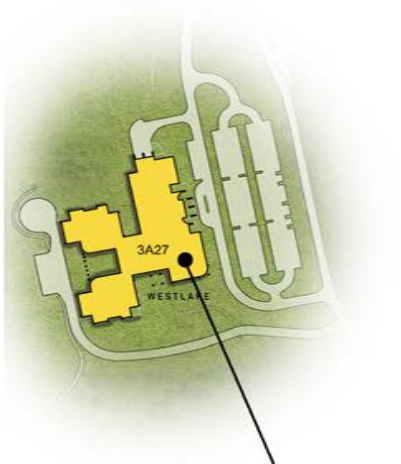
The report includes all of the material gathered, assessment forms, total project lists, recommendations, alternatives considered, budget estimates and where appropriate, risks for not implementing recommendations to assist the State in evaluating the recommendations.

1.4 Existing Campus Plans and Key Building Diagrams

The following diagrams provide a snapshot of the current facilities and provide information for their key buildings to aid in understanding the current state of the campus' and facilities.



Eastern State Hospital **Primary Buildings**



Westlake Building
113,564 SF; (2) stories
Built 1980. Healthcare Occupancy
(85) Geropsychiatric Unit patients in 4 wards
Heating: N-gas fired Steam Boilers
Cooling: Air-cooled chiller, 2009
Electrical: 4000 Amp switchboard

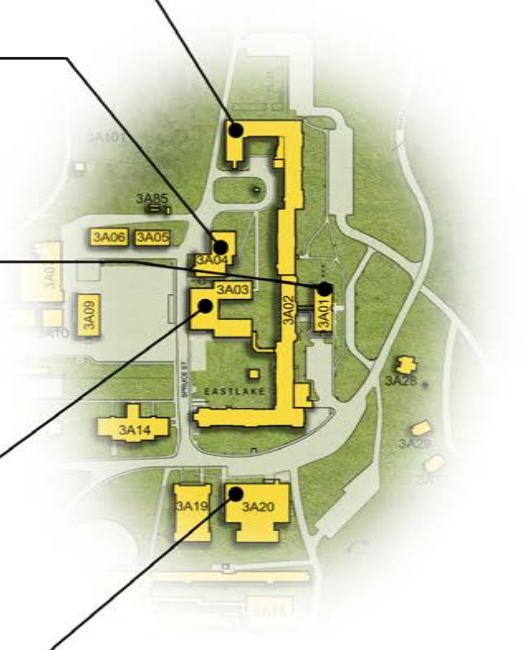
Eastlake Building
220,800 SF; (3) stories + Basement
Built 1933-34. Healthcare Occupancy
(90) Adult Psychiatric Unit patients in 3 wards
(100) Forensic Services Unit patients in 3 wards
Heating: Steam from Boiler Bldg, converted to HW
Cooling: Air-cooled chillers, piped glycol system
Electrical: 1600 Amp switchboards, north & south

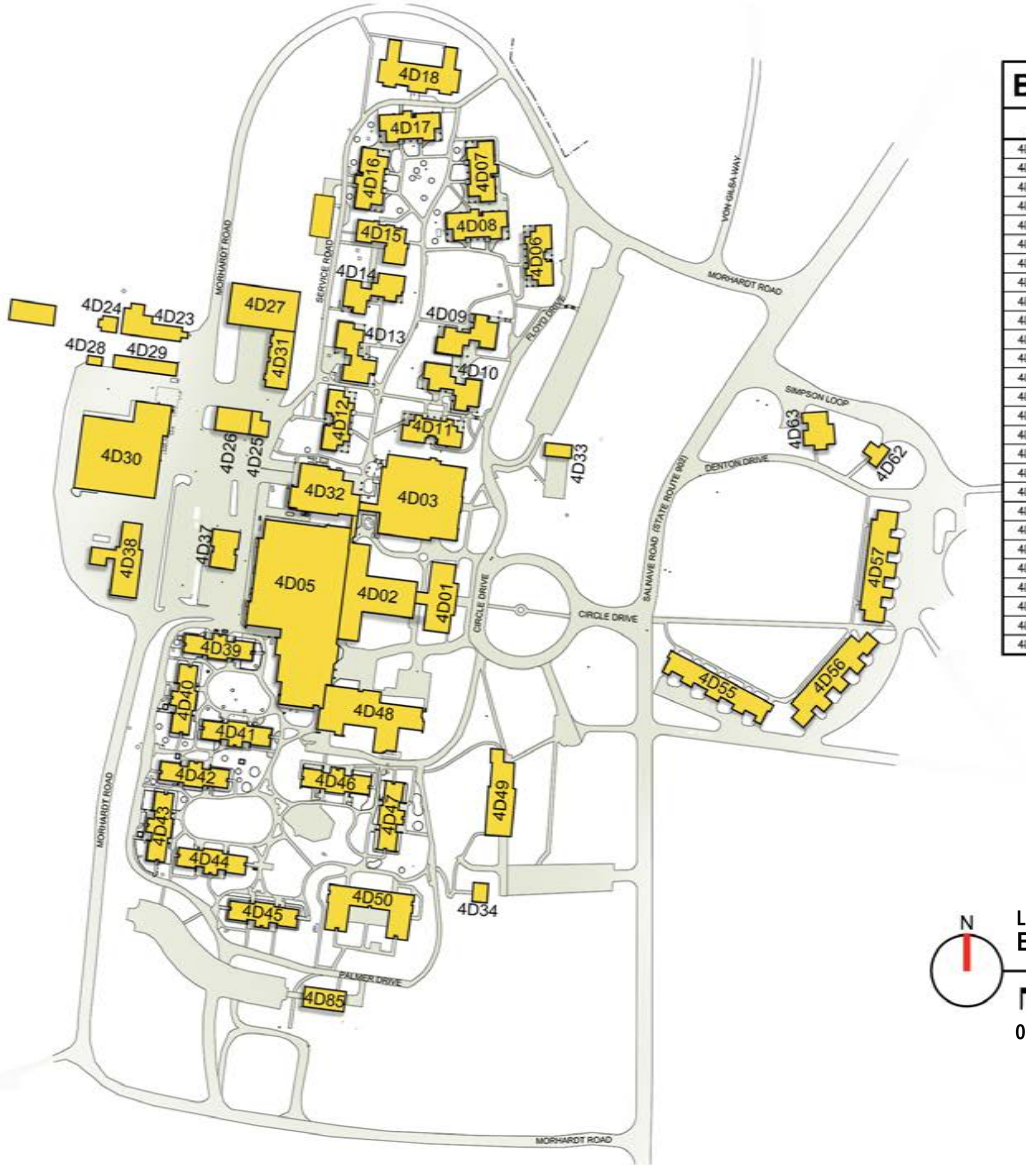
Boiler Building
9,232 SF; 1 story (high volume)
Built 1920. Hazardous (H3) Occupancy
No patients; No offices
Heating: (3) boilers (1997)
Cooling: none
Electrical: 600 Amp switchboard

Administration Building
19,530 SF; (3) stories + Basement
Built 1933. Business Occupancy
No patients; 29 Staff offices
Heating: Steam from Boiler Building
Cooling: Window-mounted A/C units
Electrical: 600 Amp main panel

Kitchen/Dining Building
75,500 SF; (2) stories
Built 1933. Business Occupancy
Commercial Kitchen Remodeled in 2001
South wing = patient dining
North wing = staff & public dining
Heating: Steam from Boiler Building
Cooling: air cooled water chillers
Electrical: 1200 Amp main panel

Activity/Therapy Building
53,462 SF; (2) stories + Basement
Built 1962. Ambulatory Healthcare
No patient beds; Therapy Classrooms
Heating: HW boilers from Auditorium
Cooling: thru-wall A/C units
Electrical: 1200 Amp switchboard





BUILDING KEY

#	NAME	#	NAME
4D01	ADMINISTRATION	4D33	CHAPEL
4D02	P.A.T. CENTER	4D34	SENIOR CITIZEN CENTER
4D03	SCHOOL/ ACTIVITY	4D37	CHILLER PLANT
4D05	HABITATION CENTER	4D38	ENERGY PLANT
4D06	RAINBOW WAY 5890–5891	4D39	PINEWOOD 72–73
4D07	CASCADE WAY 5886–5887	4D40	EVERGREEN 70–71
4D08	WILDROSE WAY 5888–5889	4D41	HAWTHORN 68–69
4D09	APPLE COURT 5892–5893	4D42	HARVEST 38–39
4D10	BIGFOOT WAY 5894–5895	4D43	HILLSIDE 64–65
4D11	BIGFOOT WAY 5896–5897	4D44	LAUREL 40–41
4D12	CASCADE WAY 5874–5875	4D45	PONDEROSA 60–61
4D13	WILLOW COURT 5876–5877	4D46	SHAMROCK 56–57
4D14	WILLOW COURT 5878–5879	4D47	TAMARACK 54–55
4D15	SUNRISE COURT 5880–5881	4D48	ROSEWOOD 62–63
4D16	SUNRISE COURT 5882–5883	4D49	MASON MEMORIAL
4D17	SUNRISE COURT 5884–5885	4D50	DOUGLAS HALL
4D18	MILLER & BRYAN HALL	4D55	HUDSON
4D23	CARPENTER & PAINTING SHOP	4D56	LEWIS HOUSE
4D24	CARPENTERS STORAGE	4D57	WHITEMAN
4D25	WELDING SHOP	4D62	COTTAGE #1
4D26	REPAIR GARAGE	4D63	COTTAGE #2
4D27	RECEIVING WAREHOUSE	4D85	STORAGE BUILDING
4D28	FLAMMABLE LIQUID STORAGE		
4D29	STORAGE GARAGE		
4D30	LAUNDRY BUILDING		
4D31	SUPPORT SERVICE PLANT MGT.		
4D32	FOOD SERVICE		

N

LAKELAND VILLAGE
EXISTING SITE PLAN

0′ 400′ 800′

Lakeland Village **Primary Buildings**

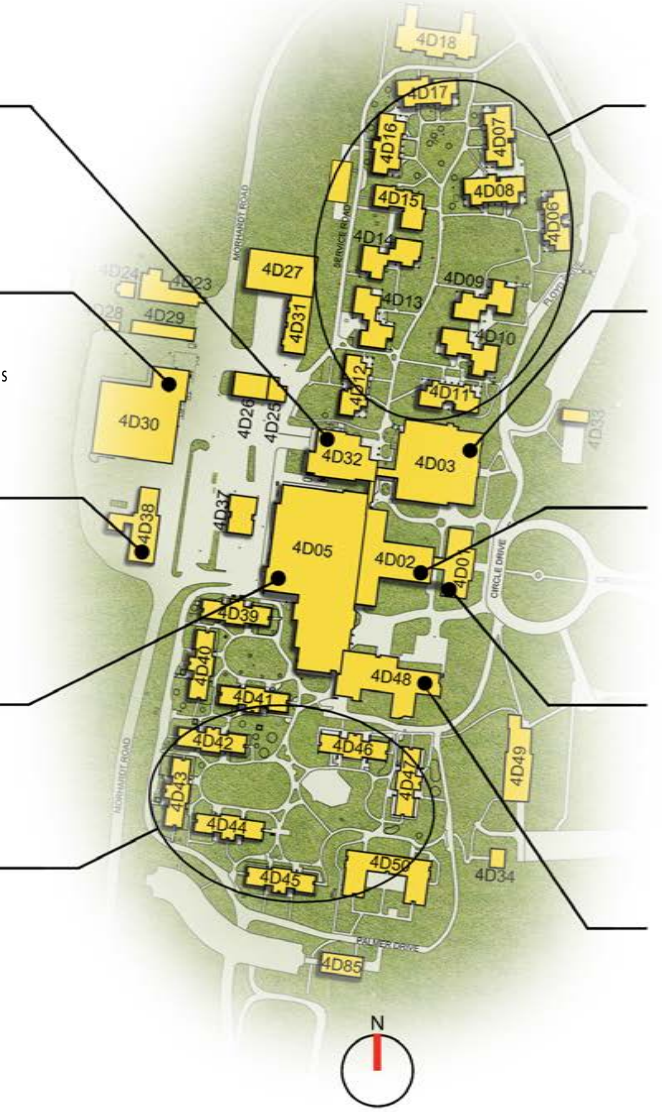
Food Service
14,910 SF; (1) story
Built 1980. Business Occupancy
Heating: Steam from Central Plant; AHU
Cooling: chilled water from central chillers
Electrical: 2000 Amp main switchboard

Laundry Building
25,525 SF; (1) story + Mezzanine
Built 1954. Industrial Occupancy
No clients; (18) staff
Heating: Steam from Central Plant; unit heaters
Cooling: none listed
Electrical: 1200 Amp main panelboard

Central (Energy) Plant
7,836 SF; (1) story + Mezzanine
Built 1982. Hazardous (H3) Occupancy
No clients
Heating: (3) high-pressure steam boilers
Cooling: no cooling noted
Electrical: 400 Amp main panel

HAB Center
53,800 SF; (1) story
Built 1985. Business Occupancy
Heating: Steam from Central Plant; HW converter
Cooling: chilled water from central chillers
Electrical: 1600 Amp main switchboard

Nursing Facility Cottages
5,037 SF avr x (7) in-use; 1-story
Built 1981, avr. Healthcare/Skilled Nursing
(11) to (13) clients each; (85) clients
Heating: Steam from Central Plant; AHU
Cooling: chilled water from central chillers
Electrical: 400 Amp main circuit breaker



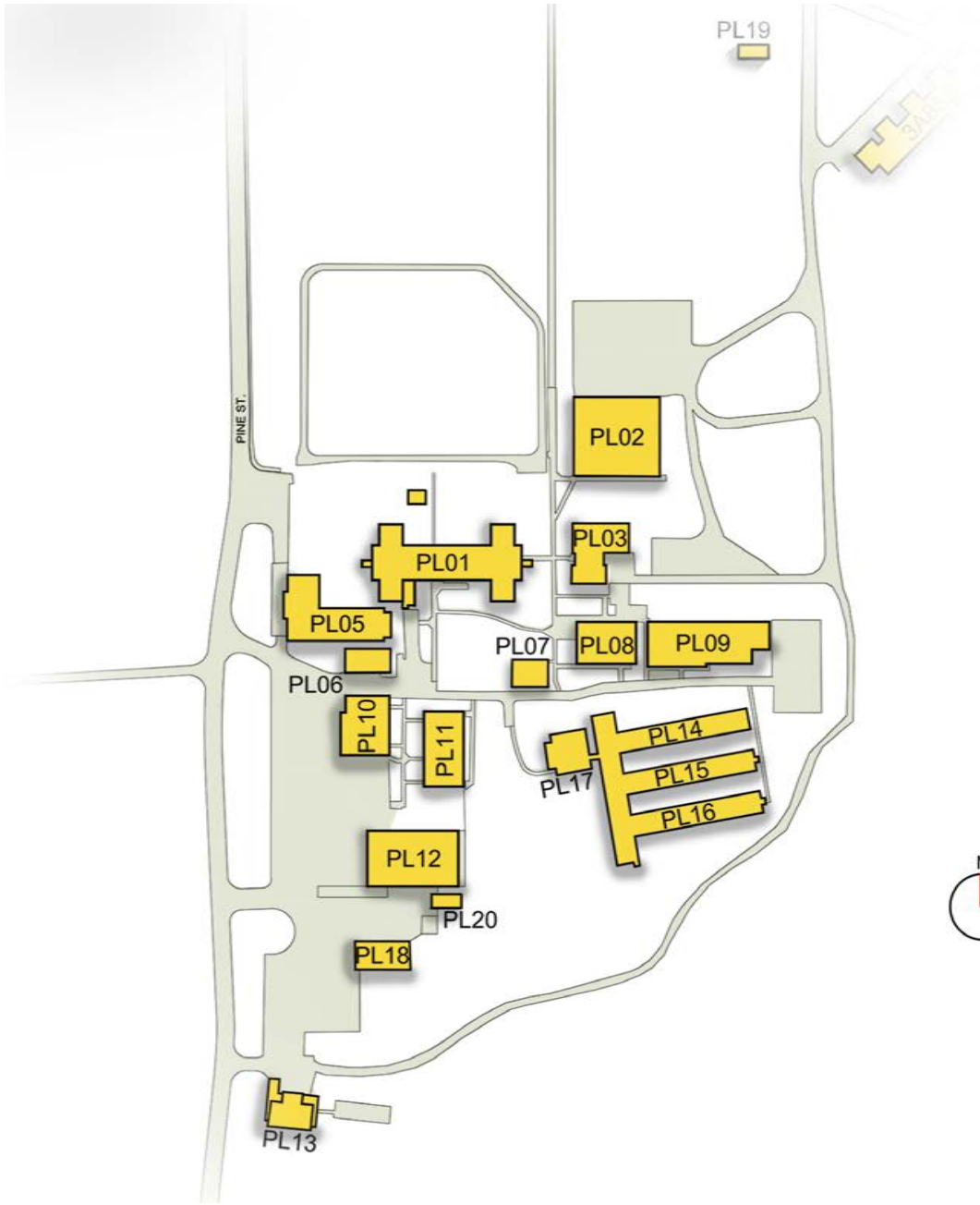
Assisted Living Cottages
5,200 SF avr x (10) in-use; 1-story
Built 1980, avr. Boarding Home/Assisted Living
(12) to (15) clients each; (125) clients
Heating: Steam from Central Plant; AHU
Cooling: chilled water from central chillers
Electrical: 400 Amp main circuit breaker

Old School/Activity Center
24,680 SF; (1) story
Built 1937. Business Occupancy
Multi-use Gym; offices in old classrooms
Heating: Steam from Central Plant; HW converter
Cooling: chilled water from central chillers
Electrical: 600 Amp main switchboard

Administration Building
25,818 SF; (4) stories
Built 1914. Business Occupancy
(25) Staff, no clients
Heating: Steam from Central Plant; radiators
Cooling: "window-shaker" A/C units
Electrical: 400 Amp panel fed from PAT Center

P.A.T. Center
15,400 SF; (1) story, partial 2nd floor
Built 1985. Business Occupancy
(43) Staff, no clients
Heating: Steam from Central Plant;
HW Convertor & radiators
Cooling: chilled water from central chillers
Electrical: 1200 Amp switchboard

Rosewood Nursing Facility
15,300 SF; (1) story
Built 1985. Existing Healthcare Occupancy
(12) skilled nursing patients
Heating: Steam from Central Plant; HW converter
Cooling: chilled water from central chillers
Electrical: 1200 Amp main switchboard



BUILDING KEY

#	NAME
PL01	RESIDENCE UNIT – D
PL02	SERVICE CENTER – E
PL03	ELECTRICAL SHOP (OLD LAUNDRY) – F
PL05	KITCHEN DINNING
PL06	SECURED HOLDING UNIT – B
PL07	CHAPEL – H
PL08	WALKER HALL – J
PL09	EDUCATION BUILDING – K
PL10	ADMINISTRATION – A
PL11	MEDICAL BUILDING – M
PL12	CARPENTRY/ PLUMBING SHOPS – N
PL13	ROSS HALL – T
PL14	LIVING UNIT 2A – L
PL15	LIVING UNIT 2B – L
PL16	LIVING UNIT 2C – L
PL17	LIVING UNIT 2D – L
PL18	GROUNDS SHOP
PL19	GREENHOUSE
PL20	VOCATIONAL – S
PL88N	LAKEVIEW APARTMENTS
PL88S	LAKEVIEW APARTMENTS

N

PINE LODGE
EXISTING SITE PLAN

0' 600' 1200'

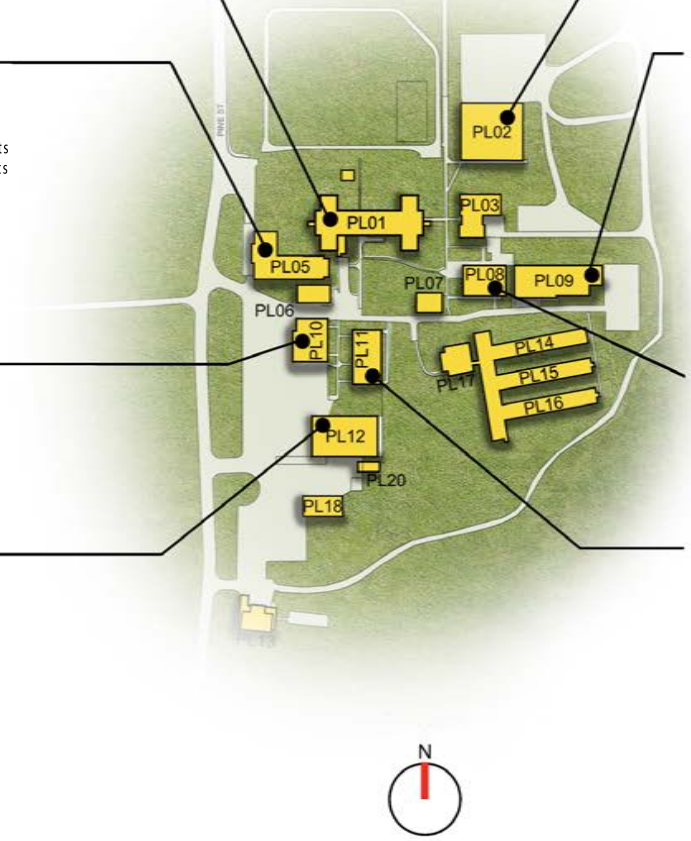
Pine Lodge **Primary Buildings**

Residence Unit
43,000 SF; (2) stories + crawlspace
Built 1932. Institutional Occupancy
(Vacant) open dorm room concept
Heating: gas-fired boiler, AHU's added in 1994
Cooling: air-cooled chiller added in 1994
Electrical: 800 Amp main panel

Kitchen/Dining
9,000 SF; (1) story
Built 1980. Business Occupancy
Kitchen Equipment has been removed
Heating: Packaged gas-electric roof-top units
Cooling: Packaged gas-electric roof-top units
Electrical: 1200 Amp main switchboard

Administration Building
5,040 SF; (1) story
Built 1989. Business Occupancy
(11) Staff offices
Heating: gas-fired furnaces
Cooling: Exterior condensing units
Electrical: 400 Amp panel fed from Bldg 12

Warehouse/ Shops
8.400 SF; (1) story
Built 1989. Business Occupancy
Plumbing & Carpentry Shops
Heating: gas-fired unit heaters
Cooling: none
Electrical: 1600 Amp main switchboard



Service Center(Gym)
22,000 SF; (2) stories
Built 1993. Business Occupancy
Gym at East side; multi-purpose at west
Heating: AHU, gas-fired unit heater & furnaces
Cooling: Exterior condensing units
Electrical: (3) 200 Amp panel boards

Education Building
8,640 SF; (1) story
Built 1980. Business Occupancy
(5) offices + (12) classrooms
Heating: gas-fired furnaces added in 2003
Cooling: condensing units added in 2003
Electrical: 400 Amp panelboard fed from Bldg 12

Walker Hall
5,100 SF; (1) story
Built 1981. Business Occupancy
(11) offices & (2) classrooms
Heating: gas-fired furnace + electric heaters
Cooling: exterior condensing unit
Electrical: 400 Amp & 200 Amp panelboards

Medical Building
5,470 SF; (1) story
Built 2004. Business Occupancy
Space for (18) offices
Heating: gas-fired furnaces
Cooling: Exterior condensing units
Electrical: 400 Amp panel fed from Bldg 12

1.5 Overview of Recommended Solutions / Project Lists by Campus

For The Medical Lake Campus Infrastructure Master Plan, NAC|Architecture's team of architects and engineers met with the project stakeholders and leadership as well as department heads and facility staff. Through this process, the design team was able to provide an objective evaluation of the existing campus' infrastructure, the condition of facilities and the goals and future of programs provided on site. Out of the planning process several basic premises or objectives were identified that guided the decision-making and planning process:

- Unused/abandoned structures on the campus should be re-purposed where a program exists, or demolished if the condition or inability to be used for program use cause it to be unsalvageable.
- Services that are duplicated on each campus should be combined where practical to reduce delivery costs and increase efficiency.
- Many infrastructure systems are failing or are near failing and need upgraded.
- Safety and security of patients, clients, visitors and staff need to be at the top of all planning considerations.
- The planning needs to be presented in a manner that is both strategic and implementable.
- Planning should incorporate flexibility for future changes — both known and unknown

These objectives were constantly considered and used for evaluation of options and directions through the course of the planning process as were the stated goals from the original Request for Qualifications, which were:

- Develop options for reducing footprint of institutional campuses by consolidating programs to reduce service delivery and utility costs.
- Develop options for shared utilities and services.
- Develop life cycle costs for each option.
- Determine best options for utility services delivery with consideration of short, mid and long term goals.
- Determine best options for sharing program services and facilities with consideration of short, mid and long term goals.
- Utilize Office of Fiscal Management (OFM) pre-design guidelines.

Based on the campus and building assessments and the stated objectives, a comprehensive list of projects and associated budgets was developed. These projects/budgets are summarized and listed by campus and urgency at the end of this Sub-Section. Each project is described in more detail in Section 3, followed by plans and diagrams illustrating the recommendations and budget development information. Many of the infrastructure recommended projects are not easily diagrammed but are explained in the Options/ Recommendations cover sheets in Section 3.

Each identified project has been categorized by campus and by urgency. Urgency was divided into three categories based on the following:

1. Those needing to be done immediately due to failing/failed conditions or issues that pose a danger to persons or property (condition 5 on the assessment forms). These are proposed to be budgeted in the 2015-2017 biennium.
2. Those needing to be done in the Short Term because they are near the end of serviceable life or are showing early signs of failure (condition 4 on the assessment forms). These are proposed to be budgeted in the 2017-2019 or the 2019-2021 bienniums.
3. Those needing to be done in the Long Term (condition 3, 2 or 1 on the assessment forms). These are proposed to be budgeted in the 2021-2023 or the 2023-2025 bienniums.

CAMPUS PROJECT LIST - BHSIA: Eastern State Hospital

Eastern State Hospital - August 2014		Construction Cost	Soft Cost	Total Project
			45.0%	
No.	**Project**			
Immediate Needs (2015-17)				
1	Anti-ligature upgrades at wards (ESH-07, 08)	$1,323,000	$595,350	$1,918,350
2	Westlake Nurse Call Replacement (ES-E3)	$750,000	$337,500	$1,087,500
3	New Boiler Building (ESH-03a)	$3,000,000	$1,350,000	$4,350,000
4	Replace Pumphouse & Well No. 2 (W-2, 4, 5)	$1,040,000	$468,000	$1,508,000
5	Eastlake: Replace Remaining Original Carpet with Sheet Vinyl (ESH-A01)	$1,059,000	$476,550	$1,535,550
6	Westlake: Replace worn-out Flooring at Public Areas (ESH-A11)	$261,000	$117,450	$378,450
7	Replace Dearator/Makeup water system at north boiler plant	$175,000	$78,750	$253,750
8	Misc Civil + Downspouts (R-8, S-2, W-7, W-8, S-10, S-12, ESH-A17)	$112,555	$50,650	$163,205
	Subtotal, Immediate Needs:	**$7,720,555**	**$3,474,250**	**$11,194,805**
Short-term Needs (2017-19, 2019-21)				
9	Laundry Addition to New Boiler Building (ESH-03b)	$6,470,000	$2,911,500	$9,381,500
10	Activity/Visitors Entry to replace existing Admin & AT (P-01)	$8,200,000	$3,690,000	$11,890,000
11	Eastlake Essential Electrical System Reconfiguration (ES-E2)	$1,000,000	$450,000	$1,450,000
12	Upgrade Westlake to full Direct Digital Control (ESH-01)	$1,300,000	$585,000	$1,885,000
13	ESH Personal Duress Alarm System (Eastlake and Westlake) (ES-E1)	$3,412,000	$1,535,400	$4,947,400
14	Decompress FSU 2S1 into "A" Segment (P-02)	$1,029,000	$463,050	$1,492,050
15	Decompress FSU 3S1 into swing ward area (P-02)	$275,000	$123,750	$398,750
16	Expand Yard at FSU; add shelter at APU yard (P-03)	$310,000	$139,500	$449,500
17	Irrigation/Paving Repairs (IR-2, 3 ,4, 5; R-1, 2, 3, 5, 6, 7)	$1,043,593	$469,617	$1,513,210
18	Add Flexible Liner for Irrigation Reservoir #2 (W-6)	$258,000	$116,100	$374,100
19	ESH misc repairs (ESH-A12, 14, 15, 16; + ESH-04)	$159,000	$71,550	$230,550
20	Civil Sewer Projects (S-1, 3, 8, 9, 11, 13)	$71,000	$31,950	$102,950
21	ESH Consolidation & Risk Mitigation *(demolition & landscaping)*	$2,950,179	$1,327,581	$4,277,760
22	ESH Auditorium: Find sponsor/Temp Repairs (P-04)	$166,000	$74,700	$240,700
	Subtotal, Short-term Needs:	**$26,643,772**	**$11,989,697**	**$38,633,469**
Long-term Needs (2021-23, 2023-25)				
23	Westlake: Create ADA Compliant Patient Rooms, 2 per ward = 8 (ESH-A13)	$266,000	$119,700	$385,700
24	Westlake: Extend Fire Access Road + Ambulance Canopy (ESH-A09, A10)	$500,000	$225,000	$725,000
25	Replace Pump House at Well #1 (W-1)	$741,000	$333,450	$1,074,450
26	Repair Heat Recovery System at the 100% Outside Air AHU (ESH-05)	$25,000	$11,250	$36,250
27	Convert Westlake Steam Heating System to Hot Water (ESH-06)	$1,250,000	$562,500	$1,812,500
28	Replace Steam Boilers, if ESH-06 not taken (ESH-07)	$450,000	$202,500	$652,500
29	Eastlake - Misc Repairs (ESH-A02, 03, 04, 05, 06)	$1,595,000	$717,750	$2,312,750
30	Convert Constant Volume Air Systems to Variable Air Volume (ESH-08)	$950,000	$427,500	$1,377,500
31	Upgrade FSU with triangular Addition (P-8)	$12,700,000	$5,715,000	$18,415,000
	Subtotal, Long-term Needs:	**$18,477,000**	**$8,314,650**	**$22,105,250**
Needs > 10+ Years (2025-27 on)				
32	Consolidate APU & FSU in New Building at Westlake (P-09)	$95,000,000	$42,750,000	$137,750,000
	Subtotal, Needs > 10 yrs:	**$95,000,000**	**$42,750,000**	**$137,750,000**
	TOTAL ALL NEEDS, ESH:	**$147,841,327**	**$66,528,597**	**$214,369,924**

Construction Costs: all general contractor / subcontractor costs, including overhead and profit, bonds and insurance; design contingency: and inflation to start of construction during biennium listed

Soft Costs: Architectural / Engineering fees & reimbursable expenses; topographical & geotechnical surveys; bid advertising /printing; hazardous materials survey; County Conditional Use Permit, imaging physicist; construction manager (optional): Owner equipment consultant (optional); commissioning; HVAC balancing; DOH & local building review / permits; IBC special inspections; Owner-provided IT equipment / wiring; moving expenses; construction contingency (5%); Owner contingency (5%)

Owner-Provided Equipment: Display equipment, medical equipment, furnishings

Excluded Costs: Financing; legal; incorporating existing debt

CAMPUS PROJECT LIST - DDA: Lakeland Village

Lakeland Village - August 2014		Construction Cost	Soft Cost	Total Project
			45.0%	
No.	**Project**			
Immediate Needs (2015-17)				
1	Emergency Power: prep work/reconfiguration (LV-E1a)	$10,000,000	$4,500,000	$14,500,000
2	Emergency Power: generator & controls (LV-E1b)	$4,000,000	$1,800,000	$5,800,000
3	LV Staff Call Systems for Assisted Living Facilities (LV-E2)	$1,300,000	$585,000	$1,885,000
4	Cottage Upgrades (LV-A04-10; LV-A15-24)	$1,756,500	$790,425	$2,546,925
5	Food Service: renovate or replace service elevator (LV-A13)	$225,000	$101,250	$326,250
6	Civil Projects: Sidewalk & Sewer repairs (R-8, S-4, S-6, S-7)	$116,165	$52,274	$168,439
7	Food Service Switchboard Replacement (LV-E3)	$200,000	$90,000	$290,000
8	Install Liner in 150,000 Gallon LV Concrete Irrigation Reservoir (IR-1)	$143,000	$64,350	$207,350
9	Chiller Plant Fire Alarm Replacement (LV-E4)	$30,000	$13,500	$43,500
	Subtotal, Immediate Needs:	**$17,770,665**	**$7,996,799**	**$25,767,464**
Short-term Needs (2017-19, 2019-21)				
10	Separate Clean/Soiled/Laundry functions in (11) cottages (LV-C2)	$4,225,000	$1,901,250	$6,126,250
11	LV CIRV Housing - Roofing & Exterior repairs (PR-06)	$890,000	$400,500	$1,290,500
12	Mech Task 1: Convert Cottages to Stand-Alone, N-Gas Plumbing (LV-12a)	$270,000	$121,500	$391,500
13	Mech Task 2: steam piping replacement at core (LV-12b)	$650,000	$292,500	$942,500
14	Mech Task 3: HVAC furnaces and condensing units (LV-12c)	$1,515,000	$681,750	$2,196,750
15	Mech Task 4: General Construction (not incl. cottage additions in LV-E1a) (LV-12d)	$10,000	$4,500	$14,500
16	Mech Task 5: Elec connection of Mech Equipment (LV-12e)	$1,000,000	$450,000	$1,450,000
17	New Visitor's Entry/ Demo old Admin Bldg (PR-07)	$1,525,000	$686,250	$2,211,250
18	Decompress LV Cottages into Vacant Units (PR-05)	$480,000	$216,000	$696,000
19	Paving & Irrigation upgrades (R-1, 2, 6, 7; S-5; W-8, 9, 10, 11, 12, 13, 14)	$606,679	$273,006	$879,685
20	LV Transformers Tilt Adjustment (LV-E6)	$200,000	$90,000	$290,000
21	Upgrades: Old School (Activity), HAB Center, & Food Service (LV-A02, 03, 12)	$169,500	$76,275	$245,775
22	Consolidation & Risk Mitigation *(demolition& landscaping) (includes buildings: 4D-18, 23, 24, 28, 29, 34, 49, 50)*	$906,398	$407,879	$1,314,277
	Subtotal, Short-term Needs:	**$12,447,577**	**$5,601,410**	**$18,048,987**
Long-term Needs (2021-23, 2023-25)				
23	Replace steam & condensate piping, & pressure-reducing stations (LV-03)	$710,000	$319,500	$1,029,500
24	Upgrades: PAT Center, Welding, & Chapel (LV-A01, A11, A14)	$74,000	$33,300	$107,300
25	Upgrade the remaining housing cottages to full DDC system (LV-01)	$250,000	$112,500	$362,500
26	Replace existing chilled water piping (LV-04) *(only if cottages are not converted)*	$370,000	$166,500	$536,500
27	Replace heating water piping at the lower campus (LV-05)	$150,000	$67,500	$217,500
28	Replace domestic hot & cold water piping at the lower campus (LV-06)	$60,000	$27,000	$87,000
29	Replace natural gas burners at steam boilers in Steam Plant (LV-07)	$100,000	$45,000	$145,000
30	Convert Rosewood Constant Volume Air to Variable Air Volume (LV-08)	$200,000	$90,000	$290,000
31	Convert Old School Constant Volume Air to Variable Air Volume (LV-09)	$350,000	$157,500	$507,500
32	Convert Old School to Direct Digital Controls (DDC) (LV-10)	$130,000	$58,500	$188,500
33	Provide Vacuum Condensate Return Pump at the Steam Plant (LV-11)	$35,000	$15,750	$50,750
	Subtotal, Long-term Needs:	**$2,429,000**	**$1,093,050**	**$3,522,050**
Needs > 10+ Years (2025-27 on)				
34	Consolidate LV Skilled Nursing in new Building (PR-10)	14,000,000	$6,300,000	$20,300,000
	Subtotal, Needs > 10 yrs:	**$14,000,000**	**$6,300,000**	**$20,300,000**
	TOTAL ALL PROJECTS, LV:	**$46,647,242**	**$20,991,259**	**$67,638,501**

Construction Costs: all general contractor / subcontractor costs, including overhead and profit, bonds and insurance; design contingency: and inflation to start of construction during biennium listed

Soft Costs: Architectural / Engineering fees & reimbursable expenses; topographical & geotechnical surveys; bid advertising /printing; hazardous materials survey; County Conditional Use Permit, imaging physicist; construction manager (optional): Owner equipment consultant (optional); commissioning; HVAC balancing; DOH & local building review / permits; IBC special inspections; Owner-provided IT equipment / wiring; moving expenses; construction contingency (5%); Owner contingency (5%)

Owner-Provided Equipment: Display equipment, medical equipment, furnishings

Excluded Costs: Financing; legal; incorporating existing debt

CAMPUS PROJECT LIST - CMO/CSS: PINE LODGE

Pine Lodge - August 2014		Construction Cost	Soft Cost	Total Project
			45.0%	
No.	**Project**			
Immediate Needs (2015-17)				
1	Pine Lodge Fire Alarm Reconfiguration (PL-E1, E2)	$225,000	$101,250	$326,250
	Subtotal, Immediate Needs:	**$225,000**	**$101,250**	**$326,250**
Short-term Needs (2017-19, 2019-21)				
2	Consolidate ESH CSS shops to Pine Lodge (PR-04)	$700,000	$315,000	$1,015,000
3	Pine Lodge Transformer Replacement & Relocation (PL-E3)	$300,000	$135,000	$435,000
4	Pine Lodge Bldg Upgrades (PL-A1, A2, A3, A4)	$190,000	$85,500	$275,500
5	Sewer & Sidewalk Replacement (R-2, R-6, W-8)	$75,874	$34,143	$110,017
6	Consolidation / Risk Mitigation *(demolition & Landscaping)* includes buildings: PL-01, 06, 07, 14-17, 30, & Lakeview Apts)	$1,180,000	$531,000	$1,711,000
	Subtotal, Short-term Needs:	**$2,445,874**	**$1,100,643**	**$3,546,517**
Long-term Needs (2021-23, 2023-25)				
	(None Identified)	$0	$0	
	Subtotal, Long-term Needs:	**$0**	**$0**	**$0**
Needs > 10+ Years (2025-27 on)				
	(None Identified)	$0	$0	
	Subtotal, Needs > 10 yrs:	**$0**	**$0**	**$0**
	PINE LODGE TOTAL:	**$2,670,874**	**$1,201,893**	**$3,872,767**
Recap of all Campus Projects:				
	ESH Totals:	**$147,942,327**	**$66,574,047**	**$214,516,374**
	LV Totals:	**$46,612,242**	**$20,975,509**	**$67,587,751**
	Pine Lodge Totals:	**$2,670,874**	**$1,201,893**	**$3,872,767**
	TOTAL ALL PROJECTS:	**$197,225,443**	**$88,751,449**	**$285,976,892**

Construction Costs: all general contractor / subcontractor costs, including overhead and profit, bonds and insurance; design contingency: and inflation to start of construction during biennium listed

Soft Costs: Architectural / Engineering fees & reimbursable expenses; topographical & geotechnical surveys; bid advertising /printing; hazardous materials survey; County Conditional Use Permit, imaging physicist; construction manager (optional): Owner equipment consultant (optional); commissioning; HVAC balancing; DOH & local building review / permits; IBC special inspections; Owner-provided IT equipment / wiring; moving expenses; construction contingency (5%); Owner contingency (5%)

Owner-Provided Equipment: Display equipment, medical equipment, furnishings

Excluded Costs: Financing; legal; incorporating existing debt

1.6 Budget Development

To understand the overall scope of the identified projects and to relay a sense of magnitude, Budgetary Costs have been developed for each project, or group of projects. The costs are broken into two parts, Construction Cost and Total Project Cost which includes project soft costs, and an allowance for Owner-provided equipment and furnishings.

Construction costs represent the potential bid cost a Contractor would submit at the start of the construction phase. Excluded from this cost are construction contingencies or changes during construction. Soft costs are the project overhead costs the State would incur to implement these projects. This soft costs are included as a 45% mark-up of the construction cost and includes such items as construction contingency, fees, special consultants, due diligence investigation, plan review permits and fees, owner project contingency, etc.

Multiple sources of information were used to develop the construction costs. These include NAC and consultant's history of project costs for the project type; benchmark costs from sources such as RS Means and information provided by area contractors. The soft costs allocation used is a number that was developed from historical data of past projects at the campus. Some project soft costs may vary up to 10% less than this allocation based on their complexity and amount of equipment and furnishings required.

As a tool for comparison of what new projects would cost if facilities were to be replaced in whole rather than renovated or improved, the following table provides a range of expected construction costs based on the benchmark costs mentioned above. Individual project cost vary from these benchmarks based on site constrants, avaliaible utilities, building configuration, etc..

Washington State Department of Social & Health Services

Medical Lake Infrastructure Master Plan

Benchmark Construction Costs

Medical Lake, Washington

August 24, 2014

No.	Description	Psychiatric Hospitals		Boarding Facilities		Nursing Homes		Administrative Buildings	
		Cost/SF	% of Total	Cost/SF	% of Total	Cost/SF	% of Total	Cost/SF	% of Total
	Sitework	$16	4.0%	$14	5.0%	$14	4.3%	$13	5.0%
A10	Substructure (Foundations)	$22	5.5%	$23	8.0%	$18	5.5%	$13	5.0%
B10	Superstructure	$44	11.0%	$20	7.0%	$32	10.0%	$28	10.8%
B20	Exterior Closure	$31	7.8%	$27	9.5%	$27	8.3%	$38	15.0%
B30	Roofing	$3	0.7%	$6	2.0%	$6	2.0%	$4	1.7%
C10	Interior Construction	$50	12.6%	$37	13.1%	$40	12.6%	$33	13.0%
C30	Interior Finishes	$24	6.0%	$17	6.0%	$21	6.5%	$20	8.0%
D10	Conveying Systems	$8	2.0%	$0	0.0%	$0	0.0%	$7	2.8%
D20	Plumbing	$44	11.0%	$43	15.0%	$35	11.0%	$10	3.8%
D30	HVAC	$48	12.0%	$31	11.0%	$38	12.0%	$28	11.0%
D40	Fire Protection	$4	1.0%	$4	1.4%	$4	1.4%	$4	1.4%
D50	Electrical	$50	12.4%	$26	9.0%	$40	12.4%	$24	9.5%
	General Conditions	$36	9.0%	$23	8.0%	$29	9.0%	$20	8.0%
	Overhead and Profit	$20	5.0%	$14	5.0%	$16	5.0%	$13	5.0%
	Total	**$400**	**100.0%**	**$285**	**100.0%**	**$320**	**100.0%**	**$255**	**100.0%**

1.7 Project Net Cost Analysis

Several of the major recommended projects were also evaluated using Net Cost Analysis calculations to determine the number of years before the project would pay itself back and also the accumulated savings over 30 years. These projects were singled out primarily for their current high operational costs, high maintenance costs and inefficient/inaccessible floor plans. These projects are:

ESH-10 Construct a new Activity/Visitors Entry to replace the existing Administration & Therapy Buildings.
PL-02 Consolidate ESH CSS Shops to Pine Lodge.
LV-11 LV CIRV Housing Roofing & Exterior Repairs.
LV-17 New Visitor's Entry; Demolish Administration Building.

The projects have calculated paybacks from seven to nineteen years as indicated on the following spreadsheets. Additional project descriptions and assessments are provided in Section 3 of this report.

Washington State Department of Social & Health Services

Medical Lake Infrastructure Master Plan
Accumulated Savings
Medical Lake, Washington
August 24, 2014

Project No.	Project	Year of Project Payback	30 Year Accumulated Savings (Note 1)
ESH-10	Activities Therapy/Entry Building	19	$9,146,649
PL-02	Consolidations at Pine Lodge	7	$9,965,388
LV-11	CIRV Apartments	14	$1,735,232
LV-17	Administration Building Replacement	10	$6,952,490
	Total		**$27,799,759**

Note 1 Amount represents estimated net present value of total accumulated savings in Year 30.

Washington State Department of Social & Health Services

Medical Lake Infrastructure Master Plan

Net Cost Analysis - Eastern State Hospital - Activities Therapy-Entry Building

Medical Lake, Washington

June 12, 2014

	Assumptions		
A	Area of existing Administration Building	20,160	sq. ft.
B	Area of relocated Administration Offices	4,300	sq. ft.
C	Area of existing Activities Therapy Building	52,582	sq. ft.
D	New Construction Area	20,000	sq. ft.
E	Renovation Area at Tie-ins	2,000	sq. ft.
F	Annual Operating Cost Existing Buildings	$12	per sq. ft.
G	Annual Operating Cost New Buildings	$10	per sq. ft.
H	Allowance for Emergency Capital Projects	$20,000	per year
I	Demolition Cost	$10	per sq. ft.
J	New Construction Cost	$350	per sq. ft.
K	Renovation Cost for Office Relocations	$55	per sq. ft.
L	Renovation Cost for Tie-ins	$125	per sq. ft.
M	Project Cost Mark-up of Construction Cost	45%	
N	Inflation Factor (CAGR of CGI past 10 years)	2.34%	
O	Net Present Value Discount Factor	1.71%	per OFM
	Construction Costs		
A x I	Demolition of Administration Building	$201,600	
C x I	Demolition of AT Building	$525,820	
B x K	Renovation for Relocated Offices	$236,500	
E x L	Renovation at Tie ins	$250,000	
D x J	New Construction	$7,000,000	
	Total Construction Cost	**$8,213,920**	
	Total Project Costs	**$11,910,184**	
	Operating Costs - Existing Buildings	$892,904	per year
	Operating Costs - New Building	$200,000	per year

Year	Change in Operating Cost	Constr-uction Cost	Total with Inflation	NPV Discount Factor	Annual Total (NPV)	Cumulative Total (NPV)
1	$241,920	($2,977,546)	($2,799,749)	1.0000	(2,799,749)	(2,799,749)
2	$241,920	($2,977,546)	($2,865,376)	0.9832	(2,817,202)	(5,616,951)
3	$241,920	($2,977,546)	($2,932,540)	0.9667	(2,834,763)	(8,451,714)
4	$241,920	($2,977,546)	($3,001,279)	0.9504	(2,852,433)	(11,304,147)
5	$692,904	$0	$778,010	0.9344	726,994	(10,577,153)
6	$692,904	$0	$796,247	0.9187	731,525	(9,845,628)
7	$692,904	$0	$814,911	0.9033	736,085	(9,109,543)
8	$692,904	$0	$834,012	0.8881	740,674	(8,368,869)
9	$692,904	$0	$853,562	0.8732	745,291	(7,623,578)
10	$692,904	$0	$873,569	0.8585	749,936	(6,873,642)
11	$692,904	$0	$894,046	0.8440	754,611	(6,119,030)
12	$692,904	$0	$915,002	0.8299	759,315	(5,359,715)
13	$692,904	$0	$936,450	0.8159	764,048	(4,595,667)
14	$692,904	$0	$958,401	0.8022	768,811	(3,826,856)
15	$692,904	$0	$980,866	0.7887	773,603	(3,053,253)
16	$692,904	$0	$1,003,857	0.7754	778,426	(2,274,827)
17	$692,904	$0	$1,027,388	0.7624	783,278	(1,491,549)
18	$692,904	$0	$1,051,470	0.7496	788,161	(703,389)
19	$692,904	$0	$1,076,116	0.7370	793,074	89,685
20	$692,904	$0	$1,101,341	0.7246	798,017	887,702
21	$692,904	$0	$1,127,156	0.7124	802,992	1,690,694
22	$692,904	$0	$1,153,577	0.7004	807,997	2,498,691
23	$692,904	$0	$1,180,617	0.6887	813,034	3,311,724
24	$692,904	$0	$1,208,291	0.6771	818,102	4,129,826
25	$692,904	$0	$1,236,613	0.6657	823,201	4,953,027

Year	Change in Operating Cost	Constr-uction Cost	Total with Inflation	NPV Discount Factor	Annual Total (NPV)	Cumulative Total (NPV)
26	$692,904	$0	$1,265,599	0.6545	828,333	5,781,360
27	$692,904	$0	$1,295,265	0.6435	833,496	6,614,857
28	$692,904	$0	$1,325,626	0.6327	838,692	7,453,548
29	$692,904	$0	$1,356,699	0.6220	843,920	8,297,468
30	$692,904	$0	$1,388,500	0.6116	849,180	9,146,649
31	$692,904	$0	$1,421,047	0.6013	854,474	10,001,122
32	$692,904	$0	$1,454,356	0.5912	859,800	10,860,923
33	$692,904	$0	$1,488,447	0.5813	865,160	11,726,082
34	$692,904	$0	$1,523,336	0.5715	870,553	12,596,635
35	$692,904	$0	$1,559,043	0.5619	875,979	13,472,614
36	$692,904	$0	$1,595,587	0.5524	881,440	14,354,054
37	$692,904	$0	$1,632,988	0.5431	886,934	15,240,988
38	$692,904	$0	$1,671,265	0.5340	892,463	16,133,451
39	$692,904	$0	$1,710,440	0.5250	898,026	17,031,477
40	$692,904	$0	$1,750,533	0.5162	903,624	17,935,101
41	$692,904	$0	$1,791,565	0.5075	909,257	18,844,358
42	$692,904	$0	$1,833,560	0.4990	914,925	19,759,282
43	$692,904	$0	$1,876,539	0.4906	920,628	20,679,910
44	$692,904	$0	$1,920,525	0.4824	926,366	21,606,277
45	$692,904	$0	$1,965,542	0.4742	932,141	22,538,418
46	$692,904	$0	$2,011,615	0.4663	937,951	23,476,369
47	$692,904	$0	$2,058,767	0.4584	943,798	24,420,167
48	$692,904	$0	$2,107,025	0.4507	949,681	25,369,849
49	$692,904	$0	$2,156,414	0.4431	955,601	26,325,450
50	$692,904	$0	$2,206,960	0.4357	961,558	27,287,008

Washington State Department of Social & Health Services

Medical Lake Infrastructure Master Plan

Net Cost Analysis - Pine Lodge Relocations

Medical Lake, Washington

June 12, 2014

	Assumptions		
A	Demolition Area	73,835	sq. ft.
B	Renovation Areas	26,633	sq. ft.
C	Annual Operating Cost Existing Buildings	$8	per sq. ft.
D	Annual Operating Cost New Buildings	$8	per sq. ft.
E	Demolition Cost	$12	per sq. ft.
F	Project Cost Mark-up of Construction Cost	45%	
G	Inflation Factor (CAGR of CGI past 10 years)	2.34%	
H	Net Present Value Discount Factor	1.71%	per OFM
I	**Construction Costs**		
J	Demolition Cost	$886,020	
K	Renovation Cost	$700,000	
	Total Construction Cost	**$1,586,020**	
	Total Project Costs	**$2,299,729**	
	Operating Costs - Existing Buildings	$590,680	per year
	Operating Costs - New Building	$213,067	per year

Year	Change in Operating Cost	Constr-uction Cost	Total with Inflation	NPV Discount Factor	Annual Total (NPV)	Cumulative Total (NPV)
1	$0	($2,299,729)	($2,353,635)	1.0000	(2,353,635)	(2,353,635)
2	$377,613	$0	$395,523	0.9832	388,874	(1,964,761)
3	$377,613	$0	$404,795	0.9667	391,298	(1,573,464)
4	$377,613	$0	$414,283	0.9504	393,737	(1,179,727)
5	$377,613	$0	$423,994	0.9344	396,191	(783,535)
6	$377,613	$0	$433,932	0.9187	398,661	(384,875)
7	$377,613	$0	$444,104	0.9033	401,146	16,271
8	$377,613	$0	$454,513	0.8881	403,646	419,918
9	$377,613	$0	$465,167	0.8732	406,163	826,080
10	$377,613	$0	$476,071	0.8585	408,694	1,234,775
11	$377,613	$0	$487,230	0.8440	411,242	1,646,017
12	$377,613	$0	$498,651	0.8299	413,806	2,059,822
13	$377,613	$0	$510,339	0.8159	416,385	2,476,207
14	$377,613	$0	$522,302	0.8022	418,981	2,895,188
15	$377,613	$0	$534,544	0.7887	421,592	3,316,780
16	$377,613	$0	$547,074	0.7754	424,220	3,741,000
17	$377,613	$0	$559,898	0.7624	426,865	4,167,865
18	$377,613	$0	$573,022	0.7496	429,525	4,597,391
19	$377,613	$0	$586,453	0.7370	432,203	5,029,593
20	$377,613	$0	$600,200	0.7246	434,897	5,464,491
21	$377,613	$0	$614,269	0.7124	437,608	5,902,099
22	$377,613	$0	$628,667	0.7004	440,336	6,342,434
23	$377,613	$0	$643,403	0.6887	443,081	6,785,515
24	$377,613	$0	$658,485	0.6771	445,843	7,231,358
25	$377,613	$0	$673,920	0.6657	448,622	7,679,979

Year	Change in Operating Cost	Constr-uction Cost	Total with Inflation	NPV Discount Factor	Annual Total (NPV)	Cumulative Total (NPV)
26	$377,613	$0	$689,716	0.6545	451,418	8,131,398
27	$377,613	$0	$705,883	0.6435	454,232	8,585,630
28	$377,613	$0	$722,429	0.6327	457,064	9,042,693
29	$377,613	$0	$739,363	0.6220	459,913	9,502,606
30	$377,613	$0	$756,694	0.6116	462,780	9,965,386
31	$377,613	$0	$774,431	0.6013	465,664	10,431,050
32	$377,613	$0	$792,584	0.5912	468,567	10,899,617
33	$377,613	$0	$811,162	0.5813	471,488	11,371,105
34	$377,613	$0	$830,176	0.5715	474,427	11,845,532
35	$377,613	$0	$849,635	0.5619	477,384	12,322,916
36	$377,613	$0	$869,550	0.5524	480,360	12,803,276
37	$377,613	$0	$889,933	0.5431	483,354	13,286,631
38	$377,613	$0	$910,793	0.5340	486,367	13,772,998
39	$377,613	$0	$932,142	0.5250	489,399	14,262,397
40	$377,613	$0	$953,991	0.5162	492,450	14,754,847
41	$377,613	$0	$976,353	0.5075	495,520	15,250,367
42	$377,613	$0	$999,239	0.4990	498,608	15,748,975
43	$377,613	$0	$1,022,661	0.4906	501,716	16,250,691
44	$377,613	$0	$1,046,632	0.4824	504,844	16,755,535
45	$377,613	$0	$1,071,166	0.4742	507,991	17,263,526
46	$377,613	$0	$1,096,274	0.4663	511,157	17,774,683
47	$377,613	$0	$1,121,971	0.4584	514,344	18,289,027
48	$377,613	$0	$1,148,270	0.4507	517,550	18,806,577
49	$377,613	$0	$1,175,185	0.4431	520,776	19,327,353
50	$377,613	$0	$1,202,732	0.4357	524,022	19,851,375

NAC ARCHITECTURE

Washington State Department of Social & Health Services

Medical Lake Infrastructure Master Plan

Net Cost Analysis - CIRV Apartments

Medical Lake, Washington

June 12, 2014

	Assumptions		
	Staffing		
A	Average Hours per Week	620	hours
B	Average Hours per Year	32,240	hours
C	Washington State Minimum Wage	$9.32	per sq. ft.
D	Hourly Value (75% of Minimum Wage)	$6.99	per sq. ft.
E	Annual Value of Labor	$225,358	
	Operating Cost		
F	Number of Apartments	32	
G	Operating Cost per Month per Apartment	$350	
H	Total Monthly Operating Cost	$11,200	
I	Total Annual Operating Cost	$134,400	
	Planning Factors		
J	Project Cost Mark-up of Construction Cost	45%	
K	Inflation Factor (CAGR of CGI past 10 years)	2.34%	
L	Net Present Value Discount Factor	1.71%	per OFM
	Average monthly student room and board	$750	
	Ave. annual room and board for 9.5 months	$7,125	
	Total financial assistance for 40 students	$285,000	
	Total Construction Cost	**$893,000**	
	Total Project Costs	**$1,294,850**	
E - I	**Annual Operating Cost Savings**	**$90,958**	

Year	Change in Operating Cost	Constr-uction Cost	Total with Inflation	NPV Discount Factor	Annual Total (NPV)	Cumulative Total (NPV)
1	$90,958	($1,294,850)	($1,232,112)	1.0000	(1,232,112)	(1,232,112)
2	$90,958	$0	$95,272	0.9832	93,670	(1,138,442)
3	$90,958	$0	$97,505	0.9667	94,254	(1,044,188)
4	$90,958	$0	$99,790	0.9504	94,841	(949,347)
5	$90,958	$0	$102,129	0.9344	95,433	(853,914)
6	$90,958	$0	$104,523	0.9187	96,027	(757,887)
7	$90,958	$0	$106,973	0.9033	96,626	(661,261)
8	$90,958	$0	$109,481	0.8881	97,228	(564,032)
9	$90,958	$0	$112,047	0.8732	97,834	(466,198)
10	$90,958	$0	$114,674	0.8585	98,444	(367,754)
11	$90,958	$0	$117,362	0.8440	99,058	(268,696)
12	$90,958	$0	$120,112	0.8299	99,675	(169,020)
13	$90,958	$0	$122,928	0.8159	100,297	(68,724)
14	$90,958	$0	$125,809	0.8022	100,922	32,198
15	$90,958	$0	$128,758	0.7887	101,551	133,749
16	$90,958	$0	$131,776	0.7754	102,184	235,933
17	$90,958	$0	$134,865	0.7624	102,821	338,754
18	$90,958	$0	$138,027	0.7496	103,462	442,216
19	$90,958	$0	$141,262	0.7370	104,107	546,323
20	$90,958	$0	$144,573	0.7246	104,756	651,079
21	$90,958	$0	$147,962	0.7124	105,409	756,488
22	$90,958	$0	$151,430	0.7004	106,066	862,554
23	$90,958	$0	$154,980	0.6887	106,727	969,281
24	$90,958	$0	$158,612	0.6771	107,392	1,076,673
25	$90,958	$0	$162,330	0.6657	108,062	1,184,735

Year	Change in Operating Cost	Constr-uction Cost	Total with Inflation	NPV Discount Factor	Annual Total (NPV)	Cumulative Total (NPV)
26	$90,958	$0	$166,135	0.6545	108,735	1,293,470
27	$90,958	$0	$170,030	0.6435	109,413	1,402,883
28	$90,958	$0	$174,015	0.6327	110,095	1,512,978
29	$90,958	$0	$178,094	0.6220	110,781	1,623,760
30	$90,958	$0	$182,269	0.6116	111,472	1,735,232
31	$90,958	$0	$186,541	0.6013	112,167	1,847,399
32	$90,958	$0	$190,914	0.5912	112,866	1,960,265
33	$90,958	$0	$195,389	0.5813	113,570	2,073,835
34	$90,958	$0	$199,969	0.5715	114,278	2,188,112
35	$90,958	$0	$204,656	0.5619	114,990	2,303,102
36	$90,958	$0	$209,453	0.5524	115,707	2,418,809
37	$90,958	$0	$214,363	0.5431	116,428	2,535,237
38	$90,958	$0	$219,387	0.5340	117,154	2,652,390
39	$90,958	$0	$224,530	0.5250	117,884	2,770,274
40	$90,958	$0	$229,793	0.5162	118,619	2,888,893
41	$90,958	$0	$235,179	0.5075	119,358	3,008,252
42	$90,958	$0	$240,692	0.4990	120,102	3,128,354
43	$90,958	$0	$246,333	0.4906	120,851	3,249,205
44	$90,958	$0	$252,108	0.4824	121,604	3,370,809
45	$90,958	$0	$258,017	0.4742	122,362	3,493,171
46	$90,958	$0	$264,065	0.4663	123,125	3,616,296
47	$90,958	$0	$270,255	0.4584	123,893	3,740,189
48	$90,958	$0	$276,589	0.4507	124,665	3,864,854
49	$90,958	$0	$283,073	0.4431	125,442	3,990,296
50	$90,958	$0	$289,708	0.4357	126,224	4,116,519

Washington State Department of Social & Health Services

Medical Lake Infrastructure Master Plan

Net Cost Analysis - Lakeland Village Administration Building

Medical Lake, Washington

June 12, 2014

	Assumptions		
A	Area of existing Administration Building	25,162	sq. ft.
B	Area of new offices/conference rooms	5,800	sq. ft.
C			
D	New Construction Area	1,500	sq. ft.
E			
F	Annual Operating Cost Existing Buildings	$12	per sq. ft.
G	Annual Operating Cost New Buildings	$10	per sq. ft.
H	Allowance for Emergency Capital Projects	$5,000	per year
I	Demolition Cost	$10	per sq. ft.
J	New Construction Cost	$340	per sq. ft.
K	Renovation Cost for Office Relocations	$80	per sq. ft.
L	Allowance for Site Work	$250,000	
M	Project Cost Mark-up of Construction Cost	45%	
N	Inflation Factor (CAGR of CGI past 10 years)	2.34%	
O	Net Present Value Discount Factor	1.71%	per OFM
	Construction Costs		
A x I	Demolition of Administration Building	$251,620	
B x K	Renovation for Relocated Offices	$464,000	
L	Site Work	$300,000	
D x J	New Construction	$510,000	
	Total Construction Cost	**$1,525,620**	
	Total Project Costs	**$2,212,149**	
	Operating Costs - Existing Buildings	$306,944	per year
	Operating Costs - New Building	$15,000	per year

Year	Change in Operating Cost	Constr-uction Cost	Total with Inflation	NPV Discount Factor	Annual Total (NPV)	Cumulative Total (NPV)
1	$0	($1,106,075)	($1,132,001)	1.0000	(1,132,001)	(1,132,001)
2	$0	($1,106,075)	($1,158,535)	0.9832	(1,139,057)	(2,271,058)
3	$291,944	$0	$312,959	0.9667	302,524	(1,968,535)
4	$291,944	$0	$320,294	0.9504	304,410	(1,664,125)
5	$291,944	$0	$327,802	0.9344	306,307	(1,357,818)
6	$291,944	$0	$335,486	0.9187	308,216	(1,049,601)
7	$291,944	$0	$343,350	0.9033	310,138	(739,464)
8	$291,944	$0	$351,398	0.8881	312,071	(427,393)
9	$291,944	$0	$359,635	0.8732	314,016	(113,376)
10	$291,944	$0	$368,064	0.8585	315,974	202,597
11	$291,944	$0	$376,692	0.8440	317,943	520,541
12	$291,944	$0	$385,522	0.8299	319,925	840,466
13	$291,944	$0	$394,558	0.8159	321,919	1,162,385
14	$291,944	$0	$403,807	0.8022	323,926	1,486,312
15	$291,944	$0	$413,272	0.7887	325,945	1,812,257
16	$291,944	$0	$422,959	0.7754	327,977	2,140,234
17	$291,944	$0	$432,873	0.7624	330,022	2,470,256
18	$291,944	$0	$443,020	0.7496	332,079	2,802,335
19	$291,944	$0	$453,404	0.7370	334,149	3,136,483
20	$291,944	$0	$464,032	0.7246	336,232	3,472,715
21	$291,944	$0	$474,909	0.7124	338,328	3,811,043
22	$291,944	$0	$486,041	0.7004	340,437	4,151,479
23	$291,944	$0	$497,434	0.6887	342,559	4,494,038
24	$291,944	$0	$509,094	0.6771	344,694	4,838,732
25	$291,944	$0	$521,027	0.6657	346,843	5,185,575

Year	Change in Operating Cost	Constr-uction Cost	Total with Inflation	NPV Discount Factor	Annual Total (NPV)	Cumulative Total (NPV)
26	$291,944	$0	$533,240	0.6545	349,005	5,534,580
27	$291,944	$0	$545,739	0.6435	351,180	5,885,760
28	$291,944	$0	$558,531	0.6327	353,369	6,239,129
29	$291,944	$0	$571,623	0.6220	355,572	6,594,702
30	$291,944	$0	$585,022	0.6116	357,789	6,952,490
31	$291,944	$0	$598,735	0.6013	360,019	7,312,509
32	$291,944	$0	$612,770	0.5912	362,263	7,674,772
33	$291,944	$0	$627,133	0.5813	364,521	8,039,293
34	$291,944	$0	$641,833	0.5715	366,793	8,406,087
35	$291,944	$0	$656,878	0.5619	369,080	8,775,166
36	$291,944	$0	$672,275	0.5524	371,381	9,146,547
37	$291,944	$0	$688,033	0.5431	373,696	9,520,242
38	$291,944	$0	$704,161	0.5340	376,025	9,896,267
39	$291,944	$0	$720,666	0.5250	378,369	10,274,636
40	$291,944	$0	$737,559	0.5162	380,727	10,655,364
41	$291,944	$0	$754,847	0.5075	383,101	11,038,465
42	$291,944	$0	$772,541	0.4990	385,489	11,423,953
43	$291,944	$0	$790,650	0.4906	387,892	11,811,845
44	$291,944	$0	$809,182	0.4824	390,310	12,202,155
45	$291,944	$0	$828,150	0.4742	392,743	12,594,897
46	$291,944	$0	$847,562	0.4663	395,191	12,990,088
47	$291,944	$0	$867,429	0.4584	397,654	13,387,742
48	$291,944	$0	$887,761	0.4507	400,133	13,787,876
49	$291,944	$0	$908,570	0.4431	402,627	14,190,503
50	$291,944	$0	$929,867	0.4357	405,137	14,595,640

2.0 PROJECT ANALYSIS

2.1 Project History

The DSHS 2013-23 Capital Plan requested several infrastructure projects at Eastern State Hospital and Lakeland Village for the 2013-15 biennium, including a new Boiler Plant at ESH and an ESCO project to replace Lakeland Village steam heating and chiller systems with geothermal heat pump systems to serve the cottages. That project was identified to have a cost of $28M, with $20M requested in the 2013-15 biennium for electrical work, and $8M in the 2015-17 biennium for heating and cooling systems. The 2013 legislature responded with a capital appropriation for an Infrastructure Modernization Study to investigate how utilities and services can be delivered more cost effectively. This study should include assessment of what services and infrastructure can be shared between ESH and LV, and how the campus footprint can be reduced to reduce the cost of delivering utilities and services.

The primary focus of this Infrastructure Master Plan is therefore site utilities and services, with program and building improvements/maintenance as secondary factors. This approach contrasts with the last Master Plan done for ESH by NAC|Architecture in 2008 under contract 2008-413A, which focused on program needs and new building solutions to accommodate those needs.

Historical Background

A "Preliminary Report – Eastern State Hospital - Master Plan" was published July 1, 1970 by Boyington & Reid/Moritz Kundig, Architects working under state contract #69-774. Existing ESH facilities were studied and three options were developed: A) Minimum Renovation, B) Total Renovation, and C) Reconstruction. Option A would include the minimum improvements necessary to satisfy requests made by the State Fire Marshal, the State Dept. of Health, and the Safety Division of Labor and Industries. Option B included an interior renovation of the existing Eastlake Building. Option C involved completely rebuilding the institution in four phases centered on the existing Eastlake Building, with a new Medical-Dispensary-Clinic building included in the phase along with a new heating plant and shop space. Phase 2 included a new central Kitchen and Dining-Recreation-Therapy buildings at the north and south ends. Phase 3 added a new Administration-Reception Building at the west side and an Activities Building at the east side. Phase 4 completed the removal of the Eastlake Building after construction of 8 new 2-story ward units, four each at the north and south ends.

No immediate action resulted from the 1970 Report, but in 1984 the renovation of the Eastlake Building was funded using a phased approach (This action aligned with Option "B" of the 1970 report.) Ensuing construction of "Ward Renovations, Phases 1 thru IV" occurred from 1987 to 1999.

In 1972, De Neff, Deeble, Barton Associates published a "Feasibility Study for Renovation or Removal of Several Buildings" at ESH under state contract 71-545A. Eleven buildings were reviewed; (6) cottages were recommended to be maintained (they have since been demolished) and Cottage 1 (of stone construction) was recommended to be demolished (it has since been reconstructed). Other buildings recommended for demolition included Building 8 (Old Shoe Shop), Roosevelt Hall, the Motor Pool Storage Shed by Roosevelt Hall, and the Morgue. Three of those four have since been demolished; Roosevelt Hall still remains. The original 2-story building called Pine Lodge (now known as Pine Lodge building #1, Unit 1 Housing) was identified to be "retained to see if any unrelated State need for the building occurs". It was subsequently used to house inmates when Pine Lodge became a Pre-Release facility leased from DSHS by the WA state Dept. of Corrections (DOC).

A "Historical and Cultural Resource Assessment for Eastern State Hospital" was published by BLRB Architects on June 15, 2011 working under contract #2010-436 for DSHS/OCP to document the history of the ESH campus in general and the historical buildings in particular, rank them in historic significance, and present a restoration plan. BLRB gathered data on the ESH buildings and documented it in their report but did not enter it on the Dept. of Archaeology and Historic Preservation (DAHP)'s "Historic Property Inventory Form".

Stephen Emerson, Program Director, Archaeological and Historical Services at Eastern Washington University (EWU), acting as historical consultant to NAC|Architecture under contract 2014-448A, recently completed (23) Historic Property Inventory forms for these remaining ESH buildings and entered them in DAHP's online WISAARD database.

DAHP may require that a "Level II Mitigation Package" be submitted and approved prior to starting demolition of historical buildings.

This Infrastructure Master Plan recommends demolition of numerous buildings at all three campuses (ESH, LV, & PL). The next step will be to contact DAHP and have them review the list of buildings proposed for demolition and determine which buildings need to have a Level II Mitigation Package completed for them. DAHP also needs to be asked whether HPI (Historic Property Inventory) forms need to be completed for those Lakeland Village and Pine Lodge buildings which haven't been entered into their WISAARD database yet.

EWU's Archaeological and Historical Services recently completed a Level II Mitigation package for DAHP on the Interlake School building at ESH as part of their scope of work under 2014-448A. The Interlake building is currently undergoing asbestos abatement prior to proceeding with demolition. The other buildings recommended for demo should also have Asbestos Surveys completed as a necessary step prior to starting demolition.

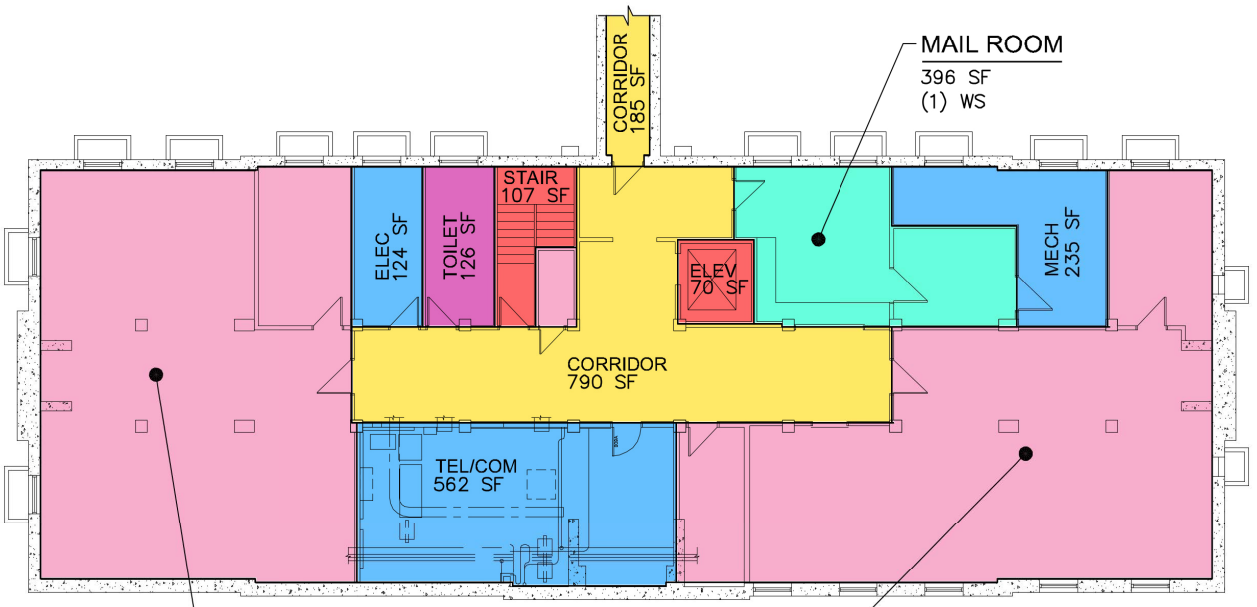
Note that the "Restoration Plan" included in BLRB's 2011 Historical Assessment for Eastern State Hospital is general in nature and not specific to individual buildings. The restoration plan describes standards and recommended practices for Preservation, Rehabilitation, Restoration, and Reconstruction. That report also includes a "Building Significance Priority List", ranking the buildings in increasing historical importance as follows:

- 0 = Intrusive
- 1 = Secondary with intrusions
- 2 = Secondary
- 3 = Primary
- 4 = Pivotal

The highest category, "4, Pivotal" has only been assigned to one building, the ESH Administration Building, which this Master Plan recommends be demolished (see Program Recommendations). In addition, six of the eight category "3" buildings are also being recommended for demo, including the Power House (Boiler Building), the Old Fire Station, Linden Hall, West Lodge, Roosevelt Hall, and the Auditorium. This Master Plan's recommendation for demolishing these buildings instead of making major investments to restore them is based on economic common sense, not historical significance. Most of these buildings have no program use and are so badly deteriorated that it would not be cost effective to restore them. The Power House DOES have a critical function but it would be nearly impossible to retrofit this building to make it structurally sound; consequently this report recommends replacing it as well (see "Infrastructure Recommendations - Immediate Needs").

2.2 Existing Program

The following plans and tables indicate the exsostong program areas of the major buildings on each campus



SUPPORT AREAS

TOILET/ SHOWER/ JANITOR (JAN)
TOTAL: 161 SF

MECH/ ELEC/ DATA/ TEL/ COMM
TOTAL: 921 SF

CIRCULATION (CORR, STAIR, ELEV)
TOTAL: 967 SF

N

PROGRAM AREAS

BASEMENT FLOOR PLAN

Scale: 1/16"= 1'-0"

X01_PROGAREAS_0

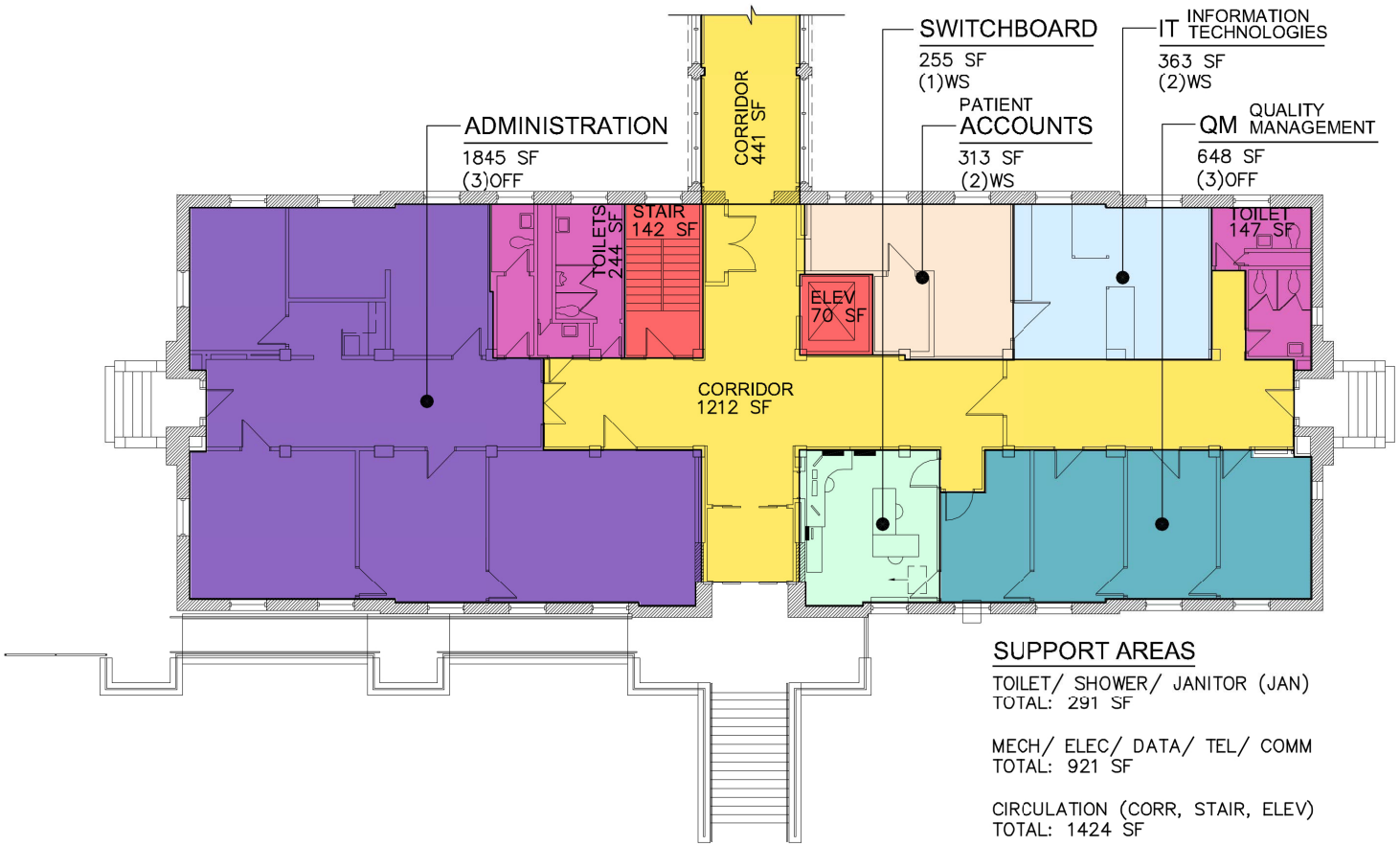
MEDICAL LAKE INFRASTRUCTURE
MASTER PLAN
MEDICAL LAKE, WA

STATE NO # 2014 - 415
NAC NO # 111 - 14011

NAC ARCHITECTURE

ADMINISTRATION 3A**01-B**

1203 W RIVERSIDE AVE | SPOKANE WA 99201-1107 | P: 509.838.8240 | F: 509.838.8261



SUPPORT AREAS

TOILET/ SHOWER/ JANITOR (JAN)
TOTAL: 291 SF

MECH/ ELEC/ DATA/ TEL/ COMM
TOTAL: 921 SF

CIRCULATION (CORR, STAIR, ELEV)
TOTAL: 1424 SF

N

PROGRAM AREAS

FIRST FLOOR PLAN

Scale: 1/16"= 1'–0"

X01_PROGAREAS_1

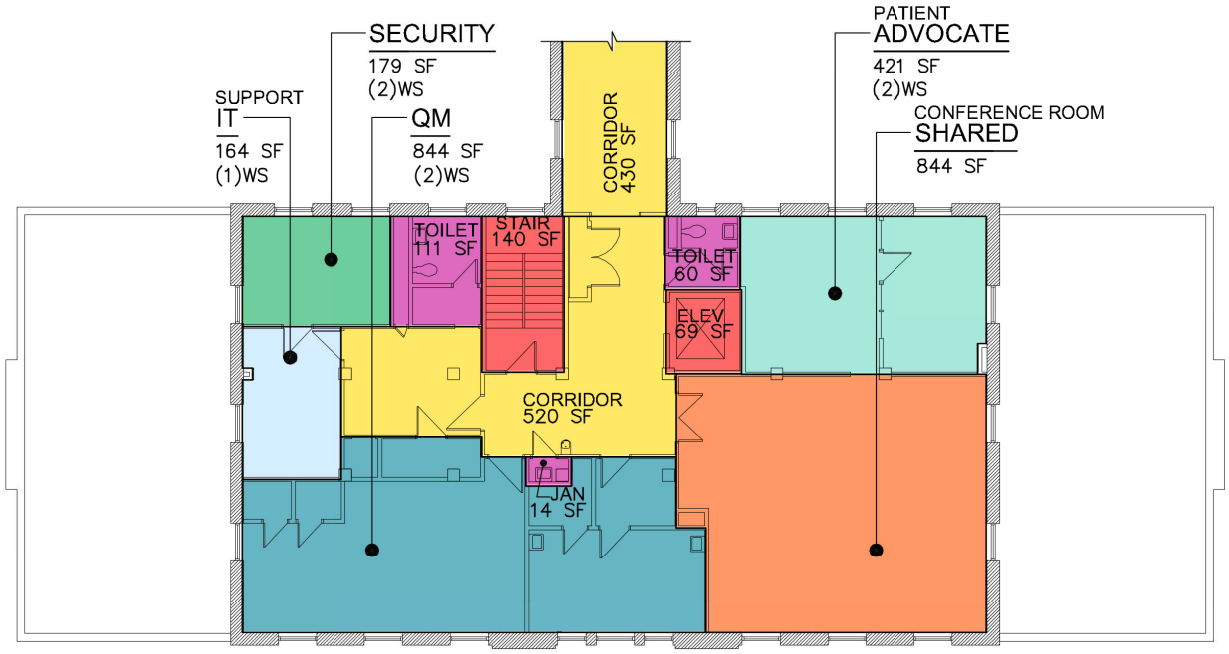
MEDICAL LAKE INFRASTRUCTURE
MASTER PLAN
MEDICAL LAKE, WA

STATE NO # 2014 - 415
NAC NO # 111 - 14011

NAC ARCHITECTURE

ADMINISTRATION 3A**01-1**

1203 W RIVERSIDE AVE | SPOKANE WA 99201-1107 | P: 509.838.8240 | F: 509.838.8261



SUPPORT AREAS

TOILET/ SHOWER/ JANITOR (JAN)
TOTAL: 185 SF

CIRCULATION (CORR, STAIR, ELEV)
TOTAL: 729 SF

PROGRAM AREAS

SECOND FLOOR FLOOR PLAN

Scale: 1/16"= 1'-0"

X01_PROGAREAS_2

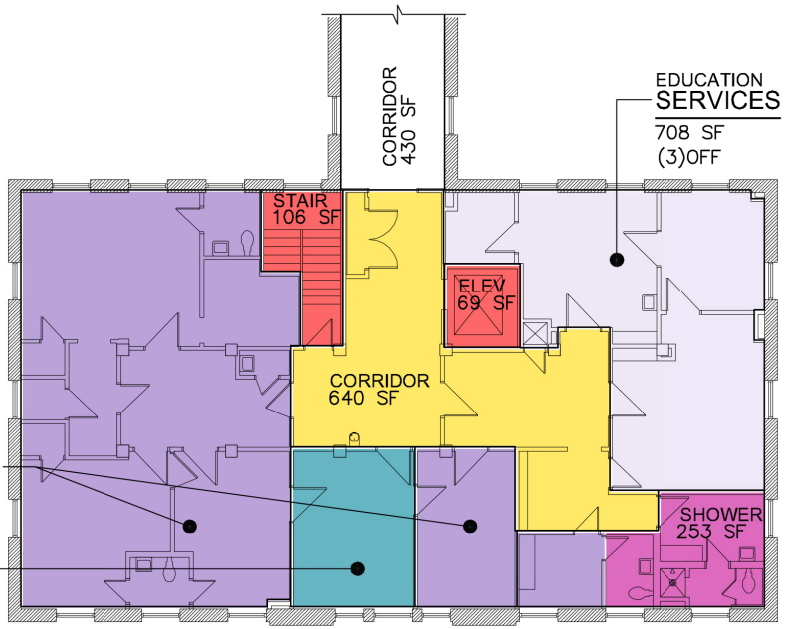
MEDICAL LAKE INFRASTRUCTURE
MASTER PLAN
MEDICAL LAKE, WA

STATE NO # 2014 - 415
NAC NO # 111 - 14011

NAC ARCHITECTURE

ADMINISTRATION 3A**01-2**

1203 W RIVERSIDE AVE | SPOKANE WA 99201-1107 | P: 509.838.8240 | F: 509.838.8261



SUPPORT AREAS

TOILET/ SHOWER/ JANITOR (JAN)
TOTAL: 291 SF

MECH/ ELEC/ DATA/ TEL/ COMM
TOTAL: 921 SF

CIRCULATION (CORR, STAIR, ELEV)
TOTAL: 1424 SF

N

PROGRAM AREAS

THIRD FLOOR FLOOR PLAN

Scale: 1/16"= 1'-0"

X01_PROGAREAS_2

MEDICAL LAKE INFRASTRUCTURE
MASTER PLAN
MEDICAL LAKE, WA

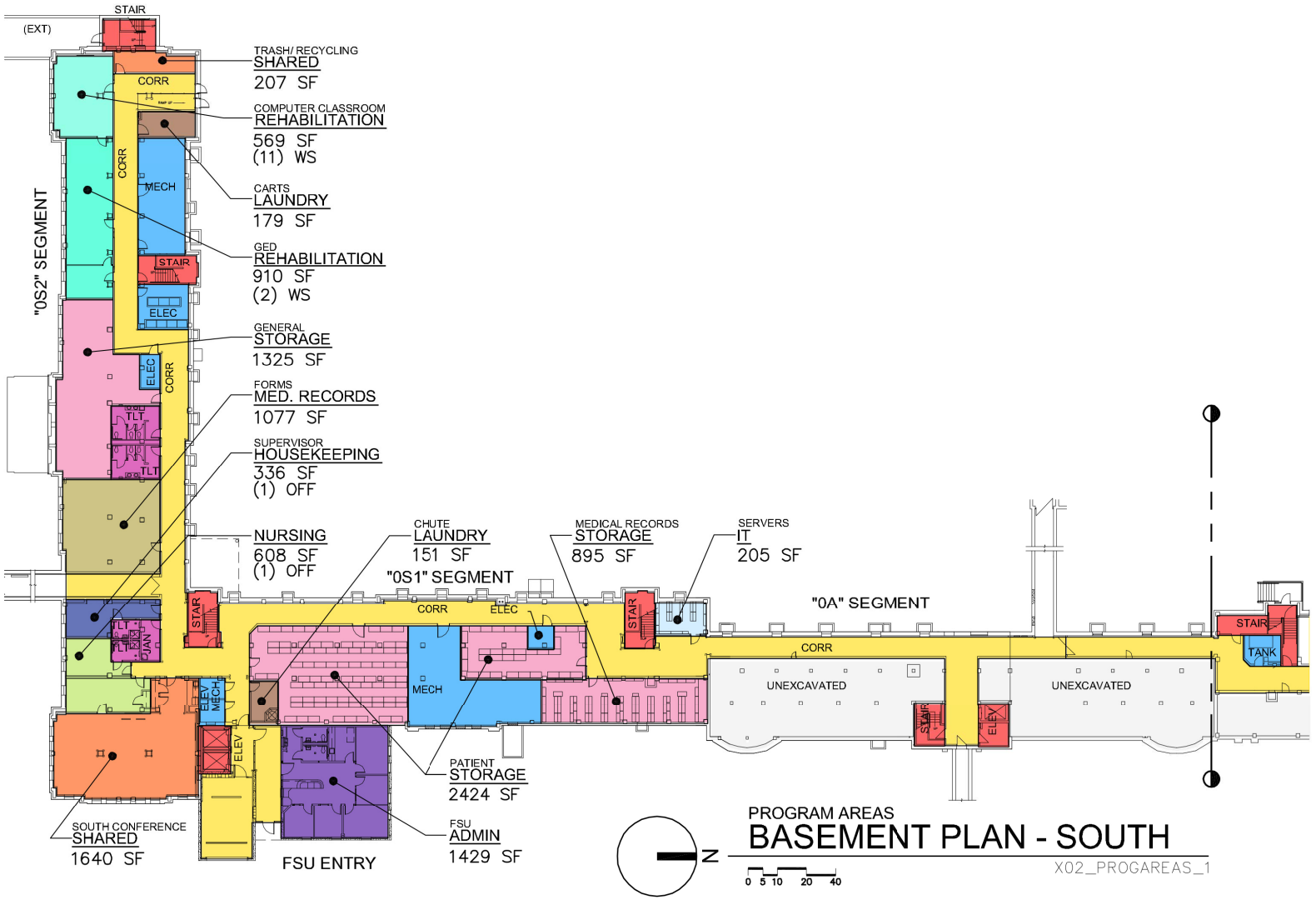
STATE NO # 2014 - 415
NAC NO # 111 - 14011

NAC ARCHITECTURE

ADMINISTRATION 3A**01-3**

1203 W RIVERSIDE AVE | SPOKANE WA 99201-1107 | P: 509.838.8240 | F: 509.838.8261

Existing Program Areas	Medical Lake Infrastructure Master Plan WA State DES #2014-415		Administration Bldg - 3A01
NAC #111-14011-A206	April 25, 2014		
FLOOR	**PROGRAM USE DESCRIPTION**	**SF**	**BEDS / OFFICES / WORK STATIONS**
Basement	IT Storage	1,445	--
	Mail Room	396	--
	Medical Records Storage	1,412	2 WS
	Toilet/ Shower/ Janitor	161	--
	Mech/ Elec/ Tel-Comm	921	--
	Circulation	1,152	--
subtotals		**5,487**	
First Floor	Accounts	313	3 Offices
	Administration	1,843	2 WS
	QM - Quality Management	648	3 Offices
	IT - Information Technologys	363	2 WS
	Switchboard	255	1 WS
	Toilet/ Shower/ Janitor	391	--
	Mech/ Elec/ Tel-Comm	-	--
	Circulation	1,865	--
subtotals		**5,678**	
Second Floor	IT - Support	164	2 WS
	QM - Quality Management	860	1 WS
	Patient Advocate	421	2 WS
	Security	179	2 WS
	Shared	844	2 WS
	Toilet/ Shower/ Janitor	185	--
	Mech/ Elec/ Tel-Comm	-	--
	Circulation	1,159	--
subtotals		**3,812**	
Third Floor	Education Services	708	3 Offices
	HR - Human Resources	1,387	5 offices
	QM - Safety Officer	216	1 WS
	Education Services	708	3 Offices
	Toilet/ Shower/ Janitor	253	--
	Mech/ Elec/ Tel-Comm	-	--
	Circulation	1,245	--
subtotals		**4,517**	
	Building Total NSF	**19,494**	



PROGRAM AREAS

BASEMENT PLAN - SOUTH

X02_PROGAREAS_1

MEDICAL LAKE INFRASTRUCTURE
MASTER PLAN
MEDICAL LAKE, WA

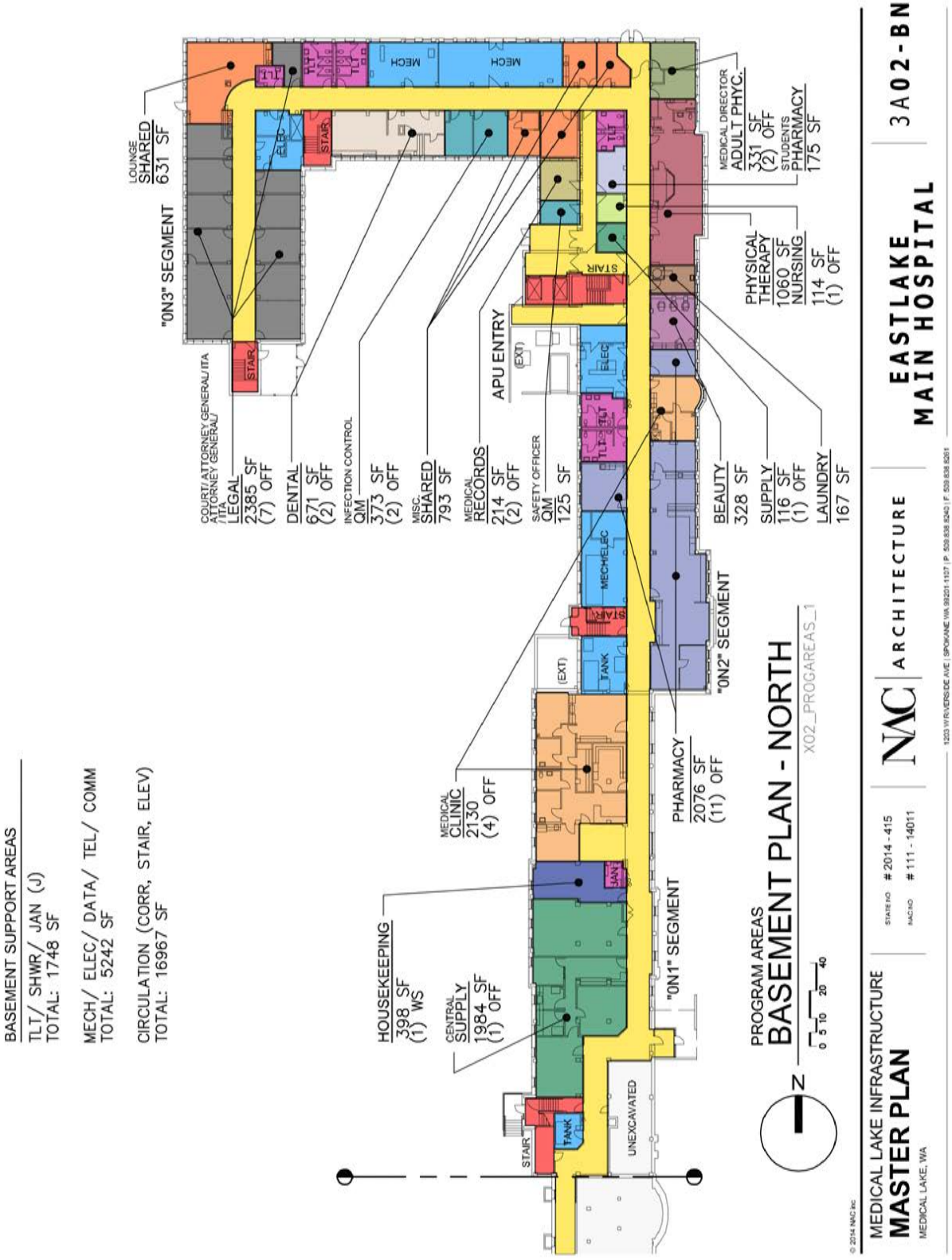
STATE NO # 2014 - 415
NAC NO # 111 - 14011

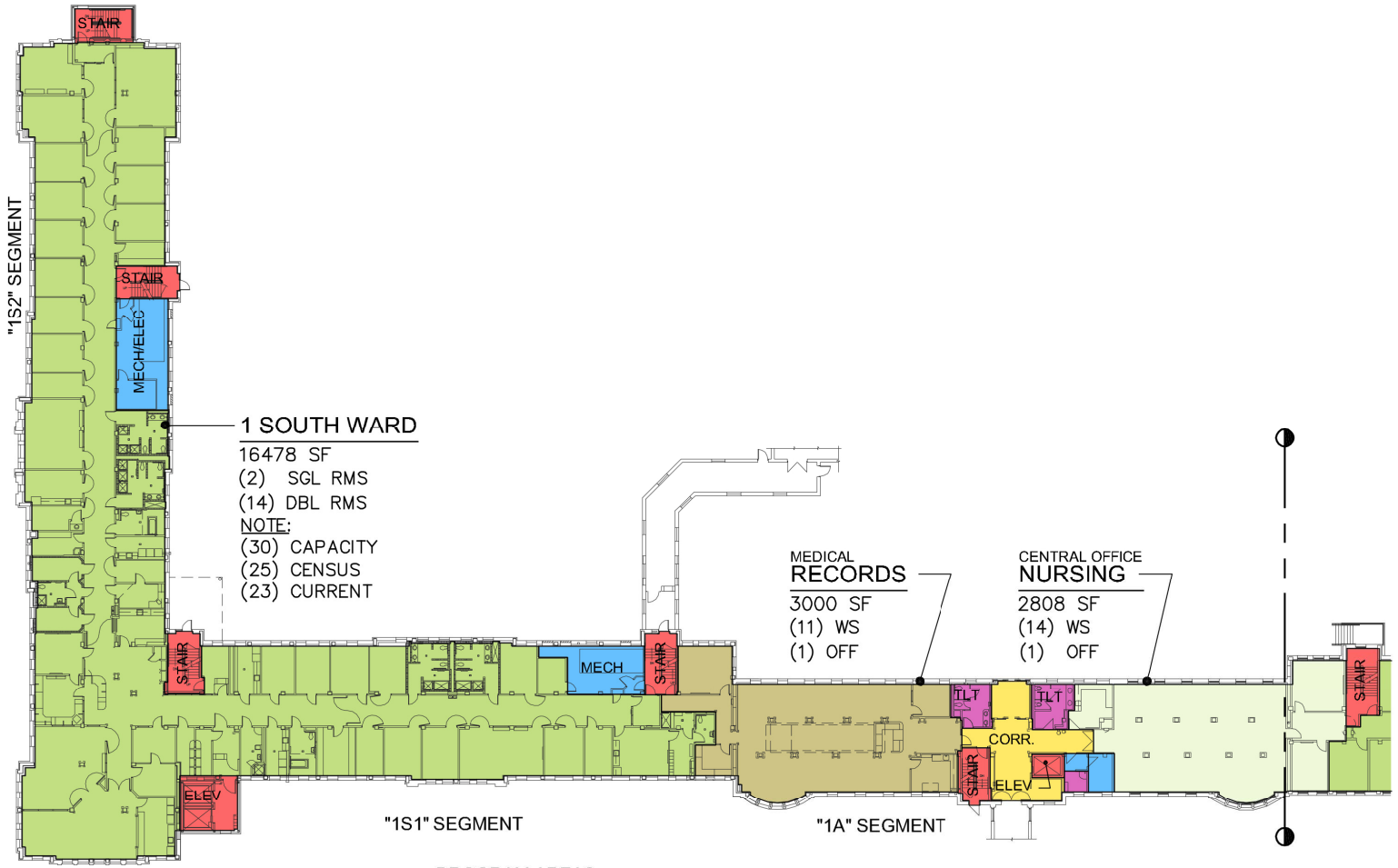
NAC ARCHITECTURE

EASTLAKE MAIN HOSPITAL

3A**02-BS**

1203 W RIVERSIDE AVE | SPOKANE WA 99201-1107 | P. 509.838.8240 | F. 509.838.8261


BASEMENT SUPPORT AREAS
TLT/ SHWR/ JAN (J)
TOTAL: 1748 SF
MECH/ ELEC/ DATA/ TEL/ COMM
TOTAL: 5242 SF
CIRCULATION (CORR, STAIR, ELEV)
TOTAL: 16967 SF
"0N3" SEGMENT
LOUNGE SHARED 631 SF
COURT/ ATTORNEY GENERAL/ ITA ATTORNEY GENERAL/ ITA LEGAL 2385 SF (7) OFF
DENTAL 671 SF (2) OFF
INFECTION CONTROL QM 373 SF (2) OFF
MISC. SHARED 793 SF
MEDICAL RECORDS 214 SF (2) OFF
SAFETY OFFICER QM 125 SF
APU ENTRY
MEDICAL DIRECTOR ADULT PHYC. 331 SF (2) OFF
STUDENTS PHARMACY 175 SF
PHYSICAL THERAPY 1060 SF
NURSING 114 SF (1) OFF
BEAUTY 328 SF
SUPPLY 116 SF (1) OFF
LAUNDRY 167 SF
"0N2" SEGMENT
PHARMACY 2076 SF (11) OFF
MEDICAL CLINIC 2130 (4) OFF
HOUSEKEEPING 398 SF (1) WS
CENTRAL SUPPLY 1984 SF (1) OFF
"0N1" SEGMENT
UNEXCAVATED
STAIR
TANK
MECH
ELEC
TLT
JAN
(EXT)
MECH/ELEC
PROGRAM AREAS
BASEMENT PLAN - NORTH
X02_PROGAREAS_1
0 5 10 20 40
N
NAC ARCHITECTURE
EASTLAKE MAIN HOSPITAL
3A02-BN
STATE NO # 2014 - 415
NAC NO # 111 - 14011
1203 W RIVERSIDE AVE | SPOKANE WA 99201 1107 | P 509 838 8240 | F 509 838 8261
© 2014 NAC Inc
MEDICAL LAKE INFRASTRUCTURE
MASTER PLAN
MEDICAL LAKE, WA



PROGRAM AREAS

FIRST FLOOR PLAN - SOUTH

X02_PROGAREAS_1

N

0 5 10 20 40

MEDICAL LAKE INFRASTRUCTURE
MASTER PLAN
MEDICAL LAKE, WA

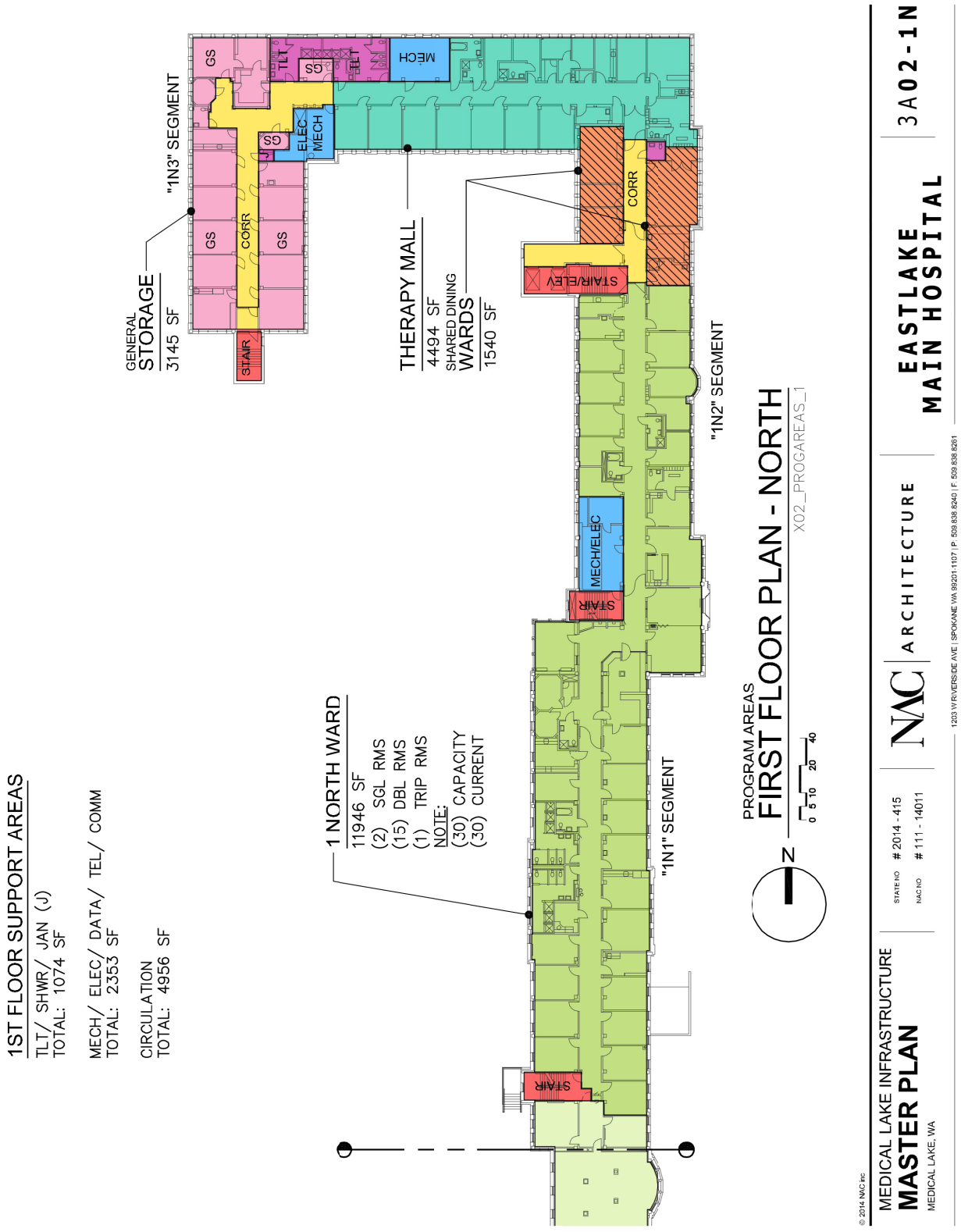
STATE NO # 2014 - 415
NAC NO # 111 - 14011

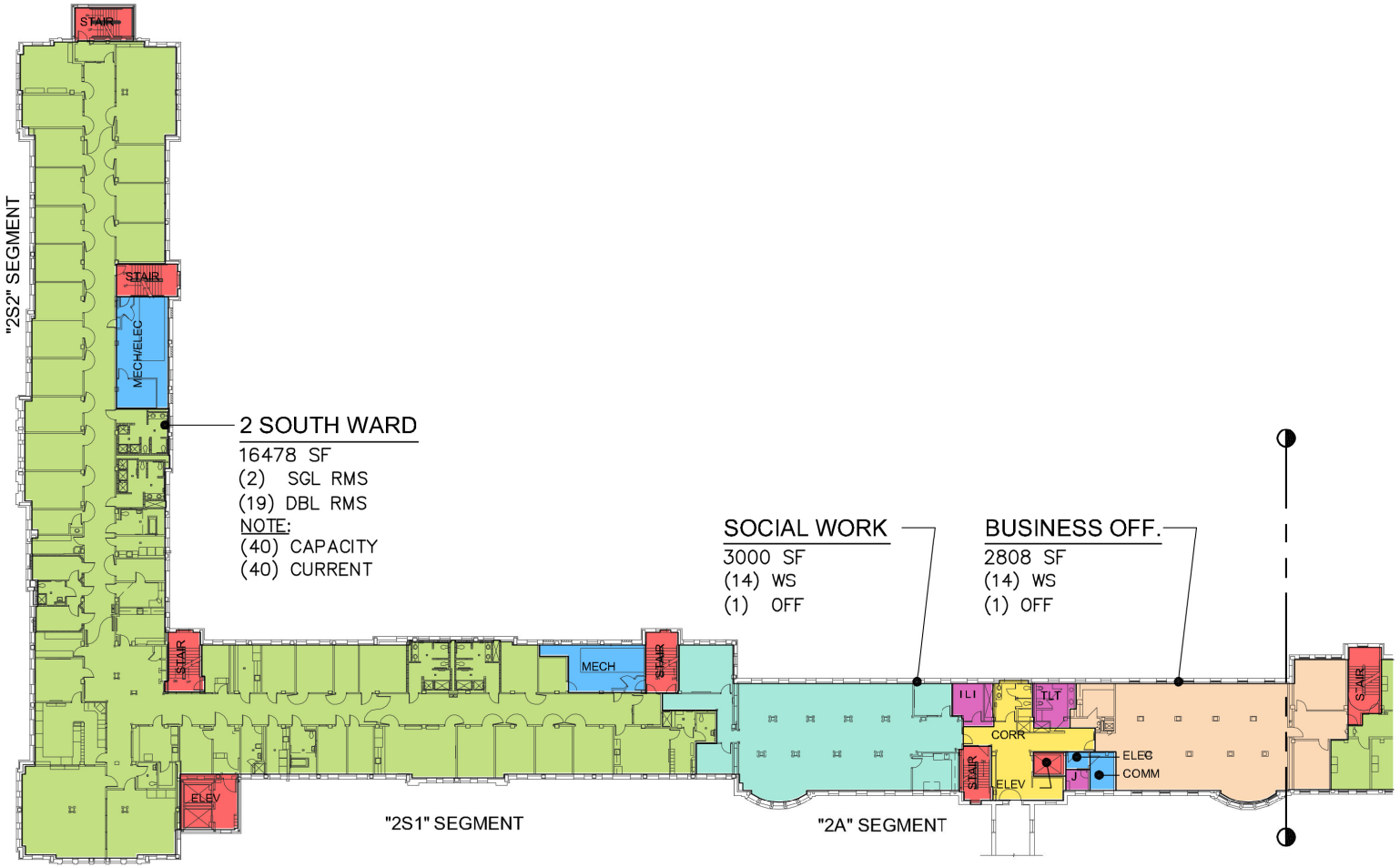
NAC ARCHITECTURE

EASTLAKE MAIN HOSPITAL

3A**02-1S**

1203 W RIVERSIDE AVE | SPOKANE WA 99201-1107 | P. 509.838.8240 | F. 509.838.8261


1ST FLOOR SUPPORT AREAS
TLT/ SHWR/ JAN (J)
TOTAL: 1074 SF
MECH/ ELEC/ DATA/ TEL/ COMM
TOTAL: 2353 SF
CIRCULATION
TOTAL: 4956 SF
GENERAL
STORAGE
3145 SF
"1N3" SEGMENT
THERAPY MALL
4494 SF
SHARED DINING
WARDS
1540 SF
1 NORTH WARD
11946 SF
(2) SGL RMS
(15) DBL RMS
(1) TRIP RMS
NOTE:
(30) CAPACITY
(30) CURRENT
"1N1" SEGMENT
"1N2" SEGMENT
PROGRAM AREAS
FIRST FLOOR PLAN - NORTH
X02_PROGAREAS_1
0 5 10 20 40
N
GS
TLT
ELEC
MECH
CORR
STAIR
STAIR/ELEV
MECH/ELEC
© 2014 NAC inc.
MEDICAL LAKE INFRASTRUCTURE
MASTER PLAN
MEDICAL LAKE, WA
STATE NO # 2014 - 415
NAC NO # 111 - 14011
NAC ARCHITECTURE
1203 W RIVERSIDE AVE | SPOKANE WA 99201-1107 | P 509.838.8240 | F 509.838.8261
EASTLAKE
MAIN HOSPITAL
3A02-1N



PROGRAM AREAS

SECOND FLOOR PLAN - SOUTH

X02_PROGAREAS_2

N

0 5 10 20 40

MEDICAL LAKE INFRASTRUCTURE
MASTER PLAN
MEDICAL LAKE, WA

STATE NO # 2014 - 415
NAC NO # 111 - 14011

NAC ARCHITECTURE

EASTLAKE MAIN HOSPITAL

3A**02-2S**

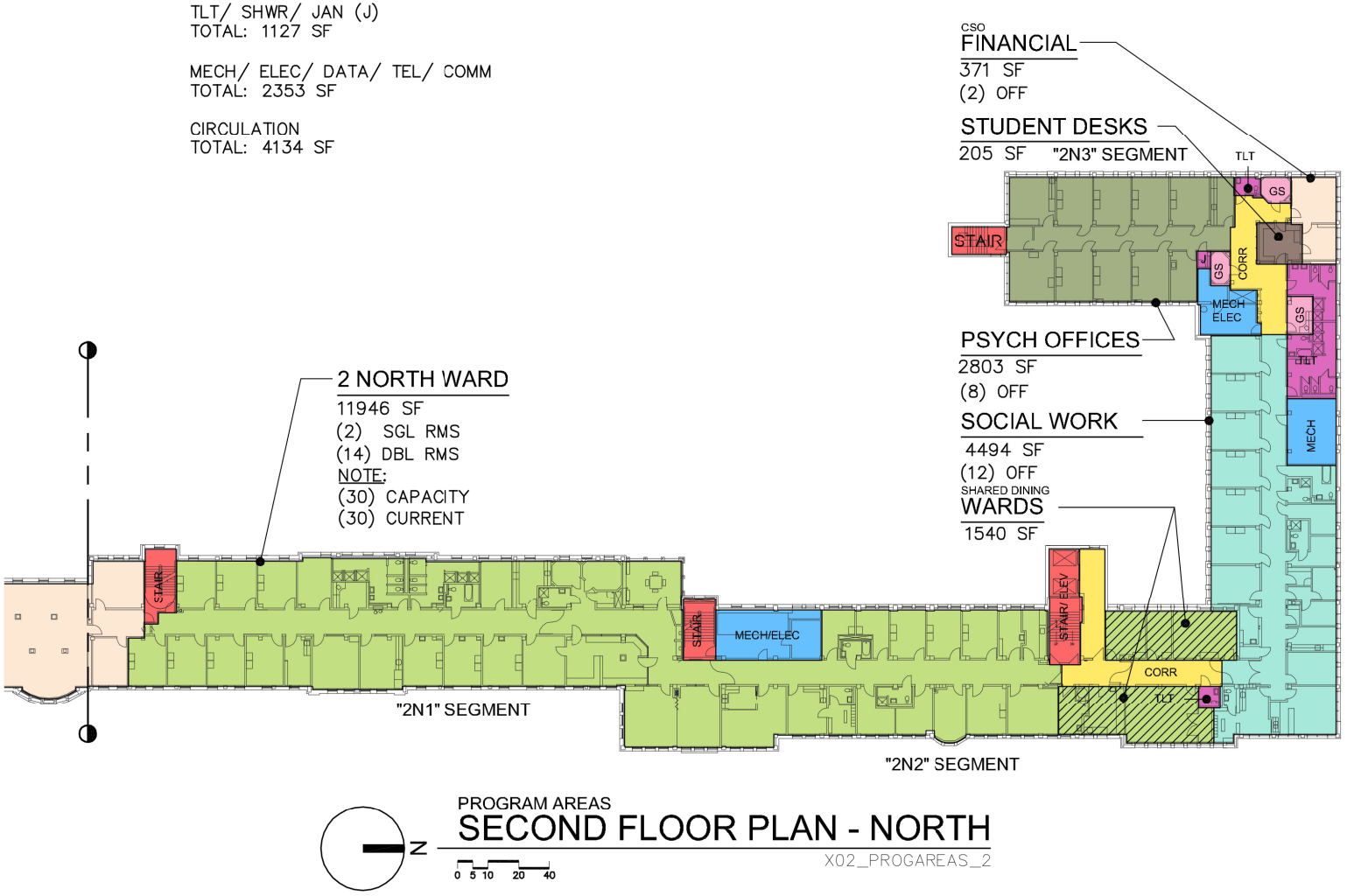
1203 W RIVERSIDE AVE | SPOKANE WA 99201-1107 | P: 509.838.8240 | F: 509.838.8261

2ND FLOOR SUPPORT AREAS

TLT/ SHWR/ JAN (J)
TOTAL: 1127 SF

MECH/ ELEC/ DATA/ TEL/ COMM
TOTAL: 2353 SF

CIRCULATION
TOTAL: 4134 SF



PROGRAM AREAS

SECOND FLOOR PLAN - NORTH

X02_PROGAREAS_2

N

0 5 10 20 40

MEDICAL LAKE INFRASTRUCTURE
MASTER PLAN
MEDICAL LAKE, WA

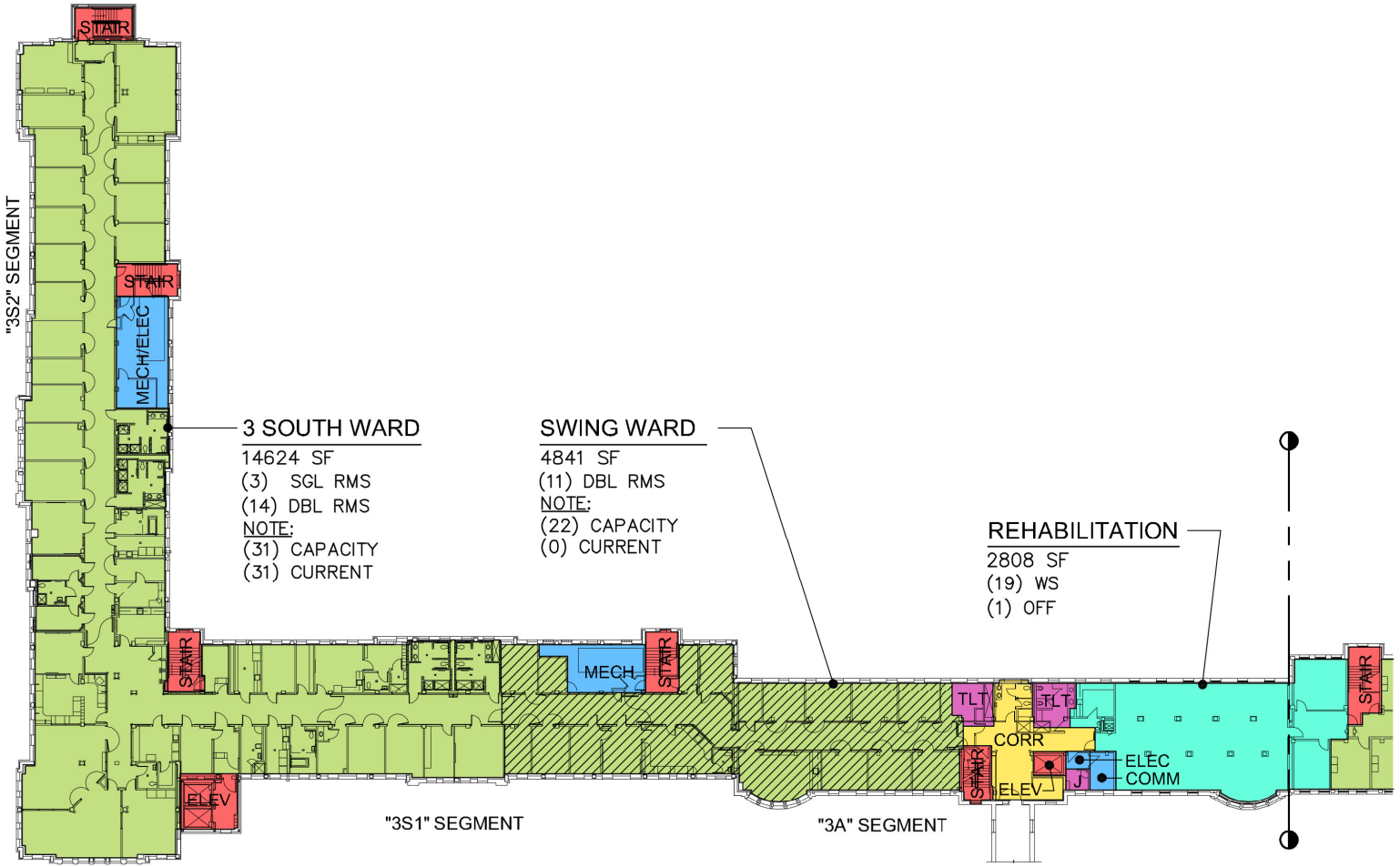
STATE NO # 2014 - 415
NAC NO # 111 - 14011

NAC ARCHITECTURE

EASTLAKE MAIN HOSPITAL

3A**02-2N**

1203 W RIVERSIDE AVE | SPOKANE WA 99201-1107 | P: 509.838.8240 | F: 509.838.8261



PROGRAM AREAS

THIRD FLOOR PLAN - SOUTH

X02_PROGAREAS_2

MEDICAL LAKE INFRASTRUCTURE
MASTER PLAN
MEDICAL LAKE, WA

STATE NO # 2014 - 415
NAC NO # 111 - 14011

NAC ARCHITECTURE

EASTLAKE MAIN HOSPITAL

3A**02-3S**

1203 W RIVERSIDE AVE | SPOKANE WA 99201-1107 | P: 509.838.8240 | F: 509.838.8261

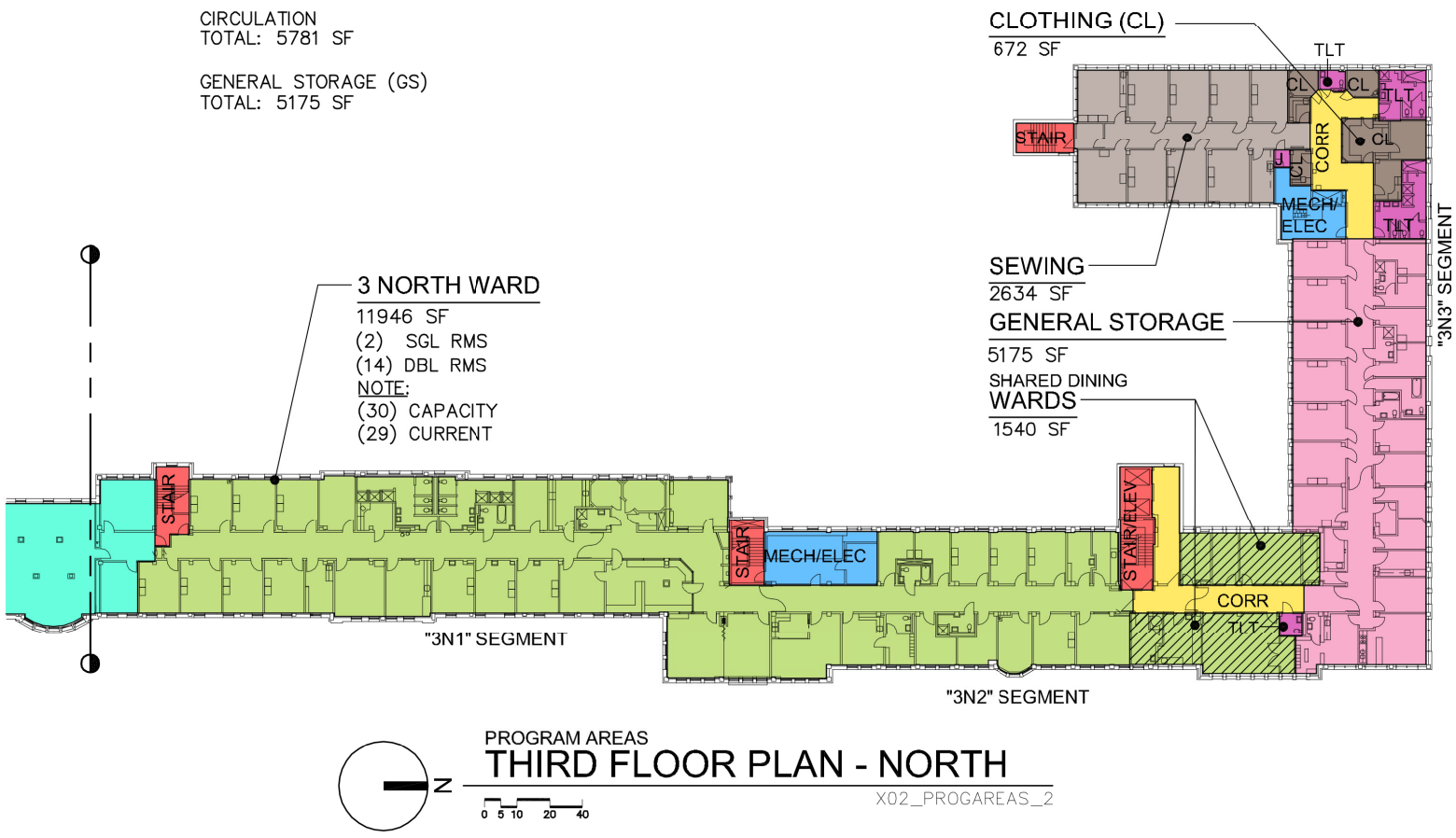
3RD FLOOR SUPPORT AREAS

TLT/ SHWR/ JAN (J)
TOTAL: 1027 SF

MECH/ ELEC/ DATA/ TEL/ COMM
TOTAL: 2030 SF

CIRCULATION
TOTAL: 5781 SF

GENERAL STORAGE (GS)
TOTAL: 5175 SF



N

PROGRAM AREAS

THIRD FLOOR PLAN - NORTH

X02_PROGAREAS_2

0 5 10 20 40

MEDICAL LAKE INFRASTRUCTURE
MASTER PLAN
MEDICAL LAKE, WA

STATE NO # 2014 - 415
NAC NO # 111 - 14011

NAC ARCHITECTURE

EASTLAKE MAIN HOSPITAL

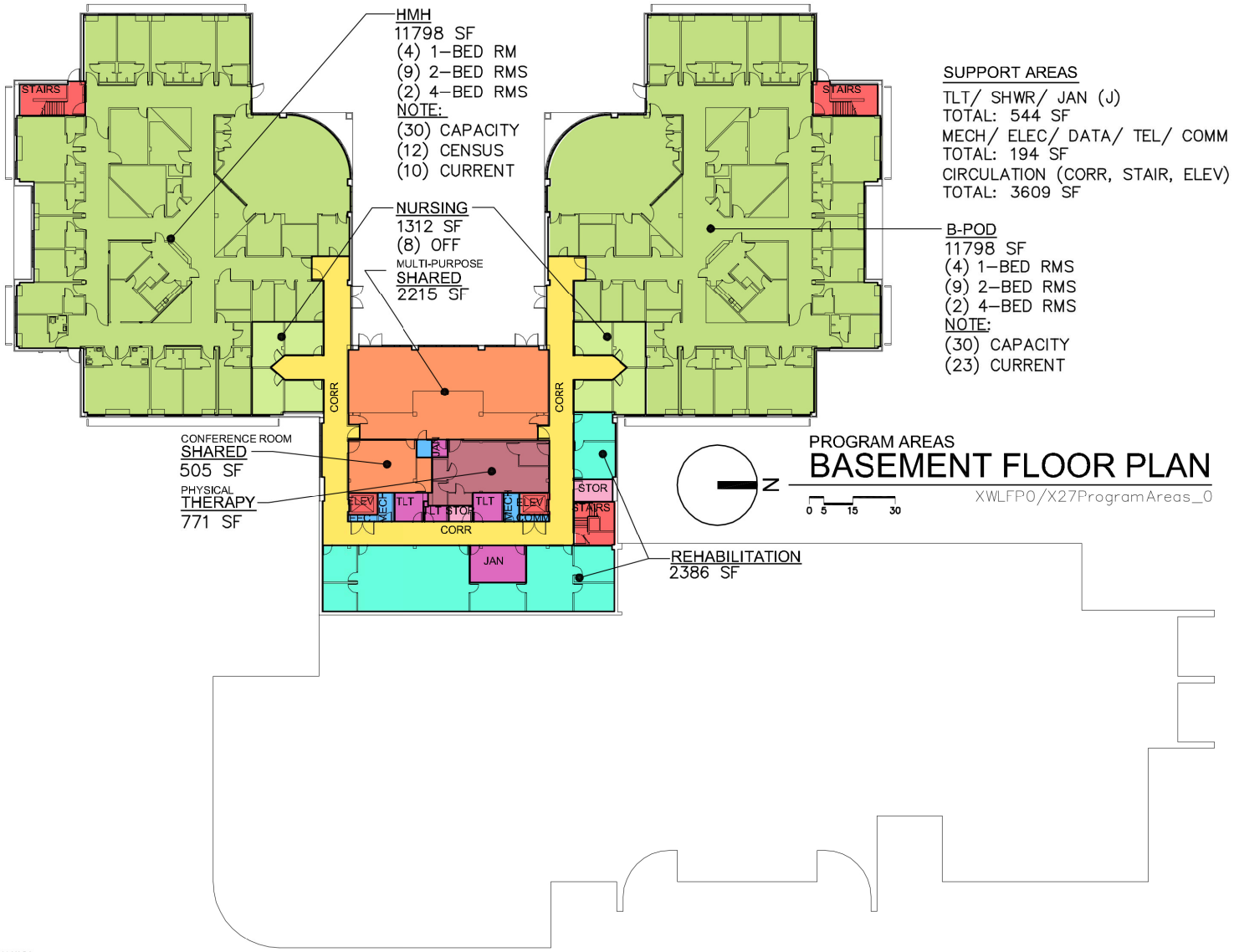
3A**02-3N**

1203 W RIVERSIDE AVE | SPOKANE WA 99201-1107 | P: 509.838.8240 | F: 509.838.8261

Existing Program Areas	Medical Lake Infrastructure Master Plan WA State DES #2014-415		Eastlake - 3A02
NAC #111-14011-A206	April 25, 2014		
FLOOR	**PROGRAM USE DESCRIPTION**	**SF**	**BEDS / OFFICES/ WORK STATIONS**
Basement	ADMIN - Administrative Services - FSU	1,429	5 Offices
	Adult Psychiatric - Medical Director	331	2 Offices
	Beauty / Barber	328	
	Supply - Central	2,100	2 Offices
	Legal - Court, Attorney General, ITA	2,385	7 Offices
	Dental	671	2 Offices
	Housekeeping	734	2 Offices
	IT - Servers	205	
	Laundry	497	
	Laundry Carts (179 SF)	-	
	Laundry Chute (151 SF)	-	
	Laundry (167 SF)	-	
	Clinic - Medical	2,130	4 Offices
	Nursing	722	2 Offices
	Medical Records Office	2,185	2 Offices
	Medical Records Office (214 SF)		
	Medical Records (1971 SF)	-	
	Pharmacy	2,251	
	Pharmacy (2076 SF)	-	11 Offices
	Pharmacy Students (175 SF)	-	
	PT - Physical Therapy	1,060	
	QM - Quality Management	498	
	Infection Control (373 SF)	-	2 Offices
	Safety officer (125 SF)	-	1 Office
	Rehabilitation	1,479	
	Computer Classroom (569 SF)	-	12 WS
	GED (910 SF)	-	12 WS
	Shared Areas	3,271	2 Offices
	Trash / Recycling (207 SF)	-	
	South Conference (1640 SF)	-	
	Lounge (631 SF)	-	
	Miscellaneous (793 SF)	-	
	Storage	3,749	
	General (1325 SF)	-	
	Patient (2424 SF)	-	2 Offices
	Toilet/ Shower/ Janitor	1,748	
	Mech/ Elec/ Tel-Comm	5,242	
	Circulation	16,967	
subtotals		**49,982**	

First Floor	Storage - General	3,145	14 WS's
	Medical Records	3,000	11 WS's
		-	1 WS's
	Nursing - Central	2,808	14 WS's
	Therapy Mall	4,494	
	Wards	29,964	(2) 1 - Bed Rooms
	1 South (16478 SF)	-	(2) 1 - Bed Rooms
		-	(14) 2 - Bed Rooms
		-	(30) Capacity
		-	(25) Max Census
		-	(23) Current
	1 North (11946 SF)	-	(2) 1 - Bed Rooms
		-	(15) 2 - Bed Rooms
		-	(1) 3 - Bed Room
		-	(30) Capacity
		-	(30) Current
	Dining - Shared (1540 SF)	-	
	Toilet/ Shower/ Janitor	1,074	
	Mech/ Elec/ Tel-Comm	2,353	
	Circulation	4,956	
subtotals		**51,794**	
Second Floor	Business Office	2,808	14 WS
		-	1 Office
	Financial Office - CSO	371	2 WS's
	Storage - Misc.	257	
	Adult Psychiatric - Offices	2,803	8 Office
	Social Work	7,494	14 WS's
			13 Office
	Student Work Areas	205	
	Wards	29,964	1 WS's
	2 South (16478 SF)	-	(2) 1 - Bed Rooms
		-	(19) 2 - Bed Rooms
		-	(40) Capacity
		-	(40) Current
	2 North (11946 SF)	-	(2) 1 - Bed Rooms
		-	(14) 2 - Bed Rooms
		-	(30) Capacity
		-	(30) Current
	Dining - Shared (1540 SF)	-	
	Toilet/ Shower/ Janitor	1,127	
	Mech/ Elec/ Tel-Comm	2,353	
	Circulation	4,414	
subtotals		**51,796**	

Third Floor	Clothing	726	
	Storage - General	5,175	
	Rehabilitation	2,808	
	Sewing	2,634	
	Wards	32,951	
	3 South Ward (14624 SF)	-	(3) 1 - Bed Rooms
		-	(14) 2 - Bed Rooms
		-	(31) Capacity
		-	(31) Current
	3 North Ward (11946 SF)	-	('2) 1 - Bed Rooms
		-	(14) 1 - Bed Rooms
		-	(30) Capacity
		-	(29) Current
	Swing Ward (4841 SF)	-	(11) 2 - Bed Rooms
		-	(22) Capacity
		-	(0) Current
	Dining - Shared (1540 SF)	-	
	Toilet/ Shower/ Janitor	1,027	
	Mech/ Elec/ Tel-Comm	2,030	
	Circulation	4,442	
subtotals		**51,793**	
Roof	Mechanical Penthouse	3,303	
	Circulation	328	
subtotals		**3,631**	
	Building Total NSF	**208,996**	



MEDICAL LAKE INFRASTRUCTURE
MASTER PLAN
MEDICAL LAKE, WA

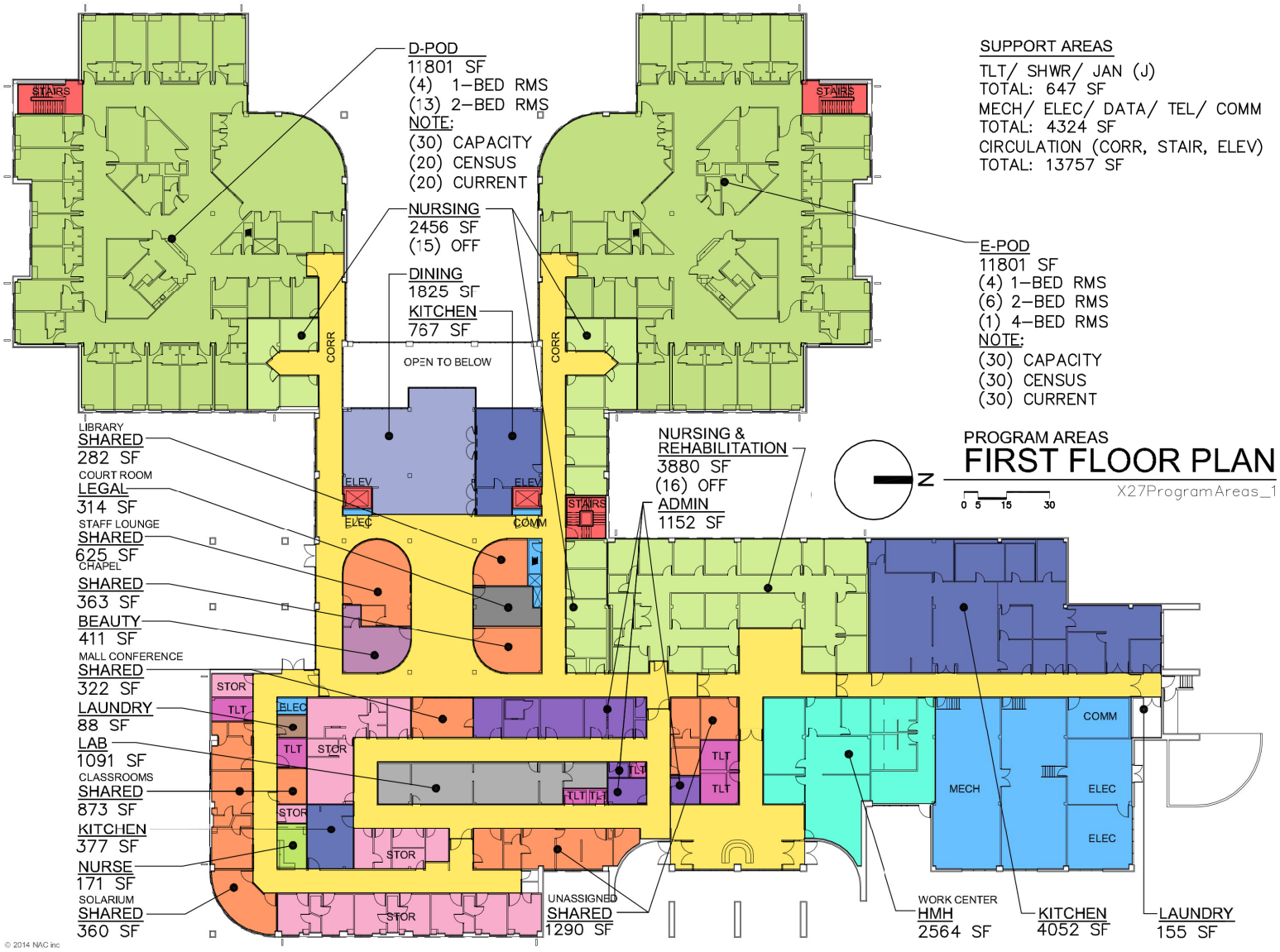
STATE NO # 2014 - 415
NAC NO # 111 - 14011

NAC ARCHITECTURE

WESTLAKE

3A**27-B**

1203 W RIVERSIDE AVE | SPOKANE WA 99201-1107 | P: 509.838.8240 | F: 509.838.8261



MEDICAL LAKE INFRASTRUCTURE
MASTER PLAN
MEDICAL LAKE, WA

STATE NO # 2014 - 415
NAC NO # 111 - 14011

NAC ARCHITECTURE

WESTLAKE

3A**27-1**

1203 W RIVERSIDE AVE | SPOKANE WA 99201-1107 | P. 509.838.8240 | F. 509.838.8261

Existing Program Areas	Medical Lake Infrastructure Master Plan WA State DES #2014-415		Westlake - 3A27
NAC #111-14011-A206	April 25, 2014		
FLOOR	**PROGRAM USE DESCRIPTION**	**SF**	**BEDS / OFFICES / WORK STATIONS**
Basement	Storage - General	152	
	Nursing	1,312	
	HMH (656 SF)	-	4 Offices
	B-POD (656 SF)	-	4 Offices
	Physical Theropy	771	
	Rehabilitation	2,386	
	Shared Areas	2,720	
	Multi-Purpose Space (2215 SF)	-	
	Conference Room (505 SF)	-	
	Wards	23,596	
	HMH - Habilitative Mental Health (11798 SF)	-	(4) 1 - Bed Rooms
		-	(9) 2 - Bed Rooms
		-	(2) 4 - Bed Rooms
		-	(30) Capacity
		-	(12) Max Census
		-	(10) Curent
	B-POD (11798 SF)	-	(4) 1 - Bed Rooms
		-	(9) 2 - Bed Rooms
		-	(2) 4 - Bed Rooms
		-	(30) Capacity
		-	(23) Current
	Toilet/ Shower/ Janitor	544	
	Mech/ Elec/ Tel-Comm	194	
	Circulation	3,609	
subtotals		**35,284**	

First Floor	ADMIN - Administrative Services	1,152	
	Beauty/ Barber	411	
	Legal - Court Room	314	
	Dinning	1,825	
	Kitchen	5,196	
	HMH - Work Center	2,564	
	Laboratory	1,091	
	Laundry	243	
	Nursing	2,627	
	Nursing & Rehabilitation	3,880	
	Shared Areas	4,115	
	Unassigned (1,290 SF)		
	Staff Lounge (625 SF)		
	Library (282 SF)		
	Chapel (363 SF)		
	Solarium (360 SF)		
	Classrooms (873 SF)		
	Mall Conference Room (322 SF)		
	Storage - General	2,901	
	Wards	23,602	
	D-POD (11801 SF)	-	(4) 1 - Bed Rooms
		-	(13) 2 - Bed Rooms
		-	(30) Capacity
		-	(20) Max Census
		-	(20) Current
	E-POD (11801 SF)	-	(4) 1 - Bed Rooms
		-	(6) 2 - Bed Rooms
		-	(1) 4 - Bed Rooms
		-	(30) Capacity
		-	(30) Current
	Toilet/ Shower/ Janitor	647	
	Mech/ Elec/ Tel-Comm	4,300	
	Circulation	13,757	
subtotals		**68,625**	
Roof	Mechnical Penthouses	8,303	
subtotals		**8,303**	
	Building Total SNF	**112,212**	

Washington State Department of Social & Health Services

Medical Lake Infrastructure Master Plan

Population Summary - 20-County Service Area

Medical Lake, Washington

June 11, 2014

No.	County	2000	2005	2006	2010	2015	2020	2025	2030	Percent	CAGR
1	Adams	16,428	17,643	17,690	18,376	19,568	20,761	21,905	22,926	1.2%	1.2%
2	Asotin	20,551	20,939	21,176	22,290	23,241	24,321	25,341	26,222	1.5%	0.5%
3	Benton	142,475	159,286	162,255	168,839	176,854	184,704	192,131	198,528	11.4%	2.0%
4	Chelan	66,616	68,963	69,895	75,093	80,031	84,833	89,428	93,523	5.1%	0.8%
5	Columbia	4,064	4,135	4,128	4,103	4,096	4,096	4,096	4,088	0.3%	0.1%
6	Douglas	32,603	34,466	35,505	39,222	42,262	44,877	47,384	49,627	2.6%	1.4%
7	Ferry	7,260	7,405	7,462	8,117	8,547	9,148	9,727	10,250	0.5%	0.4%
8	Franklin	49,347	62,572	66,371	70,038	80,348	90,654	100,666	109,861	4.7%	4.3%
9	Garfield	2,397	2,315	2,306	2,412	2,494	2,566	2,632	2,683	0.2%	-0.5%
10	Grant	74,698	80,121	81,792	88,389	92,719	95,623	98,303	100,449	6.0%	1.6%
11	Kittitas	33,362	37,660	38,175	39,783	42,426	44,748	46,970	48,942	2.7%	1.8%
12	Klickitat	19,161	19,753	19,979	21,640	23,049	24,470	25,831	27,049	1.5%	0.6%
13	Lincoln	10,184	10,367	10,435	10,393	10,994	11,907	12,790	13,601	0.7%	0.4%
14	Okanogan	39,564	40,267	40,656	42,739	44,923	46,526	48,016	49,239	2.9%	0.4%
15	Pend Oreille	11,732	12,356	12,503	13,683	14,697	15,691	16,646	17,509	0.9%	0.9%
16	Spokane	417,939	438,249	446,751	466,724	496,513	529,451	561,102	589,623	31.5%	1.1%
17	Stevens	40,066	41,792	42,355	46,616	52,053	58,098	63,997	69,527	3.1%	0.7%
18	Walla Walla	55,180	57,005	57,224	60,840	63,139	65,593	67,895	69,828	4.1%	0.6%
19	Whitman	40,740	42,498	42,848	43,151	44,274	45,581	46,786	47,743	2.9%	0.9%
20	Yakima	222,581	231,902	234,408	241,446	257,867	272,992	287,468	300,362	16.3%	0.8%
	East Region	**1,306,948**	**1,389,694**	**1,413,914**	**1,483,894**	**1,580,095**	**1,676,640**	**1,769,114**	**1,851,580**	**100.0%**	**1.2%**
	West Region	4,587,195	4,909,122	5,006,344	5,240,646						1.2%
	State	5,894,143	6,298,816	6,420,258	6,724,540						1.2%

Washington State Department of Social & Health Services

Medical Lake Infrastructure Master Plan

Eastern State Hospital - Bed Need Projections

Medical Lake, Washington

June 11, 2014

No.	Year	Population	Admissions		Year	Use Rate	APU		GPU		FSU		Total	
							Pt. Days	Beds	Pt. Days	Beds	Pt. Days	Beds	Pt. Days	Beds
1	2009	1,478,005	786		2009	0.53	32,843	100	34,918	107	34,040	104	102,008	311
2	2010	1,483,894	850		2010	0.57	32,639	100	34,121	104	33,870	104	100,834	308
3	2011	1,505,550	833		2011	0.55	32,924	101	33,725	103	33,555	103	100,408	307
4	2012	1,518,000	760		2012	0.50	32,325	99	31,393	96	34,646	106	98,559	301
5	2013	1,532,355	716		2013	0.47	32,248	99	33,461	102	33,988	104	99,898	305
6	2014	1,556,225	766		2014	0.49	32,314	99	32,274	99	34,124	104	98,911	302
7	2015	1,580,095	768		2015	0.49	32,262	99	32,043	98	34,144	104	98,647	301
8	2016	1,598,949	769	Short-term	2016	0.48	32,217	99	31,843	97	34,160	104	98,417	300
9	2017	1,618,027	771		2017	0.48	32,178	98	31,667	97	34,175	105	98,215	300
10	2018	1,637,334	773		2018	0.47	32,142	98	31,509	96	34,188	105	98,034	299
11	2019	1,656,870	776		2019	0.47	32,110	98	31,367	96	34,200	105	97,871	299
12	2020	1,676,640	780		2020	0.47	32,081	98	31,236	96	34,211	105	97,722	299
13	2021	1,694,740	783		2021	0.46	32,054	98	31,116	95	34,221	105	97,584	298
14	2022	1,713,035	786		2022	0.46	32,029	98	31,005	95	34,231	105	97,458	298
15	2023	1,731,528	790	Mid-term	2023	0.46	32,006	98	30,902	95	34,239	105	97,340	298
16	2024	1,750,220	794		2024	0.45	31,984	98	30,805	94	34,247	105	97,229	297
17	2025	1,769,114	799		2025	0.45	31,963	98	30,715	94	34,255	105	97,125	297
18	2026	1,785,308	802		2026	0.45	31,944	98	30,629	94	34,262	105	97,027	297
19	2027	1,801,650	806		2027	0.45	31,926	98	30,548	93	34,269	105	96,934	296
20	2028	1,818,142	809		2028	0.45	31,909	98	30,471	93	34,275	105	96,846	296
21	2029	1,834,785	813	Long-term	2029	0.44	31,892	98	30,398	93	34,281	105	96,763	296
22	2030	1,851,580	817		2030	0.44	31,876	98	30,329	93	34,287	105	96,683	296

	APU	GPU	FSU	Total
Current Number of Beds	91	100	95	286
Targeted Number of Beds	98	96	105	299
Beds Added to Reduce Wait Times	6	4	10	20
Bed Projections Used in Analysis	**104**	**100**	**115**	**319**

Washington State Department of Social & Health Services

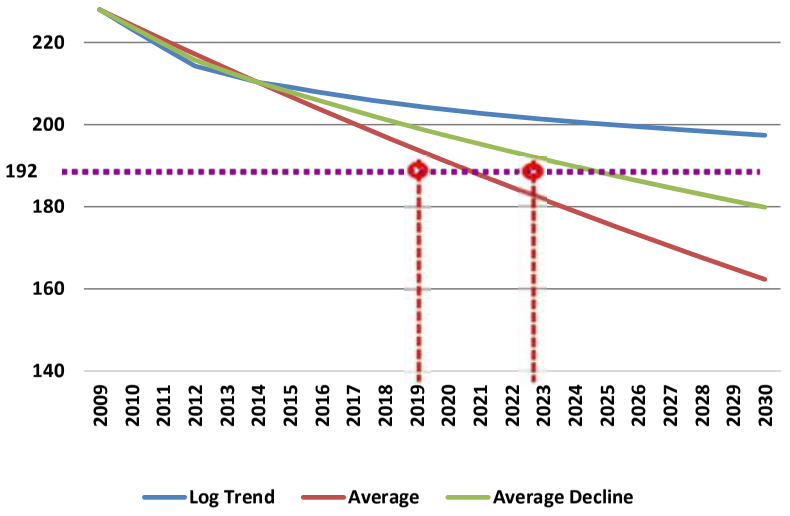
Lakeland Village - Bed Need Projections

Medical Lake, Washington

June 11, 2014

No.	Year	Actual Number of Total Clients		
1	2009	228	228	228
2	2010	223	224	224
3	2011	219	221	220
4	2012	214	217	216
5	2013	212	214	213
6	2014	210	210	210

		Projected Number of Total Clients		
		Log Trend	Linear Trend	Average
7	2015	209	207	208
8	2016	208	204	206
9	2017	207	200	203
10	2018	205	197	201
11	2019	205	194	199
12	2020	204	191	197
13	2021	203	188	195
14	2022	202	185	193
15	2023	201	182	192
16	2024	201	179	190
17	2025	200	176	188
18	2026	199	173	186
19	2027	199	170	185
20	2028	198	168	183
21	2029	198	165	181
22	2030	197	162	180



Note 1 60% of clients reside in ICF cottages; 40% reside in NF cottages
Note 2 Total number of available rooms is approximately 192
Note 3 Transition to private beds could occur in years 2019 to 2023

Washington State Department of Social & Health Services

Medical Lake Infrastructure Master Plan

Program Analysis - S U M M A R Y

Medical Lake, Washington

June 11, 2014

Description	No. of Beds		Area (Sq. Ft.)			
	Current	Projected	Current	Projected Need	Variance (Rounded)	Percent Variance
Adult Psychiatric Unit	95	104	76,448	98,200	22,000	29%
Forensics Services Unit	95	115	65,199	101,300	36,000	55%
Shared Areas			79,213	70,500	(9,000)	-11%
Total APU/FSU			**220,860**	**270,000**	**49,000**	**22%**
Geriatric Psychiatric Unit	102	96	113,055	142,900	30,000	27%
Other Buildings			602,716	115,400	(487,000)	-81%
Total Eastern State Hospital	**292**	**315**	**936,631**	**528,300**	**(408,000)**	**-44%**
Intermediate Care/ Skilled Nursing	210	192	76,358	82,500	6,000	8%
Other Buildings			314,556	218,300	(96,000)	-31%
Total Lakeland Village	**210**	**192**	**390,914**	**300,800**	**(90,000)**	**-23%**
Pine Lodge			**170,247**	**76,800**	**(93,000)**	**-55%**
Total All	**502**	**507**	**1,497,792**	**905,900**	**(592,000)**	**-40%**

Washington State Department of Social & Health Services

Program Analysis - Eastlake Hospital

Medical Lake, Washington

June 11, 2014

No.	Description	Planning Benchmarks: Driver Units	Planning Benchmarks: Area per Driver (sq. ft.)	Current Conditions: Facility Area (sq. ft.)	Current Conditions: Qty of Drivers	Current Conditions: Area per Driver (sq. ft.)	Assessment: Area Size	Assessment: Func-tionality	Long-term: Quantity of Drivers	Long-term: Facility Area (sq. ft.)
1.0	**Adult Psychiatric Unit**			**76,448**	**91**				**104**	**98,200**
1.1	**Clinical Support**									
1.1.1	Dental Clinic	Procedure Rooms	450	671	2	336	low	fair	2	900
1.1.2	Medical Clinic	Exam Rooms	450	2,130	4	533	high	fair	3	1,400
1.1.3	Pharmacy	Beds	25	2,251	91	25	ok	ok	0	0
1.1.4	Physical Therapy	NA	NA	1,060	NA	NA	ok	ok	NA	1,100
1.1.5	Therapy Mall	NA	NA	4,494	NA	NA	ok	ok	NA	4,500
1.2	**Nursing Units**									
1.2.1	1N1 - Admissions	Beds	800	13,752	31	444	low	fair	104	83,200
1.2.2	2N1 - Patient Care	Beds	800	13,752	30	458	low	fair	included above	
1.2.3	3N1 - Patient Care	Beds	800	13,752	30	458	low	fair	included above	
1.3	**Support Areas**									
1.3.1	Beauty/Barber Shop	NA	NA	328	NA	NA	ok	ok	NA	400
1.3.2	Clothing/Sewing	NA	NA	3,360	NA	NA	high	poor	NA	200
1.3.3	Housekeeping	NA	NA	398	NA	NA	ok	ok	NA	400
1.3.4	Other Administrative Areas	Office/Wrkstns	160	5,329	26	205	high	ok	26	4,200
1.3.5	Social Work	Offices	160	4,494	12	375	high	ok	12	1,900
1.3.6	Supply/Storage	Beds	50	10,677	91	117	high	ok	0	0

Washington State Department of Social & Health Services

Medical Lake Infrastructure Master Plan

Program Analysis - Eastlake Hospital

Medical Lake, Washington

June 11, 2014

No.	Description	Planning Benchmarks		Current Conditions			Assessment		Long-term	
		Driver Units	Area per Driver (sq. ft.)	Facility Area (sq. ft.)	Qty of Drivers	Area per Driver (sq. ft.)	Area Size	Func-tionality	Quantity of Drivers	Facility Area (sq. ft.)
2.0	**Forensics Services Unit**			**65,199**	**95**				**115**	**101,300**
2.1	**Nursing Units**									
2.1.1	1S1 - Admissions	Beds	800	16,478	25	659	ok	fair	115	92,000
2.1.2	2S1 - Patient Care	Beds	800	16,478	40	412	low	poor	included above	
2.1.3	3S1 - Patient Care	Beds	800	14,624	30	487	low	poor	included above	
2.2	**Support Areas**									
2.2.1	Administrative Areas	Offices	160	3,677	6	613	high	ok	6	1,000
2.2.2	Classrooms	NA	NA	1,479	NA	NA	ok	ok	NA	1,500
2.2.3	Housekeeping	NA	NA	543	NA	NA	ok	ok	NA	600
2.2.4	Linen/Laundry	NA	NA	330	NA	NA	ok	ok	NA	400
2.2.5	Patient Belongings	NA	NA	2,424	NA	NA	ok	ok	NA	2,500
2.2.6	Social Work	Offices/Wrkstns	160	3,000	12	250	high	ok	12	1,900
2.2.7	Supply/Storage	NA	NA	1,325	NA	NA	ok	ok	NA	1,400
2.2.8	Swing Unit (Vacant)	NA	NA	4,841	NA	NA	high	NA	NA	0

Washington State Department of Social & Health Services

Program Analysis - Eastlake Hospital

Medical Lake, Washington

June 11, 2014

No.	Description	Planning Benchmarks		Current Conditions			Assessment		Long-term	
		Driver Units	Area per Driver (sq. ft.)	Facility Area (sq. ft.)	Qty of Drivers	Area per Driver (sq. ft.)	Area Size	Func-tionality	Quantity of Drivers	Facility Area (sq. ft.)
3.0	**Shared Areas**			**20,756**						**14,300**
3.1	Business Office	Offices/Wrkstns	160	2,808	15	187	high	ok	15	2,400
3.2	Court/Attorney Suite	Offices/Wrkstns	270	2,385	7	341	ok	fair	7	1,900
3.3	Medical Records	Offices/Wrkstns	160	3,000	12	250	high	ok	12	1,900
3.4	Medical Records Storage	NA	NA	1,971	NA	NA	high	ok	NA	0
3.5	Nursing - Central	Offices/Wrkstns	160	2,808	15	187	high	ok	15	2,400
3.6	Rehabilitation Offices	Offices/Wrkstns	160	2,808	20	140	ok	ok	20	3,200
3.7	Shared Restrooms/Janitor	NA	NA	4,976	NA	NA	ok	ok	NA	2,500
4.0	**Other Areas**			**58,457**						**56,200**
4.1	Mechanical/Electrical	% of area above:	8 to 12%	19,183	11.8%	of area	ok	ok	10.0%	21,400
4.2	General Circulation	% of area above:	12 to 15%	30,779	17.6%	of area	high	ok	12.0%	25,700
4.3	Building Envelope	% of area above:	3 to 4%	8,495	4.0%	of area	ok	ok	3.5%	9,100
	Total All Areas			**220,860**			**Percent change: 22%**			**270,000**

Washington State Department of Social & Health Services

Medical Lake Infrastructure Master Plan

Program Analysis - Westlake Hospital

Medical Lake, Washington

June 11, 2014

No.	Description	Planning Benchmarks		Current Conditions			Assessment		Long-term	
		Driver Units	Area per Driver (sq. ft.)	Facility Area (sq. ft.)	Qty of Drivers	Area per Driver (sq. ft.)	Area Size	Func-tionality	Quantity of Drivers	Facility Area (sq. ft.)
5.1	**Nursing Units**			**47,198**	**102**				**96**	**76,800**
5.1.1	B-Pod - Patient Care Unit	Beds	800	11,798	30	393	low	ok	96	76,800
5.1.2	D-Pod - Patient Care Unit	Beds	800	11,801	30	393	low	ok	included above	
5.1.3	E-Pod - Patient Care Unit	Beds	800	11,801	30	393	low	ok	included above	
5.1.4	HMH - Habilitative Mental Health	Beds	800	11,798	12	983	high	ok	included above	
5.2	**Support Areas**			**28,039**						**28,400**
5.2.1	Administrative Areas	Office/Wrkstns	160	8,971	55	163	ok	ok	55	8,800
5.2.2	Beauty/ Barber	NA	NA	411	NA	NA	ok	ok	NA	500
5.2.3	Chapel	NA	NA	363	NA	NA	ok	ok	NA	400
5.2.4	Classrooms/Conference	NA	NA	4,275	NA	NA	ok	ok	NA	4,300
5.2.5	Dining/Kitchen	NA	NA	7,021	NA	NA	ok	ok	NA	7,100
5.2.6	General Storage	NA	NA	3,053	NA	NA	ok	ok	NA	3,100
5.2.7	Laundry	NA	NA	243	NA	NA	ok	ok	NA	300
5.2.8	Legal - Court Room	NA	NA	314	NA	NA	ok	ok	NA	400
5.2.9	Library	NA	NA	282	NA	NA	ok	ok	NA	300
5.2.10	Shared Restrooms/Janitor	NA	NA	1,191	NA	NA	ok	ok	NA	1,200
5.2.11	Staff Lounge	NA	NA	625	NA	NA	ok	ok	NA	700
5.2.12	Unassigned	NA	NA	1,290	NA	NA	ok	ok	NA	1,300

Washington State Department of Social & Health Services

Program Analysis - Westlake Hospital

Medical Lake, Washington

June 11, 2014

No.	Description	Planning Benchmarks		Current Conditions			Assessment		Long-term	
		Driver Units	Area per Driver (sq. ft.)	Facility Area (sq. ft.)	Qty of Drivers	Area per Driver (sq. ft.)	Area Size	Func-tionality	Quantity of Drivers	Facility Area (sq. ft.)
5.3	**Clinical Support**			**6,812**						**6,900**
5.3.1	HMH Work Center	NA	NA	2,564	NA	NA	ok	ok	NA	2,600
5.3.2	Laboratory	NA	NA	1,091	NA	NA	ok	ok	NA	1,100
5.3.3	Rehabilitation	NA	NA	3,157	NA	NA	ok	ok	NA	3,200
5.4	**Other Areas**			**31,006**						**30,800**
5.4.1	Mechanical/Electrical	% of area above:	8 to 12%	9,292	11.3%	of area	ok	ok	10.0%	11,200
5.4.2	General Circulation	% of area above:	12 to 15%	17,366	19.0%	of area	high	ok	12.0%	14,800
5.4.3	Building Envelope	% of area above:	3 to 4%	4,348	4.0%	of area	ok	ok	3.5%	4,800
	Total All Areas			**113,055**			**Percent change: 26%**			**142,900**

Washington State Department of Social & Health Services

Medical Lake Infrastructure Master Plan

Program Analysis - Other ESH Buildings

Medical Lake, Washington

June 11, 2014

No.	Description	Planning Benchmarks		Current Conditions			Assessment		Long-term	
		Driver Units	Area/ Driver (sq. ft.)	Facility Area (sq. ft.)	Qty of Drivers	Area/ Driver (sq. ft.)	Area Size	Func-tional	Qty of Drivers	Facility Area (sq. ft.)
6.0	**Administration Building**			**20,610**			**Percent change:**	**-56%**		**9,100**
6.1	Administrative	Offices/Wrkstns	160	10,504	27	389	high	ok	27	4,300
6.2	Records Storage	NA	NA	2,857	NA	NA	ok	ok	NA	2,900
6.3	Mechanical/Electrical	% of area above:	8 to 12%	921	6.9%	of area	low	ok	10.0%	700
6.4	General Circulation	% of area above:	12 to 15%	5,535	38.8%	of area	high	ok	12.0%	900
6.6	Building Envelope	% of area above:	3 to 4%	793	4.0%	of area	ok	ok	3.5%	300
7.0	**Other Eastern State Hospital Buildings**			**582,106**			**Percent change:**	**-82%**		**106,300**
7.1	Kitchen & Dining	Beds	140	75,504	102	740	high	fair	315	44,100
7.2	Power House	NA	NA	9,232	NA	NA	high	poor	NA	4,100
7.3	Electric Shop	NA	NA	3,570	NA	NA	NA	NA	Locate at Pine Lodge	
7.4	Paint Shop	NA	NA	4,512	NA	NA	NA	NA	Locate at Pine Lodge	
7.5	Commissary	NA	NA	15,692	NA	NA	NA	NA	Locate at Pine Lodge	
7.6	Motor Pool Office	NA	NA	14,242	NA	NA	NA	NA	Locate at Pine Lodge	
7.7	Motor Pool	NA	NA	4,784	NA	NA	NA	NA	Locate at Pine Lodge	
7.8	Welding/Carpentry/Auto Shop	NA	NA	8,557	NA	NA	NA	NA	Locate at Pine Lodge	
7.9	Paint Storage	NA	NA	4,680	NA	NA	NA	NA	Locate at Pine Lodge	
7.10	Electrical and Plaster Shop	NA	NA	3,440	NA	NA	NA	NA	Locate at Pine Lodge	
7.11	Linden Hall	NA	NA	33,496	NA	NA	NA	NA	NA	0
7.12	West Lodge	NA	NA	37,276	NA	NA	NA	NA	NA	0
7.13	Roosevelt Hall	NA	NA	16,524	NA	NA	NA	NA	NA	0

Washington State Department of Social & Health Services

Program Analysis - Other ESH Buildings

Medical Lake, Washington

June 11, 2014

No.	Description	Planning Benchmarks: Driver Units	Planning Benchmarks: Area/ Driver (sq. ft.)	Current Conditions: Facility Area (sq. ft.)	Current Conditions: Qty of Drivers	Current Conditions: Area/ Driver (sq. ft.)	Assessment: Area Size	Assessment: Func-tional	Long-term: Qty of Drivers	Long-term: Facility Area (sq. ft.)
7.0	**Other Eastern State Hospital Buildings (... continued)**									
7.14	Auditorium	NA	NA	16,645	NA	NA	NA	NA	NA	0
7.15	Activity Therapy Building	Beds	150	52,581	NA	NA	high	poor	96	20,000
7.16	Martin Hall	NA	NA	25,850	NA	NA	ok	ok	NA	25,900
7.17	Cottage #1	NA	NA	1,088	NA	NA	ok	ok	NA	1,100
7.18	Cottage #2	NA	NA	1,203	NA	NA	NA	NA	NA	0
7.19	Cottage #3	NA	NA	1,385	NA	NA	NA	NA	NA	0
7.20	Cottage #4	NA	NA	3,041	NA	NA	NA	NA	NA	0
7.21	Superintendents Residence	NA	NA	4,146	NA	NA	ok	ok	NA	4,200
7.22	Tank Valve/Pump Houses	NA	NA	1,326	NA	NA	ok	ok	NA	1,400
7.23	Emergency Vehicle Storage	NA	NA	5,488	NA	NA	ok	ok	NA	5,500
7.24	Interlake School	NA	NA	118,000	NA	NA	NA	NA	NA	0
7.25	Therapy Pool	NA	NA	12,143	NA	NA	NA	NA	NA	0
7.26	Poultry Buildings	NA	NA	29,250	NA	NA	NA	NA	NA	0
7.27	P3 Lab	NA	NA	2,108	NA	NA	NA	NA	NA	0
7.28	Incinerator	NA	NA	300	NA	NA	NA	NA	NA	0
7.29	Boon Barn	NA	NA	4,500	NA	NA	NA	NA	NA	0
7.30	Grounds North	NA	NA	1,800	NA	NA	NA	NA	NA	0
7.31	Primate Center	NA	NA	69,743	NA	NA	NA	NA	NA	0
	Total All Areas			**936,631**			**Percent change: -44%**			**528,300**

Washington State Department of Social & Health Services

Medical Lake Infrastructure Master Plan

Program Analysis - Lakeland Village

Medical Lake, Washington

June 11, 2014

No.	Description	Planning Benchmarks		Current Conditions			Assessment		Long-term	
		Driver Units	Area/ Driver (sq. ft.)	Facility Area (sq. ft.)	Qty of Drivers	Area/ Driver (sq. ft.)	Area Size	Func-tional	Qty of Drivers	Facility Area (sq. ft.)
8.1	**Intermediate Care Facilities**			**30,827**	**125**				**120**	**33,600**
8.1.1	Pinewood (72-73)	Bedrooms	650	5,037	12	420	low	ok	10	5,600
8.1.2	Evergreen (70-71)	Bedrooms	650	5,027	12	419	low	ok	10	5,600
8.1.3	Cascade Way (86-87)	Bedrooms	650	5,153	0	NA	NA	NA	9	5,600
8.1.4	Wildrose Way (88-89)	Bedrooms	650	5,153	14	368	low	ok	8	5,600
8.1.5	Hillside (64-54)	Bedrooms	650	5,027	14	359	low	ok	10	5,600
8.1.6	Apple Court (92-93)	Bedrooms	650	5,430	15	362	low	ok	8	5,600
8.1.7	Bigfoot Way (94-95)	Bedrooms	650	5,430	14	388	low	ok	8	5,600
8.1.8	Bigfoot Way (96-97)	Bedrooms	650	5,153	0	NA	NA	NA	8	5,600
8.1.9	Cascade Way (74-75)	Bedrooms	650	5,153	12	429	low	ok	9	5,600
8.1.10	Willow Court (76-77)	Bedrooms	650	5,430	15	362	low	ok	8	5,600
8.1.11	Willow Court (78-79)	Bedrooms	650	5,430	0	NA	NA	NA	8	5,600
8.1.12	Sunrise Court (80-81)	Bedrooms	650	5,543	0	NA	NA	NA	9	5,600
8.1.13	Sunrise Court (82-83)	Bedrooms	650	5,153	11	468	low	ok	9	5,600
8.1.14	Sunrise Court (84-85)	Bedrooms	650	5,153	6	859	ok	ok	6	5,600
8.2	**Skilled Nursing Facilities**			**45,531**	**85**				**72**	**48,900**
8.2.1	Hawthorn (68-69)	Bedrooms	650	5,037	12	420	low	ok	10	5,600
8.2.2	Harvest (38-39)	Bedrooms	650	5,037	13	387	low	ok	10	5,600
8.2.3	Laurel (62-63)	Bedrooms	650	5,027	13	387	low	ok	10	5,600
8.2.4	Ponderosa (60-61)	Bedrooms	650	5,037	11	458	low	ok	10	5,600
8.2.5	Shamrock (56-57)	Bedrooms	650	5,037	11	458	low	ok	10	5,600
8.2.6	Tamarack (54-55)	Bedrooms	650	5,037	13	387	low	ok	10	5,600
8.2.7	Rosewood (62-63)	Bedrooms	650	15,319	12	NA	NA	ok	12	15,300

Washington State Department of Social & Health Services

Program Analysis - Lakeland Village

Medical Lake, Washington

June 11, 2014

No.	Description	Planning Benchmarks		Current Conditions			Assessment		Long-term	
		Driver Units	Area/ Driver (sq. ft.)	Facility Area (sq. ft.)	Qty of Drivers	Area/ Driver (sq. ft.)	Area Size	Func-tional	Qty of Drivers	Facility Area (sq. ft.)
8.3	**Other Lakeland Village Buildings**			**314,556**						**218,300**
8.3.1	Administration Building	Offices/Wrkstns	160	25,152	25	1,006	NA	NA	NA	1,500
8.3.2	Program Area Treatment Center	Offices/Wrkstns	160	18,320	43	426	ok	ok	68	10,900
8.3.3	School (Activity Center)	NA	NA	25,531	NA	NA	ok	ok	NA	25,600
8.3.4	Habilitation Center	NA	NA	55,936	NA	NA	ok	ok	NA	56,000
8.3.5	Day Care (Rainbow Way)	NA	NA	5,153	NA	NA	ok	ok	NA	5,200
8.3.6	Miller & Bryant Hall	NA	NA	24,400	NA	NA	NA	NA	NA	0
8.3.7	Carpentry & Paint Shop	NA	NA	2,000	NA	NA	NA	NA	NA	0
8.3.8	Carpentry & Metal Storage	NA	NA	735	NA	NA	NA	NA	NA	0
8.3.9	Repair Garage/Welding	NA	NA	3,315	NA	NA	ok	ok	NA	3,400
8.3.10	OSSD Regional Warehouse	NA	NA	11,842	NA	NA	ok	ok	NA	11,900
8.3.11	Hazardous Storage Building	NA	NA	442	NA	NA	NA	NA	NA	0
8.3.12	Vehicle Storage Garage	NA	NA	3,315	NA	NA	NA	NA	NA	0
8.3.13	Laundry	NA	NA	27,035	NA	NA	high	poor	NA	16,200
8.3.14	Plant Management Offices	NA	NA	5,989	NA	NA	ok	ok	NA	6,000
8.3.15	Food Service	Beds	70	10,228	210	49	ok	ok	192	13,400
8.3.16	Chapel	NA	NA	1,000	NA	NA	ok	ok	NA	1,000
8.3.17	Senior Citizen Center	NA	NA	822	NA	NA	NA	NA	NA	0
8.3.18	Chiller Plant	NA	NA	4,836	NA	NA	ok	ok	NA	4,900
8.3.19	Energy Plant	NA	NA	7,836	NA	NA	ok	ok	NA	7,900
8.3.20	Mason Memorial	NA	NA	14,358	NA	NA	NA	NA	NA	0
8.3.21	Douglas Hall	NA	NA	12,203	NA	NA	NA	NA	NA	0

Washington State Department of Social & Health Services

Medical Lake Infrastructure Master Plan

Program Analysis - Lakeland Village

Medical Lake, Washington

June 11, 2014

No.	Description	Planning Benchmarks		Current Conditions			Assessment		Long-term	
		Driver Units	Area/ Driver (sq. ft.)	Facility Area (sq. ft.)	Qty of Drivers	Area/ Driver (sq. ft.)	Area Size	Func-tional	Qty of Drivers	Facility Area (sq. ft.)
8.3	**Other Lakeland Village Buildings (... continued)**									
8.3.22	Hudson House	Apartments	NA	12,546	8	1,568	ok	ok	8	12,600
8.3.23	Lewis House	Apartments	NA	15,433	6	2,572	ok	ok	12	15,500
8.3.24	Whitman House	Apartments	NA	15,433	6	2,572	ok	ok	12	15,500
8.3.25	Cottage #1	NA	NA	3,025	NA	NA	ok	ok	NA	3,100
8.3.26	Cottage #2	NA	NA	3,271	NA	NA	ok	ok	NA	3,300
8.3.27	Residential Storage	NA	NA	3,200	NA	NA	ok	ok	NA	3,200
8.3.28	Frog Hollow Building	NA	NA	1,200	NA	NA	ok	ok	NA	1,200
	Total All Areas			**390,914**			**Percent change: -23%**			**300,800**

Washington State Department of Social & Health Services

Program Analysis - Pine Lodge

Medical Lake, Washington

June 11, 2014

No.	Description	Planning Benchmarks		Current Conditions			Assessment		Long-term	
		Driver Units	Area/ Driver (sq. ft.)	Facility Area (sq. ft.)	Qty of Drivers	Area/ Driver (sq. ft.)	Area Size	Func-tional	Qty of Drivers	Facility Area (sq. ft.)
9.0	**Pine Lodge**									
9.1	Administration - A	NA	NA	5,040	NA	NA	ok	ok	NA	5,100
9.2	Secured Housing Unit - B	NA	NA	1,800	NA	NA	ok	ok	NA	1,800
9.3	Kitchen/Dining - C	NA	NA	8,979	NA	NA	ok	ok	NA	9,000
9.4	Residence Unit - D	NA	NA	42,992	NA	NA	ok	ok	NA	0
9.5	Service Center - E	NA	NA	21,974	NA	NA	ok	ok	NA	22,000
9.6	Electric Shop/Laundry - F	NA	NA	3,200	NA	NA	ok	ok	NA	3,200
9.7	Chapel - H	NA	NA	1,728	NA	NA	ok	ok	NA	0
9.8	Walker Hall - J	NA	NA	5,100	NA	NA	ok	ok	NA	5,100
9.9	Education - K	NA	NA	8,640	NA	NA	ok	ok	NA	8,700
9.10	Living Units - L	NA	NA	23,632	NA	NA	ok	ok	NA	0
9.11	Medical Building - M	NA	NA	5,470	NA	NA	ok	ok	NA	5,500
9.12	Warehouse/Shops - N	NA	NA	8,400	NA	NA	ok	ok	NA	8,400
9.13	Storage - P	NA	NA	200	NA	NA	ok	ok	NA	0
9.14	Groundskeeping - S	NA	NA	3,200	NA	NA	ok	ok	NA	3,200
9.15	Ross Hall - T	NA	NA	3,000	NA	NA	ok	ok	NA	3,000
9.16	Greenhouse	NA	NA	1,800	NA	NA	ok	ok	NA	1,800
9.17	Lakeview Apartments - North	NA	NA	12,546	NA	NA	NA	NA	NA	0
9.18	Lakeview Apartments - South	NA	NA	12,546	NA	NA	NA	NA	NA	0
	Total All Areas			**170,247**			**Percent change: -55%**			**76,800**

3.0 RECOMMENDED SOLUTIONS AND BUDGETS

3.1 BHSIA - EASTERN STATE HOSPITAL PROJECTS

Immediate Needs (2015-17)

01 – Anti-ligature Upgrades at Wards

Description (ESH-A07)
Anti-ligature upgrades at both Eastlake and Westlake wards; complete the remaining work.

Risk Assessment:
The replacement of unsafe fixtures and accessories at both Eastlake and Westlake has been on-going the last few years, as money becomes available. Anti-ligature fixtures (those that prevent looping a cord or similar object around or over them) have been installed at most patient areas now. The remaining work still to be done includes removing or replacing electrical plug-ins within the patient rooms, changing-out the wardrobes, replacing the type of light fixture in the patient rooms, installing built-in patient furniture instead of portable beds, etc., and replacing the loopable corridor handrails with anti-ligature type. These improvements will lessen the likelihood of patient injury and associated liability.

Description (ESH-A08)
At the Eastlake Building, replace APU wardrobes at the north end with steel wardrobes like at FSU.

Risk Assessment:
Plastic laminate wardrobe closets installed in the Phase 1-3 Ward Renovation projects are now 20-30 years old and are showing signs of wear and tear, but the real issue is that they are not anti-ligature due to the hinge construction, etc.

Pros/Cons:
Pros: Improve patient safety and decrease liability for the state.
Cons: Cost and temporary disruption to ward operation during replacement.

Budgetary Costs:

Item	Construction Cost	Project Cost
1. New Wardrobes at Phase 1-3:		
(3) wards x (30) ea = (90) x $1,000	$90,000	
2. Removal & Disposal of Old Wardrobes:		
(90) x $100 each =	$9,000	
3. Anti-ligature Upgrades		
APU = 76,500 SF x $5/SF =	382,500	
GPU = 113,000 SF x $7.25/SF =	819,250	
TOTAL	$1.3M	$1.9M

02 – Westlake Nurse Call Replacement

Description (ES-E3)

The existing Westlake Nurse Call system was installed by Simplex in 2008 but the system has been failing in increments. Over 65 service calls have been placed for this system alone to Simplex, with no resolution to all identified failures.

Risk Assessment:

- ESH is certified by the federal Centers for Medicare and Medicaid Services (CMS) which follows The Facility Guidelines Institute Guidelines for Design and Construction of Health Care Facilities (FGI Guidelines). Without an operational nurse call system, certification of by CMS is at risk.

- ESH is accredited by the Joint Commission. The Joint Commission requires an operational nurse call system, and when not operational, requires the system to be restored to service within a finite amount of time. Without an operational nurse call system, accreditation by the Joint Commission is at risk.

Pros/Cons:

Pros:

- A new, operational nurse call system will mitigate any issues with CMS certification and Joint Commission accreditation.
- Simplex does not appear to be invested in ensuring the operability of the installed system. Other local nurse call vendors have a much higher interest in working with DSHS to ensure system operability.

Cons:

- Cost. Statistically, the system should have another 4 years of use, however at this point it does not appear the system is capable of becoming a fully operational and reliable system.
- Disruption: Reconfiguration of the nurse call system will lead to disruption during construction.

Budgetary Costs:

Item	Construction Cost	Project Cost
Nurse Call System $6.99/SF x 107,328 SF	$750,000	$1.09M

03 – New Boiler Building

Description (ESH-A03a, Mech ESH-09)

The ESH Boiler Building is not structurally sound. Since this building contains boilers that provide steam to the main Eastlake Building and Kitchen, if the building fails the heating for the hospital will be lost. This project would relocate the relatively new boilers into a new smaller 4,000 SF building across the street, and the existing Boiler Building would then be demolished.

Risk Assessment:

If a seismic event occurs it is possible that the existing Boiler Building will collapse and the boilers will go off-line. If heating is lost for the Eastlake Building, 6 wards would be affected; over (90) APU patients plus (90) FSU patients would have to be relocated, and there is no other satisfactory place on campus to move them to.

Pros/Cons:

Pros:

- The recommended solution could allow a switchover to occur seamlessly, since there are 3 boilers now but only one boiler at a time needs to be active during the summer. New steam lines could be connected to the existing system which was updated during the Ward Renovation projects. The Laundry at LV could also remain active until the Phase 2 building is completed.

Cons:

- Expense of a new building.

Budgetary Costs:

	Construction Cost	Project Cost
• (see Cost Model next page)	$3.0M	$4.4M

NAC | ARCHITECTURE

Estimate of Probable Construction Cost

Summary by Division

ESH Boiler Building Replacement - Project 03
#2014-415
Medical Lake Master Plan

Area = 4,000 GSF

Proj. No: 111-14011-A306
Date 8/27/2014
Budget = (TBD)

KEY	DESCRIPTION	SF COST	COMPONENT	PERCENT	REMARKS
A	GENERAL CONDITIONS	38.00	152,000	6.04%	
B	SITE DEVELOPMENT	17.00	68,000	2.70%	
C	DEMOLITION & ASBESTOS	172.87	691,480	27.46%	
D	FOUNDATION & SOG	18.00	72,000	2.86%	
E	STRUCTURAL SYSTEM	25.00	100,000	3.97%	
F	ROOFING SYSTEM	10.00	40,000	1.59%	
G	EXTERIOR WALLS	22.00	88,000	3.50%	
H	EXTERIOR DOORS & OPENINGS	6.00	24,000	0.95%	
I	INTERIOR DOORS & OPENINGS	3.00	12,000	0.48%	
J	INTERIOR PARTITIONS	4.00	16,000	0.64%	
K	WALL FINISHES	4.50	18,000	0.71%	
L	FLOOR FINISH & BASE	3.50	14,000	0.56%	
M	CEILING & SOFFITS	2.00	8,000	0.32%	
N	INTERIOR STAIRS & RAILINGS	2.00	8,000	0.32%	
O	ACCESSORIES & SPECIALTIES	2.00	8,000	0.32%	
P	FIXED EQUIPMENT	3.50	14,000	0.56%	
Q	CASE & MILLWORK	4.47	17,880	0.71%	
R	FURNISHINGS	0.00	0	0.00%	
S	SPECIAL SYSTEMS	0.00	0	0.00%	
T	MECHANICAL CONVEYANCES	0.00	0	0.00%	
U	SITE UTILITIES, MECHANICAL	95.00	380,000	15.09%	
V	PLUMBING	32.40	129,600	5.15%	
W	HVAC & CONTROLS	94.65	378,600	15.04%	
X	FIRE PROTECTION	3.50	14,000	0.56%	
Y	SITE UTILITIES, ELEC	29.48	117,920	4.68%	
Z	ELECTRIC POWER	20.00	80,000	3.18%	
AA	LIGHTING	10.00	40,000	1.59%	
BB	SPECIAL SYSTEMS	6.55	26,200	1.04%	
	GENERAL SUBTOTAL	337.84	1,351,360	53.67%	
	MECHANICAL SUBTOTAL	225.55	902,200	35.83%	
	ELECTRICAL SUBTOTAL	66.03	264,120	10.49%	
	SUBTOTAL	629.42	2,517,680	100.00%	
	CONTR. O & P - GENERAL	23.65	94,595	7.00%	
	CONTR. O & P - MECH/ELECT	14.58	58,316	5.00%	
	BOND & INSURANCE	13.06	52,246	2.00%	
	B & O TAX	3.40	13,614	0.50%	
	SUBTOTAL	684.11	2,736,451	108.69%	
	DESIGN CONTINGENCY	68.41	273,645	10.00%	
	SUBTOTAL	752.52	3,010,096	119.56%	
	LOCATION / INFLATION FACTOR	0.00	0	0.00%	
	ESTIMATED BID AMOUNT	752.52	3,010,096	119.56%	

04 – Replace Pump House & Well No. 2

Description (Civil W-2, 4, 5)

The existing well #2 borehole is uncased and collapsing; the submersible pump has to be replaced often and it is believed that next time it is pulled it will not be possible to reinstall a new pump deep enough to be within the water table. The existing well #2 structure is uninsulated, has a leaking flat roof, damaged electrical panels, etc. To keep water pipes and appurtenances from freezing in the winter time portable space heaters are used which results in high electrical use due to their inefficiency and building walls and roofs being un-insulated. The flat roof leaks onto electrical switch gear mounted on interior building walls.

Risk Assessment:

If domestic water Well No. 2 is not replaced and the submersible pump is non-operational due to a restricted pump setting depth and a lack of well water height over the pump intake, current and future domestic water demands will not be met. Domestic water Well No. 2 provides nearly 70 MG of water annually. Annual water use at ESH and LV is approximately 170 MG.

The pump house building is unsafe for operations and maintenance workers to enter due to the roof leaking onto electrical panels switch gear and pump motor controllers. Electrical panels within the building that do not meet code requirements are also unsafe to work on and to maintain. Building exits that do not meet code are unsafe for people in the building. Not replacing pump-house No. 2 building creates unsafe work environment for water systems operation and maintenance personnel.

Budgetary Costs (Civil W-2, 4, 5)

Item	Construction Cost	Project Cost
W-2 Abandon Existing Booster Pump Station	$167,000	$242,150
W-5 Replace Domestic Water Well #2	$161,000	$233,450
W-4 Replace Pump House No. 2:		
1. Mobilization/Management @ 10%	$57,000	
2. New Building Structure Incl. Chlorine Rm	$200,000	
3. Piping and Valves	$90,000	
4. Electrical and SCADA System	$100,000	
5. Vertical Turbine Pump & Motor	$125,000	
6. Site Piping, Valves & Connections	$80,000	
7. Demo Existing Pump House & Cap Well	$60,000	
Subtotal, W-4:	$712,000	$1,032,400
TOTAL W-2, 4, 5:	$1,040,000	$1.51M

05 – Eastlake: Replace Remaining Original Carpet with Sheet Vinyl

Description (ESH-A01)
Eastlake: Replace remaining original carpet with sheet vinyl flooring.

Risk Assessment:
The carpeting installed in the ward renovation projects is now 20 to 30 years old and is poor condition, showing wear, stains, etc. The carpet is difficult to clean and unsanitary at some locations, and should be replaced with a resilient floor that can be kept cleaner with less chance of harboring germs that could lead to patient infections. Also, the carpet seams are coming undone at some locations which is creating tripping hazards.

Pros/Cons:
Pros:

- Improve the appearance, safety, and infection control on the wards.

Cons:

- Cost of replacement and disruption to normal ward operations during replacement.

Budgetary Costs:

Item		Construction Cost	Project Cost
APU wards: 1N1/N2, 2N1/N2, 3N1/N2:			
13,600 SF x (3) =	40,800 SF		
N3: 13,800 x (3) FLR =	41,400 SF		
A section: 6,655 x 3 =	20,000 SF		
Basement (N3 to S2) =	39,000 SF		
TOTAL	141,200 SF		
Avr 75% in Carpet =		105,900 SF	
Sheet Vinyl @ $10/SF =		$1,059,000	$1.54M

06 – Westlake: Replace Worn-out Flooring at Public Areas

Description (ESH-A13)
Westlake: Replace worn-out flooring at Public Areas

Risk Assessment:
Some carpeting at Westlake is still original to the building and is just plain worn out. There are also potential tripping hazards at some locations.

Pros/Cons:
Pros:

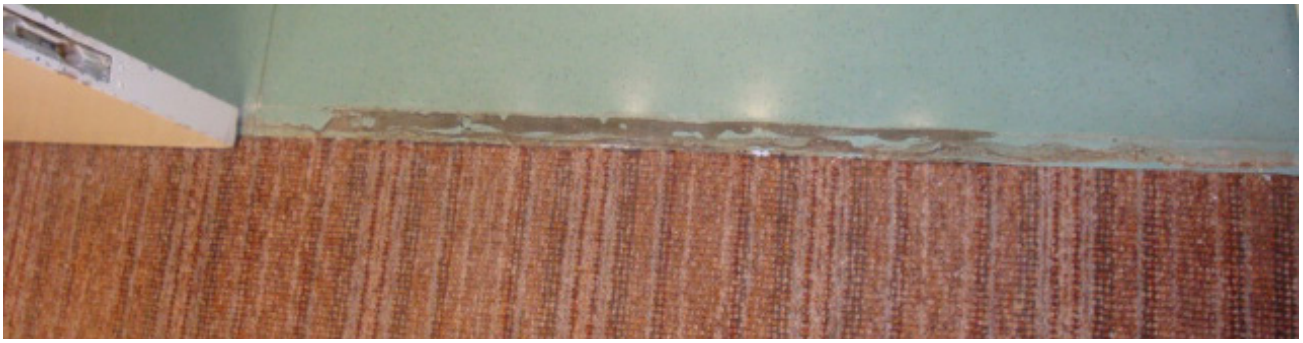
- Replacement will improve appearance and decrease liability to the state.

Cons:

- Cost, and temporary disruption during replacement.

Budgetary Costs:

Construction Cost	Project Cost
$261,000	$378,000



07 – Replace Dearator/Make-up water at North Boiler Plant

Description (Mech ESH-03)
The North Boiler Plant supplies steam to the Kitchen-Dining Building, Eastlake Hospital and the Eastlake Administration Building. The Dearator Tank supplies make-up water to the Boilers; the system has failed before causing boiler shutdown.

Risk Assessment:
Failure to replace this system may result in recurring failure of the steam boiler system, which would result in loss of heating and hot water for the main buildings this plant serves.

Pros/Cons:
Loss of the boiler steam heating system during cold weather could affect the ability to maintain occupancy in those buildings. A "work-around" was put in place this past winter to avoid boiler shutdown but a more reliable solution is needed.

Budgetary Costs:

Construction Cost	Project Cost
$175,000	$253,750

08 – Misc. Civil Maintenance Items & Downspouts

Description (Civil R-8, W-7, S-2, 10, 12; ESH-A17)

R-8 Description:
Concrete sidewalks have deteriorated to a point that simple grinding and crack sealing cannot make the concrete surface even and durable. For locations, see Appendix 4, Civil sheet HS-2.

Risk Assessment:

Sidewalks in this condition can be impassible to wheel chairs, hazardous for walking at night and are subject to further cracking, settling or heaving over tree roots.

W-7 Description:

Consolidated Support Services (CSS) personnel have identified approximately 250 linear feet of existing water line serving the Eastern State Hospital Boiler Building as a condition 5 failed pipe requiring replacement. This is old cast iron pipe with leaded joint packing. The leaded joints pose a contaminant risk in any backflow scenario caused by a local fire demand.

Risk Assessment:

Not installing the new pipe to the boiler as indicated continues the risk associated with contamination of drinking water and periodic interruption of water service to the boiler.

W-8 Description:

Provide Domestic Water Meters at All Buildings (Rating 5)
The Washington State Department of Health (DOH) has mandated that individual buildings within all water systems must have metered usage by January 2017. Most of the buildings at Lakeland Village do not have water meters. Usage is currently monitored by two master meters for the entire campus. Many of the buildings at ESH are not metered. Buildings requiring meters are indicated on the water plans.

Risk Assessment:

If meters are not provided it could eventually result in fines imposed by DOH. It is expected that because of the huge cost statewide and the limited DOH manpower, it will be sufficient at first to show progress and a plan of action at the beginning of the post-deadline period.
Another risk of not having meters at all buildings is the inability to identify wasted usage. Currently at Lakeland Village it is not possible to detect leakage downstream of the master meters. For the year 2013, the water system manager reported a 13% difference between the water meter readings at the well pump stations and the readings at the various meters throughout the system. The DOH-mandated allowable loss for non-revenue water source is less than 10% loss on a seven-year running average. As part of this study a leak detection effort was performed for the entire water system from the ESH reservoirs down throughout the distribution systems at Eastlake, Westlake, Pine Lodge and Lakeland Village. Only two leaks were detected. One was very minor and one has been repaired. Leakage from that leak was estimated at 10 gallons per minute or around 5 million gallons per year. In 2012 a leak detection effort found no leaks in the 14" transition main from the well houses to the reservoirs. The two recent leaks cannot account for the 2013 difference of approximately 26 million gallons of drinking water measured between the well meters and the usage meters.
The more likely explanation for the apparent losses is poor metering. CSS is relying on several large master water meters to record usage. Under low flow conditions, such as at night, the larger meters cannot record low flows, so these flows are unrecorded, thereby increasing the difference between the well-house readings and the consumption readings. Adding end-use metering will likely reduce this erroneously-recorded leakage.

Action:

Recommend completing the building metering program to satisfy the DOH mandate and reduce the apparent leakage numbers.

S-2 Description:

The existing 4" pipe from Building 32 is in failing condition and has required repairs during which pipe quality was assessed.

Risk Assessment:
Continuing to rely on this pipe could lead to undetected sewage leaks and unscheduled interruption of building use if not replaced with a new line.

S-10 Description:
Repair ~60 LF of chain link fence around the wastewater conveyance and overflow facility. (Rating 5)

Risk Assessment:
Repair of the damaged chain link fence on the south side of the wastewater conveyance and overflow facility is recommended for safety and security, and associated liability issues.

S-12 Description:
Replace 8" MJ gate valve and valve box in the sewage force main south of Fancher Road. (Rating 5)

Risk Assessment:
The subject valve allows isolation of a 4,000 LF segment of the primary sewage force main the runs between the Lakeland Village and Eastern State Hospital sewage pump stations. Previous attempts to close the valve have been unsuccessful. It is recommended that the valve be replaced to allow isolation of the force main in case of a rupture.

ESH-A17 Description:
At Westlake, add Header Boxes and Downspouts at (29) Scuppers.

Risk Assessment:

The existing building was recently re-roofed, and the tapered insulation was sloped to both the roof drains and to the existing scuppers which were originally intended only for overflow. Now that the scuppers are dripping water there have been some cases of water penetrating the exterior walls and damaging the interior finishes with a potential for mold accumulation as well. To prevent this, conductor heads and downspouts need to be added to redirect the water from these downspouts.

Budgetary Costs:
Civil R-8, W-7, S-2, 10, 12; ESH-A17

Task	Construction Cost	Project Cost
R-8	$27,055	
W-7	$8,000	
S-2	$5,000	
S-10	$2,000	
S-12	$2,500	
A17	$58,000	
	$102,555	$148,700

Short-term Needs (2017-19, 2019-21)

09 – Laundry Addition to Boiler Building

Description (ESH-A03b)

Phase 2 of the new Boiler Building project would add around 16,000 SF to the building to allow the Laundry to be relocated here from Lakeland Village. The current facility at LV is structurally failing and would be demolished after the Laundry function is moved.

A separate study is underway to determine if it is more economical to continue the laundry operation in-house or outsource the linen service to a private business. Costs of new construction and in-house operation include:

- Construction Cost of new 16,000 SF facility
- Project soft costs (fees, permits, etc., approx. 45% of MACC
- Equipment Replacement
- Operating Costs, including salaries
- Maintenance Costs, etc.

Information to price outsourcing the combined ESH/LV laundry service has been given to local businesses for submitting estimates, including Department of Corrections in Airway Heights, ALSCO in Spokane and Blue Ribbon Linen in Lewiston, Idaho. Department of Corrections responded that they are not able to do outside laundry due to security concerns. Responses from ALSCO and Blue Ribbon will be included in the report. The prices will be based on combined laundry quantities for ESH & LV of 8,000 LB/day, 5 days/week, 52 weeks/year. Linen would be picked up/dropped off at (3) distribution points, one each for LV, Eastlake, and Westlake, and DSHS staff would distribute it to wards and cottages from these centralized distribution points.

A previous Laundry Study conducted in 2001 by Bernardo Wills Architects & Systems Design International reviewed the current LV Laundry operation, assessed options, and recommended that a new laundry facility be constructed. The intent of the current study is to provide hard numbers to review life-cycle costs of all options to confirm that a new facility is still the most cost-effective delivery method.

Risk Assessment:

Loss of use of the Laundry Building would be a serious problem for both ESH and LV since the quantities of laundry that need to be done (8,000#/day) could not immediately be made up through outsourcing.

Pros/Cons:

Pros:

- The Laundry at LV could remain active until the Phase 2 building at ESH is completed.

Cons:

- Expense of a new building.

Budgetary Costs:

	Construction Cost	Project Cost
• (see Cost Model next page)	$6.47M	$9.38M

NAC | ARCHITECTURE

Estimate of Probable Construction Cost

Summary by Division

ESH Laundry Addition - Project 09 — Proj. No: 111-14011-A306
#2014-415 — Date 8/27/2014
Medical Lake Master Plan — Area = 16,600 GSF — Budget = (TBD)

KEY	DESCRIPTION	SF COST	COMPONENT	PERCENT	REMARKS
A	GENERAL CONDITIONS	9.50	157,700	2.88%	
B	SITE DEVELOPMENT	10.00	166,000	3.04%	
C	DEMOLITION & ASBESTOS	37.60	624,160	11.42%	
D	FOUNDATION & SOG	14.00	232,400	4.25%	
E	STRUCTURAL SYSTEM	18.00	298,800	5.47%	
F	ROOFING SYSTEM	10.00	166,000	3.04%	
G	EXTERIOR WALLS	23.00	381,800	6.98%	
H	EXTERIOR DOORS & OPENINGS	10.00	166,000	3.04%	
I	INTERIOR DOORS & OPENINGS	2.00	33,200	0.61%	
J	INTERIOR PARTITIONS	2.50	41,500	0.76%	
K	WALL FINISHES	4.50	74,700	1.37%	
L	FLOOR FINISH & BASE	3.50	58,100	1.06%	
M	CEILING & SOFFITS	2.50	41,500	0.76%	
N	INTERIOR STAIRS & RAILINGS	1.25	20,750	0.38%	
O	ACCESSORIES & SPECIALTIES	2.00	33,200	0.61%	
P	FIXED EQUIPMENT	52.00	863,200	15.79%	
Q	CASE & MILLWORK	4.50	74,700	1.37%	
R	FURNISHINGS	0.00	0	0.00%	
S	SPECIAL SYSTEMS	0.00	0	0.00%	
T	MECHANICAL CONVEYANCES	0.00	0	0.00%	
U	SITE UTILITIES, MECHANICAL	15.00	249,000	4.55%	
V	PLUMBING	25.00	415,000	7.59%	
W	HVAC & CONTROLS	48.00	796,800	14.57%	
X	FIRE PROTECTION	4.00	66,400	1.21%	
Y	SITE UTILITIES, ELEC	2.00	33,200	0.61%	
Z	ELECTRIC POWER	15.50	257,300	4.71%	
AA	LIGHTING	7.00	116,200	2.13%	
BB	SPECIAL SYSTEMS	6.00	99,600	1.82%	
	GENERAL SUBTOTAL	206.85	3,433,710	62.81%	
	MECHANICAL SUBTOTAL	92.00	1,527,200	27.93%	
	ELECTRICAL SUBTOTAL	30.50	506,300	9.26%	
	SUBTOTAL	329.35	5,467,210	100.00%	
	CONTR. O & P - GENERAL	10.34	171,686	5.00%	
	CONTR. O & P - MECH/ELECT	6.13	101,675	5.00%	
	BOND & INSURANCE	6.79	112,778	2.00%	
	B & O TAX	1.76	29,267	0.50%	
	SUBTOTAL	354.37	5,882,615	107.60%	
	DESIGN CONTINGENCY	35.44	588,262	10.00%	
	SUBTOTAL	389.81	6,470,877	118.36%	
	LOCATION / INFLATION FACTOR	0.00	0	0.00%	
	ESTIMATED BID AMOUNT	389.81	6,470,877	118.36%	

10 – Activity/Visitors Entry to replace existing Admin & A/T Bldg

Description (PR-01)

This recommendation addresses two significantly deficient buildings on the Eastlake campus – the Administration Building and the Activities Therapy Building. The Administration Building is very inefficient and the Activities Therapy Building is difficult to access and structurally unsound. It is recommended that current administrative offices be moved to vacant/underutilized space in the north wing of the hospital and the current Administrative Building be replaced with a new Activities Therapy Building that will serve both the Adult Psychiatric Unit (APU) and Forensic Services Unit (FSU) as well as serving as a main entry for the Eastlake campus. The existing Administration and Activity Therapy Buildings will then be demolished.

The new building is preliminarily planned to include a modest visitor's lobby, reception, small museum, 16 meeting rooms (groups, multipurpose, classrooms, computer rooms and large activity), cooking/ADL facilities, fitness facilities, patient lounges, cashier, 20 office/ workstations and staff conference rooms. See attached Space Needs Program.

Risk Assessment:

The current Activities Therapy Building is structurally unsound and it is not feasible to upgrade it. It is reported by nursing staff that most assaults and other patient conflicts occur during transport of patients such as occurs with movement from the nursing units to the Activities Therapy Building. The new facility will eliminate this danger to staff and patients and reduce related liability. Nursing staff report that the existing configuration results in the unavoidable mixing of FSU and APU patients and that this is unsafe. The new facility will allow segregation of patient populations by providing direct access to the Therapy Malls from both the FSU and APU nursing units, eliminating the reported safety risk of cross traffic and the related liability. The current connecting tunnel has a long, steep ramp that does not meet the accessibility requirements for disabled persons required by the Americans with Disabilities Act (ADA).

Pros/Cons:

Pros:

- The project is projected to pay for itself within 19 years. See attached analysis summarizing the net present value of savings and expenses. After this time, continued savings of over $800,000 in present value is projected to accrue annually.
- The current Administration Building is highly inefficient. Efficient design benchmarks for office space range from 125 to 160 sq. ft. total departmental area per office/workstation; there is 390 sq. ft. of departmental area per office/workstation in the current Administration Building. The existing Administration Building will be demolished, significantly reducing annual operating expenses while providing higher quality office space at minimal cost in the existing building.
- The new Administration office suite will be air-conditioned; the current Administration Building is not air-conditioned.
- Patient and staff safety will be improved and liability to the State will be reduced.
- The new Therapy Mall will improve efficiency of operations because staff will no longer need to spend time transporting patients. In addition, new replacement facilities for Activities Therapy will be modern, state-of-the-art incorporating best practices for treatment.
- The new Therapy Mall will be air-conditioned; the current Activities Therapy Building is not air-conditioned.
- he current Administration Building presents an "institutional" presence to the community and visitors; the new facility will present an updated and modern face to those who visit. Elements of the existing building structure, for example the existing stone "Eastern State Hospital" entry sign, are recommended to be incorporated into the new construction to respect the history of the hospital.

Cons:

- An initial capital expense will need to be incurred. Otherwise, there are many benefits and no drawbacks to this project.

Budgetary Costs:

	Construction Cost	Project Cost
• (see Cost Model next page)	$8.2M	$11.9M

NAC ARCHITECTURE

Estimate of Probable Construction Cost

Summary by Division

ESH New Activity Therapy Building/Public Entry - Project 10	Area=20,000 sf new	Proj. No:	111-14011-A306
#2014-415	4300 Office Reno/2,000 tie-ins	Date	8/27/2014
Medical Lake Master Plan	Area = 26,300 GSF	Budget =	(TBD)

KEY	DESCRIPTION	SF COST	COMPONENT	PERCENT	REMARKS
A	GENERAL CONDITIONS	18.50	486,550	7.26%	
B	SITE DEVELOPMENT	15.00	394,500	5.88%	
C	DEMOLITION & ASBESTOS	31.00	815,300	12.16%	
D	FOUNDATION & SOG	9.00	236,700	3.53%	
E	STRUCTURAL SYSTEM	18.50	486,550	7.26%	
F	ROOFING SYSTEM	9.50	249,850	3.73%	
G	EXTERIOR WALLS	15.00	394,500	5.88%	
H	EXTERIOR DOORS & OPENINGS	6.50	170,950	2.55%	
I	INTERIOR DOORS & OPENINGS	5.00	131,500	1.96%	
J	INTERIOR PARTITIONS	8.10	213,030	3.18%	
K	WALL FINISHES	3.10	81,530	1.22%	
L	FLOOR FINISH & BASE	4.25	111,775	1.67%	
M	CEILING & SOFFITS	2.35	61,805	0.92%	
N	INTERIOR STAIRS & RAILINGS	1.00	26,300	0.39%	
O	ACCESSORIES & SPECIALTIES	2.00	52,600	0.78%	
P	FIXED EQUIPMENT	3.50	92,050	1.37%	
Q	CASE & MILLWORK	4.60	120,980	1.80%	
R	FURNISHINGS	1.50	39,450	0.59%	
S	SPECIAL SYSTEMS	4.00	105,200	1.57%	
T	MECHANICAL CONVEYANCES	4.00	105,200	1.57%	
U	SITE UTILITIES, MECHANICAL	4.00	105,200	1.57%	
V	PLUMBING	19.50	512,850	7.65%	
W	HVAC & CONTROLS	32.50	854,750	12.75%	
X	FIRE PROTECTION	4.00	105,200	1.57%	
Y	SITE UTILITIES, ELEC	4.50	118,350	1.77%	
Z	ELECTRIC POWER	15.00	394,500	5.88%	
AA	LIGHTING	4.00	105,200	1.57%	
BB	SPECIAL SYSTEMS	5.00	131,500	1.96%	
	GENERAL SUBTOTAL	166.40	4,376,320	65.28%	
	MECHANICAL SUBTOTAL	60.00	1,578,000	23.54%	
	ELECTRICAL SUBTOTAL	28.50	749,550	11.18%	
	SUBTOTAL	254.90	6,703,870	100.00%	
	CONTR. O & P - GENERAL	16.64	437,632	10.00%	
	CONTR. O & P - MECH/ELECT	4.43	116,378	5.00%	
	BOND & INSURANCE	5.43	142,830	2.00%	
	B & O TAX	1.41	37,004	0.50%	
	SUBTOTAL	282.80	7,437,713	110.95%	
	DESIGN CONTINGENCY	28.28	743,771	10.00%	
	SUBTOTAL	311.08	8,181,484	122.04%	
	LOCATION / INFLATION FACTOR	0.00	0	0.00%	
	ESTIMATED BID AMOUNT	311.08	8,181,484	122.04%	

10 – Activity/Visitors Entry to replace existing Admin & A/T Bldg

11 – Eastlake Essential Electrical System Reconfiguration

Description (ES-E2)

The Eastlake Building's electrical emergency power system needs upgrading to meet current codes. This project would reconfigure the Eastlake Building Essential Electrical System by adding a Critical Branch in Eastlake North and an Equipment Branch in Eastlake South. Separate automatic transfer switches for the added branches, with priority load-shed capabilities, would be included. Loads would be segregated onto the proper branches.

Risk Assessment:

Lack of compliance can subject the Hospital to JCAHO and Fire Department inspection reports that identify loads as improperly connected to the wrong branch of the Essential Electrical System and compel compliance, often on schedules that are very difficult to achieve. Lack of compliance also complicates major renovation projects, potentially forcing less than optimal solutions, such as adding a third engine-generator to serve a renovated area. Minor renovation projects can be accommodated when new circuits are confined to existing electrical distribution equipment, but only when the loads being added match the available branches. Lack of a Critical branch in Eastlake North and of an Equipment branch in Eastlake South impair both function and licensing of the facility.

Pros/Cons:

Pros:

- Facility Licensing: An Essential Electrical System segregated into the proper branches frees the facility from related licensing issues stemming from JCAHO and Fire Department inspections.
- Future Renovation: An Essential Electrical System segregated into the proper branches enables renovation projects to circuit new loads to the proper braches in compliance with code requirements.
- Equipment Sizing: Optional Standby loads that can be shed in case of generator overload do not need to be counted when sizing the engine-generator, potentially making the difference in whether a new or larger engine-generator is needed.

Cons:

- Cost: Significant electrical equipment and labor costs are involved.
- Space: Additional floor space may be needed for added electrical equipment.
- Disruption: Reconfiguration of the Essential Electrical System will lead to construction disruptions.

Budgetary Costs:

Item	Construction Cost	Project Cost
Electrical Distribution, Equip Branch, South:		
27,280 SF x 4 FLR = 109,000 SF @ $4.40/SF:	$480,000	
Electrical Distribution, Critical Branch, North:		
27,440 SF x 4 FLR = 109,000 SF @ $2.66/SF:	$290,000	
Automatic Transfer Switches, (8) @ $13,000 ea:	$104,000	
Load Management Controls (LS):	$126,000	
Total:	$1,000,000	$1.45M

12 – Upgrade Westlake to Full Direct Digital Control (DDC)

Description (Mech ESH-01)

Upgrade Westlake Building to full Direct Digital Control (DDC) system.
Currently only AHU's have DDC. All other controls are pneumatic.

Risk Assessment:

Much of the pneumatic tubing is very old and prone to cracking and air leakage. If the system is not replaced with a Direct Digital Control (DDC) type, leakage from cracks will cause loss of control with the result being loss of a comfortable indoor environment or increased energy use or both.

Pros/Cons:

The replacement of the pneumatic control system can be delayed and the pneumatic system repaired as failure occurs but it is often very difficult and time consuming to locate an air leak. Maintenance time is much greater for a pneumatic system than for a DDC system.

Replacement with a DDC system reduces maintenance time as it is possible to "see" what is happening in the system from the head-end of the system which is located at the campus CSS HVAC Shop. Many times, corrections and adjustments can be made without leaving the shop.

Replacement with a DDC system reduces energy use and energy cost. DDC systems have the ability to more closely control valves, dampers and room temperature. This prevents the over-shooting or hunting that can occur with pneumatic controls.

This work should be phased. An unoccupied "pod" could be upgraded first, with residents moving into that pod upon completion. The process would continue until complete.

Budgetary Costs:

	Construction Cost	Project Cost
107,328 SF x $12.10/SF =	$1.3M	$1.89M

13 – ESH Personal Duress Alarm System

Description (ES-E1)

Provide campus wide, wireless personal duress alarm systems (PDAS) for staff at the following locations: Eastlake Building, Westlake Building, and Activity Therapy. Provide duress alarm annunciation at the Administration Building Switchboard, the Westlake Switchboard, and the Security Office.

Risk Assessment:

RCW 72.23.400 – Workplace safety plan, under section (1) (a) requires all three state hospitals (Eastern State Hospital, Western State Hospital, and Child Study and Treatment Center) assess risk and develop a plan that addresses security considerations; specifically the physical attributes of the state hospital including access control, egress control, door locks, lighting, and alarm systems.

- The Eastlake Forensic Services Unit (FSU) currently has proximity card readers spaced every 200lf that are utilized to initiate an alarm for the duress alarm system. Annunciation of the duress alarm is via antiquated LED displays at the end of each ward and in the nurse's station.
  - + The alarm notification only annunciates the ward location via reader boards located at the ends of the ward and a tone; but does not identify specific/exact location of activation.
  - + The existing system does not provide a method of activation for off-ward and/or outdoor escort/activities i.e. yard group, dining room, etc.
- The Eastlake Adult Psychiatric Unit (APU) currently has key switches spaced every 200lf that are utilized to initiate an alarm for the duress alarm system. Annunciation of the duress alarm is via antiquated LED displays at the end of each ward and across the corridor in front of the nurse's station.
  - + The alarm notification only annunciates the ward location via reader boards located at the ends of the ward and a tone; but does not identify specific/exact location of activation.
  - + The existing system does not provide a method of activation for off-ward and/or outdoor escort/activities i.e. yard group, dining room, etc.
- The Westlake Building currently has a single (1) pushbutton located at the nurse's station within each ward that is utilized to initiate an alarm for the duress alarm system. Annunciation of the duress alarm is via the nurse call system annunciator at the nurse's station on each ward and is also fed into the overhead public address (PA) system; however, the Simplex nurse call system is frequently non-functional.
  - + The alarm notification only announces the ward location via automated overhead PA announcement; it does not identify specific/exact location of activation.
  - + The existing system does not provide a method of activation for off-ward and/or outdoor escort/activities i.e. yard group, dining room, etc.
- The GPU Treatment Mall does not have an existing duress alarm system; when the existing Westlake duress system was installed, the GPU Treatment Mall was not utilized as a patient care area.
- The Activity Therapy building does not have any duress alarm or PDAS systems.

The existing physical security for duress events are not effective:

- Auxiliary help may be deleted for many duress events within each of the major buildings at ESH due to the lack of alarm activation points near the duress event.
- Duress alarms cannot easily be activated should there be a duress event at the alarm location; alarm activation is too cumbersome.
- The Workplace Safety Plan, required by the Legislature, mandates ESH to assess risk associated with any duress alarm within the hospital and develop a plan to prevent or mitigate the risk.
- Alarms do not report to a centralized location, responsible for coordinating help; help is random based on who sees/hears the alarm annunciated at the end of the corridor.
- Eastlake South FSU: The existing system was installed in 1980; components are failing, the parts are no longer manufactured, and the company is no longer in business.
- Eastlake North APU: The existing system was installed in late1980's, essentially expanding the Eastlake South FSU system; components are failing, the parts are no longer manufactured, and the company is no longer in business.
- Westlake: The existing system was installed in late2008, however, since the system only utilizes a single alarm point for each ward (at the nurses station) the system makes it almost impossible for staff to use in high-risk areas (away from the nurses station). Additionally, the system is tied into the Simplex nurse call system which is failing.

Pros/Cons:

Pros:

- A PDAS will provide a mobile alarm point for each staff member, which provides an alarm at the point of duress, versus a fixed system that only provides alarm activation at certain locations.
- Alarms can be sent to a single, or multiple control points, with the ability for an integrated response.
- There will not be any fixed points required to initiate an alarm; staff will have their own, unique, wireless duress initiator that tracks staff location, and automatically updates at the control locations.
- Currently, a majority of duress events are not alarmed as the event location is typically distant from the alarm initiation point. A wireless PDAS device will be provided to all staff that will provide an instantaneous alarm.
- A wireless PDAS can be used in the following manner:
  - + Tracks people or assets
  - + Identifies user's name, location, and direction of travel every seven seconds during an alarm
  - + Manages assets
  - + Has full range of transmitter types and capabilities
  - + Can be dispatched across a campus environment
  - + Post-alarm tracking and alarm map recall and database
  - + Man-down alarm and staff tracking in security installations
  - + Staff tracking reports
  - + Remote acknowledgement capability
  - + Check-in monitoring
  - + Touchscreen, closed circuit television (CCTV) and paging interface
  - + Wireless remote station help-call
- The system will minimize conduit installation utilizing wireless communications.
- The system will help ensure compliance with RCW 72.23.400 thru reporting functions.

Cons:

- Cost. While not as expensive as a fixed duress alarm system, a wireless PDAS is still expensive.

Budgetary Costs:

Item	Construction Cost	Project Cost
PDAS for Westlake: $8.91/SF x 107,328 SF:	$956,200	
PDAS for Eastlake: $8.91/SF x 220,828 SF:	$1,967,500	
PDAS for Activity/Therapy: $8.91/SF x 53,462 SF:	$476,300	
TOTAL:	$3,400,000	$4.9M

14 – Decompress FSU 2S1 into "A" Segment

Description (PR-02)

The current FSU nursing units on the second and third floors are overcrowded. Space benchmarks indicate provision of 800 sq. ft. of departmental area per bed. The current units only provide departmental area of 412 sq. ft. per patient on the second floor and 487 sq. ft. per patient on the third floor. In this recommendation, the FSU nursing units would be expanded into adjacent space to alleviate overcrowding. There is already adjacent vacant space available on the second floor. Adjacent space on the third floor is currently occupied by social work workstations, which could easily be relocated to available space in the north wing of the hospital to make space available for expansion on the third floor.

Risk Assessment:

There are numerous risks of overcrowding in institutional facilities. These include:

- Psychological: Frustration, anxiety and stress increase in patients due to lack of privacy, inability to screen noise and fear.
- Psychiatric: Psychiatric conditions among patients are exacerbated.
- Social: Competition for limited space and resources sometimes leads to aggressive behaviors and violence and puts staff and patients at risk.
- Treatment: The ability and efficacy of rehabilitative treatment is reduced.
- Release: Stresses of overcrowding can leave patients in a partially disabled state and reduce their ability to thrive and form healthy relationships upon release.
- Medical: Overcrowded environments foster an increase in the spread of contagious diseases.
- Staff: Staff face extra pressure and stress. Morale is decreased. Staff safety is decreased.

Pros/Cons:

Pros:

- Additional private rooms will allow better management of more aggressive patients and improve the environment of care for all patients.
- Satellite staff stations will allow for better supervision and control of the units.
- Quiet areas will provide for patient retreat to allow de-escalation of incidents of agitation and reduce stress on patients.
- Improved health of patients would be fostered, both physically and psychologically.
- A less stressful and safer environment would be provided for staff, allowing them to have higher morale and be more effective.
- While difficult to quantify, a better controlled and less overcrowded environment would reduce costs associated with patient treatment, lost work time and liability resulting from assaultive behaviors.

Cons:

- An initial capital expense will need to be incurred, although cost is minimized due to the ready availability of directly adjacent space to accommodate some expansion.

Budgetary Costs, 2nd Floor FSU:

	Construction Cost	Project Cost
• (see Cost Model next page)	$1.03M	$1.49M

15 – Decompress FSU 3S1 into Swing Ward Area

Description/Risk Assessment/Pros & Cons (PR-02)
(See Second Floor project above for description)

Budgetary Costs, 3rd Floor FSU:

	Construction Cost	Project Cost
• (see Cost Model next page - Combined with 14)	$275,000	$398,750

NAC ARCHITECTURE

Estimate of Probable Construction Cost

Summary by Division

ESH Decompress FSU 2nd & 3rd Flr South - Projects 14 & 15 — Proj. No: 111-14011-A306
#2014-415 — 3,100 sf extensive remodel 2S, Minimal in 3S — Date 8/27/2014
Medical Lake Master Plan — Area = 3,100 GSF — Budget = (TBD)

KEY	DESCRIPTION	SF COST	COMPONENT	PERCENT	REMARKS
A	GENERAL CONDITIONS	30.00	93,000	8.68%	
B	SITE DEVELOPMENT	0.00	0	0.00%	
C	DEMOLITION & ASBESTOS	13.00	40,300	3.76%	
D	FOUNDATION & SOG	2.50	7,750	0.72%	Underlayment
E	STRUCTURAL SYSTEM	0.00	0	0.00%	
F	ROOFING SYSTEM	0.00	0	0.00%	
G	EXTERIOR WALLS	20.00	62,000	5.79%	
H	EXTERIOR DOORS & OPENINGS	22.00	68,200	6.37%	
I	INTERIOR DOORS & OPENINGS	20.00	62,000	5.79%	
J	INTERIOR PARTITIONS	15.00	46,500	4.34%	
K	WALL FINISHES	3.00	9,300	0.87%	
L	FLOOR FINISH & BASE	6.00	18,600	1.74%	
M	CEILING & SOFFITS	6.00	18,600	1.74%	
N	INTERIOR STAIRS & RAILINGS	0.00	0	0.00%	
O	ACCESSORIES & SPECIALTIES	3.50	10,850	1.01%	
P	FIXED EQUIPMENT	4.50	13,950	1.30%	
Q	CASE & MILLWORK	4.00	12,400	1.16%	
R	FURNISHINGS	1.50	4,650	0.43%	
S	SPECIAL SYSTEMS	0.00	0	0.00%	
T	MECHANICAL CONVEYANCES	0.00	0	0.00%	
U	SITE UTILITIES, MECHANICAL	0.00	0	0.00%	
V	PLUMBING	32.00	99,200	9.26%	
W	HVAC & CONTROLS	33.00	102,300	9.55%	
X	FIRE PROTECTION	4.00	12,400	1.16%	
Y	SITE UTILITIES, ELEC	0.00	0	0.00%	
Z	ELECTRIC POWER	25.00	77,500	7.23%	
AA	LIGHTING & SPECIAL SYSTEMS	12.00	37,200	3.47%	
BB	Minor Remodel 3S	88.55	274,505	25.63%	
	GENERAL SUBTOTAL	151.00	468,100	43.70%	
	MECHANICAL SUBTOTAL	69.00	213,900	19.97%	
	ELECTRICAL SUBTOTAL	125.55	389,205	36.33%	
	SUBTOTAL	345.55	1,071,205	100.00%	
	CONTR. O & P - GENERAL	18.12	56,172	12.00%	
	CONTR. O & P - MECH/ELECT	9.73	30,155	5.00%	
	BOND & INSURANCE	7.27	22,548	2.00%	
	B & O TAX	1.90	5,900	0.50%	
	SUBTOTAL	382.57	1,185,980	110.71%	
	DESIGN CONTINGENCY	38.26	118,598	10.00%	
	SUBTOTAL	420.83	1,304,578	121.79%	
	LOCATION / INFLATION FACTOR	0.00	0	0.00%	
	ESTIMATED BID AMOUNT	420.83	1,304,578	121.79%	

16 – Expand Yard at FSU & Add Shelter at APU Yard

Description (PR-03)

The current FSU outside yard is highly constrained and is proposed to be expanded. This can readily be done with demolition of the adjacent failed buildings. In addition, inadequate covered space is provided in the FSU and APU yards. Nursing management for both areas reported the need for covered exterior space to allow patient access to the exterior during inclement weather.

Risk Assessment:

The current FSU yard is overcrowded. There are numerous risks of overcrowding in institutional facilities. These include:

- Psychological: Frustration, anxiety and stress increase in patients due to lack of privacy, inability to screen noise and fear.
- Psychiatric: Psychiatric conditions among patients are exacerbated.
- Social: Competition for limited space and resources sometimes leads to aggressive behaviors and violence and puts staff and patients at risk.
- Treatment: The ability and efficacy of rehabilitative treatment is reduced.
- Release: Stresses of overcrowding can leave patients in a partially disabled state and reduce their ability to thrive and form healthy relationships upon release.
- Medical: Overcrowded environments foster an increase in the spread of contagious diseases.
- Staff: Staff face extra pressure and stress. Morale is decreased. Staff safety is decreased.

Pros/Cons:

Pros:

- A safer environment for patients and staff will be provided by reducing yard overcrowding.
- Patients can obtain the psychological and physical benefits of fresh air and sunshine by providing covered areas to allow patients to go outside during inclement weather.
- Demolition of adjacent failed structures will allow the FSU yard to be easily expanded with minimal cost.

Cons:

- An initial capital expense will need to be incurred.

Budgetary Costs:

Construction Cost	Project Cost
$310,000	$450,000

17 – Irrigation & Paving Repairs

Description (Civil IR-2, 3, 4, 5; R-1, 2, 3, 5, 6, 7)

IR-2 Description:

Replace ESH's Irrigation Booster Pump Motor (Rating 3)
The electrical motor on the ESH irrigation booster pump is not rated for outdoor use in the vertical position in which it is mounted. A shroud has been installed over the end of the motor to keep some moisture out of the motor windings. Without a Totally Enclosed Fan Cooled (TEFC) type motor for exterior use, the pump motor is subject to corrosion and will short out due to eventual corrosion of the motor's windings.

The perimeter fence around the irrigation booster pump has only one gate across one of its long sides which is approximately 16 feet long. This gate has to be opened each time operation and maintenance personnel access the booster pump and/or its appurtenances. A man gate would make access easier and safer.

Risk Assessment:

The improperly installed and type of electrical motor on the booster pump presents an electrical hazard to operations and maintenance personnel. Not having a man gate to access the pump station and appurtenances presents unnecessary additional work for operation and maintenance personnel to open and close the large gates each time they enter the booster pump enclosed area. Having to clean the intake screen from a boat presents an unnecessary drowning hazard to operation and maintenance personnel.

IR-3 Description:

Replace 1,175 LF of 8" Irrigation Main in Failing Condition (Rating 5)
Consolidated Support Services staff has indicated that approximately 1,175 lineal feet of 8" irrigation main directly downstream of the irrigation booster station is in failing condition as revealed by their repair efforts on that section.

Risk Assessment:

Continuing to rely on this pipe will lead to further repairs and additional power costs for pumping irrigation water that is not used.

IR-4 Description:

Replace 1,350 LF of 8" Irrigation Main in Poor Condition (Rating 4)
Consolidated Support Services staff has indicated that approximately 1,350 lineal feet of 8" irrigation main directly downstream of the failing section of 8" main described in IR-3 above is in poor condition as revealed by their repair efforts on that section.

Risk Assessment:

Continuing to rely on this pipe will lead to further repairs and additional power costs for pumping irrigation water that is not used.

IR-5 Description:

Replace 3,700 LF of 8" Irrigation Main in Failing Condition (Rating 5)
Consolidated Support Services staff has indicated that approximately 3,700 lineal feet of 8" irrigation main directly downstream of the ESH 150,000 gallon irrigation reservoir is in failing condition as revealed by their repair efforts on that section.

Risk Assessment:

Continuing to rely on this pipe will lead to further repairs and additional power costs for pumping irrigation water that is not used.

R-1 Description:

Asphalt Road in Poor Condition (Rating 4)
Grind and Overlay Existing Asphalt Roads in Poor Condition
Roads in this condition were assessed as beyond repair by mere crack-sealing, but not deteriorated to the point of having to replace the subgrade or gravel base.

Risk Assessment:

Roads in this condition begin to deteriorate rapidly because the cracks in the asphalt allow penetration of water into the base course, which will quickly lose structural integrity because of freeze/thaw and pumping of the subgrade.

R-2 Description:
Asphalt Road in Failing Condition (Rating 5)
Roads in this condition were assessed as beyond repair by grind and overlay because deterioration of the gravel base and subgrade is so prevalent the inadequate support for new asphalt would be provided by overlay.

Risk Assessment:
Roads in this condition will develop potholes and ruts that will be damaging to vehicles and could be a safety hazard

R-3 Description:
Gravel Road in Poor Condition (Rating 4)
Roads in this condition were assessed as needing some gravel patching and regrading to bring back to good condition

Risk Assessment:
Roads in this condition will develop potholes and ruts that will be damaging to vehicles and could be a safety hazard.

R-5 Description:
Dirt Road in Failing Condition (Rating 5)
Roads in this condition are basically dirt roads that appeared to provide necessary access to essential facilities. These roads were assessed to be in failing condition because of the possibility that they could be impassible in wet conditions.

Risk Assessment:
Roads in this condition can be impassible in wet conditions.

R-6 Description:
Concrete Road or Driveway in Failing Condition (Rating 5)
Concrete roads in this condition were judged to have cracks that are extensive and wide enough to permit significant water into the gravel subgrade and are already heaving or settling.

Risk Assessment:
Roads in this condition produce an uncomfortable ride or hazardous walking conditions at night and cannot be repaired by grinding or crack sealing.

R-7 Description:
Concrete Sidewalk in Poor Condition (Rating 4)
Concrete sidewalks in this condition were judged to have cracks that can be sealed and vertical offsets that can be made wheelchair accessible by grinding.

Risk Assessment:
Sidewalks in this condition can be impassible to wheel chairs, hazardous for walking at night and are subject to further cracking, settling or heaving over tree roots.

Budgetary Costs:

Item	Construction Cost	Project Cost
IR-2	$11,000	$15,950
IR-3	$35,000	$50,750
IR-4	$40,500	$58,725
IR-5	$63,900	$92,655
R-1	$768,386	$1,114,160
R-2	$72,720	$105,444
R-3	$15,384	$22,307
R-5	$3,762	$5,455
R-6	$32,807	$47,570
R-7	$134	$194
TOTAL	$1,043,593	$1,513,210

18 – Add Flexible Liner for Concrete Domestic Reservoir #2

Description (Civil W-6)

Install liner in 550,000 Gallon Concrete Domestic Reservoir (Rating 4)

The existing 500,000 gallon concrete reservoir, which serves the City of Medical Lake, continually has lower chlorine residuals in tested water samples than other collected samples throughout the existing domestic water distribution and storage system. The low chlorine residual test results indicate possible bacterial growth inside the concrete tank.

Exposed portions of the concrete tank were observed to have concrete which was spalling at each corner of the tank which was above grade. The concrete spalling may be from corroding rebar within the concrete walls and/or water collecting within the concrete that experiences freeze/thaw cycles. The existing 550,000 gallon concrete reservoir does not have a perimeter security fence to assist in preventing vandalism. The exterior float gauge does not work, which does not allow operations and maintenance personnel to visually check the level in the tank from a distance. The only other way to check the water level in the tank is to look through one of the tank's access hatches.

Risk Assessment:

The 550,000 gallon concrete reservoir normally serves only the City of Medical Lake. The frequent low chlorine residual readings obtained from samples from within the tank indicate the risk of unsatisfactory water quality from the reservoir. Without a perimeter security fence, the 0.5 MG concrete reservoir presents a greater risk to vandalism to the tank and the quality of water in the tank since vent and access hatches are not protected nor, secured. The adjacent 2 MG steel reservoir fills the lower (in elevation) 0.5 MG reservoir. An altitude valve between the tanks prevents the lower 0.5 MG tank from over-filling. If the altitude valve fails with the exterior float gauge not operating the adjacent 2 MG steel tank could be un-intentionally drained resulting in no stored water supply (operational, standby, equalization and/or fire suppression storage volume) for ESH and LV.

Recommendations: Repair spalled concrete on exterior of tank by installing epoxy patches. Apply new finish to exposed portions of exterior concrete tank. Drain and clean tank to reduce amount of bacterial growth so that residual chlorine amounts are similar to amount throughout domestic water system. Install reinforced flexible membrane liner inside concrete tank to reduce amount of seepage into concrete which increases corrosion in rebar that degrades strength of tank. Normal operation for this reservoir is for water to flow to the City of Medical Lake and provide water to the Eastern State Hospital boiler facilities. Therefore, the recommended repairs to the tank may not be warranted since the tank does not provide domestic water supply to state run facilities at the Medical Lake Campus.

Budgetary Costs:

	Construction Cost	Project Cost
	$258,000	$374,000

19 – ESH Miscellaneous Upgrades

Description (ESH-A12; A14 thru A16; + ESH-04)

ESH-A12 Description:
Westlake: Replace doors at center stair to meet code access requirements.

Risk Assessment:

The doors at the central stair open in the wrong direction for exiting and should be replaced so that they meet code and if there is a fire event, people are not jammed up against the door trying to get out.

Pros/Cons:

Pros

- Improve life safety.

Cons:

- Minor cost.

ESH-A14 Description:
Superintendent's House: Exterior Painting (trim, windows).

Risk Assessment:

Routine maintenance on this structure appears to be neglected. The paint is peeling off trim boards and windows which will result in more expensive replacement, if the existing trim is not protected by repainting.

Pros/Cons:

Pros: Painting will improve the appearance and defer more expensive repairs.
Cons: Minimal cost for value gained.

ESH-A15 Description:

Superintendent's House: replace wood shingle roofing.

Risk Assessment:

Roofing is starting to fail; some shingles are missing and others are loose or cracked.

Pros/Cons:

Pros: Roofing replacement will improve the building's appearance and head-off water damage that is imminent unless repairs or replacement are made soon.
Cons: Cost of replacement.

ESH-A16 Description:

Emergency Vehicle Storage Building: exterior maintenance.

Risk Assessment:

The exterior of this building has exposed wood glu-Lam beams over the overhead doors, rough-sawn plywood soffits, and painted steel gutters all the way around. All of these need repainting to avoid deterioration of the components. The rusted steel gutters and fascia panels may need to be replaced in lieu of grinding and painting, at the worst areas.

Pros/Cons:

Pros: Sanding and painting will improve the building's appearance and prevent these features from further deterioration due to exposure to the elements.
Cons: Minimal cost for value gained.

ESH-04 Description:
Convert Westlake Air Handling Unit from 100% Outdoor Air to Recirculating Type.

Risk Assessment:
Failure to convert this air handling unit results in large amounts of wasted energy and greater energy costs than necessary.

Pros/Cons:
When originally designed, the air handling unit served an area of the building that housed patients with special medical needs. The area was supplied with conditioned 100% outdoor air. All of the air was exhausted directly to the outdoors. The need for 100% outdoor air no longer exists. The exhaust air stream could be returned to the intake side of the air handling unit and mixed with an appropriate quantity of outdoor air. Significant energy savings would be realized as a much lower quantity of hot or cold outdoor air would need to be tempered before being supplied to the building.
The system is currently working and poses no immediate threat of failure or loss of ability to heat or cool the building.

Budgetary Costs, Misc. Repairs
(ESH-A12; + A14- A16; + ESH-04)

Task	Construction Cost	Project Cost
A12	$5,000	
A14	$10,000	
A15	$35,000	
A16	$14,000	
ESH-04	$95,000	
	$159,000	$230,550

20 – Civil: Sewer Projects

Description (Civil S-1, 3, 8, 9, 11, 13)

S-1 Description:
Replace Old 2" Steel Pressure Sewer Pipe (Rating 4)
The existing 2" steel pressure pipe is reported by CSS staff to be in poor condition and has required repairs.

Risk Assessment:
Continuing to rely on this pipe could lead to undetected sewage leaks and unscheduled interruption of building use if not replaced with a new line

Action:
Recommend replacing this line from lift station to discharge manhole, approximately 690 feet of 2" PE pressure pipe.

S-3 Description:
Replace 6" Gravity Sewer Pipe and 4" Building Services for Buildings 28, 30, 31 (Rating 4)
The existing 6" collector pipe and two 4" building services are reported by CSS staff to be in poor condition and have required repairs during which pipe quality was assessed.

Risk Assessment:
Continuing to rely on this pipe could lead to undetected sewage leaks and unscheduled interruption of building use if not replaced with a new line.

Action:
Recommend replacing this line from Building to discharge manhole, with approximately 164 feet of 4" PVC pipe.

S-8 Description:
Sand-blast and re-coat exposed steel tanks and piping on primary and secondary overflow basins (~1,000 SQFT) (Rating 4)

Risk Assessment:
The primary and secondary overflow basins are used periodically to collect sewage when the primary sewage pump station pumps fail or are required to be removed from service for maintenance purposes. Leaving the steel tanks and exposed piping uncoated will result in continued corrosion and may require complete replacement of some steel and iron components with 5 to 10 years.

S-9 Description:
Repair and replace missing asphalt shingle roofing tiles on gazebo roof (<100 SQFT) (Rating 4)

Risk Assessment:
Due to high winds, some of the asphalt shingle roofing tiles on the gazebo roof have blown off. The shingles provide a weatherproof barrier to the wood frame roof of the gazebo. Replacement of the shingles is recommended for continued protection of the gazebo roof structure.

S-11 Description:
Bury ~200 LF 4" PVC pressure return line from secondary overflow basins. (Rating 3)

Risk Assessment:
It is recommended to bury the secondary overflow return line to prevent water freezing in the line during the winter months and potential rupture of the line.

S-13 Description:
Cleaning, leak test, and video inspection of ~8,000 LF of force main between the Lakeland Village Pump Station and Eastern State Hospital. (Rating 4)

Risk Assessment:

The existing force main is over 40-years old. Due to its age and proximity to West Medical Lake, cleaning, leak testing, and inspection of the force main are recommended to determine if any pipeline leaks exist and require repair.

Budgetary Costs (Civil S-1, 3, 8, 9, 11, 13)

Task	Construction Cost	Project Cost
S-1	$10,000	
S-3	$15,000	
S-8	$5,000	
S-9	$400	
S-11	$500	
S-13	$40,000	
	$71,000	$103,000

21 – ESH Consolidation & Risk Mitigation

Description (IU-09)

There are numerous buildings on the Eastern State Hospital campus that have been vacant for an extended period of time and have not had routine maintenance performed. The condition of these buildings has deteriorated to the point that they are a safety hazard and need to be demolished. There are other buildings that have no program use but are still being used for accessory uses like storage, just because they are there. The cost for upgrading these buildings to meet current codes cannot be justified, so we are recommending that they be demolished as well so the campus image can be improved by removal of deteriorating buildings and replacing them with clean landscaping. A total of (20) ESH buildings are identified on this list for removal.

Risk Assessment:

Safety hazard if abandoned buildings are allowed to remain. Also, there is the possibility of liability to the state if someone is injured while in or beside one of these buildings that has been "closed".

Pros/Cons:

Pros: The campus image will be improved if these blighted buildings are removed and landscaping is added instead.
Cons: Expense.

Budgetary Costs:

Building	SF Cost	SF	Cost	Project Cost
Electric Shop	12	3,570	$42,840	$62,118
Paint Shop (Old Bakery)	12	4,512	$54,144	$78,509
Commissary	12	13,083	$157,000	$227,650
Motor Pool North	12	14,242	$170,904	$247,811
Old Fire House	12	4,784	$57,408	$83,242
Welding/Carpentry/Auto Shop	12	8,557	$102,684	$148,892
Paint Storage (Old Grainery)	12	4,680	$56,160	$81,432
Elec/Plaster Shop (Quonset)	12	3,440	$41,280	$59,856
Linden Hall	12	33,496	$401,952	$582,830
West Lodge	12	37,276	$447,312	$648,602
Roosevelt Hall	12	16,524	$198,288	$287,518
Cottage #2	12	1,203	$14,436	$20,932
Cottage #3	12	1,385	$16,620	$24,099
Cottage #4	12	3,041	$36,492	$52,913
Interlake School (w/o Abatemt)	10	118,000	$1,180,000	$1,711,000
Metal Storage (Quonset)	12	2,000	$24,000	$34,800
Therapy Pool	12	10,083	$121,000	$175,450
Ag Buildings (Chicken farm)	12	25,000	$300,000	$435,000
P-3 Lab (for Primate Center)	12	6,000	$72,000	$104,400
Primate Center	17	69,743	$1,185,631	$1,719,165
TOTAL			$2,950,179	$4,277,760



21 – ESH Consolidation & Risk Mitigation

22 – ESH Auditorium: Find Sponsor/Temporary Repairs

Description (IU-10)

Since this building does not have a valid program use and will cost millions of dollars to restore (including structural improvements for safety) it should be demolished if a sponsor cannot be found within 2 or 3 years to fund historic restoration of the building for community use. The building is unreinforced masonry with large window openings and a heavy roof mass, and would not be safe in a seismic event. Existing roofing is starting to fail and water damage of interiors is occurring. We recommend that some short-term measures be implemented to prevent this building from failing until a suitable sponsor can be identified to cover the full cost of renovation. The project would include re-roofing and repairing broken windows.

Risk Assessment:

There are significant safety issues with leaving a vacant building on campus, and the lack of maintenance/water damage from roof leaks will contribute to the degradation of the building.

Pros/Cons:

Pros:

- The building is historic and is aesthetically pleasing, but difficult to justify restoration due to lack of program use and high cost of restoration.

Cons:

- Expense; restoration is estimated to cost at least $4M to $5M including the needed structural improvements. All systems in the building would need to be replaced: mechanical, electrical, plumbing.

Initial Budgetary Costs:

	Construction Cost	Project Cost
16,645 SF x $10/SF =	$166,000	$241,000

Long-term Needs (2021-23, 2023-25)

23 – Westlake: Create ADA-Compliant Patient Rooms, 2 per Ward

Description (ESH-A13)
Westlake: Create ADA compliant patient rooms, two per ward, total (8).

Risk Assessment:
None of the rooms at Westlake currently qualify as ADA accessible since the toilet rooms do not have adequate clearances. There is a possibility of lawsuit if a patient needing these accessibility features could not be accommodated.

Pros/Cons:
Pros:
- Would allow ESH to accommodate handicapped GPU patients

Cons:
- Cost is fairly high

Budgetary Costs:

Item	Construction Cost	Project Cost
(8) Toilet Room Additions:		
@ 110 SF Ea. x $300/SF =	$266,000	$386,000

24 – Westlake: Extend Fire Access Road, + Ambulance Canopy

Description (ESH-A09, A10)
ESH-A09: Westlake: Extend Fire Access Road around NW side of building
ESH-A10: Westlake: Provide Roof Canopy at Ambulance Entrance

Risk Assessment:
A09: Funding ran out on the project to install a fire lane around Westlake. The last section should be installed so the loop is continuous and not dead-end.
A10: Weather protection needs to be provided where patients are brought out and loaded into a waiting ambulance; current condition does not meet health code.

Budgetary Costs (ESH-A09, A10)

Item	Construction Cost	Project Cost
A09, Fire Lane	$350,000	
A10, Canopy	$150,000	
TOTAL	$500,000	$725,000

25 – Replace Pump House at Well #1

Description (Civil W-1)

Replace Pump House Building Structure/Appurtenances at Well No. 1 (Rating 4)

The pump house building structure for domestic water well No.1 is an un-insulated CMU block building with a flat roof. To keep water pipes and appurtenances inside the building from freezing in the winter time, portable space heaters are used which results in high electrical use due to their inefficiency and the building's walls and roof being un-insulated. The flat roof leaks onto electrical switch gear mounted on building walls. Water entering electrical panels and pump motor starters causes corrosion and short-circuits them which is unsafe for operation and maintenance personnel that enter the pump house building structure on a daily basis. The building also does not contain a lightning protection system (perimeter ground wire). The electrical service panels are too close to water system piping and appurtenances and they do meet current electrical code requirements. The building is not equipped with panic hardware on neither the pump house door nor the chlorine room door which is unsafe for operations and maintenance personnel during an emergency event, e.g., water pipes breaking or, over-exposure to chorine which is used to disinfect the domestic water supply.

Risk Assessment:

Building is unsafe for operations and maintenance workers to enter due to the roof leaking onto electrical panels. Electrical panels that do not have the open space clearance in front of them pose risks to operations and maintenance workers that need to service the electrical panels and electrical gear. Building exits that do not meet code are unsafe for people in the building. Not replacing pump-house No. 1 building creates unsafe work environment for water systems operation and maintenance personnel.

Recommendations:

Demolish the existing pump house, piping, valves and pump control systems. Install new pump house building and chlorination room providing clearances, egress and fixtures meeting current code requirements. New piping, valves, vertical turbine pump and motor would be installed. The pump control systems including electrical service, pump control panels and SCADA system would also be installed in the new pump house building.

Budgetary Costs (Civil W-1)

Item	Construction Cost	Project Cost
1. Mobilization & Project Management	$71,000	
2. New Building Structure incl. Chlorine Rm	$200,000	
3. Piping & Valves	$90,000	
4. Electrical and SCADA System	$100,000	
5. Vertical Turbine Pump & Motor	$150,000	
6. Site Piping, Valves & Connections	$80,000	
7. Demo Existing Pump house	$50,000	
TOTAL	$741,000	$1.07M

26 – Repair Heat Recovery System at Westlake 100% OSA AHU

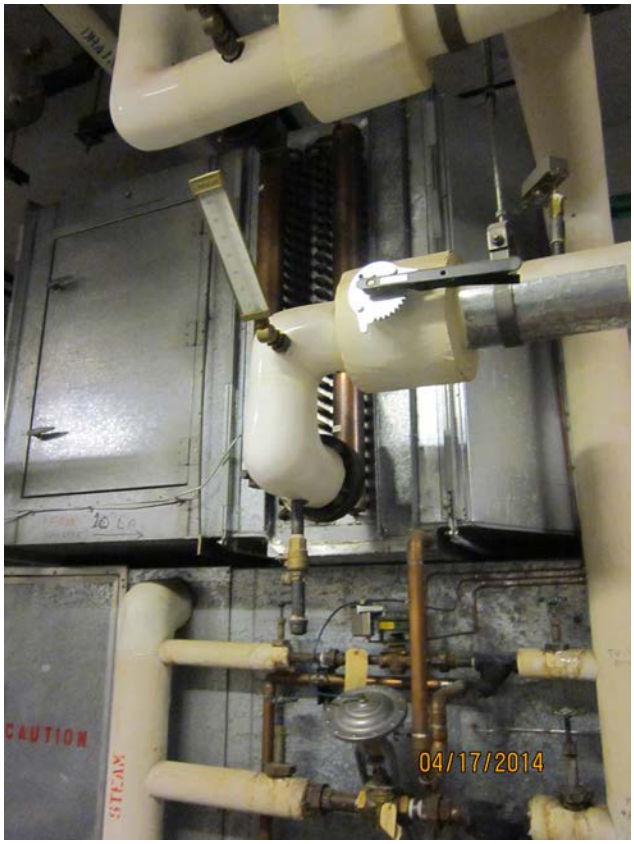
Description (Mech ESH-05)
Repair the Heat Recovery System at the Westlake 100% Outdoor Air Handling Unit.

Risk Assessment:
Failure to repair the hydronic heat recovery system on the air handling unit results in large amounts of wasted energy and greater energy costs than necessary.

Pros/Cons:
When originally designed, the air handling unit included a hydronic heat recovery loop between the exhaust air stream and the outdoor air stream. It is unknown whether the system has ever worked properly but if functioning as intended, would reclaim up to 60% of the energy from the exhaust air before it leaves the building. This energy is reintroduced into the outdoor air to temper that air before reaching the heating and cooling coils of the air handling unit. The system is currently working and poses no immediate threat of failure or loss of ability to heat or cool the building.

Budgetary Costs:

Construction Cost	Project Cost
$25,000	$36,000



27 – Convert Westlake Steam Heating System to Hot Water

Description (Mech ESH-06)
Convert the Westlake Hospital Steam Boilers and Steam Heating System to Heating Water.

Risk Assessment:
Failure to replace the steam heating system poses minimal threat of system failure or loss of building heating.

Pros/Cons:
The existing dual fuel (gas – oil) steam boilers are about 33 years old and are approaching the Average Service Life. Increased maintenance can be expected. Steam heating systems inherently require more maintenance. Replacement with heating water boilers and a heating water system would reduce maintenance and improve system efficiency.

The existing air handling unit heating coils are steam. All of the coils and their controls would need to be replaced, including all of the piping from the boiler room to each air handling unit. A determination would have to be made as to whether new heating water coils that fit into the existing air handling unit cabinets would have adequate heating capacity for the duty. Or conversely, whether a heating water coil that has sufficient capacity would fit into the existing cabinet.

Budgetary Costs:

Item	Construction Cost	Project Cost
1. Boilers: (@) @ $268,000 =	$536,000	
2. Stacks w/ combustion air =	50,000	
3. Heating Water Piping =	25,000	
4. Glycol loop to AHU's =	250,000	
5. Demo & Disposal, not incl. asbestos =	25,000	
6. New HW coils in AHU's =	50,440	
7. Demo/Disposal old coils =	10,000	
8. New DHW Heaters, (2) @ $8,400 =	16,800	
9. DHW Heat Exchanger =	24,400	
10. HW Electric Dishwasher =	50,000	
11. EMCS =	25,000	
12. General Conditions & Phasing impact =	187,360	
TOTAL	$1.25M	$1.81M

28 – Replace Westlake Steam Boilers, if not Converted to HW

Description (Mech ESH-07)
Replace the Westlake Hospital Steam Boilers, if they are not converted to Hot Water as recommended in Mech ESH-06 (Project #27).

Risk Assessment:
Failure to replace the existing steam boilers poses minimal threat of system failure or loss of building heating.

Pros/Cons:
The existing dual fuel (gas – oil) steam boilers are about 33 years old and are approaching the Average Service Life. Increased maintenance can be expected. Boilers with more efficient burners are available that would reduce energy use and energy cost.

Budgetary Costs:

	Construction Cost	Project Cost
	$450,000	$652,500

29 – Eastlake: Misc. Repairs

Description (ESH-A02 thru A06)
ESH-A02: Eastlake: Re-Roof Sections without TPO, & Fix the Slope at Valleys
ESH-A03: Eastlake: Replace north end ward P. Lam doors & Hardware
ESH-A04: Eastlake: Replace Failed Signage System at all wards
ESH-A05: Eastlake: Repair Wall Finishes at Identified Locations
ESH-A06: Eastlake: Replace Damaged Casework at Nurses Stations, etc.

Risk Assessment:
A02: The south end of the Eastlake Roof still has a built-up roofing system that is about 20 years old and will need replacement in the next 10 years.
A03: The earlier ward renovation projects at the north end of the Eastlake building installed Plastic Laminate doors instead of hollow metal (steel) doors as was used at the south wards (FSU area). The laminate doors are chipped and hardware is not anti-ligature.
A04: The plastic signs with inserts mounted to the walls in the ward corridors have lost most of the original inserts so just the plastic frame remains. A different type of secure signage system needs to be installed.
A05: General patching and painting needs to be done to restore the walls in the ward areas. In addition, where vinyl wallcovering occurs, it should be removed and changed to paint finish since seams have been torn loose at some locations.
A06: The plastic laminate casework at the Nurses Stations has seen lots of wear and tear and has chipped edges, etc. Recommend replacement with solid surface tops.

Budgetary Costs:

Task	Construction Cost	Project Cost
A02, Reroof	420,000	609,000
A03, APU Steel Doors	770,000	1,116,500
A04, Signage System	320,000	464,000
A05, Patching & Painting	50,000	72,500
A06, P.Lam Casework	35,000	50,750
TOTAL	$1,595,000	$2,312,750

30 – Convert Westlake Constant Volume Air Systems to VAV

Description (Mech ESH-08)
Convert Westlake Constant Volume Air Systems to Variable Air Volume.

Risk Assessment:
Failure to convert the existing constant volume air systems poses no threat of system failure or loss of building air conditioning but does have the on-going result of greater energy use and cost than needed.

Pros/Cons:
The existing air handling units and supply air system are constant volume. Some opportunity exists to replace the existing constant volume terminal reheat boxes with variable volume terminal reheat boxes. A static pressure sensor in the supply duct for each air handling unit would be used to sense reduced air flow and to control the speed of the supply fan in that system. The supply fan motor would be replaced with a high efficiency type and connected to a variable frequency drive (VFD). The VFD would vary the speed of the fan as sensed by the static pressure sensor as flow increased or decreased. Overall fan motor energy use would be reduced along with energy cost.

Care must be exercised to maintain comfort levels and at least the code minimums for total air exchange as well as the outdoor air volume.

Budgetary Costs:

Item	Construction Cost	Project Cost
VAV install based on Apollo costs at PAT & HAB: 107,328 SF x $8.40/SF = $901,555; round up to:	$950,000	$1.38M

31 – Upgrade Eastlake FSU with Triangular Addition

Description (PR-08)

The current FSU nursing units on the second and third floors are overcrowded. Program Recommendation PR-02 – Expanded Forensic Services Unit will provide a Short Term improvement (see Section 3.3). A drawback of the current configuration is the long corridors. This is not best practice for the design of modern hospital units. In the Mid Term, it is recommended that a triangular new addition be provided on three levels of the Forensic Service Unit in the corner between the two long wings. This would add approximately 10,000 sq. ft. to each floor and allow the unit to meet approximate target area benchmarks. This will create a further decompressed unit and a substantially more efficient unit with better supervision and control.

Risk Assessment:

There are numerous risks of overcrowding in institutional facilities. These include:

- Psychological: Frustration, anxiety and stress increase in patients due to lack of privacy, inability to screen noise and fear.
- Psychiatric: Psychiatric conditions among patients are exacerbated.
- Social: Competition for limited space and resources sometimes leads to aggressive behaviors and violence and puts staff and patients at risk.
- Treatment: The ability and efficacy of rehabilitative treatment is reduced.
- Release: Stresses of overcrowding can leave patients in a partially disabled state and reduce their ability to thrive and form healthy relationships upon release.
- Medical: Overcrowded environments foster an increase in the spread of contagious diseases.
- Staff: Staff face extra pressure and stress. Morale is decreased. Staff safety is decreased.

Pros/Cons:

Pros:

- Additional private rooms will allow better management of more aggressive patients and improve the environment of care for all patients.
- Additional satellite staff stations with views down corridors will allow for better supervision and control of the units.
- Additional quiet areas will provide for patient retreat to allow de-escalation of incidents of agitation and reduce stress on patients.
- Improved health of patients would be further fostered, both physically and psychologically.
- A less stressful and safer environment would be further provided for staff, allowing them to have higher morale and be more effective.
- While difficult to quantify, a better controlled and less overcrowded environment would further reduce costs associated with patient treatment, lost work time and liability resulting from assaultive behaviors.

Cons:

- Capital expense.

Budgetary Costs:

	Construction Cost	Project Cost
• (see Cost Model next page)	$12.7M	$18.4M

NAC ARCHITECTURE

Estimate of Probable Construction Cost

Summary by Division

ESH Upgrade FSU with Triangular Addition - Project 31 — Proj. No: 111-14011-A306
#2014-415 — Date 8/27/2014
Medical Lake Master Plan — Area = 30,000 GSF — Budget = (TBD)

KEY	DESCRIPTION	SF COST	COMPONENT	PERCENT	REMARKS
A	GENERAL CONDITIONS	11.00	330,000	3.20%	
B	SITE DEVELOPMENT	7.00	210,000	2.04%	
C	DEMOLITION & ASBESTOS	15.00	450,000	4.37%	
D	FOUNDATION & SOG	30.00	900,000	8.74%	
E	STRUCTURAL SYSTEM	28.00	840,000	8.16%	
F	ROOFING SYSTEM	4.00	120,000	1.17%	
G	EXTERIOR WALLS	30.00	900,000	8.74%	
H	EXTERIOR DOORS & OPENINGS	25.00	750,000	7.28%	
I	INTERIOR DOORS & OPENINGS	20.00	600,000	5.83%	
J	INTERIOR PARTITIONS	17.00	510,000	4.95%	
K	WALL FINISHES	3.00	90,000	0.87%	
L	FLOOR FINISH & BASE	7.00	210,000	2.04%	
M	CEILING & SOFFITS	6.00	180,000	1.75%	
N	INTERIOR STAIRS & RAILINGS	0.00	0	0.00%	
O	ACCESSORIES & SPECIALTIES	3.50	105,000	1.02%	
P	FIXED EQUIPMENT	5.00	150,000	1.46%	
Q	CASE & MILLWORK	5.00	150,000	1.46%	
R	FURNISHINGS	1.50	45,000	0.44%	
S	SPECIAL SYSTEMS	0.00	0	0.00%	
T	MECHANICAL CONVEYANCES	0.00	0	0.00%	
U	SITE UTILITIES, MECHANICAL	2.00	60,000	0.58%	
V	PLUMBING	45.50	1,365,000	13.26%	
W	HVAC & CONTROLS	33.00	990,000	9.61%	
X	FIRE PROTECTION	4.75	142,500	1.38%	
Y	SITE UTILITIES, ELEC	3.00	90,000	0.87%	
Z	ELECTRIC POWER	25.00	750,000	7.28%	
AA	LIGHTING	6.50	195,000	1.89%	
BB	SPECIAL SYSTEMS	5.50	165,000	1.60%	
	GENERAL SUBTOTAL	218.00	6,540,000	63.51%	
	MECHANICAL SUBTOTAL	85.25	2,557,500	24.84%	
	ELECTRICAL SUBTOTAL	40.00	1,200,000	11.65%	
	SUBTOTAL	343.25	10,297,500	100.00%	
	CONTR. O & P - GENERAL	26.16	784,800	12.00%	
	CONTR. O & P - MECH/ELECT	6.26	187,875	5.00%	
	BOND & INSURANCE	7.39	221,646	2.00%	
	B & O TAX	1.92	57,459	0.50%	
	SUBTOTAL	384.98	11,549,280	112.16%	
	DESIGN CONTINGENCY	38.50	1,154,928	10.00%	
	SUBTOTAL	423.47	12,704,208	123.37%	
	LOCATION / INFLATION FACTOR	0.00	0	0.00%	
	ESTIMATED BID AMOUNT	423.47	12,704,208	123.37%	

Needs > 10 Years (2025-27 on)

32 – Consolidate APU & FSU into New Building at Westlake

Description (PR-09)

For the Long Term, it is recommended that the Eastlake Adult Psychiatric Unit and Forensic Services Unit be replaced with a new hospital. It is recommended that this facility be connected to the existing Westlake Geriatric Psychiatric Unit hospital for operational efficiency. A new addition area of 270,000 sq. ft. is projected (see Program Analysis).

Risk Assessment:

While such a new facility can be deferred at present, the existing facility will reach the end of its useful life in the next 10 to 15 years. Long Term planning should contemplate the eventual need for this facility.

Budgetary Costs:

	Construction Cost	Project Cost
• (see Cost Model next page)	$95M	$138M

NAC ARCHITECTURE

Estimate of Probable Construction Cost

Summary by Division

ESH New APU & FSU at Westlake - Project 32 — Proj. No: 111-14011-A306
#2014-415 — Date 8/27/2014
Medical Lake Master Plan — Area = 270,000 GSF — Budget = (TBD)

KEY	DESCRIPTION	SF COST	COMPONENT	PERCENT	REMARKS
A	GENERAL CONDITIONS	5.00	1,350,000	1.70%	
B	SITE DEVELOPMENT	7.00	1,890,000	2.38%	
C	DEMOLITION & ASBESTOS	1.00	270,000	0.34%	
D	FOUNDATION & SOG	20.00	5,400,000	6.80%	
E	STRUCTURAL SYSTEM	32.00	8,640,000	10.88%	
F	ROOFING SYSTEM	3.50	945,000	1.19%	
G	EXTERIOR WALLS	26.00	7,020,000	8.84%	
H	EXTERIOR DOORS & OPENINGS	8.50	2,295,000	2.89%	
I	INTERIOR DOORS & OPENINGS	20.00	5,400,000	6.80%	
J	INTERIOR PARTITIONS	15.00	4,050,000	5.10%	
K	WALL FINISHES	2.50	675,000	0.85%	
L	FLOOR FINISH & BASE	7.00	1,890,000	2.38%	
M	CEILING & SOFFITS	6.00	1,620,000	2.04%	
N	INTERIOR STAIRS & RAILINGS	2.10	567,000	0.71%	
O	ACCESSORIES & SPECIALTIES	2.30	621,000	0.78%	
P	FIXED EQUIPMENT	3.00	810,000	1.02%	
Q	CASE & MILLWORK	4.50	1,215,000	1.53%	
R	FURNISHINGS	1.00	270,000	0.34%	
S	SPECIAL SYSTEMS	0.00	0	0.00%	
T	MECHANICAL CONVEYANCES	0.00	0	0.00%	
U	SITE UTILITIES, MECHANICAL	2.00	540,000	0.68%	
V	PLUMBING	40.00	10,800,000	13.60%	
W	HVAC & CONTROLS	38.00	10,260,000	12.92%	
X	FIRE PROTECTION	4.75	1,282,500	1.61%	
Y	SITE UTILITIES, ELEC	3.00	810,000	1.02%	
Z	ELECTRIC POWER	25.00	6,750,000	8.50%	
AA	LIGHTING	7.00	1,890,000	2.38%	
BB	SPECIAL SYSTEMS	8.00	2,160,000	2.72%	
	GENERAL SUBTOTAL	166.40	44,928,000	56.57%	
	MECHANICAL SUBTOTAL	84.75	22,882,500	28.81%	
	ELECTRICAL SUBTOTAL	43.00	11,610,000	14.62%	
	SUBTOTAL	294.15	79,420,500	100.00%	
	CONTR. O & P - GENERAL	11.65	3,144,960	7.00%	
	CONTR. O & P - MECH/ELECT	6.39	1,724,625	5.00%	
	BOND & INSURANCE	6.12	1,651,309	2.00%	
	B & O TAX	1.59	429,707	0.50%	
	SUBTOTAL	319.89	86,371,101	108.75%	
	DESIGN CONTINGENCY	31.99	8,637,110	10.00%	
	SUBTOTAL	351.88	95,008,211	119.63%	
	LOCATION / INFLATION FACTOR	0.00	0	0.00%	
	ESTIMATED BID AMOUNT	351.88	95,008,211	119.63%	

3.2 DDA – LAKELAND VILLAGE PROJECTS

Immediate Needs (2015-17)

01 – Emergency Power: Prep work/Reconfiguration

WA State L & I Electrical has stated that the emergency power system for the nursing facilities at Lakeland Village must be brought up to code before any additional work at those buildings can be started. The following electrical infrastructure items need to be completed in sequence:

a. Remove excess load from existing central generator
b. Add transfer switches at buildings needing emergency power
c. Replace existing generator which is 30 years old and failing

The scope of electrical work also depends on related Mechanical improvements to the cottages. The existing steam piping system that supplies the cottages is failing. The master planning team has explored alternatives for heating and cooling the cottages and believes that the option that makes the most sense is switching to a "decentralized" system utilizing natural gas furnaces and exterior condensers at each cottage, similar to most residential systems. Providing optional standby power to the north cottages (Assisted Living occupancy) would prevent having to evacuate those cottages during a power outage. The south cottages (Nursing care) are still required by code to have all branches of emergency power regardless of which mechanical system is taken.

Description (LV-E1a):

Upgrade and reconfigure the distribution system for the Lakeland Village campus Essential Electrical System by removing excess load from the existing campus engine-generator, reconfiguring the system in each South Campus Cottages that is classified as a Nursing Facility to have Life Safety and Critical branches, and reconfiguring the system in the remaining buildings served by the campus Essential Electrical System to have Emergency and Standby branches. In each building, include separate automatic transfer switches for each branch, with priority load-shed capabilities. Buildings that presently have their entire electrical service connected to only the back-up power system need to have that service reconnected to normal power, and then be provided with a separate source for their back-up power needs. This task consists of several sub-tasks, which could be performed sequentially:

- STEP 1: Remove excess load from the existing campus engine-generator.
  - + Chiller Plant – provide new normal power panelboards in the south section of the Chiller Plant, and reconnect loads that do not require back-up power to those panels.
  - + Energy Plant – reconnect service feeder to normal power, and provide a new diesel fueled engine-generator at the Energy Plant, with separate automatic transfer switches for the Emergency, Required Standby and Optional Standby branches.
  - + Lower East Campus – reconnect service feeder to normal power, and provide a new natural gas fueled engine-generator with an automatic transfer switch for the Optional Standby branch to supply the existing mechanical heating equipment in the Whitman Apartment Building.
  - + Mason Memorial Hall – reconnect service feeder to normal power, and provide battery-backed lighting units and exit signs in egress pathways until such time as Mason Memorial Hall is no longer occupied.
- STEP 2: Reconfigure Life Safety / Critical Power Systems in the South Campus Nursing Facilities and Emergency / Standby Power Systems in the South Campus Assisted Living Facilities (Boarding Homes) and Douglas Hall.
  - + South Campus back-up power Transformers '3-7' and '3-9' – provide NEMA 3R distribution equipment near the back-up power pad-mounted transformers to separate the secondary power into Life Safety, Critical, Emergency and Standby branches.
  - + Hawthorn, Harvest, Laurel, Ponderosa, Shamrock, and Tamarack – provide separate automatic transfer switches for Life Safety and Critical branches in each building, with priority load-shed capabilities; segregate loads onto the proper branches (small building additions are needed to house the additional electrical equipment).
  - + Pinewood, Evergreen, Hillside – provide separate automatic transfer switches for Emergency, Required Standby and Optional Standby branches in each building, with priority load-shed capabilities; segregate loads onto the proper branches (small building additions are needed to house the additional electrical equipment).
  - + Douglas – provide separate automatic transfer switches for Emergency, Required Standby and Optional Standby branches, with priority load-shed capabilities; segregate loads onto the proper branches.
  - + Provisions for Controls – provide underground conduit for controls from the Chiller Plant to the automatic transfer switches

in the South Campus facilities.

- STEP 3: Reconfigure Emergency / Standby Power Systems in the North Campus Assisted Living Facilities (Boarding Homes) and Rainbow Day Care Center.
  - + North Campus back-up power Transformers '5-9' and '5-11' – provide NEMA 3R distribution equipment near the back-up power pad-mounted transformers to separate the secondary power into Emergency and Standby branches.
  - + Cascade 74-75, Cascade 86-87, Wildrose, Apple, Bigfoot 94-95, Bigfoot 96-97, Willow 76-77, Willow 78-79, Sunrise 80-81, Sunrise 82-83, Sunrise 84-85 – provide separate automatic transfer switches for Emergency, Required Standby and Optional Standby branches in each building, with priority load-shed capabilities; segregate loads onto the proper branches (small building additions are needed to house the additional electrical equipment).
  - + Rainbow Day Care Center – provide separate automatic transfer switches for Emergency and Optional Standby branches, with priority load-shed capabilities; segregate loads onto the proper branches (small building additions are needed to house the additional electrical equipment).
  - + Provisions for Controls – provide underground conduit for controls from the Chiller Plant to the automatic transfer switches in the North Campus facilities.
- STEP 4: Reconfigure Emergency / Standby Power Systems in the Lakeland Village Central Core Buildings.
  - + Central Core back-up power Transformer '5-13' – provide NEMA 3R distribution equipment near the back-up power pad-mounted transformer to separate the secondary power for the Administration / Program Area Team (PAT) Building and the School into Emergency and Standby branches.
  - + Administration / Program Area Team (PAT) Building, School – provide separate automatic transfer switches for Emergency, Required Standby and Optional Standby branches in each building, with priority load-shed capabilities; segregate loads onto the proper branches.
  - + Food Services Building, Habilitation Center, Chiller Plant – replace Emergency Power Distribution Switchboard in each building with one having separate vertical sections for Emergency and Standby branches; provide separate automatic transfer switches for Emergency, Required Standby and Optional Standby branches, with priority load-shed capabilities; segregate loads onto the proper branches.
  - + Provisions for Controls – provide conduit for controls from the Chiller Plant to the automatic transfer switches in the Core facilities.

Among the four steps listed above, the first step reduces the electrical load on the existing engine-generator, so that it is no longer overloaded; this step is a necessary prerequisite for the remaining steps to progress. The second through fourth steps segregate loads onto the proper branches, bringing the system into compliance with code. A fifth step is still needed after these four steps to complete the upgrade and reconfiguration of the Campus Essential Electrical System by addressing the generating plant (see next project).

Risk Assessment:

The existing engine-generator is overloaded; this fact, combined with the lack of any load management system, has prompted the State Department of Labor and Industries to classify the campus back-up power system as Optional Standby, meaning that it is inadequate to fulfill any code-required back-up power needs. Consequently the facility is supposed to provide battery back-up for at least the egress lighting in the various buildings served by this system. This has not been accomplished. The Department of Labor and Industries has also barred Lakeland Village from connecting additional loads to the campus back-up power system until this deficiency is corrected.
Furthermore lack of compliance with segregation of branches can subject Lakeland Village to Fire Department inspection reports that identify loads as improperly connected to the wrong branch of the Essential Electrical System and compel compliance, often on schedules that are very difficult to achieve. Lack of compliance also complicates major renovation projects, potentially forcing less than optimal solutions, such as adding a third engine-generator to serve a renovated area. Minor renovation projects can be accommodated when new circuits are confined to existing electrical distribution equipment, but only when the loads being added match the available branches, and only after the system overload is corrected. Lack of back-up power for heating in seven North Campus Cottages could make them unoccupiable.
WAC 296-46B-517-001 – The rating of the generator(s) supplying electrical power to the Essential Electrical System of a health care facility must meet or exceed the summation of the loads, where the Life Safety branch loads are not subjected to any reduction by demand factors, and the Critical branch loads (and Equipment branch loads, if applicable) are calculated per NEC 220.
NEC 517.41(B) – Each branch of the Essential Electrical System (i.e., Life Safety and Critical) must have one or more transfer switches.
NEC 517.41(C) – The Essential Electrical System must have adequate capacity to meet the demand for operation of all equipment served

by each branch at one time.
NEC 700.5(D) – Emergency system transfer switches must supply only emergency loads.
NEC 700.4(B) – For the alternate power source (i.e., engine-generator) to supply standby system loads in addition to emergency system loads, the source must either have adequate capacity for all the connected loads, or a load management system must be employed that provides automatic selective load pickup and load shedding for the legally required standby and the optional standby loads.
WAC 388-78A-2990 Assisted Living Facilities (Boarding Homes) require a back-up source for heating.
WAC 388-97-2200 Nursing Facilities (Nursing Homes) require back-up power for heating in resident rooms.

- A 560 kW / 700 kVA engine-generator in the Chiller Plant supplies back-up power to the entire Lakeland Village campus, including the Lower East Campus, but excluding the Rosewood Healthcare Facility, which has its own engine-generator.
  + The loads on the campus back-up power distribution system, excluding the loads to be removed under the first step of this Option, total to about 605 kVA; applying an assumed 90% power factor, this load equates to 545 kW, which is within the capacity of the existing campus back-up power distribution system engine-generator.
  + If all the loads presently connected to the campus back-up power distribution system are included, the connected load on the campus back-up power distribution system is well in excess of the engine-generator capacity.
  + The medium voltage dry-type transformer that steps up the engine-generator output to 13.2 kV is oriented differently than originally intended, and has inadequate working clearance in front of it.
  + There are two medium-voltage automatic transfer switches in the Chiller Building, at the front end of the campus back-up power distribution system; these transfer switches transfer the entire campus back-up power distribution system from the incoming Electric Utility source to the engine-generator.
  + The buildings supplied by the campus back-up power distribution system presently do not have local automatic transfer switches, and the loads connected to the campus back-up power distribution system are not segregated into Life Safety, Critical, Emergency, Required Standby and Optional Standby branches.
  + There is no load management system to provide selective load pickup or load shed capabilities, as needed to prioritize the loads connected to the system and assure that the engine-generator is never overloaded beyond its capacity.
- Nursing Facilities (Nursing Homes) and Assisted Living Facilities (Boarding Homes) both require a back-up heating source.
  + South Campus Cottages presently have fans and condensate pumps connected to the electrical back-up power system; heating is supplied by steam from the Energy Plant.
  + North Campus Cottages have condensate pumps but not fans connected to the back-up power system; thus heating is interrupted upon loss of electric power from the Utility Company. However, four North Campus Cottages (Cascade 86-87, Wildrose, Sunrise 82-83 and Sunrise 84-85) do have another heating source, consisting of radiant heating panels that are connected to the back-up power system.

Pros/Cons:

Pros:

- System Usability: Until Labor and Industries accepts the campus back-up power distribution system as complying with code, Lakeland Village is barred from adding any loads to it.
- Facility Licensing: An Essential Electrical System segregated into the proper branches frees the facility from related licensing issues stemming from Fire Department inspections.
- Future Renovation: An Essential Electrical System segregated into the proper branches enables renovation projects to circuit new loads to the proper braches in compliance with code requirements.
- Equipment Sizing: Optional Standby loads that can be shed in case of generator overload do not need to be counted when sizing the engine-generator, potentially making the difference in whether a new or larger engine-generator is needed.

Cons:

- Cost: Significant electrical equipment and labor costs are involved.
- Additions: Cottages need building additions in order to house the added electrical equipment.
- Space: Additional floor space may be needed in other buildings for added electrical equipment.
- Disruption: Reconfiguration of the Essential Electrical System will lead to construction disruptions.

Budgetary Costs:

Item	Construction Cost	Project Cost
Step 1, Remove Excess Load from Generator		
1. Electrical Distribution Equipment:	$250,000	
2. Diesel Generator for Energy Plant:	$200,000	
3. N-gas Generator for East Campus:	$100,000	
4. (4) Automatic Transfer Switches:	$52,000	
5. Battery-backed Lighting for Mason Hall:	$16,000	
6. Medium-voltage Primary Feeder Reconnections, $31,000 EA x (7) =	$217,000	
7. Medium-voltage Ductline Modifications:	$15,000	
SUBTOTAL, Step 1:	$850,000	**$1,232,500**
Step 2, Reconfigure Life Safety/Critical Power at South Campus:		
1. Elect Distribution Equipment, Nursing Facilities, $235,000 EA x (6) Cottages	$1,410,000	
2. Elect Distribution Equipment, Assisted Living, $250,000 EA x (3) Cottages	$750,000	
3. Elect Distribution Equipment, Douglas Hall, $360,000 EA x (1)	$360,000	
4. Automatic Transfer Switches, $13,000 EA x (27)	$351,000	
5. Medium Voltage Transformers, $35,000 EA x (4)	$140,000	
6. Relocate Existing Med-voltage Transformers, $10,000 EA x (4)	$20,000	
7. Med-voltage Primary Feeder Reconnections, $31,000 EA x (10)	$310,000	
8. Med-voltage Ductline Modifications, $32,000 EA x (1)	$32,000	
9. Med-voltage Primary Service Feeder Cable, $65,000 EA x (2)	$130,000	
10. Provisions for Controls (conduits) $40,000 x (11)	$440,000	
SUBTOTAL, Step 2:	$3,900,000	**$5,655,000**
Step 3, Reconfigure Emergency/Standby Systems at North Campus:		
1. Elect Distribution Equipment, Assisted Living, $195,000 EA x (11) Cottages	$2,145,000	
2. Elect Distribution Equipment, Rainbow Daycare, $195,000 EA x (1) Cottages	$195,000	
3. Automatic Transfer Switches, $13,000 EA x (36)	$468,000	
4. Medium Voltage Transformers, $35,000 EA x (8)	$280,000	
5. Med-voltage Primary Feeder Reconnections, $31,000 EA x (10)	$310,000	
6. Med-voltage Ductline Modifications, $32,000 EA x (1) LS	$32,000	
7. Med-voltage Primary Service Feeder Cable, (2) KLF x $65,000	130,000	
8. Provisions for Controls (conduits) (11) KLF x $40,000	440,000	
SUBTOTAL, Step 3:	$4,000,000	**$5,800,000**

Step 4, Reconfigure Emergency/Standby Systems at Core Buildings:

1. Elect Distribution Equipment, PAT Center & School		
$275,000 x (1) LS:	$275,000	
2. Elect Distribution Equipment, Food Services,		
$260,000 x (1) LS:	$260,000	
3. Elect Distribution Equipment, HAB Center,		
$300,000 x (1) LS:	$300,000	
4. Elect Distribution Equipment, Chiller Plant,		
$250,000 x (1) LS:	$250,000	
5. Medium Voltage Transformers,		
$35,000 x (1) EA:	$35,000	
6. Med-voltage Primary Feeder Reconnections,		
$31,000 x (1) EA:	$31,000	
7. Med-voltage Ductline Modifications,		
$6,000 x (1) LS:	$6,000	
9. Med-voltage Primary Service Feeder Cable,		
$65,000 x 0.2 KLF:	$13,000	
10. Provisions for Controls (conduits)		
$40,000 x 2 KLF:	$80,000	
SUBTOTAL, Step 4:	$1,250,000	**$1,812,500**
TOTAL, Steps 1-4:	**$10M**	**$14.5M**

02 – Emergency Power: Generator & Controls

Description (LV-E1b):

Upgrade and reconfigure the central backup power generating plant for the Lakeland Village campus Essential Electrical System by replacing the engine-generator in the Chiller plant with a new diesel-fueled engine-generator to serve as the campus alternate power source, reorienting or replacing the medium voltage dry-type transformer that steps up the engine-generator output to 13.2 kV, providing medium-voltage switchgear to replace the switchgear that functions as automatic transfer switches at the front end of each campus back-up power 13.2 kV primary loop, and providing a load management system to prioritize loads on the campus Essential Electrical System. (Note: this project needs to be preceded by project #01, and includes Step 5 in the process of upgrading and reconfiguring the campus Essential Electrical System, as follows:

- STEP 5: Upgrade the Campus Back-up Power Generation Plant for the Lakeland Village.
  - Chiller Plant – provide a new diesel-fueled engine-generator to serve as the alternate power source for the campus back-up power distribution system; reorient or replace the medium voltage dry-type transformer that steps up the engine-generator output to 13.2 kV; replace the medium-voltage switchgear that presently serves as two automatic transfer switches that feed the 13.2 kV loops that supply backup power to the entire campus; this should be done after the back-up power systems are reconfigured at the individual buildings to add automatic transfer switches, because in the process the medium-voltage transfer switches at the front end of the back-up power system will be eliminated, and before they can be eliminated Steps 1 through 4 that constitute Option LV-E1A must first be complete.
  - Load Management Controls – provide control system to accomplish automatic selective load pickup and load shed, prioritizing the transfer switches connected to the backup-power system, and protecting the generators against overload.
  -

This fifth step to the upgrade and reconfiguration of the Lakeland Village Campus Essential Electrical System, replaces old generating equipment that is 30 years old and for which parts are now difficult to obtain. It also corrects code deficiencies in the system configuration due to insufficient clearance in front of the dry-type transformer and due to having the automatic transfer switching located at the front end of the system, instead of at the buildings served. In addition, the load-management system provided under this Option insures that the Essential Electrical System generating plant capacity remains properly dedicated to the highest-priority loads connected to it, enabling the generating plant to also serve lower-priority loads.

Risk Assessment:

The existing engine-generator is 30 years old and parts for it are now difficult to obtain. There is inadequate clearance in front of the medium voltage dry-type transformer that steps up the engine-generator output to 13.2 kV, because this transformer is oriented differently than originally intended. Each of the two primary loops has a medium-voltage transfer switch consisting of two 13.2 kV overcurrent protective devices that work in tandem, an arrangement that does not comply with code, but cannot be corrected until after Steps 1 through 4 outlined in project #01 are first completed. The Essential Electrical System is not equipped with any load management system, meaning that the connected load must be carefully controlled to insure that capacity is available for high-priority loads. The Department of Labor and Industries Electrical Plan Review is presently controlling loads by disallowing any load additions to the Lakeland Village Essential Electrical System until the deficiencies are corrected. Correcting these deficiencies should allow the campus greater freedom to utilize the Essential Electrical System as intended.

Once the first four steps outlined in project #01 have been completed, the system will be able to accommodate minor renovation projects when new circuits are confined to existing electrical distribution equipment, but only as long as it can be proved that the generator capacity is not exceeded, a calculation that involves keeping track of loads throughout the entire campus. The load management system will increase system flexibility to serve additional loads as needed.

WAC 296-46B-517-001 – The rating of the generator(s) supplying electrical power to the Essential Electrical System of a health care facility must meet or exceed the summation of the loads, where the Life Safety branch loads are not subjected to any reduction by demand factors, and the Critical branch loads (and Equipment branch loads, if applicable) are calculated per NEC 220.

NEC 517.41(B) – Each branch of the Essential Electrical System (i.e., Life Safety and Critical) must have one or more transfer switches.

NEC 517.41(C) – The Essential Electrical System must have adequate capacity to meet the demand for operation of all equipment served by each branch at one time.

NEC 700.5(D) – Emergency system transfer switches must supply only emergency loads.

NEC 700.4(B) – For the alternate power source (i.e., engine-generator) to supply standby system loads in addition to emergency system loads, the source must either have adequate capacity for all the connected loads, or a load management system must be employed that

provides automatic selective load pickup and load shedding for the legally required standby and the optional standby loads.
WAC 388-78A-2990 Assisted Living Facilities (Boarding Homes) require a back-up source for heating.
WAC 388-97-2200 Nursing Facilities (Nursing Homes) require back-up power for heating in resident rooms.

- A 560 kW / 700 kVA engine-generator in the Chiller Plant supplies back-up power to the entire Lakeland Village campus, including the Lower East Campus, but excluding the Rosewood Healthcare Facility, which has its own engine-generator.
  + The loads on the campus back-up power distribution system, excluding the loads to be removed under the first step of project #01, total to about 605 kVA; applying an assumed 90% power factor, this load equates to 545 kW, which is within the capacity of the existing campus back-up power distribution system engine-generator.
  + There are two medium-voltage automatic transfer switches in the Chiller Building, at the front end of the campus back-up power distribution system; these transfer switches transfer the entire campus back-up power distribution system from the incoming Electric Utility source to the engine-generator.
  + There is no load management system to provide selective load pickup or load shed capabilities, as needed to prioritize the loads connected to the system and assure that the engine-generator is never overloaded beyond its capacity.

Pros/Cons:

Pros:

- System Usability: Until Labor and Industries accepts the campus back-up power distribution system as complying with code, Lakeland Village is barred from adding any loads to it.
- Future Renovation: An Essential Electrical System segregated into the proper branches enables renovation projects to circuit new loads to the proper braches in compliance with code requirements.
- Equipment Sizing: Optional Standby loads that can be shed in case of generator overload do not need to be counted when sizing the engine-generator, potentially making the difference in whether a new or larger engine-generator is needed.

Cons:

- Cost: Significant electrical equipment and labor costs are involved.
- Space: Additional floor space may be needed at the Chiller Plant for added electrical equipment.
- Disruption: Reconfiguration of the Essential Electrical System will lead to construction disruptions.

Budgetary Costs:

Item	Construction Cost	Project Cost
Step 5, Upgrade Campus Generator Plant		
1. Elect Distribution Equipment, Feeders, and Branch Circuits: $350,000 x (1) LS:	$350,000	
2. Medium Voltage Switchgear, $1,150,000 x (1) EA:	1,150,000	
3. Engine Generator and Accessories, $580,000 x (1) EA:	580,000	
4. Fuel Tank & Piping, $100,000 x (1) LS:	100,000	
5. Med-voltage Dry-type Transformer, $53,000 x (1) EA:	53,000	
6. Med-voltage Primary Service Feeder re-connections, $31,000 x (1) EA:	31,000	
7. Med-voltage Ductline Modifications, $11,000 x (1) LS:	11,000	
8. Med-voltage Primary Cable, $65,000 x (2) KLF:	130,000	
9. Load Management Controls, $900,000 x (1) LS:	900,000	
10. Load Management Control Cable, $15,000 x (23) KLF:	345,000	
TOTAL, Step 5:	**$4M**	**$5.8M**

03 – LV Staff Call Systems for Assisted Living Facilities

Description (LV-E2)

Provide new staff call systems in the three South Campus Assisted Living Facilities (Boarding Homes), and in the eleven North Campus Assisted Living Facilities (Boarding Homes), which include all the North Campus Cottages except Rainbow. Rainbow Cottage is used for employee daycare. Each new staff call system should be compatible with the Lakeland Village campus Event Central Reporting system and should report to that system.

Risk Assessment:

WAC 388-78A-2930 Assisted Living Facilities (Boarding Homes) must provide residents and staff persons with the means to summon on-duty staff assistance from bedrooms, living rooms, common areas, hallways, bathrooms and toilet rooms.

- Assisted Living Facilities (Boarding Homes) require call systems to summon help from on-duty staff.
  - + The three South Campus Assisted Living Facilities (Boarding Homes), namely Pinewood Cottage, Evergreen Cottage, and Hillside Cottage, presently have outdated wireless call systems.
  - + Four North Campus Assisted Living Facilities (Boarding Homes), namely Cascade 86-87, Wildrose, Sunrise 82-83 and Sunrise 84-85, also presently have outdated wireless call systems.
  - + The remaining seven North Campus Assisted Living Facilities (Boarding Homes) presently have no call systems.
  - + Some of the wireless call systems in use have proven unreliable.

Some of the Lakeland Village Assisted Living Facilities (Boarding Homes) house active residents who need doors and windows to be monitored. This is presently accomplished with a separate system, but the monitoring function could also be incorporated into the staff call system.

Lakeland Village has a campus Event Central Reporting system that is used by the nurse call systems in the South Campus Nursing Facilities to notify the dispatcher of higher-level call events and maintain a record of events. It would be advantageous for staff call systems in the Assisted Living Facilities (Boarding Homes) to be incorporated with the Event Central Reporting system so the dispatcher can be notified of higher-level call events (medical or behavior) and so the record of events recorded by the Event Central Reporting system can include the Assisted Living Facilities (Boarding Homes).

A radio paging system also is used for certain events regarding active residents, and the paging function could also be incorporated with the staff call system.

Pros/Cons:

Pros:

- Facility Licensing: Staff call systems are required in Assisted Living Facilities (Boarding Homes), whereas seven of the Cottages presently have no such system.
- System Integration: More sophisticated staff call systems would include the capability to incorporate monitoring of doors and windows for active residents within the staff call system, potentially eliminating the need for a separate system.
- Consistent Notification: Incorporating the staff call systems with the Event Central Reporting system allows the dispatcher to be notified of higher-level call events (medical or behavior) in the same manner as used by the nurse call systems.
- Event Recording: Incorporating the staff call systems with the Event Central Reporting system allows events to be recorded by the Event Central Reporting system.

Cons:

- Cost: Significant electrical equipment and labor costs are involved.
- Disruption: Replacing wireless call systems with new staff call systems will lead to construction disruptions.

Budgetary Costs:

Item	Construction Cost	Project Cost
1. Call Systems for (3) South A.L. Cottages, $17.10/SF x 15,330 SF:	$262,100	
2. Call Systems for (11) North A.L. Cottages, $17.10/SF x 60,695 SF:	1,037,900	
TOTAL	**$1.3M**	**$1.89M**

04 – Cottage Upgrades

Description (LV-A04 thru A10 and LV-A15 thru A24)

LV-A04 Rainbow Way: Waterproofing, insul, windows, flooring, casework, gutters
LV-A05 Wildrose Way: replace casework
LV-A06 Apple Court: Clean/paint exterior; upgrade glazing, flooring, casework
LV-A07 Cascade Way: Clean/paint exterior; upgrade glazing, flooring, casework
LV-A08 Sunrise Court 5880: Waterproofing, insul, mold, windows, flooring, casework
LV-A09 Sunrise Court 5882-84: Update casework
LV-A10 Sunrise Court 5884: Replace damaged shingles
LV-A15 Pinewood: Upgrade exterior, roofing, glazing, casework
LV-A16 Evergreen: Upgrade exterior, roofing, glazing, casework
LV-A17 Hawthorn: Upgrade exterior, glazing, casework
LV-A18 Harvest: Upgrade exterior, roofing, glazing, casework
LV-A19 Hillside: Upgrade exterior, glazing, casework
LV-A20 Laurel: Replace roofing, add gutters & downspouts, paint exterior, replace glazing & casework
LV-A21 Ponderosa: Upgrade exterior, glazing, casework
LV-A22 Shamrock: Upgrade exterior, glazing, casework
LV-A23 Tamarack: Upgrade exterior, roofing, glazing, casework
LV-A24 Rosewood: repair cracks in ext. masonry; replace fire shutters

Risk Assessment:

These projects are items that must be completed to prevent further deterioration of the existing facilities. Delay on implementing the repairs will result in additional costs down the road and eventual failure of the facilities.

Pros/Cons:

Pros: Implementing these repairs will allow continued use of the cottages.
Cons: Expense

Budgetary Costs:

Task:	Construction Cost:	Project Cost
LV-A04	$200,000	
LV-A05	$60,000	
LV-A06	$85,000	
LV-A07	$85,000	
LV-A08	$215,000	
LV-A09	$120,000	
LV-A10	$2,500	
LV-A15	$148,000	
LV-A16	$150,000	
LV-A17	$60,000	
LV-A18	$94,000	
LV-A19	$108,000	
LV-A20	$120,000	
LV-A21	$80,000	
LV-A22	$80,000	
LV-A23	$114,000	
LV-A24	$35,000	
Total	**$1,756,500**	**$2,546,925**

05 – Food Service: Renovate of Replace Service Elevator

Description (LV-A13)
Replace Service Elevator at Food Service Building #4D32

Risk Assessment:
The existing elevator is used to bring supplies up from the basement but is no longer safe and will sometimes stop operation. Staff are then forced to use the ramp to move stored product up from the basement to the prep area instead of using the elevator.

Pros/Cons:
Pros: Elevator replacement will increase productivity and decrease liability,
Cons: Cost and temporary loss-of-use during replacement process

Budgetary Costs:

Construction Cost	Project Cost
$225,000	$326,250

06 – Civil Projects: Sidewalk & Sewer Repairs

Description (Civil R-8 & S-4, 6, 7)

This project combines several smaller projects at the Lakeland Village campus, including:

- Replacing damaged concrete sidewalks
- Replacing 6" sanitary sewer lines at several locations

R-8 Description:

Concrete sidewalks in this condition were judged to have deteriorated to a point that simple grinding and crack sealing could not make the concrete surface even and durable.

Risk Assessment:

Sidewalks in this condition can be impassible to wheel chairs, hazardous for walking at night and are subject to further cracking, settling or heaving over tree roots.

Action:

Recommend removal of the concrete sidewalk, provision of a 4" gravel base and pouring of a new 4" thick concrete sidewalk.

S-4 Description:

Replace 6" Gravity Sewer Pipe and 4" Building Services for Buildings 4D62 and 4D63 (Rating 5). The existing clay pipe and two building services are reported by CSS staff to be in failing condition and have required repairs during which pipe quality was assessed.

Risk Assessment:

Continuing to rely on this pipe could lead to undetected sewage leaks and unscheduled interruption of building use if not replaced with a new line.

Action:

Recommend replacing this line from buildings to discharge manhole, with approximately 250 feet of 6" PVC pipe.

S-6 Description:

Replace 6" Gravity Sewer Pipe from Building 4D42 to Downstream Manhole (Rating 5). The existing 6" pipe is reported by CSS staff to be in failing condition. The line is reported to be 12' deep so emergency repairs would be difficult.

Risk Assessment:

Continuing to rely on this pipe could lead to undetected sewage leaks and unscheduled interruption of use of Buildings 4D40, 4D41 and 4D42 if not replaced with a new line.

Action:

Recommend replacing this line with approximately 125 feet of 6" PVC pipe.

S-7 Description:

Replace Remaining Failing Sections of 6" Gravity Sewer Pipe from Manhole between Buildings 4D45 and 4D50 to Downstream Manhole (Rating 5). The existing 6" pipe is reported by CSS staff to be in failing condition. CSS has repaired two sections of the pipe already and assessed the existing pipe condition as failing.

Risk Assessment:

Continuing to rely on this pipe could lead to undetected sewage leaks and unscheduled interruption of use of Buildings 4D40, 4D41, 4D42, 4D43, 4D44, 4D45, 4D46, 4D48 and 4D50 if not replaced with a new line.

Action:

Recommend replacing this line with approximately 125 feet of 6" PVC pipe.

Budgetary Costs (Civil R-8 & S-4, 6, 7)

Item	Construction Cost	Project Cost
R-8, Sidewalks	$81,000	
S-4, Sewer Pipe & Services @ 4D62-63	$15,000	
S-6, Sewer at 4D42	$10,000	
S-7, Sewer at 4D45-50	$10,000	
	$116,000	$168,500

07 – Food Service Switchboard Replacement

Description (LV-E3)

Provide a new electrical switchboard to replace the water-damaged main electrical distribution switchboard in the Food Service Building at Lakeland Village.

Risk Assessment:

The existing Food Service Building main switchboard is operational, but corrosion damage is visible and has affected the fused switches below the level reached by water in the Basement Electrical Room.

- The Food Service Building main switchboard has a 2000 Amp main fused switch and two distribution sections, which are equipped with fused switches for feeders.
  - + Some of the switchboard fused switches that supply feeders are at a level below that reached by water when the Basement was partially flooded to a depth no greater than 18" above the floor.
  - + There is corrosion damage up to the level reached by the standing water.
  - + The operating handles on two of the fused switches near the bottom of the switchboard are broken.

For safety reasons, the fused switches in the switchboard need to be easily operable. Corrosion damage on the switches may hinder operation. Broken handles indicate difficulty operating the affected switches in the past, and the broken handles only make the switches more difficult to operate now that they are broken. The fused switch units could be replaced, but it is likely that there is also corrosion damage to the busbars and stabs where the units connect. Switchboard replacement is recommended.

Pros/Cons:

Pros:

- Safety: Replacement of the main switchboard with new equipment is necessary for the safety of electrical workers and others who may need to disconnect power to feeders.
- Equipment Age: The existing main switchboard was installed in 1978 and is now 36 years old; the age of the equipment makes it desirable for the equipment to be replaced.

Cons:

- Cost: Moderate electrical equipment and labor costs are involved.
- Disruption: Replacement of the main switchboard will lead to construction disruptions.

Budgetary Costs:

	Construction Cost	Project Cost
	$200,000	$290,000

08 – Install Liner in LV Concrete Irrigation Reservoir

Description (Civil IR-1)
Install liner in 150,000 Gallon LV Irrigation Concrete Reservoir (Rating 5)

The existing 150,000 gallon concrete reservoir, which serves the City of Medical Lake, is known to leak based on observations by maintenance staff when they have compared how much water is pumped into the reservoir versus how much is pumped out.
The existing reservoir which is exposed to the elements does not work have a float gauge in which would allow operations and maintenance personnel to visually check the level in the tank from a distance. The only way to check the water level in the tank is to stop and look through the perimeter cyclone fence with slates.

Risk Assessment
The leaking 150,000 gallon concrete reservoir creates additional pumping costs and unnecessary pump and pump motor wear due to the additional volume of irrigation water required to maintain enough volume in the leaking tank.

Recommendations
Drain and clean tank prior to installing a reinforced membrane liner inside the existing concrete tank to reduce amount of leakage.

Budgetary Costs:

Construction Cost	Project Cost
$143,000	$207,350

09 – Chiller Plant Fire Alarm Replacement

Description (LV-E4)
Provide a new addressable fire alarm system to replace the old fire alarm system in the Chiller Plant.

Risk Assessment
The existing Chiller Plant fire alarm system is still operational, but it is antiquated and obsolete.

- The Chiller Plant fire alarm system is an old Simplex single-zone system; signals consist of a bell and a red light mounted on a common plate; detectors are and antiquated dome type heat detectors.
  - + The existing fire alarm system is not addressable, so the location of a fire is not indicated.
  - + Replacement parts are no longer readily available.
  - + The existing fire alarm system cannot be readily extended to new devices, because of the unavailability of parts.
  - + The existing fire alarm system is not connected to the Lakeland Village campus fire alarm network.
  - + It is not possible to connect the existing fire alarm system to the Lakeland Village campus fire alarm network without providing an intervening new fire alarm panel.

The Chiller Plant houses equipment that is important to maintain operation of the Lakeland Village campus, including the engine-generator and front-end transfer switches that power the campus Essential Electrical System upon loss of Utility power. Given the importance of the Chiller Plant's contents, the existing antiquated fire alarm system that is not connected to the campus network is not sufficiently reliable and would not provide adequate notice in case of fire.

Pros/Cons:
Pros:

- System Reliability: Replacement of the Chiller Plant fire alarm system with new equipment would improve reliability of the fire alarm system that covers an important building on the Lakeland Village campus.
- Response Time: A new fire alarm system connected to the campus fiber-optic network would improve response time should a fire occur in the Chiller Plant.
- Equipment Age: The existing main fire alarm system was installed in 1980 and is now 34 years old; the age of the equipment makes it desirable for the equipment to be replaced.

Cons:

- Cost: Moderate electrical equipment and labor costs are involved.
- Disruption: Replacement of the fire alarm system will lead to construction disruptions.

Budgetary Costs:

Construction Cost	Project Cost
$30,000	$43,500

Short-term Needs (2017-19, 2019-21)

10 – Separate Clean/Soiled/Laundry Functions in (11) Cottages

Description (LV-C2)

Separate Clean/Soiled/Laundry functions in (11) cottages as required by the State Dept. of Health to meet current FGI Guidelines. Existing cottages were built without room to separate these functions as is now required, so additions need to be added to the cottages to accommodate this function. Estimated cost per cottage is $384,000 (based on one project already completed) so the total MACC for this work is estimated at $4,225,000.

Risk Assessment:

DOH/CRS will not approve other projects related to the cottages until these non-code-conforming issues are corrected. Also, separating the clean/soiled functions is a health issue to prevent contamination of clean supplies which could cause infections.

Pros/Cons:

Pros:

- This project will allow the cottages to meet current codes and will improve infection control for patients.

Cons:

- Recommended solutions are expensive but acceptable alternatives have not been found.

Budgetary Costs:

Item		Construction Cost	Project Cost
(11) Cottages x	$384,000 each =	$4,225,000	$6,126,250

11 – LV CIRV Housing – Roofing & Exterior Repairs

Description (PR-06)

For the past 40 years, Lakeland Village has supported a program in partnership with Eastern Washington University and other area colleges known as the College in Residence Volunteer program or "CIRV". The program, provides an apartment and board at nominal cost in former staff quarters to about 40 students. In exchange, the students each volunteer 15 hours a week at the adjacent Lakeland Village campus. This recommendation would provide needed maintenance to three apartment buildings, known as "Hudson", "Lewis" and "Whitman", which will be essential in order to maintain the program.

Risk Assessment:

Volunteers provide over 30,000 hours of service per year and perform hundreds of daily chores needed on the campus. It was repeatedly reported that this service is extremely valuable and an integral part of the services offered by Lakeland Village. Loss of the service would be highly detrimental.

Much of the recruitment of skilled and motivated staff at Lakeland Village in areas such as recreation, physical or speech therapy originates with college students who volunteered through the CIRV program. Termination of these recruitment opportunities would also be a great loss to Lakeland Village

Pros/Cons:

Pros:

- The project is proposed to have a payback in 14 years and will accrue additional savings thereafter.
- The CIRV program substantially improves the quality of services provided by Lakeland Village.
- The CIRV program is integral to effective recruiting of skilled and motivated staff by Lakeland Village.
- Eastern State Hospital has indicated interest in housing for students during their internship; presently these students are housed in cottages on the Eastern State Hospital campus. By housing both CIRV students and ESH interns in the same apartment buildings, the overall Medical Lake campus footprint will be reduced further reducing building operating costs.
- The CIRV program provides an excellent educational opportunity and financial assistance for approximately 40 college students each year. The financial benefit for college students is estimated to have a present value of $285,000 per year.

Cons:

- An initial capital expense will need to be incurred.

Budgetary Costs:

Item	Construction Cost	Project Cost
Basis of Cost, Roof Area: 24,200 SF + 9,600 SF BUR at Garages; FLR area = 20,400 SF		
1. Remove existing roofing shingles @ $2/SF:	$48,400	
2. New Shingles @ $5/SF	121,000	
3. Remove existing built-up roofing @ $4/SF	38,400	
4. BUR Replacement @ garages, $10/SF	96,000	
5. Gutters/Fascias/Soffits	54,600	
6. Temporary Protection/Phasing	25,000	
7. Exterior Siding repair, 25,200 SF x $10	252,00	
8. Painting 25,200 SF x $1.50/SF	37,500	
9. Misc. Concrete patching & Railings	50,000	
	$668,300	
10. General Conditions @ 25%:	167,100	
	$890,000	$1,290,500

12 – Mechanical Task 1: Convert Cottages to Stand-Alone: Add Natural gas piping to Cottages

Description (LV-12a):

The recommended solution for the failing heating system at the existing Cottages is to convert them to Stand-alone Units for Mechanical Heating and Cooling at both the north and south campus areas of Lakeland Village. This switchover from centralized to decentralized heating and cooling systems has (5) parts which have been broken down into individual Tasks as listed below. NOTE: ALL of these tasks must be completed to complete the conversion of the cottages to stand-alone systems.

1. Task 1: Convert Cottages: Install Natural Gas Piping to Cottages (LV-12a)
2. Task 2: Steam Piping Replacement at Core Buildings (LV-12b)
3. Task 3: Add N-gas HVAC Furnaces and Condensing Units at Cottages (LV-12c)
4. Task 4: General Construction at Cottages (cut and patch) (LV-12d)
5. Task 5: Electrical Connection of Mechanical Equipment (LV-12e)

This project, #03 (LV-12a) covers Task 1 only.

Risk Assessment:

Failure to convert to stand-alone operation could result in unexpected loss of heating and/or cooling at the cottages.

Pros/Cons:

The cottages are currently served by central plant steam and chilled water. These pipes, particularly the steam and condensate at remote locations, are seeing an increasing rate of pipe failure. Some pipe failure has been observed already, especially in the areas where pipe is routed in "utilidor" type non-man trenches. These are the small tunnels that are only large enough to house piping and conduit but are not accessible by maintenance personnel, except by removing the ground cover above the tunnel and then lifting the concrete tunnel lids. These tunnels typically serve the cottages.

A phased approach toward stand-alone heating and cooling units may have merit. The chilled water piping to the cottages has been significantly less problematic than the steam and condensate. The first phase of this option would retain the chilled water based cooling system in the cottages while replacing the heating system. Steam and condensate piping to the cottages would be taken out of service. This phasing allows for maximum usage of the new chiller plant but aims toward total decentralization with its lower life cycle cost. In the long term, the decentralized approach will provide lower operating costs and lower life cycle cost.

Budgetary Costs:

Item	Construction Cost	Project Cost
Mechanical Task 1 Cost Breakdown:		
1. Per Unit Cost, Gas Service =	$2,000	
2. DHW Heater, per unit =	7,025	
3. Demo/Disposal =	2,720	
TOTAL per Unit:	$11,745	
$11,745 x (21) cottages =	$270,000	$391,500

13 – Mechanical Task 2: Steam Piping Replacement at Core Buildings

Description (LV-12b):

Even though the cottages will be "decentralized", it makes sense to keep the central plant system for heating the core buildings on the Lakeland Village campus. The steam piping serving those buildings which is starting to fail is located in man-accessible tunnels and therefore feasible to replace. This project includes only Task #2 of the 5-step plan identified in project #03 above.

Risk Assessment:

If steam piping to the core buildings is not replaced it could fail at any time, resulting in a loss of heating and hot water to those primary core buildings downstream from the failure point. This could include the HAB Center, Admin, PAT Center, Old School/Activity, Food Service, and Rosewood Nursing.

Pros/Cons:

Pros:

- Fixing the piping proactively could prevent a downtime of several days for repairs, which could affect any of the primary buildings noted above.

Cons:

- Expense of new piping, plus temporary interruptions of service during switchover to new piping system.

Budgetary Costs:

Item	Construction Cost	Project Cost
Mechanical Task 2 Cost Breakdown:		
1. New Tunnel/utilidor =	$150,000	
2. Relocate Existing Utilities =	200,000	
3. New Steam & Condensate Piping =	200,000	
4. Replace chilled water pipe to Core Bldgs:	100,000	
TOTAL, Task 2	$650,000	$942,500

14 – Mechanical Task 3: HVAC Furnaces & Condensing Units at Cottages

Description (LV-12c):
This project, Task 3 of the 5-step plan identified in project #03 above, includes adding gas-fired furnaces and exterior condensing unit equipment to the north and south cottages.

Risk Assessment:
If cottage heating systems are not changed out there is a risk that the existing central steam piping system could fail at any time, leaving the affected cottages without heat or hot water.

Pros/Cons:
Pros:

- The decentralized approach using residential-style gas-fired furnaces has less cost impact than other options, and is reliable.

Cons:

- Associated electrical expense (this would still be required for other heating solutions); some down-time during system switchover.

Budgetary Costs:

Item	Construction Cost	Project Cost
Mechanical Task 3 Cost Breakdown:		
1. Per Unit Cost, HVAC: $11.65/SF x 5,200 SF =	$60,580	
2. Demo & Disposal (per unit) =	9,280	
TOTAL per Unit:	$69,860	
$69,860 x (21) cottages =	$1.5M	$2.2M

15 – Mechanical Task 4: General Construction (Not Including Cottage Additions for Electrical which are part of Project #01)

Description (LV-12d):
This project, Task 4 of the 5-step plan identified in project #03 above, includes miscellaneous construction needed to accommodate the new decentralized heating systems in the cottages. The scope includes patching and repair of existing mechanical rooms and exterior wall penetrations.

Risk Assessment:
This project is a minor part of the 5-step conversion of cottages to decentralized heating and has little risk associated with it.

Pros/Cons:
Pros:

- Patch and repair needed to maintain the integrity of the cottages.

Cons:

- None.

Budgetary Costs:

Item	Construction Cost	Project Cost
Mechanical Task 4 Cost Breakdown:		
1. Per Unit Cost, Patch & Repair =	$400	
2. Demo/Disposal @ 20% =	75	
TOTAL per Unit:	$475	
$475 x (21) units =	$10,000	$14,500

16 – Mechanical Task 5: Electrical Connection of Mechanical Equipment

Description (LV-12e):

This project, Task 5 of the 5-step plan identified in project #03 above, includes electrical connection of the mechanical equipment installed in Task 3.

Risk Assessment:

See comments on Project #14 above.

Pros/Cons:

See comments on Project #14 above.

Budgetary Costs:

Item	Construction Cost	Project Cost
Mechanical Task 5 Cost Breakdown (Electrical Connections)		
1. Cost per Unit	$47,600	
$47,600 x (21) units =	$1.0M	$1.45M

17 – New Visitors Entry; Demolish Old Administration Building

Description (PR-07)

The Administration Building on the Lakeland Village campus is iconic, but very inefficient. It is recommended that current administrative offices be mostly moved to vacant/ underutilized space at the perimeter of the old School Building and the current building be replaced with a modest addition.

The new addition is preliminarily planned to include a small visitor's lobby, reception, small museum, administrator and assistant office and a conference room. The facility should be designed to eventually be expanded if needed into training facilities.

Risk Assessment:

Implementation will allow an overall reduction in operating expenses.

Pros/Cons:

Pros:

- The project is projected to pay for itself within 10 years. See attached analysis summarizing the net present value of savings and expenses. After this time, continued savings with a present value of over $300,000 is projected to accrue annually.
- The current Administration Building is highly inefficient. Efficient design benchmarks for office space range from 125 to 160 sq. ft. total departmental area per office/workstation; there is 690 sq. ft. of departmental area per office/workstation in the current Administration Building. The existing Administration Building will be demolished, significantly reducing annual operating expenses while providing higher quality office space at minimal cost in the existing building.
- The current building has only window shaker air conditioning; the new building and existing School Building have more reliable central air conditioning.
- The current Administration Building presents an "institutional" presence to the community and visitors; the new facility will present an updated and modern face to those who visit. Elements of the existing building structure are recommended to be incorporated into the new construction to respect the historic heritage of Lakeland Village.

Cons:

- An initial capital expense will need to be incurred. Otherwise, there are many benefits and no drawbacks to this project.

Budgetary Costs:

	Construction Cost	Project Cost
*(see Cost Model next page)	$1,525,000	$2,211,250

NAC ARCHITECTURE

Estimate of Probable Construction Cost

Summary by Division

Lakeland Village Administration Replacement	25,162 demo	Proj. No:	111-14011-A306
#2014-415	5,800 Office Reno, 1,500 SF ADD	Date	8/27/2014
Medical Lake Master Plan	Area = 1,500 GSF	Budget =	(TBD)

KEY	DESCRIPTION	SF COST	COMPONENT	PERCENT	REMARKS
A	GENERAL CONDITIONS	80.00	120,000	9.37%	
B	SITE DEVELOPMENT	25.00	37,500	2.93%	
C	DEMOLITION & ASBESTOS	167.75	251,625	19.65%	
D	FOUNDATION & SOG	18.00	27,000	2.11%	
E	STRUCTURAL SYSTEM	28.00	42,000	3.28%	
F	ROOFING SYSTEM	10.50	15,750	1.23%	
G	EXTERIOR WALLS	25.00	37,500	2.93%	
H	EXTERIOR DOORS & OPENINGS	10.00	15,000	1.17%	
I	INTERIOR DOORS & OPENINGS	6.00	9,000	0.70%	
J	INTERIOR PARTITIONS	7.00	10,500	0.82%	
K	WALL FINISHES	4.00	6,000	0.47%	
L	FLOOR FINISH & BASE	7.50	11,250	0.88%	
M	CEILING & SOFFITS	3.50	5,250	0.41%	
N	INTERIOR STAIRS & RAILINGS	11.00	16,500	1.29%	
O	ACCESSORIES & SPECIALTIES	2.00	3,000	0.23%	
P	FIXED EQUIPMENT	1.50	2,250	0.18%	
Q	CASE & MILLWORK	3.00	4,500	0.35%	
R	FURNISHINGS	1.50	2,250	0.18%	
S	SPECIAL SYSTEMS	4.00	6,000	0.47%	
T	MECHANICAL CONVEYANCES	40.00	60,000	4.69%	
U	SITE UTILITIES, MECHANICAL	7.00	10,500	0.82%	
V	PLUMBING	13.00	19,500	1.52%	
W	HVAC & CONTROLS	33.00	49,500	3.87%	
X	FIRE PROTECTION	4.00	6,000	0.47%	
Y	SITE UTILITIES, ELEC	15.00	22,500	1.76%	
Z	ELECTRIC POWER	12.00	18,000	1.41%	
AA	LIGHTING & SPEC SYSTEMS	5.00	7,500	0.59%	
BB	OFFICE REMODELS @ $80/sf	1.00	464,000	36.24%	
	GENERAL SUBTOTAL	455.25	682,875	53.33%	
	MECHANICAL SUBTOTAL	57.00	85,500	6.68%	
	ELECTRICAL SUBTOTAL	341.33	512,000	39.99%	
	SUBTOTAL	853.58	1,280,375	100.00%	
	CONTR. O & P - GENERAL	45.53	68,288	10.00%	
	CONTR. O & P - MECH/ELECT	19.92	29,875	5.00%	
	BOND & INSURANCE	17.98	26,973	2.00%	
	B & O TAX	4.69	7,028	0.50%	
	SUBTOTAL	941.69	1,412,538	110.32%	
	DESIGN CONTINGENCY	75.34	113,003	8.00%	
	SUBTOTAL	1,017.03	1,525,541	119.15%	
	LOCATION / INFLATION FACTOR	0.00	0	0.00%	
	ESTIMATED BID AMOUNT	1,017.03	1,525,541	119.15%	

18 – Decompress LV Cottages into Vacant Units

Description (PR-05)

Existing cottages are overcrowded. Benchmarks for housing are 650 sq. ft. of total building area per client. Except for one "low-density" cottage, current cottages provide an average of 400 sq. ft. of total area per client (see Program Analysis in Section 2.4). This recommendation contemplates reoccupying four cottages that are currently vacant – Cascade, Willow, Sunrise and Big Foot. With the slightly downward census projected in the future plus occupancy of vacant cottages, private beds are projected to available to most clients between 2019 and 2023 (see Bed Need Projections in Section 2.3).

Risk Assessment:

There are numerous risks associated with overcrowding in institutional facilities. These include:

- Psychological: Frustration, anxiety and stress increase in patients due to lack of privacy, inability to screen noise and fear.
- Psychiatric: Psychiatric conditions among patients are exacerbated.
- Social: Competition for limited space and resources sometimes leads to aggressive behaviors and violence and puts staff and patients at risk.
- Treatment: The ability and efficacy of rehabilitative treatment is reduced.
- Medical: Overcrowded environments foster an increase in the spread of contagious diseases.
- Staff: Staff face extra pressure and stress. Morale is decreased. Staff safety is decreased.

Recently Lakeland Village created a "low density" cottage. It was reported that the incidence of assaults decreased dramatically with the reduced census in this cottage.

Pros/Cons:

Pros:

- A safer environment for patients and staff would be provided by reducing overcrowding. The liability cost for an assault is difficult to estimate but could be significant.
- Private beds are considered highly desirable and best practice per Washington State DDA staff for most clients.
- A less crowded environment would provide a significantly improved living environment for clients.
- Staff turnover at Lakeland Village is reported to be high and a better living environment for patients should provide an improved work environment and less turnover of staff. While recruitment and training costs for new employees are difficult to estimate, there would be a cost savings if turnover is reduced.

Cons:

- An initial capital expense will need to be incurred.
- It is reported that operation of additional cottages results in increased operational costs for staffing. However, if staff-to-patient ratios were maintained, it would not be necessary to incur this cost. It is recommended that a study of reconfigured operations be considered in order to support implementation of this recommendation. For example, there is currently a separate manager for each cottage. If the census in each cottage were reduced, possibly one manager could manage two cottages and such staffing increases could be avoided.

Budgetary Costs:

	Construction Cost	Project Cost
	$480,000	$696,000

19 – Paving & Irrigation Upgrades

Description (Civil R-1, 2, 6, 7; S-5; W-8 thru W-14)

R-1 Description:
Grind and Overlay Existing Asphalt Roads in Poor Condition.
Roads in this condition were assessed as beyond repair by mere crack-sealing, but not deteriorated to the point of having to replace the subgrade or gravel base.

Risk Assessment:
Roads in this condition begin to deteriorate rapidly because the cracks in the asphalt allow penetration of water into the base course, which will quickly lose structural integrity because of freeze/thaw and pumping of the subgrade.

Action:
Recommend edge grinding and overlaying 1 ½" of asphalt adjacent to curbs and sidewalks to preserve curb reveals (estimated to be 20% of R-1 area). Recommend 1 ½" overlay in R-1 areas where matching up with existing curbs and sidewalks is not necessary. This takes advantage of whatever structural capacity remains in the existing asphalt.

R-2 Description:
Replace Existing Asphalt and Gravel Base.
Roads in this condition were assessed as beyond repair by grind and overlay because deterioration of the gravel base and subgrade is so prevalent the inadequate support for new asphalt would be provided by overlay.

Risk Assessment:
Roads in this condition will develop potholes and ruts that will be damaging to vehicles and could be a safety hazard.

Action:
Recommend removing the existing asphalt and gravel base, repairing subgrade soil and repaving with asphalt and gravel base. Cost estimate assumes 3" asphalt over 4" gravel base.

R-6 Description:
Concrete roads in this condition were judged to have cracks that are extensive and wide enough to permit significant water into the gravel subgrade and are already heaving or settling.

Risk Assessment:
Roads in this condition produce an uncomfortable ride or hazardous walking conditions at night and cannot be repaired by grinding or crack sealing.

Action:
Recommend complete removing of the concrete placement of 4" gravel base and pouring of new 6" concrete slab.

R-7 Description:
Concrete sidewalks in this condition were judged to have cracks that can be sealed and vertical offsets that can be made wheelchair accessible by grinding.

Risk Assessment:
Sidewalks in this condition can be impassible to wheel chairs, hazardous for walking at night and are subject to further cracking, settling or heaving over tree roots.

Action:
Recommend crack sealing and grinding all vertical offsets.

S-5 Description:

Replace 6" Gravity Sewer Pipe around Auto Shop (Rating 4)

The existing 6" pipe is reported by CSS staff to be in poor condition. The line runs underneath the Auto Shop and serves the laundry building.

Risk Assessment:

Continuing to rely on this pipe could lead to undetected sewage leaks and unscheduled interruption of Auto Shop and Laundry Building use if not replaced with a new line. Saw-cutting and repair of the Auto Shop floor would disrupt operations for a couple of days.

Action:

Recommend replacing this line by re-routing around Auto Shop with approximately 150 feet of 6" PVC pipe.

W-8 Description:

Provide Domestic Water Meters at All Buildings (Rating 5)

The Washington State Department of Health (DOH) has mandated that individual buildings within all water systems must have metered usage by January 2017. Most of the buildings at Lakeland Village do not have water meters. Usage is currently monitored by two master meters for the entire campus. Many of the buildings at ESH and Westlake are not metered. Buildings requiring meters are indicated on the water plans.

Risk Assessment:

If meters are not provided it could eventually result in fines imposed by DOH. It is expected that because of the huge cost statewide and the limited DOH manpower, it will be sufficient at first to show progress and a plan of action at the beginning of the post-deadline period.

Another risk of not having meters at all buildings is the inability to identify wasted usage. Currently at Lakeland Village it is not possible to detect leakage downstream of the master meters. For the year 2013, the water system manager reported a 13% difference between the water meter readings at the well pump stations and the readings at the various meters throughout the system. The DOH-mandated allowable loss for non-revenue water source is less than 10% loss on a seven-year running average. As part of this study a leak detection effort was performed for the entire water system from the ESH reservoirs down throughout the distribution systems at Eastlake, Westlake, Pine Lodge and Lakeland Village. Only two leaks were detected. One was very minor and one has been repaired. Leakage from that leak was estimated at 10 gallons per minute or around 5 million gallons per year. In 2012 a leak detection effort found no leaks in the 14" transition main from the well houses to the reservoirs. The two recent leaks cannot account for the 2013 difference of approximately 26 million gallons of drinking water measured between the well meters and the usage meters.

The more likely explanation for the apparent losses is poor metering. CSS is relying on several large master water meters to record usage. Under low flow conditions, such as at night, the larger meters cannot record low flows, so these flows are unrecorded, thereby increasing the difference between the well-house readings and the consumption readings. Adding end-use metering will likely reduce this erroneously-recorded leakage.

Action:

Recommend completing the building metering program to satisfy the DOH mandate and reduce the apparent leakage numbers.

W-9 Description:

Replace Hot Water Make-Up Heaters at Lakeland Village (Rating 4)

Lakeland Village employs a centralized distribution system for domestic hot water supply. This system distributes hot water to campus buildings via pipes inside of the campus utility tunnels. About 20 years ago make-up water heaters were installed at the cottages in Lakeland Village to provide for temperature balancing of the hot water supplied to these buildings. These are small (2 to 3-gallon) heaters that keep the water in the domestic service lines at around 120 degrees Fahrenheit during periods of low usage where the hot water in the larger system has cooled down. Because of the long distance between the central plant boiler and the cottage users, an extraordinary amount of luke warn to cool water would need to be run out and wasted in order to get hot water during these periods without the secondary heater system. These heaters are at about the end of their useful life. Because they were all installed at the same time, it is expected that there will be a rash of water heater failures in the near future.

Risk Assessment:

If the heaters are not replaced, failures will occur impairing the usefulness of the cottages and the therapy pools that are located within them. Water losses will occur as people run and waste cooler water through the system. More service complaints will be generated and customer satisfaction will suffer. Inspectors from the Department of Health are more likely to write up violations that could result in fines.

Action:

Even though the heaters were purchased and installed at roughly the same time, one would not expect them to all fail at roughly the same time because of differing conditions and differing cumulative usage. Allowing them to fail one at a time does not result in any emergency and may save money by extracting the most life from each unit.
However, increasing failure rates should be expected and prepared for. Stockpiling a certain number of units could reduce ordering and delivery times and allow for prompt response by facilities repair personnel.

W-10 Description:

Replace Hot Water System Expansion Couplings at Lakeland Village (Rating 4)
Lakeland Village employs a centralized distribution system for domestic hot water supply. This system distributes hot water to campus buildings via pipes inside of the campus utility tunnels. Expansion couplings are located on these pipes at intervals of 100 to 150 feet. These expansion couplings are coming to the end of their service life. Some of the utility tunnels can be accessed by service workers and some are too small and therefore would require excavation and removal of the tunnel structural lid, along with landscaping, paving, sidewalks, ect. to switch out the expansion couplings. Replacement of expansion couplings also requires water system shutdowns to deactivate the water line for the replacement.

Risk Assessment:

If the expansion couplings are not replaced, they will be subject to leaking at an increasing rate. When an expansion joint fails water leaks into the utility tunnel and is channeled in the tunnel to low spots in the system, where it can enter into buildings and crawl spaces and can cause water damage.

Action:

There are two distinct conditions for replacement of expansion couplings. In the walk-through tunnels, replacement of expansion couplings is relatively simple. New couplings can be ordered ahead of replacement and several can be replaced with one shutdown. Couplings replaced in the accessible tunnels could be done for less than $500 per coupling. Recommend a replacement program to replace these couplings system-wide.

Condition 3, replacement of expansion couplings in the non-accessible tunnels is significantly more complex. First the coupling must be located, which is difficult without a leak. Then the overburden on the tunnel lid, including landscaping, pavement and or sidewalks must be excavated and the tunnel lid removed. Then a water shutdown must be scheduled. Then the coupling must be replaced, lid replaced, and landscaping or paving replaced. Replacement of expansion couplings in the non-accessible tunnels could cost as much as $10,000 per replacement. (NOTE: See Mechanical Project LV-12).

W-11 Description:

Install Pressure Reducing Valve at Lakeland Village (Rating 4)
Currently the apartments at Lakeland Village on the east side of SR 902 are served by a single 8" water line from the main reservoir at ESH. There is an 8" line connecting this system to the main Lakeland Village system on the west side of the highway, but a valve on the connecting line is normally closed because the system on the east side of the highway is at a higher pressure. So the system on the east side is essentially a long dead end system with no redundant supply under normal circumstances. The hydraulic analysis done as part of the 2008 Water System Plan by E&H engineering identifies the area east of the highway as having less than the required 2000 gallons per minute fire flow. It also identifies several locations in the "cottages" area as having insufficient fire flow.
Part of the improvement required to attain the required fire flows throughout the campus is to install a pressure reducing valve as indicated on the water plan sheet W-8, item W-11. This will balance the system pressures throughout the campus and allow the normally-closed valve between the two systems to be opened, thereby providing looped flow and increased fire flow capacity.

Risk Assessment:
Not installing the pressure reducing valve, along with water item W-15 (Add 8" Water Line Loop Across Highway) will leave the apartments with a deficient fire flow capacity and will result in poor firefighting capacity in case of fire.

Action:
Recommend installation of the new pressure reducing valve to increase system reliability and contribute to meeting required fire flows.

W-12 Description:
Add 8" Water Line Loop at Lakeland Village Cottages (Rating 4)
Currently the cottages at Lakeland Village on the east side of SR 902 are served by a single 8 " water line from the main reservoir at ESH. There is an 8" line connecting this system to the main Lakeland Village system on the west side of the highway, but a valve on the connecting line is normally closed because the system on the east side of the highway is at a higher pressure. So the system on the west side serving cottages is essentially a long dead end system with no redundant supply under normal circumstances. The hydraulic analysis done as part of the 2008 Water System Plan by E&H Engineering identifies the cottage area as having less than the required 2000 gallons per minute fire flow. Part of the water system plan improvement required to attain the required fire flows throughout the campus is to install a pressure reducing valve as indicated on the water plan sheet W-7, item W-11. This will balance the system pressures throughout the campus and allow the normally-closed valve between the two systems to be opened, thereby providing another source of supply. The water system improvement described here is somewhat different than the proposal in the last water system plan. This plan was recommended by CSS personnel and has the advantage of providing an extra fire hydrant and providing fire flow capability on the outside of the Morhardt Road loop for any future needs to the northeast.

Risk Assessment:
Not installing the pressure reducing valve, along with water item W-11 (Install Pressure Reducing Valve on 8" Line) will leave the cottages with a deficient fire flow capacity and will result in poor firefighting capacity in case of fire. Also, lack of progress on providing fire flow here could eventually result in a poorer rating by the Department of Health.

Action:
Recommend adding the 8" water loop and one additional fire hydrant in the cottages area to obtain required fire flows and increase hydrant coverage to the northeast side of the cottages.

W-13 Description:
Replace Section of 12" Water Line and Install Flow Control Valve (Rating 4)
The main campus at Lakeland Village (east of SR 902) is served by a 12-inch main from the 2 million gallon Reservoir #2 at ESH. This reservoir also feeds the Lakeland Village Reservoir #3, which is at a lower elevation. A pressure reducing valve on this line reduces the incoming pressure from Reservoir #2 to match the static pressure from Reservoir #3.
The 2008 water system analysis by E&H engineering determined that under high demand conditions, the main campus system at Lakeland Village draws more flow from the 12" pipe from Reservoir #2 than from the Lakeland Village Reservoir by a factor of 2 to 1. The report recommended installing a flow control valve just upstream of the tee for the supply line to Reservoir #3 and downstream of the pressure reducing valve to balance the flows from the two sources and avoid placing too high of a peak demand on the ESH system. Also, personnel from Consolidate Support System have advised that the 12" water line in this area is subject to frequent leakage and they have given the pipe in this area a "poor condition" rating.

Risk Assessment:
Not installing the new pipe in this area risks a catastrophic failure to the main water line supplying the west campus. Not installing a new flow control valve in the same area will cause unnecessary high demand on the ESH system during peak demand scenarios at Lakeland Village. This would be a concern in the event of simultaneous fire demands at ESH and Lakeland Village.

Action:
Recommend replacing the approximately 90-foot stretch of poor condition 12" water line. Recommend consulting with the engineer who performed the computer modeling to determine what kind of damage or flow reduction is being caused by the unnecessary high demand on the ESH system before deciding to install a flow control valve as recommended.

W-14 Description:

Replace Section of 6" Water Line Under Lakeland Village Auto Shop (Rating 4)
There is a 6" water line that runs under the Auto Shop at Lakeland Village. CSS recently had to sawcut the concrete slab in the shop to repair a leak in that pipe. The pipe is old cast iron in poor condition and CSS recommends re-routing a new 6" pipe around the building to avoid a repeat of the costly emergency repair.

Risk Assessment: Not installing the new pipe in this area risks a catastrophic failure to the water line under the auto shop. Another leak under the building has the risk of undermining the slab-on-grade or building footings and an extended period of interruption of service work at the auto shop.

Action:

The relatively low cost of re-routing the 6" water line vs. the much higher cost of building damage and interruption of work should make this improvement a high priority.

Budgetary Costs:

Item	Construction Cost	Project Cost
R-1, Overlay Asphalt	272,074	
R-2, Replace Asphalt	169,890	
R-6, Replace Concrete	15,317	
R-7, Repair Concrete	3,200	
S-5, 6" Sewer	4,500	
W-8, Water Meters	79,000	
W-9, HW Make-Up Heaters	6,000	
W-10, HW Expansion Couplings	8,000	
W-11, Pressure-Reducing Valve	12,000	
W-12, Add 8" Loop	28,000	
W-13, Replace 12" Main	4,000	
W-14, Replace 6" Water Line	5,000	
TOTAL	$606,679	$879,685

20 – LV Transformers Tilt Adjustment

Description (LV-E6)

Replace the reinforced concrete transformer pads and reinstall the pad-mounted transformers where the existing pads have settled to the point that the pad-mounted transformers have tilted significantly on the Lakeland Village campus. The locations where settling has caused significant tilting of the equipment are Transformers '2-02', '2-11', '2-13', '2-16', '2-18', '3-12', '4-02', '4-03', '4-05', and '5-16'.

Risk Assessment:

Ground settlement has affected many of the Lakeland Village pad-mounted transformers. Where the ground settled under the equipment, the concrete pads on which the transformers are mounted have tilted somewhat. In some cases, the tilting is significant.

- Pad-mounted Transformers '2-02', '2-11', '2-13', '2-16', '2-18', '3-12', '4-02', '4-03', '4-05', and '5-16' are significantly tilted.
- The tilting of the pad-mounted transformers detracts from the appearance of the campus.
- In some cases, the tilt is such that water does not properly drain from the top of the transformer compartment.
- Further tilting could potentially lead to worse consequences, like compartment doors binding and becoming difficult to open, or compartment doors swinging shut by themselves when workers need them to stay open.
- No immediate safety concerns are apparent yet.

To correct the tilting caused by ground settlement, the affected pad-mounted transformers would need temporarily to be lifted from their concrete pads. Then the existing pads would need to be removed and replaced. Additional gravel bedding should be added under each transformer pad in order to provide a more solid base upon which the concrete transformer pad can rest.

Pros/Cons:

Pros:

- Appearance: Righting the tilted transformers would remove an unsightly aspect that detracts from the campus appearance.
- Maintenance: Righting the tilted transformers would arrest the settlement and tilting before it progresses to the point of becoming a safety issue for maintenance.

Cons:

- Cost: Moderate costs are involved, which will mostly be labor and crane expenses.
- Disruption: Replacement of the concrete pads under the pad-mounted transformers will lead to construction disruptions.

Budgetary Costs:

Construction Cost	Project Cost
$200,000	$290,000

21 – Upgrades to Old School, HAB Center, & Food Service

Description (LV-A02, A03 & A12)

LV-A02 Old School/Activity: Rebuild masonry parapets, replace rusted steel windows at Arcade, replace slip-resistant sheet vinyl at ramps, construct area of refuge at south corridor

LV-A03 HAB Center: replace slip-resistant sheet vinyl on ramps; modify roof flashings & repoint brick, replace leaking skylights

LV-A12 Food Service: replace slip-resistant sheet vinyl on ramps

Risk Assessment:

These repair projects at the LV cottages include a variety of items ranging from replacing failed glazing at exterior windows to roofing repairs; the impact of NOT doing these repairs now will be increasing weather damage to the cottages over time, with corresponding greater repair bills in the future.

Pros/Cons:

Pros: Getting these projects done will increase the building envelope performance and improve the appearance of the cottages.

Cons: None.

Budgetary Costs:

Item	Construction Cost	Project Cost
LV-A02, Old School	$106,000	
LV-A03, HAB Center	58,500	
LV-A12, Food Service ramps	5,000	
	$169,500	$245,775

22 – LV Consolidation and Risk Mitigation (Demo & Landscaping)

Description (IU-12)

There are eight buildings on the Lakeland Village campus that should be demolished, not including the main LV Administration Building that is part of Program Recommendation #7. The old Miller & Bryan Hall at the north end of the campus (currently used for storage) is in bad shape and does not meet any program needs. The small wood-framed buildings at the Carpenter shop have serious structural issues and are not deemed safe for snow load. The Senior Center is not being used and should be removed to clean up the campus. The cost to try and bring Mason Memorial up to current standards is prohibitive; it makes sense to relocate those offices to newer buildings available at Pine Lodge instead. Finally, Douglas Hall at the south end of the campus (currently vacant) is not configured for use as a nursing facility and should also be removed.

Risk Assessment:

Safety hazard if vacant buildings are allowed to remain and continue to deteriorate. Also, there is the possibility of liability to the state if someone is injured while in or beside one of these buildings that has been "closed".

Pros/Cons:

Pros:

- The campus image will be improved if these buildings are removed.

Cons:

- Expense.

Budgetary Costs:

Building	SF Cost	SF	Cost	Project Cost
Douglas	12	10,167	122,000	176,900
Storage Garage	12	3,757	45,084	65,372
Mason Memorial	17	14,358	244,086	353,925
Miller/Bryan	17	24,400	414,800	601,460
Carpenter Shops	12	5,869	70,428	102,121
Senior Center	12	833	10,000	14,500
TOTAL			$906,398	$1,314,277

Long-term Needs (2021-23, 2023-25)

23 – Replace Steam & Condensate Piping, & Pressure Reducing Stations

Description (Mech LV-03)

Replace existing steam heating and condensate return piping at Lakeland Village. This would also include steam pressure reducing stations at each building.

Risk Assessment:

If the pipe is not replaced, an increased rate of pipe failure can be expected. Some pipe failure has been observed already, especially in the areas where pipe is routed in "utilidor" type non-man tunnels. These are the small tunnels that are only large enough to house piping and conduit but are not accessible by maintenance personnel, except by removing the ground cover above the tunnel and the tunnel lid. This pipe serves the buildings that are more remote from the core buildings, the core buildings being located close to the steam plant.

Pros/Cons:

Lakeland Village employs a centralized distribution system for high pressure steam supply and condensate return pipe. This system distributes steam to campus buildings via pipes located in the campus utility tunnel system. The Average Service Life of the pipe has been exceeded and some pipe has already started to fail. Failure could be expected to occur at an increasing rate. Failure at unplanned times could result in loss of heating capacity to parts of the campus while replacement of the failed pipe takes place.

The placement of new pipe in the tunnel while leaving the existing pipe in service will be near impossible. Assuming the complete shutdown of the steam supply system is not possible, the option to have more of the campus on stand-alone operation becomes more important. This is especially true of the more remote buildings which are generally served by steam and condensate pipes located in small tunnels (utilidors) as these are the locations where there have been more failures in the system.

A phased approach to the steam and condensate piping replacement may have merit. The first phase would put the more remote buildings, typically the cottages at the north and south ends of the campus, on a stand-alone Heating and Cooling system. See Mechanical Option LV-12. The steam and condensate piping to the "core" buildings would remain in place. This includes Administration, the P.A.T. Center, the Old School, the Habitation Center, Food Service and possibly Rosewood. The piping to these core buildings has been less problematic and is housed in accessible tunnels that help facilitate repairs when needed. Replacement of the steam and condensate piping to the core buildings would occur in a subsequent phase.

For the core buildings, it may be found that by the time the steam boilers are due for replacement, a change from steam as the source heating fluid to heating water would result in a lower life cycle cost. The terminal heating equipment in most of the core buildings is already using heating water and the long term cost to operate and maintain a heating water system is typically lower than for a steam system.

Budgetary Costs:

Item	Construction Cost	Project Cost
Mechanical LV-03 Breakdown:		
1. Steam Piping =	$378,378	
2. Pipe Insulation, Steam Piping =	96,334	
3. Condensate Piping =	248,425	
4. Pipe Insulation, Condensate Pipe =	72,818	
TOTAL per Unit:	$709,255	
Round up to:	$710,000	$1,029,500

24 – Upgrades to PAT Center, Welding Shop, & Chapel

Description (LV-A01, A11, & A14)

- LV-A01: PAT Center: Replace fire shutters next to HAB corridor
- LV-A11: Welding/Garage: Install missing fire doors between the two sides
- LV-A14: Chapel: Repair and repaint wood siding, + egress upgrades

Risk Assessment:

These repair projects at Lakeland Village are needed to bring these three buildings into compliance with current codes.

1. The existing fire shutters at window openings between PAT and HAB are no longer functional and need replacement. The risk of not doing this project is that if a fire event occurs, fire could spread across the fire wall from one building to the other.
2. Originally there were fire doors installed at the separation wall between the two sides of the garage building. At some point they have been removed. To be in compliance with current codes, these fire doors should be installed to limit the spread of fire in case a fire event occurs.
3. Two projects at the Chapel: exterior maintenance of wood siding, and changing egress doors/hardware to meet current codes. (The second is a potential liability to the state if not done; if an injury occurs the existing building exiting is not in conformance.)

Budgetary Costs:

Item	Construction Cost	Project Cost
• LV-A01, PAT Center	$50,000	
• LV-A11, Welding/Garage	$3,000	
• LV-A14:, Chapel	$21,000	
	$74,000	$107,300

25 – Upgrade Remaining Cottages to Full DDC System

Description (Mech LV-01)

Upgrade the remaining Lakeland Village housing cottages to full DDC system.

Some cottages have been upgraded to a Direct Digital Control system but many remain of the pneumatic type.

Risk Assessment:

Much of the pneumatic tubing is very old and prone to cracking and air leakage. If the system is not replaced with a Direct Digital Control (DDC) type, leakage from cracks will cause loss of control with the result being loss of a comfortable indoor environment or increased energy use or both.

Pros/Cons:

The replacement of the pneumatic control system can be delayed and the pneumatic system repaired as failure occurs but it is often very difficult and time consuming to locate an air leak. Maintenance time is much greater for a pneumatic system than for a DDC system.

Replacement with a DDC system reduces maintenance time as it is possible to "see" what is happening in the system from the head-end of the system which is located at the campus CSS HVAC Shop. Many times, corrections and adjustments can be made without leaving the shop.

Replacement with a DDC system reduces energy use and energy cost. DDC systems have the ability to more closely control valves, dampers and room temperature. This prevents the over-shooting or hunting that can occur with pneumatic controls.

Budgetary Costs:

Construction Cost	Project Cost
$250,000	$362,500

26 – Replace Existing Chilled Water Piping

Description (Mech LV-04)
Replace existing pipe in the chilled water piping system at Lakeland Village.

Risk Assessment:
If the pipe is not replaced, an increased rate of pipe failure can be expected. Some pipe failure has been observed already, especially in the areas where pipe is routed in "utilidor" type non-man tunnels. These are the small tunnels that are only large enough to house piping and conduit but are not accessible by maintenance personnel, except by removing the ground cover above the tunnel and the tunnel lid.

Pros/Cons:
Lakeland Village employs a centralized distribution system for chilled water supply and return pipe. This system distributes chilled water to campus buildings via pipes located in the campus utility tunnel system. The Average Service Life of the pipe has been exceeded and some pipe has already started to fail. Failure could be expected to occur at an increasing rate. Failure at unplanned times could result in loss of cooling capacity to parts of the campus while replacement of the failed pipe takes place.

The placement of new pipe in the tunnel while leaving the existing pipe in service will be near impossible. This will require that all installation work be done during the time when the chilled water plant is OFF. The work would probably extend over several years. This does add increased importance to the option to have more of the campus on stand-alone operation. This is especially true of the more remote buildings which are generally served by chilled water pipes located in small tunnels (utilidors) as these are the locations where there have been more failures in the system.

Budgetary Costs:

Construction Cost	Project Cost
$370,000	$536,500

27 – Replace Heating Water Piping at the Lower Campus

Description (Mech LV-05)
Replace existing pipe in the heating water piping system at the lower campus housing area of Lakeland Village. Reuse existing utilidor.

Risk Assessment:
If the pipe is not replaced, pipe failure can be expected. Pipe is in small concrete "utilidor" type tunnels between buildings.

Pros/Cons:
In 1997, two new gas-fired heating water boilers were installed in Whitman Housing on the lower campus. Heating water supply and return are distributed to the other housing units via pipes routed in non-man concrete tunnels. These are the small tunnels that are only large enough to house piping and conduit but are not accessible by maintenance personnel, except by removing the ground cover above the tunnel and the tunnel lid.

The pipe was not replaced when the new boilers were installed. The Average Service Life of the pipe has been exceeded and pipe failure can be expected to occur. Failure at unplanned times could result in loss of heating capacity to some of the housing while replacement of the failed pipe takes place.

Budgetary Costs:

Construction Cost	Project Cost
$150,000	$217,500

28 – Replace Domestic Hot & Cold Water Piping at Lower Campus

Description (Mech LV-06)
Replace existing pipe in the domestic hot and cold water piping system at the lower campus housing area of Lakeland Village.

Risk Assessment:
If the pipe is not replaced, pipe failure can be expected. Pipe is in small concrete "utilidor" type tunnels between buildings.

Pros/Cons:
In 1997, a new gas-fired domestic hot water heater was installed in Whitman Housing on the lower campus. Domestic hot water is piped to each of the other housing units via pipes routed in non-man concrete tunnels. These are the small tunnels that are only large enough to house piping and conduit but are not accessible by maintenance personnel, except by removing the ground cover above the tunnel and the tunnel lid.

Domestic cold water is connected to the housing units from the campus distribution system. The domestic hot water pipe was not replaced when the new heater was installed. The Average Service Life of both the domestic hot and cold water pipe has been exceeded and pipe failure can be expected to occur. Some leaks have already begun to appear in the domestic cold water pipe. Failure at unplanned times could result in loss of domestic water service to some of the housing while replacement of the failed pipe takes place.

Budgetary Costs:

	Construction Cost	Project Cost
	$60,000	$87,000

29 – Replace Natural Gas Burners at Steam Boilers in Steam Plant

Description (Mech LV-07)
Replace existing natural gas burners on the steam boilers at Lakeland Village.

Risk Assessment:
There is minimal risk in not replacing the burners at this time.

Pros/Cons:
The Lakeland Village steam boilers are about 22 years old. This is well within the Average Service Life of at least 30 years. However, the burners are of a less efficient type than is currently available in the industry. A new burner on each of the three boilers would increase burner efficiency and reduce energy use and cost. The burners are currently working satisfactorily and do not present any significant problems.

Budgetary Costs:

	Construction Cost	Project Cost
	$100,000	$145,000

30 – Convert Rosewood Constant Volume Air to VAV

Description (Mech LV-08)
Convert Rosewood Building at Lakeland Village from Constant Volume Air Systems to Variable Air Volume.

Risk Assessment:
Failure to convert the existing constant volume air systems poses no threat of system failure or loss of building air conditioning but does have the on-going result of greater energy use and cost than needed.

Pros/Cons:
The existing air handling units and supply air system are constant volume. Some opportunity exists to replace the existing constant volume terminal reheat boxes with variable volume terminal reheat boxes. A static pressure sensor in the supply duct for each air handling unit would be used to sense reduced air flow and to control the speed of the supply fan in that system. The supply fan motor would be replaced with a high efficiency type and connected to a variable frequency drive (VFD). The VFD would vary the speed of the fan as sensed by the static pressure sensor as flow increased or decreased. Overall fan motor energy use would be reduced along with energy cost.
Care must be exercised to maintain comfort levels and at least the code minimums for total air exchange as well as the outdoor air volume.

Budgetary Costs:

Construction Cost	Project Cost
$200,000	$290,000

31 – Convert Old School Constant Volume Air to VAV

Description (Mech LV-09)
Convert Lakeland Village Old School/Activity Building from Constant Volume Air System to Variable Air Volume.

Risk Assessment:
Failure to convert the existing constant volume air system poses no threat of system failure or loss of building air conditioning but does have the on-going result of greater energy use and cost than needed.

Pros/Cons:
The existing air handling unit and supply air system are constant volume. Some opportunity exists to replace the existing constant volume terminal reheat boxes with variable volume terminal reheat boxes. A static pressure sensor in the supply duct for each air handling unit would be used to sense reduced air flow and to control the speed of the supply fan in that system. The supply fan motor would be replaced with a high efficiency type and connected to a variable frequency drive (VFD). The VFD would vary the speed of the fan as sensed by the static pressure sensor as flow increased or decreased. Overall fan motor energy use would be reduced along with energy cost. Care must be exercised to maintain comfort levels and at least the code minimums for total air exchange as well as the outdoor air volume.

Budgetary Costs:

Construction Cost	Project Cost
$350,000	$507,500

32 – Convert Old School to Direct Digital Control (DDC)

Description (Mech LV-10)
Convert Lakeland Village Old School/Activity Building To Direct Digital Controls.

Risk Assessment:
Failure to convert the existing pneumatic control system poses minimal threat of system failure or loss of building air conditioning but does have the on-going result of greater energy use and cost, and greater maintenance than needed.

Pros/Cons:
The existing heating and cooling equipment, air handling units, and supply, return and exhaust air systems have pneumatic controls. Pneumatics tend to have a wider range of control resulting in a lower level of comfort (bigger temperature swings). Also, as the pneumatic system pipe ages, maintenance staff is seeing an increasing frequency of leakage due to pipe failure. Much of the pipe tends to become brittle with age and is more prone to cracking and air leakage. Leakage results in a loss of control. Air leaks in pneumatic tubing can be very difficult to locate and can take hours of staff time to repair.

Direct Digital Controls allow tighter control and also allow the maintenance staff to see what is happening in the mechanical systems from a remote location. Adjustments to temperatures and other controlled values can take place from the CSS HVAC Shop. Many times this allows a problem to be solved without making a trip to the building in question. Or it allows maintenance staff to have a good idea what issue needs to be addressed before leaving the shop. In this way they can be sure to have the correct materials for repairs when they arrive at the building.

Budgetary Costs:

	Construction Cost	Project Cost
	$130,000	$188,500

33 – Provide Vacuum Condensate Return Pump at the Steam Plant

Description (Mech LV-11)
Provide Vacuum Condensate Return Pump at the Lakeland Village Steam Plant.

Risk Assessment:
Failure to provide the condensate return pump does not pose a threat of system failure or loss of building heating but does result in continued greater energy use and cost than needed.

Pros/Cons:
The existing condensate return system includes condensate receiver/pump units that pump under positive pressure from multiple buildings at a lower elevation up to the Steam Plant. This process leaves a significant quantity of hot condensate in the pipe line between the main condensate return pump in the basement of the Chiller Building and the Steam Plant. Every time the main pump operates to push condensate up to the Plant, it leaves hot condensate in the pipe. Over the course of a day, this amounts to significant quantities of hot water that is not getting to the Plant. An offsetting quantity of cold, fresh makeup water must be heated and introduced into the steam boiler system. The energy used to heat this water could be reduced by placing a vacuum condensate pump in the Plant. This pump would pull the hot condensate in the pipe between the Chiller Building and the Plant up to the Plant for use.

Budgetary Costs:

	Construction Cost	Project Cost
	$35,000	$50,750

Needs > 10 years (2025-27 on)

34 – Consolidate LV Skilled Nursing in New Building

Description (PR-10)

For the Long Term, it is recommended that Lakeland Village contemplate consolidation of nursing services in a single Skilled Nursing Facility for operational efficiency and patient care. It is recommended that this facility be connected to the existing HAB Center. A new addition area of 50,000 sq. ft. is projected (see Program Analysis in Section 2.4). A central Skilled Nursing Facility with independent cottage settings for lower acuity patients will be the end result. This is an effective model often developed in the long term care industry, known as the "Green House" model.

Risk Assessment:

While such a new facility can be deferred at present, Long Term planning should contemplate the eventual need for this facility.

Budgetary Costs:

	Construction Cost	Project Cost
*(see Cost Model next page)	$14M	$20.3M

NAC ARCHITECTURE

Estimate of Probable Construction Cost

Summary by Division

Lakeland Village Consolidate SNF into Single Building - Project 34 — Proj. No: 111-14011-A306
#2014-415 — Date 8/27/2014
Medical Lake Master Plan — Area = 50,000 GSF — Budget = (TBD)

KEY	DESCRIPTION	SF COST	COMPONENT	PERCENT	REMARKS
A	GENERAL CONDITIONS	6.20	310,000	2.68%	
B	SITE DEVELOPMENT	12.00	600,000	5.18%	
C	DEMOLITION & ASBESTOS	2.00	100,000	0.86%	
D	FOUNDATION & SOG	13.00	650,000	5.61%	
E	STRUCTURAL SYSTEM	17.00	850,000	7.34%	
F	ROOFING SYSTEM	5.50	275,000	2.37%	
G	EXTERIOR WALLS	22.00	1,100,000	9.50%	
H	EXTERIOR DOORS & OPENINGS	8.00	400,000	3.45%	
I	INTERIOR DOORS & OPENINGS	6.50	325,000	2.81%	
J	INTERIOR PARTITIONS	8.50	425,000	3.67%	
K	WALL FINISHES	2.80	140,000	1.21%	
L	FLOOR FINISH & BASE	3.60	180,000	1.55%	
M	CEILING & SOFFITS	2.50	125,000	1.08%	
N	INTERIOR STAIRS & RAILINGS	0.75	37,500	0.32%	
O	ACCESSORIES & SPECIALTIES	1.00	50,000	0.43%	
P	FIXED EQUIPMENT	2.00	100,000	0.86%	
Q	CASE & MILLWORK	4.50	225,000	1.94%	
R	FURNISHINGS	0.80	40,000	0.35%	
S	SPECIAL SYSTEMS	0.00	0	0.00%	
T	MECHANICAL CONVEYANCES	2.00	100,000	0.86%	
U	SITE UTILITIES, MECHANICAL	3.00	150,000	1.30%	
V	PLUMBING	32.00	1,600,000	13.81%	
W	HVAC & CONTROLS	35.00	1,750,000	15.11%	
X	FIRE PROTECTION	3.00	150,000	1.30%	
Y	SITE UTILITIES, ELEC	3.00	150,000	1.30%	
Z	ELECTRIC POWER	20.00	1,000,000	8.63%	
AA	LIGHTING	7.00	350,000	3.02%	
BB	SPECIAL SYSTEMS	8.00	400,000	3.45%	
	GENERAL SUBTOTAL	120.65	6,032,500	52.08%	
	MECHANICAL SUBTOTAL	73.00	3,650,000	31.51%	
	ELECTRICAL SUBTOTAL	38.00	1,900,000	16.40%	
	SUBTOTAL	231.65	11,582,500	100.00%	
	CONTR. O & P - GENERAL	9.65	482,600	8.00%	
	CONTR. O & P - MECH/ELECT	5.55	277,500	5.00%	
	BOND & INSURANCE	4.83	241,302	2.00%	
	B & O TAX	1.26	62,920	0.50%	
	SUBTOTAL	252.94	12,646,822	109.19%	
	DESIGN CONTINGENCY	25.29	1,264,682	10.00%	
	SUBTOTAL	278.23	13,911,504	120.11%	
	LOCATION / INFLATION FACTOR	0.00	0	0.00%	
	ESTIMATED BID AMOUNT	278.23	13,911,504	120.11%	

3.3 CMO/CSS – PINE LODGE PROJECTS

Immediate Needs (2015-17)

01 – Pine Lodge Fire Alarm Reconfiguration

Description (PL-E1, E2)

PL-E1: Eliminate the fire alarm control panel in Living Unit L slated for building demolition. In place of this control panel, provide new fire alarm control panels in the Administration Building, in the Chapel, in Walker Hall, in the Education Building, in the Medical Building, and in the Warehouse/Shops Building. Replace the old fire alarm initiating devices in the Administration Building, the Education Building, and the Warehouse/Shop Building so that the fire alarm system can be addressable.

Risk Assessment:

Fire alarm devices in the Administration Building, the Chapel, Walker Hall, the Education Building, the Medical Building, and the Warehouse/Shops Building presently report to the fire alarm control panel in Living Unit Ward A, which is part of Building L; hence these six buildings will be affected when Living Unit L is demolished.

- The fire alarm control panel in Living Unit Ward A presently serves as the fire alarm control panel for six other buildings.
- The fire alarm system is configured in a way such that each of the other buildings depends on the control panel in Living Unit Ward A.
- Since the buildings do not have their own fire alarm control panels, reliability is compromised.
- Since the buildings do not have their own fire alarm control panels, annunciation does not reflect the building where the alarm originated.
- The fire alarm system devices in the Medical Building are addressable and report to the fire alarm panel in Living Unit Ward A via a notification appliance extender panel in the Medical Building.
- The fire alarm devices in the other connected buildings are antiquated, and replacement parts are becoming difficult to obtain.

If a separate fire alarm control panel were provided in each building, both reliability and annunciation acuity would improve. To provide an addressable fire alarm system in all but the Medical Building, the initiation devices will need to be replaced.

Pros/Cons:

Pros:

- Reliability: Separate fire alarm systems for the buildings on the Pine Lodge campus will increase reliability.
- Clarity of Annunciation: The presence of a fire alarm control panel in each building will allow alarms to annunciate by building at a monitored main fire alarm control panel.
- Replacement Parts: Once the old fire alarm devices are replaced, parts should be readily available.

Cons:

- Cost: Moderate fire alarm equipment and labor costs are involved.
- Disruption: Replacing fire alarm system equipment with new fire alarm system equipment will lead to construction disruptions.

PL-E2: Annunciate Pine Lodge fire alarms in Pine Lodge Administration Building A and Eastern State Hospital Administration Building 3A01, instead of Pine Lodge Secure Housing Unit B, which is vacant and slated for demolition.

Risk Assessment:

Alarm signals for the Pine Lodge campus are presently annunciated by means of an annunciator panel located inside the Pine Lodge Secure Housing Unit B (SHU), a building which is presently unoccupied and locked. It is unacceptable that even during working hours on normal workdays, the main fire alarm annunciator location for the campus is located in an unoccupied building.

Pros/Cons:

Pros:

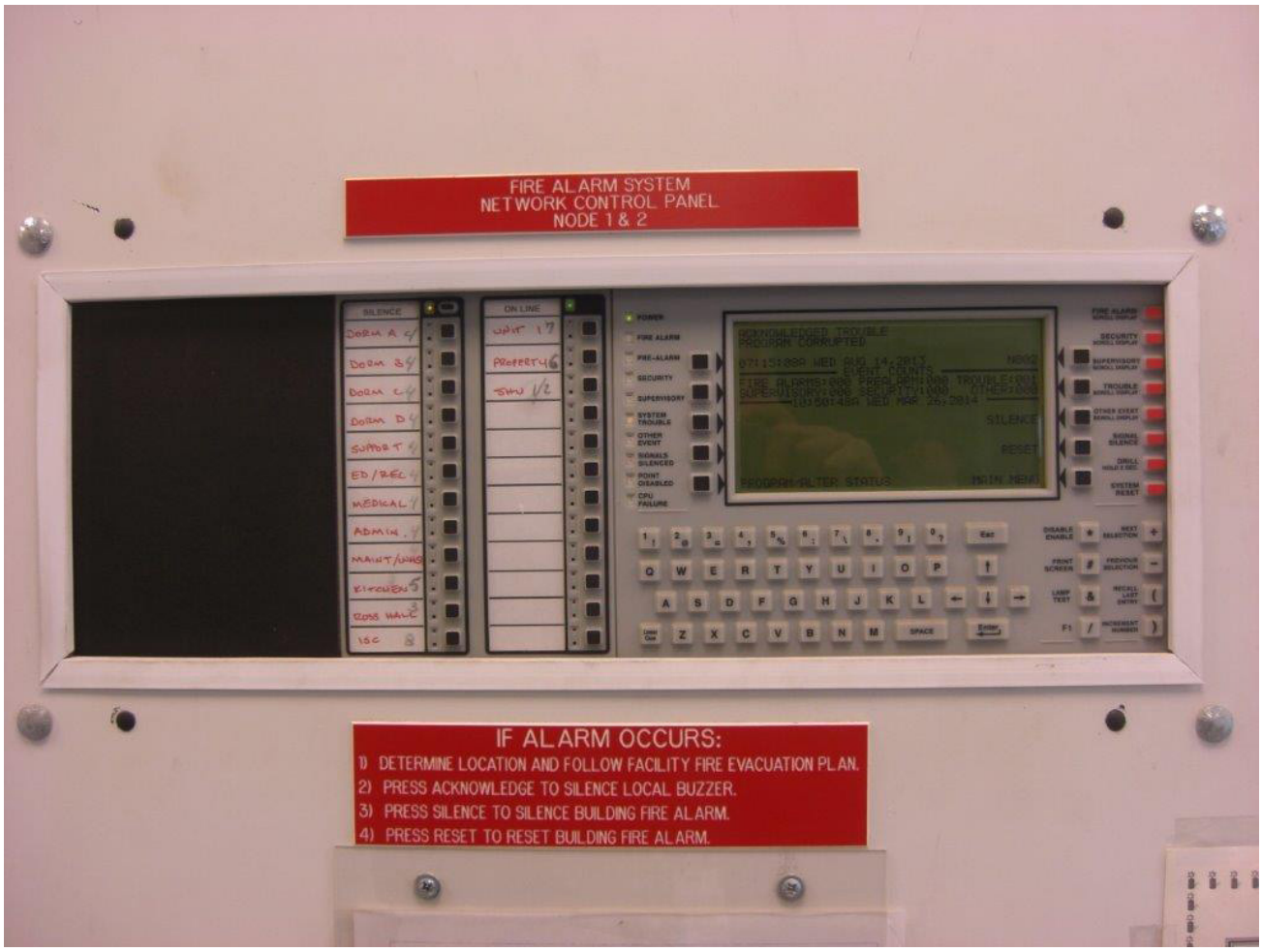
- 24-Hour Monitoring: If the fire alarm systems for the Pine Lodge campus were annunciated at Eastern State Hospital, alarms could be monitored by staff 24 hours a day.
- Quick Response: If the fire alarm systems for the Pine Lodge campus were annunciated in the Pine Lodge Administration Building, staff there could be notified quickly of alarms that occurred during normal work hours, allowing quick response to assist in locating the source of alarms.

Cons:

- Cost: Moderate fire alarm equipment and labor costs are involved.
- Disruption: Replacing the main fire alarm system annunciator panel with a new fire alarm system annunciator panel will lead to construction disruptions.

Budgetary Costs:

Item	Construction Cost	Project Cost
E1 Control Panel	$125,000	$181,250
E2 Annunciator Panel	$100,000	$145,000
TOTAL	$225,000	$326,250



Short-term Needs (2017-19, 2019-21)

02 – Consolidate ESH CSS shops to Pine Lodge

Description (PR-04)

Pine Lodge has numerous vacant buildings that are in excellent conditions. Fragmented facilities on the Eastern State Hospital and Lakeland Village campuses are therefore recommended to be relocated to occupy these vacant buildings. Demolition of old buildings will then occur to allow reduction of building footprint and related savings in operating costs. Pine Lodge will in essence become an effective CSS central service area serving all campuses. The following three relocations are included:

Commissary: The central Commissary can be relocated from an old ESH building to the vacant Gym Building on the Pine Lodge campus. A new truck dock and drive will be provided.

ESH Shops: CSS shops are fragmented and located within deteriorated facilities on the Eastlake campus. The Paint, Plaster, Electric, Carpentry and Welding Shops on the Eastlake campus and the HVAC Shop from the Lakeland Village campus could all be consolidated at Pine Lodge.

Mason Memorial: CIBS offices, including administrative offices in Mason Memorial, could be consolidated at Pine Lodge. (It is assumed that Environmental Services facilities currently located in Mason Memorial will be relocated to the former School Building on the Lakeland Village campus.)

Risk Assessment:

Opportunity exists for payback of the cost of these relocations at end of year 10, after which saving will accrue. Delays will prevent this accrual of savings.

Pros/Cons:

Pros:

- These relocations will pay for themselves after 10 years, after which savings with a present value of over $250,000 will begin to accrue annually. (See attached analysis.)
- Management of CSS maintenance operations will increase in efficiency with consolidation. (These cost savings are difficult to estimate and were therefore not considered in the attached analysis, but some savings will accrue.)
- Commissary operations will be more efficient and more centralized.
- Efficiencies will occur with implementation of CIBS and consolidation of administrative functions. (These cost savings are also difficult to estimate and were therefore also not considered in the analysis, although again, some savings will accrue.)
- Pine Lodge facilities are new and will provide a higher quality work environment for maintenance, central commissary and central administrative staff.
- Existing facilities at Eastern State Hospital and Lakeland Village are deteriorating; Pine Lodge facilities are relatively new. The cost of emergency repairs are difficult to estimate and were therefore not included in the attached analysis however with the proposed relocations, the costs of such emergency repairs will be avoided in the future.

Cons:

- A relatively modest initial capital expense will need to be incurred.

Budgetary Costs:

Item	Construction Cost	Project Cost
Commissary to Gym:	$500,000	
Shops to Pine Lodge:	100,000	
Mason Memorial Offices relocation:	100,000	
TOTAL	$700,000	$1,015,000

03 – Pine Lodge Transformer Replacement & Relocation

Description (PL-E3)

Replace the deteriorated exterior dry-type transformers that supply power to the Administration Building and the Education Building. The new dry-type transformers should be located indoors instead. In addition, relocate the exterior dry-type transformer that supplies power to the Storage Building to an indoor location.

Risk Assessment:

The dry-type transformers at the electrical service entrances for the Administration Building and the Education Building were installed in 1989. While the enclosures for these transformers are rated for exterior locations, when located outdoors dry-type transformers are affected by more extreme ambient temperature variation and greater exposure to moisture. These conditions are detrimental to the lifespan of the transformers, and accelerate deterioration of the insulation in the transformer windings. The dry-type transformers at the Administration Building and the Education Building already show signs of deteriorating condition.

The dry-type transformer at the service entrance for Storage Building built in 2001 is newer and does not exhibit evidence of deterioration, yet if it remains located outdoors it also will be adversely affected by temperature extremes and moisture conditions. Relocating this transformer indoors would extend its life.

Pros/Cons:

Pros:

- Energy Efficiency: New dry-type transformers are more efficient, and waste less energy in the form of heat.
- Equipment Lifespan: Locating dry-type transformers indoors will be increase their lifespan.

Cons:

- Cost: Moderate electrical equipment and labor costs are involved.
- Disruption: Replacing the dry-type transformers with new dry-type transformers will lead to construction disruptions.
- Space: If new dry-type transformers are located indoors, additional floor space will be needed within the buildings for the added electrical equipment.
- Mechanical Cooling: If new dry-type transformers are located indoors, the transformer losses will result in heating; if located in conditioned spaces, adjustments to the mechanical cooling system may be needed to deal with the added heat load.

Budgetary Costs:

	Construction Cost	Project Cost
	$300,000	$435,000

04 – Pine Lodge Building Upgrades

Description (PL-A1, A2, A3, A4)

PL-A1 Walker Hall: Re-Paint Exterior Siding & replace floor coverings; prepare for move-in of LV Admin staff
PL-A2 Education Bldg: repaint exterior siding, replace east-side floor coverings, replace lay-in ceilings; prepare for CSS shop offices moving from ESH
PL-A3 Medical Bldg: Misc. wall repair & painting
PL-A4 Warehouse/Shops: replace asphalt comp shingle roofing

Risk Assessment:

These projects at Pine Lodge include a variety of items ranging from repainting exterior wood siding to roofing repairs; see IU-08 cover page for line-item descriptions.

Pros/Cons:

Pros:

- Getting these projects done will extend the useful life of the buildings.

Cons:

- Cost (cost is minor compared to the extended-life value for these buildings).

Budgetary Costs (PL-A1, A2, A3, A4)

Item	Construction Cost	Project Cost
A1, Walker Hall	50,000	
A2, Education Building	100,000	
A3, Medical Building	5,000	
A4, Warehouse/Shops	35,000	
TOTAL	$190,000	$275,500

05 – Sewer & Sidewalk Replacement

Description (Civil R-2, R-6, W-8)

R-2 Description:
Replace Existing Asphalt and Gravel Base.
Roads in this condition were assessed as beyond repair by grind and overlay because deterioration of the gravel base and subgrade is so prevalent there would be inadequate support for new asphalt.

Risk Assessment:

Roads in this condition will develop potholes and ruts that will be damaging to vehicles and could be a safety hazard.

Action:

Recommend removing the existing asphalt and gravel base, repairing subgrade soil and repaving with asphalt and gravel base. Cost estimate assumes 3" asphalt over 4" gravel base. Cost Basis: $30/SY

R-6 Description:

Concrete roads in this condition were judged to have cracks that are extensive and wide enough to permit significant water into the gravel subgrade and are already heaving or settling.

Risk Assessment:

Roads in this condition produce an uncomfortable ride or hazardous walking conditions at night and cannot be repaired by grinding or crack sealing.

Action:

Recommend complete removal of the concrete, then placement of new 4" gravel base and pouring new 6" concrete slab. Cost Basis: $53/SY

W-8 Description:

Provide Domestic Water Meters at All Buildings (Rating 5).
The Washington State Department of Health (DOH) has mandated that individual buildings within all water systems must have metered usage by January 2017. Most of the buildings at Lakeland Village do not have water meters. Usage is currently monitored by two master meters for the entire campus. Many of the buildings at ESH and Westlake are not metered. Buildings requiring meters are indicated on the water plans.

Risk Assessment:

If meters are not provided it could eventually result in fines imposed by DOH. It is expected that because of the huge cost statewide and the limited DOH manpower, it will be sufficient at first to show progress and a plan of action at the beginning of the post-deadline period.

Another risk of not having meters at all buildings is the inability to identify wasted usage. Currently at Lakeland Village it is not possible to detect leakage downstream of the master meters. For the year 2013, the water system manager reported a 13% difference between the water meter readings at the well pump stations and the readings at the various meters throughout the system. The DOH-mandated allowable loss for non-revenue water source is less than 10% loss on a seven-year running average. As part of this study a leak detection effort was performed for the entire water system from the ESH reservoirs down throughout the distribution systems at Eastlake, Westlake, Pine Lodge and Lakeland Village. Only two leaks were detected. One was very minor and one has been repaired. Leakage from that leak was estimated at 10 gallons per minute or around 5 million gallons per year. In 2012 a leak detection effort found no leaks in the 14" transition main from the well houses to the reservoirs. The two recent leaks cannot account for the 2013 difference of approximately 26 million gallons of drinking water measured between the well meters and the usage meters.

The more likely explanation for the apparent losses is poor metering. CSS is relying on several large master water meters to record usage. Under low flow conditions, such as at night, the larger meters cannot record low flows, so these flows are unrecorded, thereby

increasing the difference between the well-house readings and the consumption readings. Adding end-use metering will likely reduce this erroneously-recorded leakage.

Action:

Recommend completing the building metering program to satisfy the DOH mandate and reduce the apparent leakage numbers.

Budgetary Costs (Civil R-2, R-6, W-8)

Task	Construction Cost	Project Cost
R-2, Replace Asphalt	$44,310	
R-6, Replace Concrete	20,564	
W-8, Domestic Water Meters	11,000	
TOTAL	75,874	$110,017

06 – Consolidation/Risk Management - Demolition & Landscaping

Description (IU-11)

There are several buildings on the Pine Lodge campus that have been vacant and have not had routine maintenance performed. The condition of four of these buildings has deteriorated to the point that they are a safety hazard and need to be demolished. The other building (Chapel) has no program use and should also be demolished. The cost for upgrading these buildings to be usable again would be prohibitive. (The Kitchen building, #5, is also vacant but could be restored if a suitable use is found). The Pine Lodge campus image could be improved by removing the deteriorating buildings and replacing them with clean landscaping. (Note that $104,000 has been included for the Lakeview Apartments, to cover landscape costs after these buildings are burned in a controlled burn if acceptable to the City of Medical Lake Fire Department.)

Risk Assessment:

Safety hazard if abandoned buildings are allowed to remain. Also, there is the possibility of liability to the state if someone is injured while in or beside one of these buildings that has been "closed".

Pros/Cons:

Pros:

- The campus image will be improved if deteriorated buildings are removed.

Cons:

- Expense.

Budgetary Costs:

Building	SF Cost	SF	Cost	Project Cost
Living Unit L	12	23,632	$283,584	
Secured Housing Unit B	12	1,800	$21,600	
Housing Unit 1	17	43,000	$730,864	
Chapel H	12	1,730	$20,736	
Vocational Storage	12	1,590	$19,080	
Lakeview Apts	3.50*	29,750	$104,136	
TOTAL			$906,398	$1,314,277

* (Lakeview Apt. cost is for foundation removal and landscaping after controlled burn)

Long-term Needs (2021-23 on)

(None identified)

Needs > 10 Years (2025-27 on)

(None identified)

3.4 Planning Alternatives

Introduction

Most of the recommendations of this report really have two alternatives; they are acted on, or not. This is especially true of the Infrastructure recommendations. However, additional alternatives were explored for several of the recommendations, primarily Program based, that were studied by the design team and reviewed with the Steering Committee for direction at the May 12, 2014 meeting in Olympia. The alternatives explored are summarized as follows:

Alternative to ESH #10
ESH Administration Building: Renovate

The existing building was built in 1933 and has not had any major renovations (although there is an elevator upgrade project in process). Many building components are in poor condition: windows, flooring, HVAC (no A/C), lighting, etc. Structurally, the building has unreinforced masonry bearing walls which are not permitted by current code. The building does have some unique interior finishes that should be kept: terrazzo, tile work, mahogany trim, etc. Accessibility is limited and should be improved (for example, one unisex accessible toilet room could be added). All campus data/com lines are currently routed through this building in the basement server room. The campus fire alarm system also reports to the switchboard in this building. This Alternative would renovate the building, but would not provide a new Activities/Therapy Building and would still be oversized for the programs housed.

Estimated Project Cost (MACC x 1.45%): $ 7,299,100

Alternative to LV #17
LV Administration Building: Renovate

The existing LV Administration Building, built in 1914, is iconic but lacking in accessibility and structural integrity. There is no on-grade entrance or ramp up to the main entry. There is no elevator to access the upper two floors, which are currently unused because of this. The open stair to the upper floors is not fire-protected as is required for an atrium, and there are no fire sprinklers. The building has not had any major renovations, but all campus data/com lines have been routed into a central hub in the basement of this building. Structurally, the building has unreinforced masonry bearing walls which are not permitted by current code and could fail in a seismic event. The building could be renovated and all of these issues resolved, but it is larger than needed for the program and would be expensive to renovate. Replacement would allow for the creation of a more welcoming, hospitality based entry.

Estimated Project Cost (MACC x 1.45%): $ 8,195,400

Alternative to ESH #21 (Demolition, Incl. Commissary)
ESH Commissary: Renovate

Structurally, this building has unreinforced masonry bearing walls which are not permitted by current code, and the elevated floor slabs appear to be in very poor condition. Recent engineering analysis placed current limiting live load capacities at 140 PSF in the 1960 addition and 100 PSF in the original building. Needed upgrades include re-roofing, window replacement, HVAC systems, fire protection, electrical upgrades, etc. The facility could be renovated or replaced, but at a high cost for a program that could easily be relocated to one of the existing Gym building on the Pine Lodge Campus.

Estimated Project Cost – Renovate (MACC x 1.45%): $ 2,833,010
Estimated Project Cost – Replace (MACC x 1.45%): $ 5,016,600

Alternative to LV #11
Lakeland Village CIRV Housing Units: Replace or Demolish

The three apartment buildings currently used for the CIRV program were built in 1952. The interiors of these apartments have been maintained pretty well but the exteriors need maintenance items done right away, such as roof replacement, to prevent the buildings from being damaged beyond repair. Rather than renovation, the apartments could be demolished and replaced, or the program abandoned and the buildings simply demolished and landscaping restored.

Estimated Project Cost – Replace (MACC x 1.45%): $ 9,450,760
Estimated Project Cost – Demolish (MACC x 1.45%): $ 861,300

Alternative to ESH #21 (Demolition, Incl. Therapy Pool Building)
ESH Therapy Pool: Renovate

Originally built to accommodate developmentally disabled clients from the adjacent Interlake School building, the Therapy Pool is not currently being used by Lakeland Village, which transports clients needing use of a pool to the YMCA in Spokane. ESH also does not use the Therapy Pool at this time since patient off-ward access is limited. However, there have been several recent updates to the Pool building including a new dehumidifier, and about the only thing it still needs is a new boiler for the pool system. If programs at the campuses are modified to encourage use of the pool, it could be renovated, but operation and maintenance costs may prove prohibitive for the value received.

Estimated Project Cost – Renovate (MACC x 1.45%): $ 154,570

Alternative to LV # 12-16, and LV # 01-02
Lakeland Village Mechanical and Electrical Upgrades

There are two major issues that exist at the Lakeland Village Campus. First, the existing centralized heating and cooling piping systems are failing. In the short term, piping joints and valves can be replaced to keep it running, but this is a short term fix. The systems need to be replaced and we are recommending that they be replaced with a Decentralized Mechanical System.

The second issue is the existing Essential Electrical System (emergency power) does not meet code for the required separate branches and the existing generator in severely overloaded.

The selected recommendation is a de-centralized mechanical system with Optional Standby Power to the North Cottages. Seven other options were explored, all with differing outcomes and costs, but all requiring the first four steps as described in the description of LV #01. The main difference is what takes place in step 5 and beyond. A brief description of the other considered options are listed below (note that costs listed for these alternatives are construction costs only):

Alt 1 Centralized Mechanical System, "As-Is" (replace Steam & Chilled Water Piping in new concrete utilidors, replace central Generator with one approximately the same size).
* Note: steam systems typically cost more for operation and maintenance over time than other systems.

Elec prep work, steps 1-4 **	$8,450,000
Elec generator work, step 5	$3,000,000
Elec connection work, step 6	$1,250,000
Plumbing, N-gas lines	$2,580,000
HVAC (connections for cottage equipment)	$25,000
Mechanical	$2,100,000
General Construction Allowance	$50,000
TOTAL	$17,455,000

Alt 2 Centralized Mechanical System (Using chilled water piping as 2-pipe system with heat pumps (like ESCO project's plan) replace central Generator, much larger size).

Elec prep work, steps 1-4	$10,900,000
Elec generator work, step 5	$11,100,000
Elec connection work, step 6	$2,400,000
Mech	$8,000,000
General Construction Allowance	$10,000
TOTAL	$32,410,000

Alt 3 Decentralized Mechanical System, No Standby Power to North Cottages (replace generator, larger size, not sized for north cottages but sized for South cottages).

Elec prep work, steps 1-4 **	$8,450,000
Elec generator work, step 5	$4,000,000
Elec connection work, step 6	$1,000,000
Plumbing, cottages	$270,000
Plumbing, core	$650,000
HVAC = N-gas-fired furnaces, condensing units	$1,515,000
General Construction Allowance	$10,000
TOTAL	$15,895,000

Alt 4 Decentralized Mechanical System, remote generators to groups of north Cottages, and still replace central generator, larger size.

Elec prep work, steps 1-4	$10,200,000
Elec generator work, step 5	$4,000,000
Elec connection work, step 6	$1,000,000
Plumbing, cottages	$270,000
Plumbing, core	$650,000
HVAC = N-gas-fired furnaces, condensing units	$1,515,000
General Construction Allowance	$10,000
TOTAL	$17,645,000

Alt 5 Decentralized Mechanical System, remote generators to groups of north AND south Cottages (still replace central Generator, approx. same size, for core buildings)

Elec prep work, steps 1-4	$12,100,000
Elec generator work, step 5	$3,000,000
Elec connection work, step 6	$1,000,000
Plumbing, cottages	$270,000
Plumbing, core	$650,000
HVAC = N-gas-fired furnaces, condensing units	$1,515,000
General Construction Allowance	$10,000
TOTAL	$18,545,000

Alt 6 Decentralized Mechanical System, small portable generators at north Cottages for running furnaces;* battery-pack lights (still replace central Generator, larger size since south cottages still need E-power)

Elec prep work, steps 1-4 **	$9,600,000
Elec generator work, step 5	$4,000,000
Elec connection work, step 6	$1,000,000
Plumbing, cottages	$270,000
Plumbing, core	$650,000
HVAC = N-gas-fired furnaces, condensing units	$1,515,000
General Construction Allowance	$10,000
TOTAL	$17,045,000

Alt 7 Decentralized Mechanical System, No E-Power to North Cottages, (battery-pack lights, evacuate clients during outage* (still replace central Generator, larger size since south cottages still need E-power)
*potential for domestic water piping freeze-up

Elec prep work, steps 1-4	$6,650,000
Elec generator work, step 5	$4,000,000
Elec connection work, step 6	$1,000,000
Plumbing, cottages	$270,000
Plumbing, core	$650,000
HVAC = N-gas-fired furnaces, condensing units	$1,515,000
General Construction Allowance	$10,000
TOTAL	$14,095,000

NOTES:

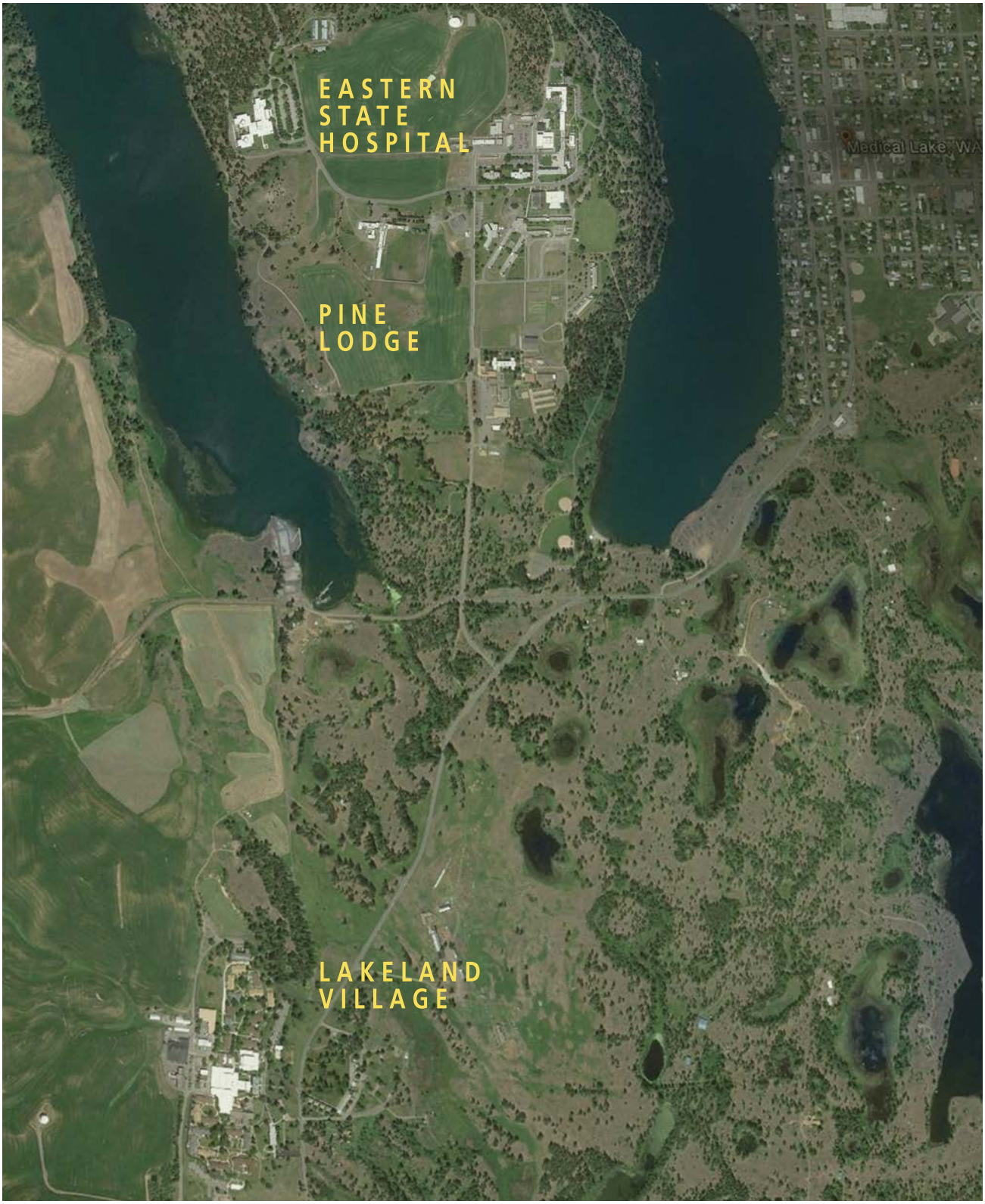
*Potential for most north Cottages to go without power for more than 3 hours since CSS electrical shop, with limited manpower, will take at least 1 hour to install each portable generator.

**battery-pack lighting is only good for 90 minutes.

***potential for portable generators to deteriorate more rapidly than the campus central generator as this is a portable asset, not fixed-in-place.

****potential for portable generators to be diverted for other uses.

4.0 SITE PLANS



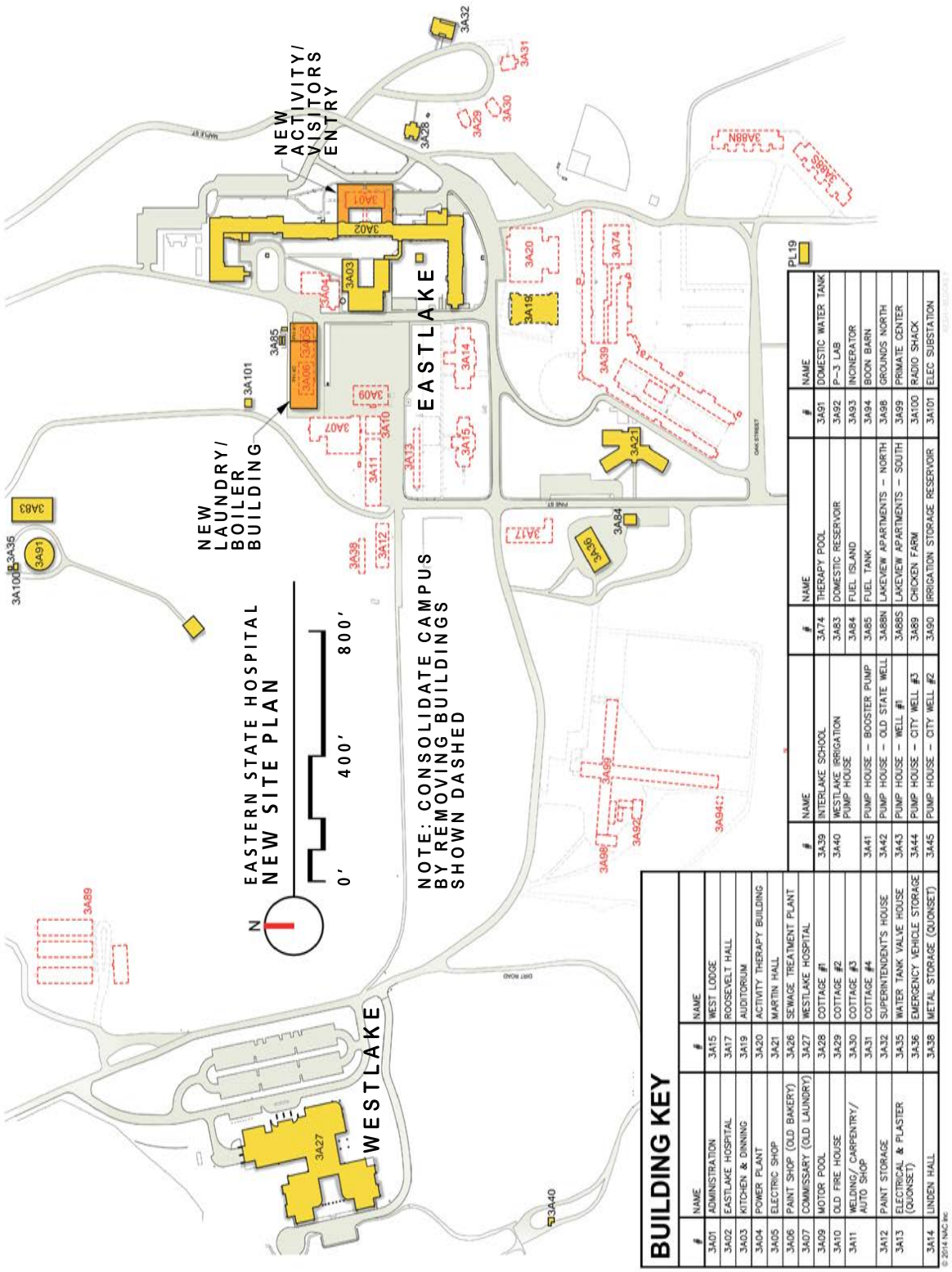
4.1 Site Plan Descriptions

Existing Campus Site Plans for Eastern State Hospital (ESH), Lakeland Village (LV), and Pine Lodge (PL) are contained in section 1.4 of this report. That section also includes Primary Building Plans which contain summary information about the key buildings on each campus. Those plans help explain the composition of the existing campuses and are therefore included in the Executive Summary as background information.

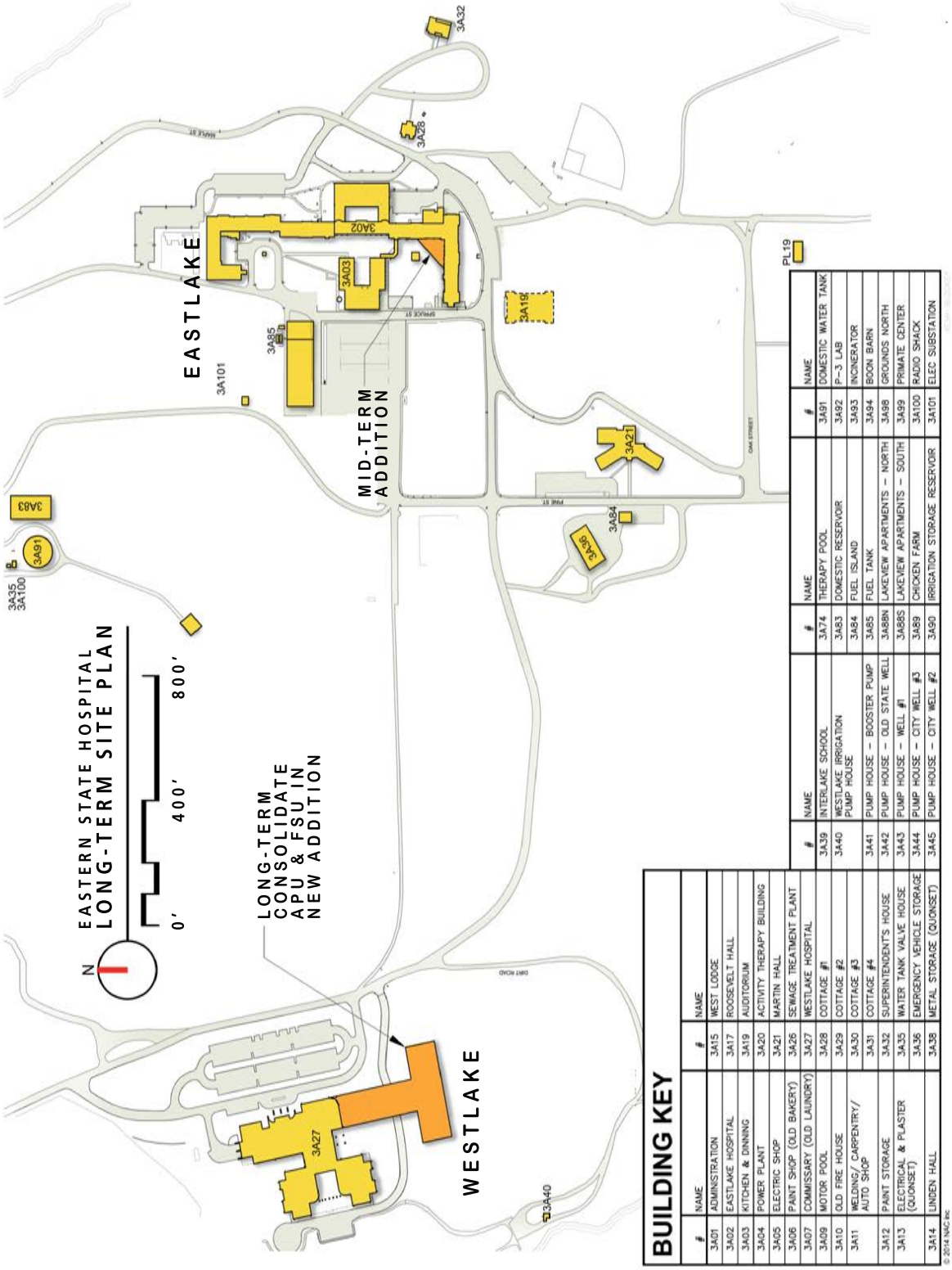
In contrast, the following Site Plans show how the campuses COULD evolve. The first "New" site plan for each campus indicates which buildings should be added in the Short and Mid-term time frame and which existing buildings should be removed to further consolidate each campus. (See Campus Project Lists in the Executive Summary for new building projects and the three "Consolidation" projects, which are ESH #21, LV #22, and PL #6.)

The second plan for each campus shows the Long-term view, including future buildings that might be constructed as funding allows. These projects include ESH #31, Upgrade FSU with Triangular Addition; ESH #32, Consolidate APU and FSU in New Building by Westlake; and LV #34, Consolidate LV Skilled Nursing in New Building. Note that no long-term projects have been identified for the Pine Lodge campus.

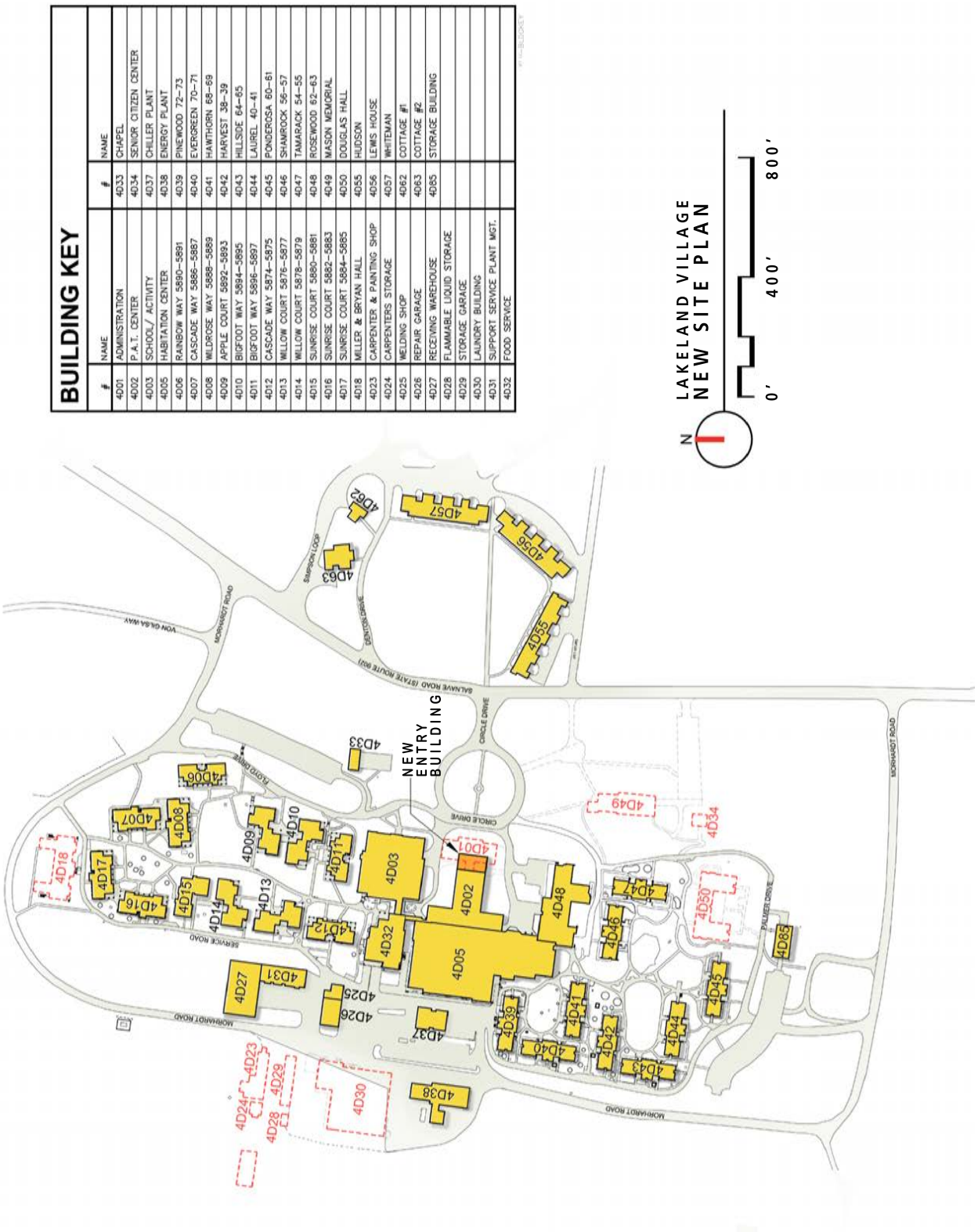
4.1a Eastern State Hospital - New Site Plan



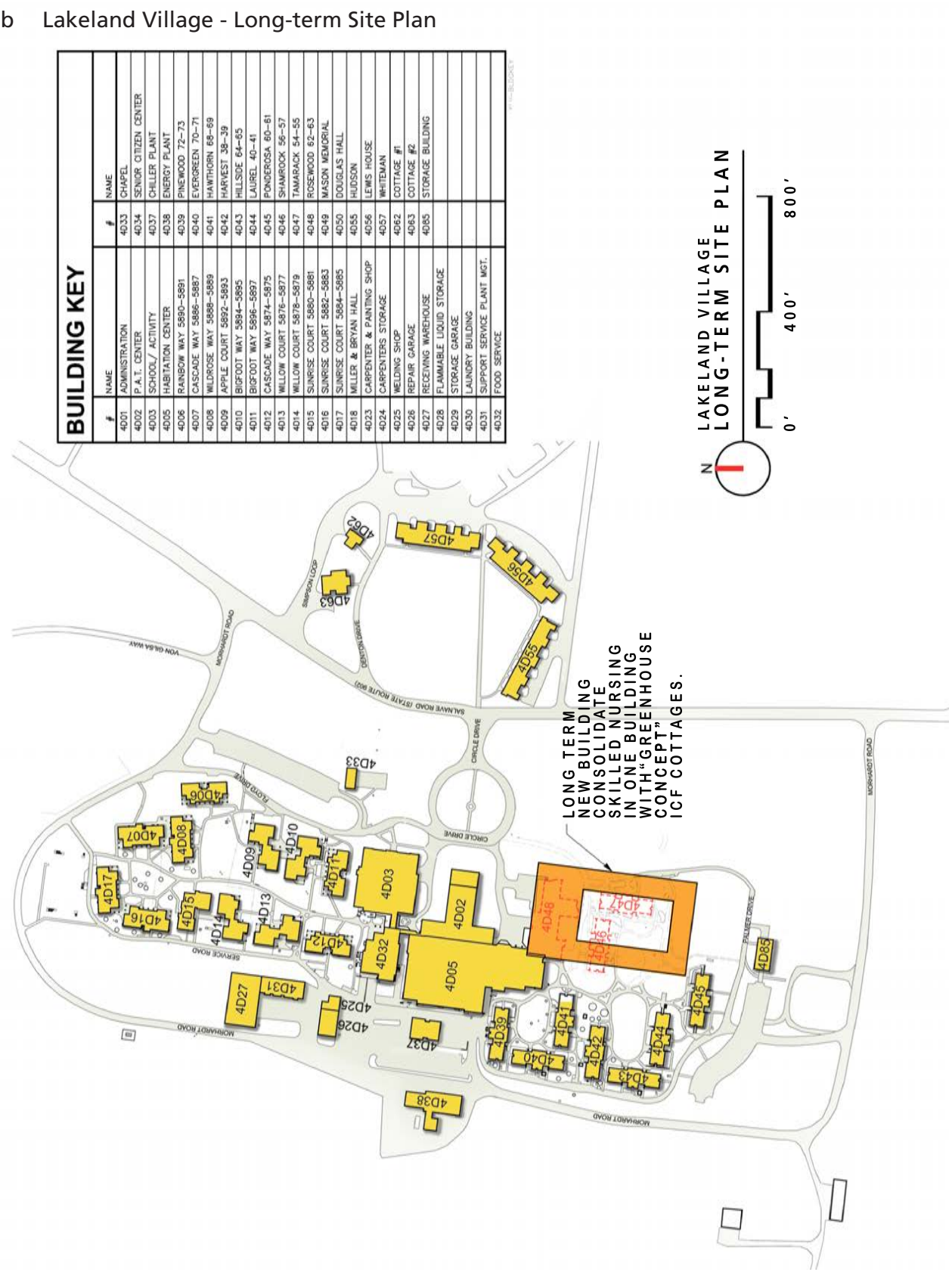
4.1b Eastern State Hospital - Long-term Site Plan



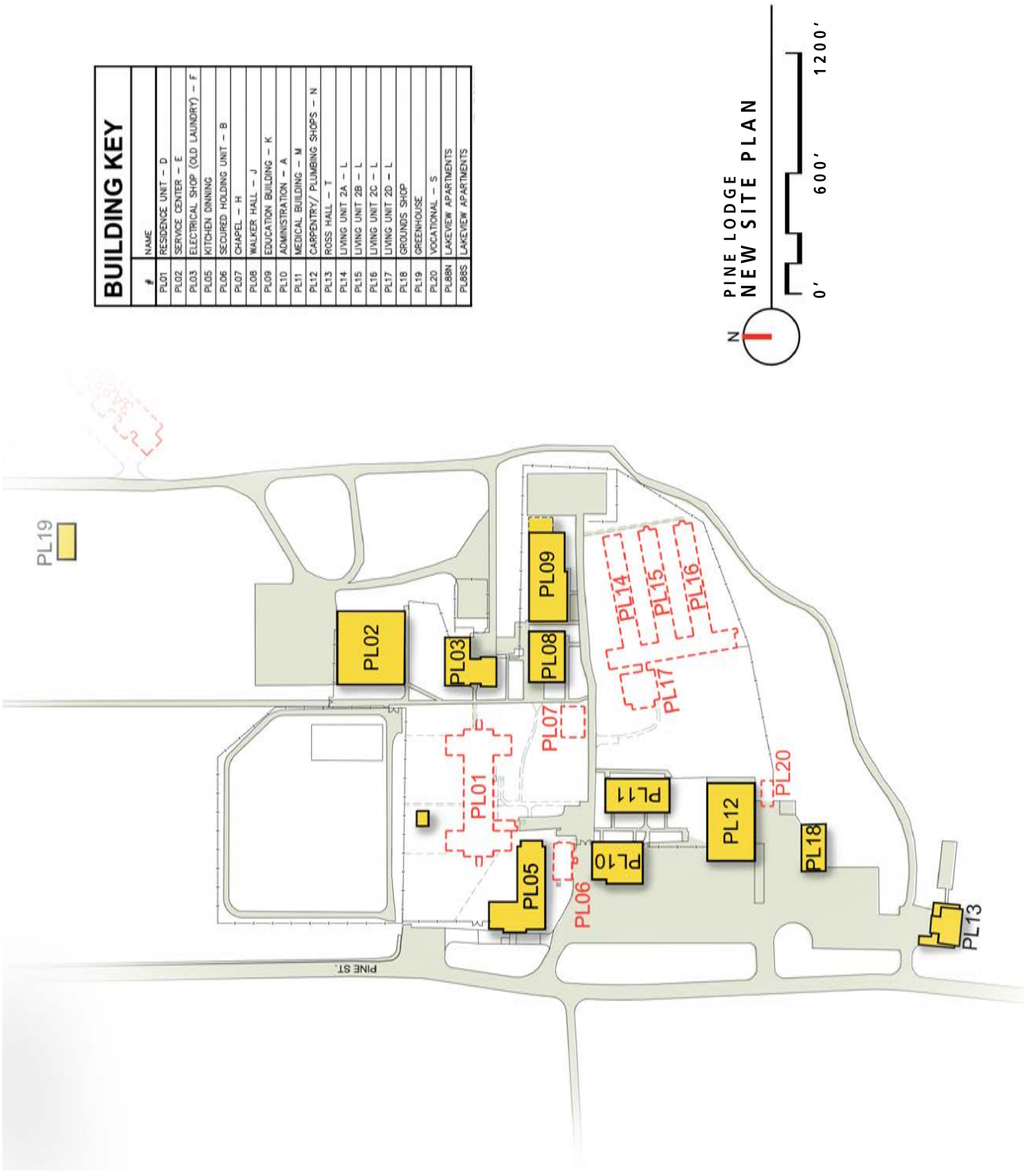
4.2a Lakeland Village - New Site Plan



4.2b Lakeland Village - Long-term Site Plan



4.3 Pine Lodge - New Site Plan



5.0 MEETING NOTES & SUPPLEMENTAL INFORMATION

5.1 Strategic Planning Meeting Notes

Summary – Meeting with Evelyn Perez
January 24, 2014

- Have to plan as though our facilities will all be there – unless we build community, we need RHCs
  - Supports all RHC's as long as DSHS is mandated to keep them open. Advocates for current support and well supported RHC's.
  - Operational, safe, and clean
  - Supports capital improvements to the RHC's to facilities keep safe, clean and to support homelike environments.
  - There is currently no discussion to consolidate RHC's.
  - Governor has indicated support for continuum of care

- Growth at RHC's is not an option. RHC's will continue to focus on clients with higher acuity needs (dual diagnosis, autism, mental health and or behavioral issues).
  - Census is not being actively reduced. Families are talked to about community options, but this is not a requirement.
  - Can't imagine growing nursing services beyond current

- RHCs are well staffed and provide specific DD services compared to regular non-DD nursing homes.
  - Recent Audit is available that provides data on where Washington sits in comparison to other state DD programs.
  -
- With any changes, have to keep in mind Medicare certification, which impacts receipt of federal dollars
  - Any shared services model should be reviewed by CMS (Centers for Medicare & Medicaid & Services).

- Strengths of RHCs
  - Provide package of services people want – wraparound services
  - Longevity of staff – lots of expertise and many are considered family of clients and their families
- Weaknesses of RHCs
  - Clients are isolated – no integration with non-disabled individuals, not in community settings
  - This isolation is not considered best practice
  - RHC Clients must live with others and double bedrooms are not good practice

- Supports capital improvements to the RHC's to facilities keep safe, clean and to support homelike environments.
  - When facilities aren't cared for, we get cited (cracked sidewalk example)
  - Recommends that OSSD work directly with the institutions to determine if current RHC facilities are adequate.

- Perception that once you have an RHC bed, you are always in an RHC
    - Staff support/promotes this idea
    - Want to build community options so clients don't have to go to RHCs – but need $ for staff and operational costs
- Supportive of shrinking campus footprints, reducing buildings used on campuses, and exploring demolition of buildings no longer needed.
- Potential for future – RHCs become Centers of Excellence
    - Provide resources for community-based clients and better supports for families (dental care, medication stabilization, resource support, etc.)
    - Only house in RHC setting those clients with acute needs (dual diagnosis, severe autism, protection challenge clients, etc.)
    - May need to rethink facilities needed to support this concept
    - Need for transitional space (Mental Health continued monitoring)
    - Does not think we should construct new facilities – need to focus on developing community

- YVS – will be here for much longer than legislature thinks
    - Current patients in their 30s
    - KWQ has suggested exploring using YVS to also support mental health patients
    - Current legislation fron Honeyford and King to eliminate the time constraint on YVS closure
- Thinks Governor policy with legislature support necessary for making any real changes in how we deal with RHCs.
    - Absent major policy direction, continue operating all until census reduces or facilities become woefully inadequate
    - Nothing in capital budget will help with community building
- There is a messaging problem. On one hand there is an interest in drawing down the RHCs and utilizing more Community Facilities, but on the other hand the advocates and the unions are not in the loop and oppose the closure of facilities.
    - There is a vision for more home-like facilities in a community set up providing a better environment for the clients where they can be more integrated into society.
    - There is a vision for the highly trained and experienced staff to be utilized in community settings. This uses their expertise and provides excellent care to possibly more clients.
- For follow up – Bob and Terri need to provide price tag for taking down Interlake School

Summary – Meeting with BHSIA (Jane Beyer, Dale Thompson, Ronda Kenney, April Rose, Holly Borso)
January 24, 2014

- Need to strengthen community-based programming – not there yet
  - The extent to which BHSIA can rely on community-based programming directly impacts the extent to which hospitals are relied upon
- Past legislation expanded capacity for long-term commitments. Effective 7/1/14, 15% increase in potential long-term commitments.
  - Several bills active this session dealing with broadening
- Demand for civil and especially forensics will increase
- For WSH and ESH, not much room available for voluntary commitments
- Current Stakeholders
  - City of Steilacoom
  - City of Medical Lake – community likes to be informed of changes, increases in pop, law enforcement, construction…
  - Steilacoom High School
  - City of Lakewood
  - Historical Society
  - Seattle Children's
  - School districts
  - Courts
  - RSNs
  - Area expert on Aging – long term facilities
- Future Census:
  - ESH/WSH – increase in young people with drug problems (meth) may need to review how to incorporate drug/substance abuse treatment onto campuses
  - ESH/WSH – pressure associated with forensic census – currently have limited space (and in the case of ESH, forensic space adjacent to civil space, which creates intricate patient management requirements).
    - Nowhere to put additional forensic beds – expect to see an increase in that population
    - With two more wards (60 beds) each for ESH and WSH, they think they could handle capacity growth for 20 years. But that is speculative and depends on how good a job is done expanding community stabilization. Currently do not see enough movement in that direction.
    - ESH would like to separate forensic patients from civil patients. Perhaps build on old Interlake school grounds.
    - Need to start talking now, planting seeds regarding the funds necessary to support forensic expansion.

- ESH/WSH – concerns associated with the civil 'age wave'. Older patients often have medical comorbidities – anyone with chronic mental illness has life expectance 10 years less than if no mental illness. This means earlier onset of medical issues in addition to mental illness.
- ESH currently has 91 geriatric and WSH has 200 geriatric patients. Both locations expect a future increase, but changes in long-term care system have an impact on that growth.
- CSTC – census will stay stable, including forensics.

- Facility inadequacies at WSH, ESH, and CSTC due to age of buildings in general and aging or non-existent infrastructure
  - ESH:
    - Activities Therapy Building inadequate for current needs
      - Aging building, no central HVAC – sweltering in summer. Sometimes have to cancel programming because of the temperature.
      - Using portable partitions to create classrooms. Not ideal.
    - Therapy pool – HVAC not adequate, roof issues, heating issues
    - Westlake – small confines – 10 single bedrooms converted for meeting and treatment rooms.
    - Storage is also a huge concern.
    - Where to put computers in nursing stations to support electronic medical records is a concern.

172

    - Old, brick building – difficult get Wi-Fi to take advantage of new technologies
    - Work Center building is also a converted accounting area that does not work well for patients.
    - Would also like systematic renovations to decrease impact patients and staff (having only one ward down at a time rather than all of them in poor shape at once.
  - WSH:
    - 3 divisions with separate budget categories (older adult, CFS, youth)
    - General condition – aging buildings. Would be wise to begin systematic renovations to help mitigate safety concerns and other harms…aside from anti-ligature.
    - Need perimeter fence to better manage movement of patients
    - Kitchen needs to be addressed
    - South Hall roof leak
    - Prefer not to have buildings set up like S. Hall and Central Hall.
    - Civil:
      - Need dedicated treatment and recreation space - currently using converted ward for these purposes – not ideal
    - Forensic:
      - Ok with current dedicated treatment and recreation space
  - CSTC:
    - Cottages are tight – no treatment or therapy space

- Would like to have calming rooms
- High school needs a new boiler, chiller, roof
- Campus chiller does a good job cooling administration building, but does not work so well in living spaces. It gets very hot for the children in summer.
- Concerns with housing forensic patients so close to general population – need separate building or dedicated space for IMU (Bob recommended April take a look at new mental health units built at Green Hill School and Echo Glen)
- Preserve and maintain what they have to be able to deal with the most challenging kids

Washington State Department of Social & Health Services

Medical Lake Infrastructure Master Plan
Steering Group Meeting No. 1A - Strategic Assessment
Developmental Disabilities Administration
Eastern State Hospital/Lakeland Village/Pine Lodge
March 5, 2014

No.	Description	No. of Times Mentioned						
		1	2	3	4	5	6	Total
Attendees	Terri Sinclair-Olson, Kelly Lerner, Carol Kirk, Tony Dibartolo (via video link), Joe Veliz (via video link), Maurice Perigo, Michael O'Malley, Bill Rash, John Chory							
	Short-term Objectives							
1	**Emergencies** Pre-empt unexpected infrastructure emergency projects. Identify opportunities for energy cost savings that have the least capital cost impact.	✓	✓	✓				3
2	**Work-arounds** Pre-empt frequent work-arounds - be more proactive than reactive	✓	✓					2
3	**Revenue Potential** Evaluate option to increase revenue from real estate on the campus - partner with others. Consider opportunities for leasing to DSHS and the community.	✓	✓	✓				3
4	**Nurse Call** Upgraded nurse call system needed throughout campus (currently only on south side/nursing side)	✓						1
5	**IT** Need to upgrade infrastructure for IT and communication systems - ideal to have wireless	✓	✓					2
6	**Energy** Should be better steward of energy use - consider sustainability, alternative energy	✓	✓					2
7	**Roofs** Roof repairs are badly needed	✓	✓					2
8	**Sewer** Sewage system needs upgraded	✓						1
9	**Generator** Emergency power and generator needs upgraded (instead of replacing chiller and addressing emergency power, there was an idea to take chiller off line and put in ground source heat pumps, but this was deemed too expensive at $28 million and drove the need for the master plan)	✓	✓					2
10	**Failure Risks** Make comprehensive evaluation of entire Medical Lake Campus, especially to avoid failures that could present risk (e.g., much underground wiring that needs upgraded) - this is also a long-term goal	✓						1
11	**10-year Plan** Develop document that supports the 10-year plan - data-driven, fact-based, understandable with government (OFM, House and Senate)	✓	✓					2
12	**LV/ESH Partnering** There is room to partner between LV and ESH - some populations with dual diagnosis, by default LV becomes recipient of admit - many admits require medical evaluation and end up in Spokane hospitals awaiting bed at ESH - vision would be to have better communication between two institutions to avoid the "middle step" of going to the medical hospital - take advantage of ESH medical expertise at LV. Share services to improve client care.	✓	✓					2
13	**Mental Health Services** It may make sense to have mental health professionals on the campus (10 to 15 clients frequently need mental health services)	✓						1

No.	Description	No. of Times Mentioned 1	2	3	4	5	6	Total
Short-term Objectives (... continued)								
14	**EMR** Move toward an EMR - (Cerner is working on a long-term care module that is being considered).	✓						1
15	**Public Involvement** It would be ideal to capitalize more on the outdoor setting at Lakeland Village (e.g., Frog Hollow) - consider amenities to attract the community to LV (e.g., amphitheater, ball field, etc.)	✓						1
16	**Demolition** Identify buildings for future demolition or shuttering. Consolidate building footprints to reduce costs.	✓						1
17	**Integrated Planning** Think holistically about planning for the 3 campuses - Eastern State Hospital, Lakeland Village and Pine Lodge.	✓						1
Long-term Objectives								
1	**Alternate Uses** Identify alternative uses for campus if not used in the future	✓						1
2	**Planning Drivers** Program drives the capital planning - long-term outcome needs to have a consensus of how to support the people served - all stakeholders need to be on same page	✓						1
3	**Changes in Client Needs** Need to be able to support changing populations - population is getting older, more physically complex medical issues, e.g., dementia, etc. - at same time more younger population needs more support with behavioral issues	✓						1
4	**Approach** Don't be driven by previous designs - e.g., maybe there should be less people per home, say 4 instead of 16 (but keep staffing costs the same) - e.g., Western rebuilds for 30 bed wards every 20 years - don't necessarily need to rebuild the same thing - there is one low density unit on the Lakeland campus 84-85 Sunset - evaluations need to be evidenced-based	✓						1
5	**Continued Need** Presence on the east side of state expected for a long time - don't expect rapid closing	✓	✓					2
6	**HVAC** Need to complete upgrades of HVAC system (only partially done in the Hab Center) - also cottages need upgraded HVAC	✓						1
7	**Duct Cleaning** Ductwork throughout campus need a scheduled cleaning (every 4 to 6 years)	✓						1
8	**Paving** Paving and sidewalks need upgrade (there are also some short-term needs in this regard)	✓						1
9	**Structure** Structural integrity needs to be addressed in cottages (many holes in walls, etc.)	✓						1
10	**Community Integration** There is a need to understand community goals and how to best integrate with the community - identify what wants to move to the community so it can be planned for	✓						1
11	**Respites** Support community with respites and diversions	✓						1

Washington State Department of Social & Health Services

Medical Lake Infrastructure Master Plan
Steering Group Meeting No. 1A - Strategic Assessment
Developmental Disabilities Administration
Eastern State Hospital/Lakeland Village/Pine Lodge
March 5, 2014

No.	Description	No. of Times Mentioned 1	2	3	4	5	6	Total
	Long-term Objectives (… continued)							
12	**Match Patients to Care Setting** Expect more community integration in the future. However for some, perhaps the success of LV is the isolated neighborhood and neighbors with similar problems. LV may be safer in the rural setting than urban for some. Also, longevity of staff at LV brings a benefit to some clients and Lakeland Village could be a training environment. Need to find the right match for those patients that are best served in the community and those who do better using the LV facilities.	✓						1
13	**Discontinued Programs** Programs like dental no longer used, sewing room underutilized	✓						1
14	**Douglas Building** Determine what is done with the Douglas building (currently vacant)	✓						1
15	**Cottages** Study should identify if cottages should be remodeled or replaced.	✓						1
16	**Flexible Apartments** Want more flexibility for living space - private rooms definitely - example of United Cerebral Palsy apartment building in Portland that had some apartments for low income rental, some for the public and some highly accessible for the disabled - could Douglas be rented out to the community?	✓						1
17	**CIRV Program** CIRV program provides free room and board for volunteer work to enhance staffing for activities Current apartments are in disrepair and will be evaluated in building assessments. The program is not essential, but clearly beneficial and attracts future employees (currently 600 hours a week by volunteers - would be a huge loss). Decisions regarding CIRV housing need to be cost-driven - maybe use other buildings to maintain program?	✓						1
18	**Planning for Future** Make sure infrastructure is in place to meet future needs, accommodating demographic and treatment trends.	✓						1

No.	Description
	Other Notes
1	**Housing Costs** RHC's more costly to operate than community-based services.
2	**Legal Issues** There are many issues that can affect operations of Lakeland Village - potential for ADA issues, civil rights issues (segregated persons), discrimination laws, etc.
3	**SOLA Housing** DDA has State Operated Living Alternatives (SOLA) housing leased in Spokane and other locations and managed by the State. Ideally, clients can remain in their family's home as long as possible. SOLA houses 4 persons and has worked well.
4	**Origin of Master Plan** The infrastructure master plan was triggered by Brian Sims with the state legislature due to concerns with a proposed $28 million cooling upgrade to replace central chillers with ground-source heat pumps (which in turn required upgrades to the electric system capacity). It was felt that such decisions needed to be made in the context of an overall infrastructure master plan for the campus.
5	**Cost Reductions** It is hoped that cost savings will amortize much of the capital expense of upgrades. The potential for cost savings is targeted in two primary categories - consolidation and reduction of building footprint and more efficient utilization of campus infrastructure.
6	**Change in Population** There probably will not be an increase in Lakeland Village population. The average age is in the 50's and it is believed that there will be some slight decline in population from attrition. On the other hand, if one of the other state RHC facilities closed, it could result in an expansion of use for Lakeland Village.
7	**Nursing Services** Many nursing services are provided by DDA staff, although some specialized services are provided through the community
8	**Funding** Funding in the community goes to staffing support, not capital expenses for building development. Facilities are leased. There are different funding sources and costs are difficult to track.
9	**Pharmacy/Food Service Consolidation** Western State Hospital is currently studying the consolidation of pharmacy and food services among agencies. Success in this program would likely trigger similar consolidation at the Medical Lake Campuses.
10	**CSS** CSS services for Lakeland Village and Eastern State Hospital have already been consolidated.
11	**Materials Management** Receiving and distribution services for Lakeland Village and Eastern State Hospital have also already been consolidated at the former commissary building on the Eastlake hospital campus.
12	**CIBS** A program to consolidate business services for Lakeland Village and Eastern State Hospital is targeted for implementation on July 1, 2014. This program is known as Consolidated Institutional Business Services (CIBS) and is planned to consolidate services such as accounting, billing, payroll, purchasing and other administrative services. This will have a facility impact. Teri will investigate.
13	**Addiction Services** No addiction or substance abuse recovery services are provided at Lakeland Village.

Washington State Department of Social & Health Services

No.	Description
	Other Notes (... continued)
14	**Consensus Needed** It was emphasized that the prioritization process needs a consensus to avoid projects being selected that may not promote the best long-term goals of the master plan.
15	**Long-term Costs** It was noted that the State is transitioning to looking at life-cycle costs rather than just initial expense (for example, the ground source heat pump project may higher first costs, but lower long-term costs due to operational savings.
16	**Risk Assessment** The State would like the master plan to include an assessment of risk if work is not done. Many facilities are already extremely stressed; the plan should identify what will happen if upgrades are underfunded.
17	**Planning Timeline** Priority listings should be by biennium over 10 years.
18	**Phasing** Planning phasing should define required enabling projects and be driven by project dependencies.
19	**Project Terms** The State defines short-term projects as 1-6 years; mid-term projects as 6-10 years; long-term projects as 10-20 years.
20	**Lean Processes** DSHS wants to identify how staff can be more efficient. DSHS is looking at lean processes. Their goal is to free more resources for the community.
21	**Public Meeting** A public meeting will eventually be needed and will be the only expedient way to obtain the views of the many stakeholders in view of the extremely tight time schedule for the study.
22	**Planning Basis** Planning needs to be data-driven and financially based to support needs in a way that can "tell the story" to the House and Senate regarding why capital requests are essential.
23	**Joint Meeting** The meeting that occurs on May 2, 2014 where preliminary findings and recommendations are shared should be a single meeting that includes representatives of both Lakeland Village and Eastern State Hospital.

No.	Description	No. of Times Mentioned 1 2 3 4 5 6	Total
Attendees	Terri Sinclair-Olson, Kelly Lerner, Jane Beyer (via telephone), Dorothy Sawyer (via video link), Ronda Kenney (via video link), Holly Borso, Maurice Perigo, Michael O'Malley, Bill Rash, John Chory		
	Short-term Objectives		
1	**Shared Services** Identify services to be shared with Lakeland Village.	✓	1
2	**EMR** Plan for IT for EMR (e.g., portable equipment for physicians). Technology is very important. Segregated campuses between Eastlake and Westlake make operations more difficult.	✓ ✓ ✓	3
3	**Safety** Make sure that buildings are safe and well-maintained.	✓ ✓ ✓	3
4	**Depreciated Facilities** Identify the structures that no longer useful and are unsafe and in need of demolition.	✓ ✓ ✓	3
5	**Potential ICU** Identify the services needed 5 to 10 years out and what will be integrated into the community. - is an ICU needed, high intensity forensic patients that need high staffing ratios for assaultive behaviors (8 to 10 beds) - is forensic and geriatric population	✓ ✓	2
6	**Population Changes** Accommodate changes in population, particularly growth in forensic and geriatric populations.	✓	1
	Long-term Objectives		
1	**Campus Integration** Plan for long-term integration of buildings (Eastlake and Westlake).	✓	1
2	**Auditorium** May be ideal to revitalize auditorium for conference center.	✓ ✓	2
3	**Sustainability** Key on sustainability - meeting business needs today and in the future.	✓ ✓	2
4	**Public Engagement** Desirable to open up the existing museum to the public (currently locked up). Desirable to get public on-site.	✓ ✓	2
5	**Long-term Planning** Eastlake has older buildings. Looking out 30 years, don't see ESH closing. See forensics unit growing. The costs of using old buildings needs to be considered, not just operating costs, but issues such as safety due to lines of sight, etc. Possibly a long-term plan should consider replacement of Eastlake hospital buildings.	✓	1

Washington State Department of Social & Health Services

Medical Lake Infrastructure Master Plan
Steering Group Meeting No. 1B - Strategic Assessment
Behavioral Health and Service Integration Administration
Eastern State Hospital/Lakeland Village/Pine Lodge
March 5, 2014

No.	Description
	Other Notes
1	**EMR** The EMR is very important and should be tied to expenses for capital improvements. It is believed that the EMR will have a significant
2	**APU Census** The census of the APU is cyclical; there had been a wait list recently, but currently patients can be admitted within 1-2 days.
3	**GPU Census** Admissions to the GPU have been increasing. It is believed this trend will continue over the next 5 years.
4	**Growth Drivers** The service area for Eastern State Hospital is the 20 eastern counties of Washington state. It is unknown if the population is growing in this area, however the primary drivers of growth or decline is not demographics. Rather it is the patterns of court proceedings, since almost all admissions come through the court system. In addition, the legislature decides on a biennial basis how many beds to fund within the state hospital system and this factor also drives growth or decline.
5	**Admissions Unit** Planning for the Admissions Unit (1N1) should contemplate increasing acuity among admissions. So even if patient volume does not increase, a trend toward accommodating admission of more acutely ill patients may be needed.
6	**FPU Census** The FPU is always full. There is trend toward more competency evaluations. Some states do low-risk competency evaluations outside of the hospital setting.
7	**Forensics Consultants** Currently 3 national forensics consultants are evaluating how to improve operations to accommodate more competency evaluations. Conclusions are anticipated to be received in August.
8	**Off-site Forensics** There has been more off-site work with forensics patients lately - either in jail or at attorney offices. ESH is working their wait list for the FPU all the time.
9	**FPU LOS** Patients determined to be not guilty by reason of insanity (NGRI) typically are hospitalized for 5 years, 10 years or life, depending on the offense. Patients are discharged from time to time. Patients can often go out in the community with monitoring after receiving treatment.
10	**FPU Wait List** Some patients are waiting in jail for a bed in the FPU.
11	**APU Wait List** On the civil side, various methods are used to manage the wait list. Alternative treatment options are discussed as well as alternative placements, which include family settings and structured living settings.
12	**Voluntary Admits** Voluntary admissions have not occurred for many years.
13	**Discharge Planning** Discharge planning for civil patients begins immediately upon planning. The average length of stay on the APU is thought to be about 30 days but this will be verified. Some patients have multiple stays and some stay up to 180 days.
14	**Other Units** Sacred Heart Hospital has a psychiatric nursing unit. They are licensed for stays from 3 to 14 days; longer stays require certification. There are no forensic beds in the community outside of ESH. There is a crisis stabilization unit in Spokane with 9 beds.

No.	Description
	Other Notes (… continued)
15	**Stepdown** There are stepdown facilities that are community based consisting of about 16 beds each.
16	**Substance Abuse Treatment** ESH does not do substance abuse detox. Treatment for substance abuse problems is community based. ESH does employ a CD specialist and sponsors some AA groups. At one time there were a lot of patients that had substance abuse issues although this is no longer the case.
17	**FPU/APU Separation** FPU and APU populations used to be co-mingled but no longer are. There are challenges to scheduling alternative times for FPU and APU patients at the treatment mall.
18	**Consolidated Services** There have not been conversations to date regarding any consolidation of services between Eastern State Hospital and Lakeland Village.
19	**Correctional Industries** DSHS is mandated to look at utilizing Correctional Industries (CI). This organization consists of using low-risk inmates for food service operations and provides an opportunity for inmates to work and earn money as well as possibly reducing food service costs for Eastern State Hospital. Food service operations are set up in Airway Heights. Meals have a lower cost than what is currently provided by DOC or DSHS. Juvenile rehabilitation gets a USDA subsidy for food. DDA requires a lot of pureed foods; it is not known if CI could provide pureed food. In any case, all DSHS facilities want to provide more home-like food. If the Senate version of legislation relating to this topic passes on March 13, DSHS will know whether or not CI will need to be used for food services.
20	**Pine Lodge** Not much consideration has been given to potential utilization of vacated Pine Lodge facilities. The gym and fenced yard at Pine Lodge might be useful to ESH. It was noted that the Pine Lodge gym is being considered for use for juvenile rehabilitation (which is also managed by DSHS).
21	**Funding** The legislature appropriates an operating budget and capital budget for ESH. It is typically based on historic funding, although lately ESH has been successful in getting some additional funding - $10 million operating budget and $4.5 million capital budget currently. The 2015-17 budget will determine state funding for the next biennium. In addition Medicare, Medicaid, commercial insurance and some self-pay provide additional payments. ESH helps patients enroll in Medicare Part D for prescription drug payments where appropriate. ESH also receives disproportionate share payments.
22	**Nursing Homes** Nursing homes in the area typically accommodate Alzheimer patients that are not manageable at the hospital.
23	**State Project Timelines** New state capital projects typically take 6 years to be realized - they are funded by biennium - typically 2 years for pre-design, 2 years for design and 2-years for construction. The state is beginning to consider modified pre-design and design-build delivery models to shorten the time for project delivery to 4 years.

Washington State Department of Social & Health Services

No.	Description
	Other Notes (… continued)
24	**Nursing Unit Sizes** Most nursing units have 30-beds. A 40-bed nursing unit is very difficult to manage. 25 beds is probably the maximum desirable number of beds in a nursing unit.
25	**Gender Separation** Currently male and female patients are co-mingled within nursing units. It is preferable to have separate nursing units for men and women.
26	**Retrofitting** It was affirmed that the existing Eastlake nursing units are very difficult to retrofit for optimum operations.
27	**Community Transitions** Long-term planning needs to look at the impact of transitions to the community with families and group homes.
28	**Private Beds** Private beds have not been considered, although the planning team affirmed that private beds are the most appropriate treatment setting for psychiatric patients.
29	**Risk Assessment** The planning should look at the ideal long-term solution. There is a need to be realistic about what is in the best interest of the public. The assessment of risk if nothing is done was again emphasized. Options are likely needed that look at long-term costs (e.g., lawsuit avoidance can be a significant cost savings.)
30	**Infrastructure Investment** It was noted that significant spending on existing facilities can diminish the potential for replacement facilities.
31	**Westlake/Eastlake Separation** It was noted that the separation of the Westlake and Eastlake facilities presents huge inefficiencies for Eastern State Hospital.

Washington State Department of Social & Health Services

NAC | TRINITY

Medical Lake Infrastructure Master Plan

Steering Group Meeting No. 2 – Strategic Review
Project #2014-415
May 12, 2014

Attendees:
Brian Sims, WA Senate; Maurice Perigo, OFM; Van Church, DSHS; Vann Smiley, OSSD; Jane Beyer, BHSIA; Victoria Roberts, BHSIA; Evelyn Perez, DDA; Dorothy Sawyer, ESH; Ronda Kenney, ESH; Tony DiBartolo, LV; Joe Veliz, LV; Dan Rockstrom, ESH-IT; Jim Collen, CSS; Kelly Lerner, DSHS/OCP; John Chory, Trinity; Michael O'Malley & Bill Rash, NAC|Architecture

1. Reviewed Infrastructure Master Plan objectives and process, including a review of the directions given in the 1st Steering Committee meeting on 3/05/14:

    1) Identify priorities in the context of an overall plan
    2) Pre-empt unexpected infrastructure emergencies
    3) Define "immediate", "short-term", and "long-term" needs
    4) Reduce campus "footprint" for operational efficiency
    5) Target opportunities to reduce operational cost
    6) Accommodate changes in future demand for services
    7) Look for opportunities to partner between ESH & LV
    8) Let data drive the decisions
    9) Consider life-cycle costs, not just initial costs
    10) Identify potential risks, including the risk of non-action

2. Reviewed the infrastructure and building assessment process that has recently been completed. Over 2000 photos have been taken, assessment forms have been completed, and site plans have been annotated to show deficiencies. Program Plans have been completed for the major ESH hospital buildings, along with spreadsheets showing program use totals.

3. Discussed population trends, use rates, admissions, patient days, and occupancy rates. The existing 95% occupancy at ESH is higher than desirable; 90% is better for planning purposes. Lakeland Village bed projections show a declining need which could allow 100% private beds by 2019-2023.

4. Program analysis shows FSU has less SF per patient than desired, ranging from 659 SF/patient at 1S1 Admissions down to 412 SF/patient at 2S1. The planning benchmark is 800 SF/patient. Both APU and FSU wards have projected increases in patient count while GPU is slightly decreasing.

    - APU: Current = (95); Projected = (104)
    - FSU: Current = (95); Projected = (115)
    - GPU: Current = (102); Projected = (96)

5. Preliminary Infrastructure recommendations were discussed, including:
    1) Demolition of several deteriorating buildings on each campus
    2) Replacing the ESH Boiler Building and ESH/LV Laundry
    3) Updating the Electrical Emergency Power system at LV
    4) Mechanical projects at both campuses, including replacing the steam heating system at LV with stand-alone N-gas furnaces at the Cottages
    5) Numerous Civil projects affecting Water, Sewer, Roads, etc.
    6) Misc. maintenance-type projects that need immediate attention

6. Program recommendations that were reviewed include:

    1) Decompressing ESH FSU by expanding into adjacent areas
    2) Consolidating CSS shops to existing buildings a Pine Lodge
    3) Expanding the yards for ESH FSU (south) and APU (north)
    4) Replacing ESH Admin Building with a new Activity/Entry building
    5) Replacing LV Admin Building with a new entry
    6) Remodel LV CIRV apartments to allow the program to continue
    7) Decompress LV Cottages by expanding into vacant units
    8) Long-term, ESH: new consolidated ESH hospital at Westlake
    9) Long-term, LV: new consolidated nursing care building

7. Options/Decisions that need to be made include:

    1) Centralized vs. Decentralized Mechanical Systems for LV Cottages
    2) LV Admin Building: Renovate or Demolish and shift offices?
    3) ESH Admin Building: Renovate or Replace?
    4) ESH Activity/Therapy Building: Renovate or Replace?
    5) Commissary: Renovate or Replace?
    6) LV CIRV housing: Renovate, Replace, or Demolish?
    7) ESH Therapy Pool: Repair if valid program use, or Demolish?
    8) LV Douglas Hall: Renovate or Demolish?
    9) ESH Auditorium: Find Sponsor to Renovate, or Demolish?

8. Next Steps:
    - Major Project List recommendations by June 1, 2014
    - Draft Report due June 16, 2014
    - Final Report due August 1, 2014

Submitted by William W. Rash, AIA

NAC | ARCHITECTURE

Meeting Attendance

Meeting Draft Master Plan Presentation to Staff

Project Medical Lake Infrastructure Master Plan

Date Jul 23, 2014

NAC No 111 - 14011 - A204

Owner Project No # 2014-415

Name	Company/Department	e-mail address	Phone
Liz Perez			565-4475
Bob Mair			565-4608
Katy Gustafson			565-4247
Marz, Annette			796-2075
Susan Bardges			565-4280
Loretta Moon			565-4180
MARK YAMAMOTO	MARK.YAMAMOTO@DSHS.WA.GOV (COPY)		565-4211
BRENDA BALDWIN			565-4569
Dayna Sagnella			565-4498
B.J. Tolee			565-4507
Julie Allan			565-4291
JOEY FROST	JOEY.FROST@DSHS.WA.GOV (COPY)		565-4352
Chris Schenz			ext. 4318
Barbara Bahr			EXT. 4215
David Ward			4324
Christina Zamzich			565-4511
Dorothy Sawyer			565-4351
Shirley Anderson			509-299-1811
Russell W. Provoncha			509-299-1877
Linda Bradley			509-565-4491
Paul Ryan			509 299 1827

NAC | ARCHITECTURE

Meeting Attendance

Meeting Public Meeting - Draft Master Plan

Project Medical Lake Infrastructure Master Plan

Date Jul 23, 2014

NAC No 111 - 14011 - A204

Owner Project No # 2014-415

Name	Company/Department	e-mail address	Phone
Shirley MAIKE		SMAIKE@centurytel.net	299-5451
Joyce Calloway			299-3324
Bill & Sue Johns			448-8623
SCOTT HOLBROOK		eurthsun5k@gmail.com	299-7897
Deanna Cunha			299-7899
Paul Cunha			299-7899
Al Stover	Copy	al@cheneyfreepress.com	406-650-2130

186

NAC Inc | 1203 West Riverside Avenue | Spokane, Washington 99201-1107 | T: 509.838.8240 | F: 509.838.8261

5.2 EUI Report and Metering Information

Metering Information

For natural gas meters, Avista does not furnish or install meters for “sub-metering” purposes, that is, if it’s not for an existing or new billing account. Their meter shop told me they quit furnishing the meters as it required a lot of tracking and there was some liability but they weren’t getting any income. A new natural gas meter from Onicon Inc. should be budgeted at about $4,200 material cost and $250 for installation. I’ve talked to Johnson Controls and these meters will provide a signal that can be used for volume measurement by the existing EMCS on campus. The exact size of the meter would need to be determined prior to ordering. This would be based on pipe size and the peak hourly gas usage of the building. We can assist with this as needed.

Gas meters would be needed at 1) 3A05 – Electric Shop. There is a gas-fired boiler in this building that serves that building and 3A06 – Paint Shop. The two buildings would have to be grouped together if an Energy Utilization Index (EUI) calculation is desired; 2) 3A07 – Commissary, which has gas fired unit heaters, and 3) 3A10 – Motor Pool (Old Fire Station) and 3A11 – Welding/Carpentry/Auto. There are gas fired unit heaters in 3A11 but there is also a gas-fired boiler in 3A10 that supplies heating water to 3A11 so both would need to be metered and the two would again have to be grouped in an EUI calculation. Steam is not currently used in these buildings.

PL02 – ISC/Gym has an existing gas meter; #86908, and is being tracked by the campus accounting system. There is no steam supply to the building.

Steam condensate meters would be required for 4D23 – Carpenter Shop and 4D26 – Garage. These buildings are connected to the central steam distribution system and have no natural gas supply. Meters would be placed on the discharge side of the condensate pumps in each of these buildings. An Onicon Inc. condensate meter will have a material cost of about $1,400 and $250 should cover the installation cost. Again, we can aid with selection if needed.

Other buildings could also be metered and EUI’s calculated. We just need to be sure whether the building is being supplied with natural gas or steam, and that there is appropriate electrical metering.

P:\111-14011\200\A206\Master_Plan\5.0\5-3_EUI report-and-Metering-Info\5-3c-Metering-Info.docx

MEDICAL LAKE MASTER PLAN MW#2014.225.01

ENERGY UTILIZATION INDEX kBTU/SF/yr

gas usage in therms: 1 therm = 100,000 BTU
electric usage in kW-hrs: 1 kW-hr = 3413 BTU = 3.413 kBTU

WESTLAKE HOSPITAL

MONTH	Electric in kW-hrs meter # 49883	meter # 56648			MONTH	natural gas usage - therms/month meter # 6785343325	meter # 58465		
JULY '12	5,944	228,270			JULY '12	3126			
AUGUST '12	6,050	206,160			AUGUST '12	2858			
SEPT '12	6,970	194,400			SEPT '12	2647			
OCT '12	7,691	182,640			OCT '12	14845			
NOV '12	361	182,640			NOV '12	17224			
DEC '12	0	186,000			DEC '12		19596		
JAN '13	0	177,120			JAN '13		17956		
FEB '13	0	162,240			FEB '13		17311		
MAR '13	6	156,000			MAR '13		12583		
APRIL '13	925	164,400			APRIL '13		10960		
MAY '13	4,309	204,240			MAY '13		11425		
JUNE '13	4,208	186,000			JUNE '13		7731		
TOTAL	36,464	2,230,110	=	2,266,574 kW-hrs	TOTAL	40,700	97,562	=	138,262 therms
			X	3.413 kBTU/kW-hr				X	100 kBTU/therm
				7,735,817 kBTU/yr					13,826,200 kBTU/yr

TOTAL kBTU/yr = 21,562,017 kBTU/yr SUM OF ELECTRIC AND GAS USAGE CONVERTED TO BTU.
TOTAL SQUARE FOOTAGE = 107,328 SF
EUI = 200.90 kBTU/SF/yr

NAC inc

NAC|Architecture
1203 West Riverside Avenue
Spokane, WA 99201

509.838.8240 phone
509.838.8261 fax

www.nacarchitecture.com