OCTOBER 26, 2018

PREDESIGN STUDY

NURSING FACILITY NEW CAPACITY at RAINIER SCHOOL, BUCKLEY

PREPARED FOR:

DEPARTMENT OF SOCIAL AND HEALTH SERVICES (DSHS)
WASHINGTON STATE OFFICE OF FINANCIAL MANAGEMENT (OFM)

PREPARED BY:

SAGE ARCHITECTURAL ALLIANCE

PROJECT # 2018-477

Washington State Department of Social & Health Services
Transforming lives

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RAINIER SCHOOL, BUCKLEY
NURSING FACILITY NEW CAPACITY

DES PROJECT NO. RAINIER SCHOOL: 2018-477
AGENCY: Department of Social and Health Services (DSHS)
PREPARED BY: SAGE Architectural Alliance

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TABLE OF CONTENTS

1 Executive Summary

The Problem	1.1
Long-Term Needs	1.2
Alternatives Considered	1.2
Preferred Alternative	1.3
Cost Summary	1.3
Conclusion	1.3

2 The Problem

Introduction	2.1
Problem Statement	2.1
Opportunities	2.4
Programmatic Impacts	2.4
Statutory Requirements	2.5
Anticipated Population	2.6
Mission and Goals	2.9
Operational Goals	2.9
Visioning Workshops	2.11
What is Needed	2.25
Previous Master Plan + History	2.26
Endnotes	2.26

3 Analysis of Alternatives

Alternatives Summary	3.1
List of Alternatives	3.3
Existing Campus Map	3.5
No Action Alternative	3.6
Alternative 1	3.7
Alternative 2	3.11
Alternative 3	3.14
Alternative 4	3.18
Alternative 5	3.22
Other and Off-Site Alternatives	3.25

4 Detailed Analysis – Preferred Alternative

Description of Preferred Alternative	4.1
Occupancy and Building Configuration	4.8
Predesign Diagrams	4.9
Space Needs Assessment	4.12
Adaptive Use	4.12
Site Analysis	4.13
Long-Term Plans	4.15
Laws, Codes, Policies, Regulations	4.15
Recommended Further Study Areas	4.17
Significant Component- Laundry	4.17
IT Systems	4.18
Building Commissioning	4.18
Future Phases and Plans	4.19
Project Implementation and Schedule	4.19

5 Project Budget – Preferred Alternative

Assumptions	5.1
Cost Comparisons of Alternatives	5.1
C-100 Cost Estimates for Preferred Alternative	5.5
Proposed Funding Sources	5.7
Operations and Maintenance	5.7
Furniture and Equipment	5.7

6 Appendices

Appendix A:	Predesign Checklist
Appendix B:	Life Cycle Cost Models (LCCM)
Appendix C:	LEED Checklist
Appendix D:	Not Used
Appendix E:	Stakeholder Visioning and Questionnaire Results
Appendix F:	Detailed Space Needs Program
Appendix G:	Operations & Staffing Report
Appendix H:	Engineer's Reports
Appendix J:	Sustainability Report
Appendix K:	Glossary of Terms & Acronyms
Appendix L:	Analysis of New Laundry Alternative

1 EXECUTIVE SUMMARY

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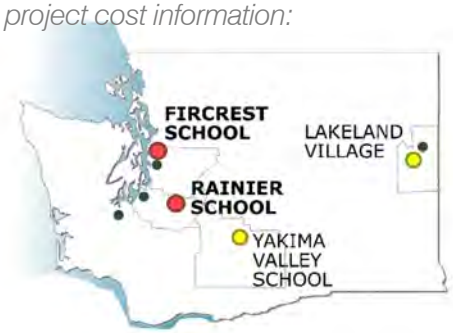
EXECUTIVE SUMMARY

Summarize the problem, opportunity, or program requirements; alternatives considered; preferred alternative; and why it was chosen. Include basic project cost information:



THE PROBLEM

Rainier School is home to 310 residents with developmental disabilities, all living in Intermediate Care Facilities (ICF). The ICF clients are aging and as many as 60 individuals currently have medical needs that should be served with nursing facility care.

CMS (Center for Medicare and Medicaid Services) provides a majority of operational funding for Rainier School and has threated the funding because cclients with high-acuity medical needs can't keep up with the Active Treatment of the ICF programs. To maintain certification, Rainier School needs to transition its clients who are unable to participate in Active Treatment to a Certified Nursing Facility program.

However, simply relocating clients to Nursing Facilities raises serious concerns. When a frail client is taken from a familiar environment to a new setting, relocation trauma often occurs. Relocation can cause physiological and/or psychosocial trauma and, not infrequently, leads to death.

Despite the success of the Community-Based programs for DD clients, there remains a core number of clients who continue to benefit from institutional care, including nursing and ICF care.

More Nursing Facility Beds Needed State-Wide

There are currently 258 DD (Developmentally Disabled) Certified Nursing Facility beds in Washington State located in 3 of the 4 state-operated Residential Habilitation Centers, RHC's.

The DD Nursing Facilities provide highly specialized-high-acuity care expertise that is not in-line with the expertise generally available in community-based Medicaid-funded skilled nursing. (1)

Table 1 – August 2018

Residential Habilitation Center	Certified NF Beds	# of Clients *
Rainier School	0	60**
Fircrest School	92	87
Yakima Valley School	73***	68
Lakeland Village	93	67
TOTAL COUNT	258	282

* Clients with documented needs. **ICF residents documented as needing nursing care. *** 112 beds partially closed. 57 long- term clients. Not accepting new long- term clients & will eventually close. Allowing 16 short-term respite & crisis placements. 57+16=73. This table displays statewide population projection requirements. It is not specific to any region of RHC. The intent of this table is to illustrate there is a greater need for DD nursing services long term than addressed in this project. These services may also be provided in community-based settings.

As you can see in Table 1, the number of DD clients needing Nursing Facility care currently exceeds the DD Certified Nursing Facility beds. The need for DD client nursing facility care is expected increase state-wide and at Fircrest from several factors:

- 0.6% of DD clients reside in Nursing Facilities and the number of DD clients is growing with state population growth. (2)

- Nursing Facility beds are increasingly needed for respite care as parents and care-takers are aging.
- As parents or care-takers die, Nursing Facility beds also serve as crisis support until new options can be arranged.
- Behavioral health clients have been increasingly placed in RHC nursing facilities in effort to relocate clients out of hospitals.

LONG-TERM NEEDS

Based on a statewide population growth of 2.8%, the growth in demand among DD Nursing Facility clients is expected to increase from 282 in 2018 to approximately 323 by 2030 and possibly over 352 by 2040.

Table 2 - State Wide Need vs Supply

Year	Projected NF Need	Existing Certified NF Beds
2018	282	258
2023	297	258
2030	323	185*
2040	352	185*

*Assuming Yakima Valley closes.

The ongoing policy has been planning for evenually closing the RHC campuses, but locating the specialized care needed by this small percentage of DD clients on the RHC campuses is an efficient approach, making use of the expertise and dedicated staff already available. It is also an approach favored by many client families.

ALTERNATES CONSIDERED

No Action Alternative

The effects if no action is taken.

Alternative 1-100 Beds – Renovate 6 Buildings

Renovation Pine, Fir, Hurlbert, Hemlock, Spruce, and Robin.

Alternative 1-160 Beds – Renovate plus Expansion

Renovate Pine, Fir, Hurlbert, Hemlock, Spruce, and Robin plus new construction expansion.

Alternative 2 – Renovate 4 Buildings

Renovation Cedar, Alder, Martin, and Olson.

Alternative 3 –Agricultural Field

New Construction of a 100 or 160 bed Nursing Facility located on Ryan Road, partially overlapping the DSHS-owned agricultural field.

Alternative 4 – New Construction & Use of Staff Dorm for Admin

New Construction of a 100 or 160 bed Nursing Facility located on Ryan Road, renovating Staff Dorm for administration functions.

Alternative 5 – Renovate 7 Cottages

Renovation of 7 existing residential cottages for an 84 bed Nursing Facility.

Off-Site Alternative

Purchasing an Off-Site Nursing Facility located somewhere in Pierce County.

For all action items, LEED Silver was compared with LEED Silver Netzero.

PREFERRED ALTERNATIVE

Alternative 4, new construction with a renovated staff dorm off Ryan Road was unanimously the preferred option. The advantages are as follows:

- Large open site accommodates preferred 1-story connected residential cottages plus expansion capability.
- New facility that meets current seismic design requirements. The area is prone to liquefaction (failure of the soils) and existing buildings would not have sub-surface infrastructure currently required.

- Use of the existing staff dorm for administration. The old 2-story building with basement, has historic character.
- New construction provides a morale boost for staff and increases likelihood of successful nursing administration.
- Consistent with Campus Master Plan that shows the north end of campus split off for other uses.
- Opportunity for visible new signature facility at front of campus.

COST SUMMARY

The estimated cost for Preferred Alternative 4B, for a 100-bed net-zero nursing facility, in 2018 dollars is as follows.

Maximum Allowable Construction Cost (MAAC) is estimated at $51,516,973.

Total estimated project cost is $72,893,568.

CONCLUSION

A new 100-bed nursing facility at Rainier is the recommended solution to address both the aging DD residents at Rainier School and to address the increasing state-wide need for DD nursing facilities. The recommended solution is to build a new 100-bed Nursing Facility at the southwest side of Rainier School campus on Ryan Road.

Table 3 - State Need vs Supply with Alt 4 Implementation

Year	Projected NF Need	Certified Beds incl Preferred Alt 4
2018	282	258
2023	297	358*
2030	323	285**
2040	352	285**

*Assuming Rainier opens 100-beds in 2023.

**Assuming Yakima Valley School closes.

Table 3 shows that when Alternative 4 opens in 2023 it will help meet the demand for nursing beds. But by 2030, if Yakima Valley closes, the need could again exceed the available beds.

Any solution should consider relocation trauma. Transitioning clients to an off-site nursing facility is not recommended due to the dangers associated with relocation stress.

Any solution should also consider that the shortage of health care workers is a growing national issue and Rainier has a staff that is experienced with the specialized needs of DD care.

(1)See The Problem section and Appendix G.

(2) Per population growth of 2.8 assumed. Also see (1).

(3) MACC is Maximum Allowable Construction Costs.

2 THE PROBLEM

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INTRODUCTION

In June of 2018, The Department of Social and Health Services (DSHS) engaged a team led by SAGE Architectural Alliance to perform a predesign study for new nursing capacity at Rainier School and Fircrest School. The SAGE team developed predesigns at both campuses in parallel. This study focuses on predesign recommendations at Rainier School.

Stakeholders from DSHS, DDA, Rainier School and Friends of Rainier participated in a series of predesign workshops to help frame needs for a new nursing facility. Whereas Rainier has no current Nursing Facility Program, Fircrest School has an existing Nursing Facility and the input of Fircrest nursing staff helped shape the Rainier solutions. This predesign report is an outcome of that work.

BACKGROUND

Rainier School is one of four state-operated Residential Habilitation Centers, RHC's, for adults with developmental and intellectual disabilities in Washington State. As the majority of developmentally disabled, DD clients were transitioned to community settings per the state policies of the last 20 years, the RHC setting has remained the safest setting for a limited DD population.

When policies emphasized the shift to community-care and studies considered fully closing all RHC's, maintenance dollars were channeled away from the RHC's, creating a backlog of deferred maintenance.

Rainier School is located on a large, 100-acre rural campus, in the town of Buckley, Washington. The school opened in 1939 and at one time the campus had as many as 1,918 DD clients. Many of the buildings have a historic appearance.

Today, Rainier School is home to 310 residents with developmental disabilities, all living in Intermediate Care Facilities (ICF). There are three ICF programs on the campus. The ICF clients live primarily in 14-bed cottages, but the more frail clients, needing more medical care, presently have been relocated to residential wings near the Central Administration Building.

PROBLEM STATEMENT

Identify the problem, opportunity or program requirement that the project addresses and how it will be accomplished.

Nursing Facility Need

Many residents at Rainier School are aging and are documented as needing Nursing Facility care. The problem is that Rainier School doesn't have a Nursing Facility. Aging residents can't keep up with the Active Training that CMS requires for ICF program certification. Currently 60 clients at Rainier are documented as elligible for Nursing Faciltiy Care and many more are approaching this threshold.

As shown in Table 1, three of the four RHC state campuses have both ICF's (Intermediate Care Facilities), and NF's (Nursing Facilities). Rainier School has only ICF's.

Table 1 – August 2018

Residential Habilitation Center	Certified NF Beds	# of Clients *
Rainier School	0	60**
Fircrest School	92	87
Yakima Valley School	73***	68
Lakeland Village	93	67
TOTAL COUNT	258	282

* Clients with documented needs. **ICF residents documented as needing nursing care. *** 112 beds partially closed. 57 long-term clients. Not accepting new long- term clients & will eventually close. Allowing 16 short-term respite & crisis placements. 57+16=73.

The clients are organized 3 ICF programs, called PAT's, and each PAT is currently in a different stage of decertification due to the aging clients being unable to keep up with the only program available – the ICF program. As a PAT becomes decertified, federal funding, is lost.

Relocation Trauma

Simply relocating clients to Nursing Facilities raises serious concerns. The Rainier School environment is unique and many of those clients needing NF care are over 50 have lived at Rainier their whole lives, cared for by familiar caregivers who understand their needs. When a frail client is taken from a familiar environment to a new setting, relocation trauma often occurs. Relocation trauma is a formal nursing diagnosis. It causes physiological and/or psychosocial trauma and, not infrequently, leads to death.

Certification Challenges

Rainier School's ICF program is not geared for clients with nursing need. For Rainier School's ICF program to remain certified, residents must participate in what is called "Active Treatment"—a challenge for elder residents who are not ambulatory. There are currently three, separately certified, Intermediate Care Facilities (ICF) at Rainier School.

A federal agency, Centers for Medicare & Medicaid Services (CMS), oversees the certification of Rainier School's ICF programs. One ICF facility, PAT-C, has been decertified by CMS.

The other two ICF facilities are in various stages of decertification and the superintendent is concerned that both will be decertified by 2019 if no action is taken to address the problem.

To maintain CMS certification, Rainier School needs to transition its clients who are unable to participate in Active Treatment to a more appropriate facility—a licensed Nursing Facility.

The average age of Rainier School's nursing-eligible clients is 64 years. The oldest resident is 89 years old and has lived at Rainier School for 70 years.

Limited Nursing Care Options

During the past decade, there has been a push to close state-run residential centers, and move residents into smaller community-based homes where residents can interact with the larger community.

A 2003 study, *Planning for the Future of DDD Residential Habilitation Centers*, found that community services are becoming more mainstream for people with developmental disabilities. The study found that community service homes, such as SOLA (State Operated Living Alternatives), are getting better at meeting the most challenging needs of DD people[6]. However, this study focused on younger age groups.

There are cases of Rainier School residents who moved to community care, only to find themselves rejected from the nursing or group home months later. Staff at Rainier School have experienced cases where an DD client is moved to a group or nursing home, then subsequently rejected and placed in Western State Hospital, only to return back to Rainier School months later.

Despite a remarkable shift in Washington State from institutional care to community based residential care, there remains a core number of clients who continue to benefit from institutional care at nursing facilities and ICFs.

In the last decade, the number of clients who have transitioned from Rainier School to community-based care has stabilized at 2-3% per year and most recently, has stabilized at zero percent. At the same time, the number of people transitioning from ICF to nursing care is increasing.

"Many of Rainier School's residents were rejected by care providers in the community for various reasons, such as behavioral outbursts, special conditions, and the necessity for one-on-one care giver ratios." – **Friends of Rainier**

Increased Need for Respite and Crisis Care

In addition to the need for long term DD Nursing Facility care, there is a growing need for short term Respite and Crisis Care.

Short term respite and crisis care allows DD clients to stay at a facility for a short time, and also provides added support to the following people:

1) caregivers at community based residential facilities where crisis management can be an issue

2) parental care givers in need of a break or who are also aging and have become increasingly unable to care for their loved ones.

Following a stay at the hospital, older clients often require a 24/7 recovery option that consolidates multiple therapies and supports after a hospitalization. Patients on more than a dozen medications, with advanced dementia, ventilator-dependent, incontinent, or with other complex clinical conditions or disabilities often cannot be

safely attended to in private homes or assisted living.

Patients in recovery deserve good nursing care to maximize their strengths and abilities. Providing crisis and respite care can help alleviate this problem.

This has created a shift in the mix of clientele among nursing facility residents to include an increased number of short- term admissions for respite care (average length of stay capped at 30 days) and crisis management/crisis stabilization clients who may reside in nursing facilities for up to one or two years. This shift in client mix impacts programmatic needs, staffing needs, and facility needs at Fircrest.

OPPORTUNITIES

Care-giver Resources

Care-giver shortage is one of the largest national concerns for hospitals and for facilities across the country that care for the elderly. Rainier currently employs approximately 1050 staff many of whom have formed long-term emotional bonds with DD clients. These valuable relationships and the specialized expertise of these staff should figure into the calculus of Rainier School's future.

Zero Rejection

Fircrest School is one of four Residential Habilitation Centers (RHC) in Washington State who served people with intellectual and developmentally disabilities. From the point of view of families, one of the biggest advantages to an RHC is zero rejection. RHCs will not refuse a client due to severity of disability, medical condition, or behavioral challenges. This has been a significant relief for families who have been told by schools, and service agencies, "we are unable to meet your loved one's needs."[6]

PROGRAMMATIC IMPACTS

DD Disability Rights

The Developmental Disabilities Assistance and Bill of Rights Act, 2000 relays the following goals for individuals with developmental disablities—

(A) make informed choices and decisions about their lives;

(B) live in homes and communities in which such individuals can exercise their full rights and responsibilities as citizens;

(C) pursue meaningful and productive lives;

(D) contribute to their families, communities, and States, and the Nation;

(E) have interdependent friendships and relationships with other persons;

(F) live free of abuse, neglect, financial and sexual exploitation, and violations of their legal and human rights; and

(G) achieve full integration and inclusion in society, in an individualized manner, consistent with the unique strengths, resources, priorities, concerns, abilities, and capabilities of each individual;

A Place Called Home

The creation of a more home-like physical environment is one of the hallmarks of culture change in nursing homes, and facilities that have implemented culture change practices have shown an increased quality of care[6]. Innovations in nursing care, such as the Green Home model and Eden Care, are equally applicable to people with developmental disabilities.

The notion of creating a small "home-like" environment in concert with opportunities for gathering, connection to the outdoors and increased natural light, can lead to healthier lives for residents.

At Rainier School, both staff and families have attested to the benefits of a home-like atmosphere and connection to the outdoors.

STATUATORY REQUIREMENTS

Identify and explain the statutory or other requirements that drive the project's operational programs and how these affect the need for space, location or physical accommodations

CFR Federal Requirements

As a State Facility, Fircrest Nursing Facility falls under the regulations of The Code of Federal Regulations (CFR) Section 42 Chapter IV, Subchapter G- PART 483 - REQUIREMENTS FOR STATES AND LONG TERM CARE FACILITIES (§§ 483.1 - 483.480)

Certification falls under the purview of Centers for Medicare & Medicaid Services (CMS), a federal agency. On-site surveys to assess certifications are performed by Residential Care Services (RCS), a state agency under DSHS.

WAC State Requirements

As a discretionary measure, Fircrest also applies the regulations of the Washington State Administrative Code (WAC) Section 388-97 Skilled Nursing.

Federal CFR requirements supersede State WAC requirements.

WAC 388-106-0355: Eligibility for Nursing Facility Care Services outlines the criteria to be met to receive nursing facility levels of care, including assessment to determine if the client has three or more activities of daily living as defined in WAC 388-106-0010. The assessment evaluates the level of assistance needed by each client in terms of supervision, limited assistance, extensive assistance, daily requirements, and level of support (one or more persons to support each client in any of the activities listed above).

The WAC regulations include building requirements. Any replacement facility is expected to meet these regulations.

Energy Requirements

The Governor Office Executive Order 18-01 states that "…all newly constructed state-owned buildings shall be designed to be zero energy or zero energy-capable, and include consideration of net-embodied carbon. In unique situations where a cost effective zero-energy building is not yet technically feasible, buildings shall be designed to exceed the current state building code for energy efficiency to the greatest extent possible."

Accessibility

Americans with Disabilities Act (ADA) accessibility for all spaces is critical not only for DD residents, most of whom use wheelcharis, but for any staff, volunteers and visitors who require accessibility and all who are deaf, hard-of-hearing, blind, wheelchair users, people with mobility challenges, etc.

Other Requirements

Refer to *Section 4 'Preferred Alternative'* for additional regulatory requirements and codes affecting the building components of the nursing facility.

ANTICIPATED POPULATION

Include anticipated population projections (growth or decline) and assumptions

Needs of Population Served

The target DD(Developmentally Disabled) population is defined by the Developmental Disabilities Act (Pub.L.106-402) and includes people with a severe, chronic condition that:

- Is attributed to a mental or physical impairment or a combination of those impairments.
- Occurs before the individual reaches 18.
- Is likely to continue indefinitely.
- Results in substantial functional limitations in three or more of the following areas of major life activity: self-care, receptive and expressive language, learning, mobility, self-activity, capacity for independent living, and economic self-sufficiency, and
- Reflects the individual's need for a combination and sequence of special, interdisciplinary, or generic services, individualized supports, or other forms of assistance that are of lifelong or of extended duration and are individually planned and coordinated.

In 2017 there were 45,032 total DD clients served by the Developmental Disabilities Administration (DDA) in Washington State. Based on the current DDA budget for 2018-2019, this is projected to increase 5.5% by the end of 2019. This reflects an average annual growth rate of 2.3%. At the current time, most individuals with a disability function well within community settings and do not require institutionalized care. Almost 70% live with and receive care from their parent or relative.

Only 1.5% reside in a Residential Habilitation Center (RHC) such as the Fircrest School and less than 0.6% reside in nursing facilities operated by the RHCs.

Table 1: Projected Need for DD Nursing Facilities Statewide, Attune Healthcare

Year	Statewide Population	DD Total Caseload	DD Clients Per 1000 Population	Percent Eligible for Nursing Facilities*	Projected Nursing Facility DD Clients**
2017 Actual	7,090,000	45,032	6.35	- .7%	258
2018 Budgeted	7,272,840	46,259	6.34	- .6%	258
2019 Budgeted	7,455,620	47,519	6.40	- .6%	258
2030 Projected	8,503,200	60,373	7.10	- .6%	185***
2040 Projected	9,242,000	72,088	7.80	- .6%	185***

* Not Adjusted for Aging of the Overall Population

** Includes Rainier School eligible nursing facility clients

*** Adjusted to Reflect Eventual Closure of Yakima Valley School's Nursing Facility

Sources: OFM Population Projections, DDA 2017 Caseload and Cost Report, 2018 CBO data.

Projected Need

The need for state operated nursing facilities is growing rapidly due to aging of the entire DD population together with general population growth across the state.

Although there has been a remarkable shift in Washington State from institutional care to community based residential care over the last 30 years, there remains a core number of clients who continue to benefit from institutional care, including nursing facilities and ICFs.

Care Needs Exceed Community-Based Skilled Nursing Facilities

As the DD population is aging with the general population, the specialized needs of the typical frail DD clients exceed those found in community skilled nursing facilities. The extensive care needs of this target population exceed the level of care available in community based skilled nursing facilities. The majority of the DD individuals (95%) are incontinent and do not use toilets. 77% are tube fed. They often have multiple chronic conditions in addition to their physical and/or intellectual deficits. For example, 75% of clients frequently have the following diagnoses in addition to profound mental deficiencies:

AAaa

Based on

- Gastrointestinal/Digestive/Metabolic conditions such as gastrointestinal reflux disease, gastrostomy tube placement, dysphagia, hypo or hyper thyroidism, diabetes, colostomy, and/or jejunostomy;
- Reduced physical function due to contracture, hemiplegia, quadriplegia, scoliosis, and kyphosis. This requires assistance to turn, reposition, or ambulate at all times.

Other common problems that impact 50% of clients include:

- Respiratory problems such as aspiration pneumonia, COPD, and asthma.
- Mood behavior and mental health conditions such as bi-polar diagnoses and management, autism spectrum disorder, post-traumatic stress disorder, depression, psychosis, impaired cognition, and dementia.
- Recurrent infectious disease, including upper respiratory infection and pneumonia, urinary tract infection, C-diff, influenza, and MRSA.

During the past decade, there has been a push to close state-run residential centers, and move residents into smaller community-based homes where residents can interact with the larger community.

Table 3 - State Wide Need vs Supply

Year	Projected NF Need	Existing Certified NF Beds
2018	307	258
2023	297	258
2030	323	185*
2040	352	185*

*Assumes Yakima Valley School is closed.

See the full Attune Healthcare report in Appendix G.

State-Wide DD Nursing Facility Need

As shown in Table 3, the anticipated statewide need for DD Nursing Facilities is likely to grow from 307 clients in 2018 to 352 clients by 2040. This is a 1.13% per year rate of growth. There is a current deficit of DD nursing facility beds. If there is “no action,” the deficit will likely increase to about 138 beds by 2030 and 167 beds by 2040.

DSHS GOAL:
Public Trust

Strong management practices will ensure quality and efficiency.

DSHS GOAL:
Safety

Each individual and each community will be safe.

MISSION AND GOALS

Explain the connection between the agency's mission, goals and objectives; statutory requirements; and the problem, opportunity, or program requirements.

DSHS/DDA

The Developmental Disabilities Administration (DDA) is a direct service agency under DSHS. DDA administers programs at Rainier School.

The Developmental Disabilities Administration (DDA) endeavors to make a positive difference in the lives of people eligible for DD services, through offering quality supports and services that are: individual and family driven; stable and flexible; satisfying to the person and their family; and able to meet individual needs. Support and services are offered in ways that ensure people have the necessary information to make decisions about their options and provide optimum opportunities for success.

The proposed nursing care model supports DDA's mission and goals by tailoring services to a clients individual needs; by creating spaces that allow for healthy living; and by encouraging connection to the younger IDD community and events at Rainier School.

DDA Values

- All persons with developmental disabilities are provided every possible opportunity to live in a manner consistent with the general citizenry.
- The Administration promotes the development and implementation of new techniques and program approaches to ensure opportunities for positive change and for personal growth and development toward maximum independence.
- All services to persons with developmental disabilities are based on individual need and designated to preserve human dignity, protect civil and human rights and encourage the involvement and responsibility of the individual's family and community.

The DDA wants people who receive residential services to experience these benefits:

- Health and Safety
- Personal Power and Choice
- Personal Value and Positive Recognition by Self and Others
- A Range of Experiences Which Help People Participate in the Physical and Social Life of Their Communities
- Good Relationships with Family and Friends
- Competence to Manage Daily Activities

OPERATIONAL GOALS

Based on experience at the current Fircrest Nursing Facility, the most operationally efficient bed configuration involves 20-bed pods. This allows for the most economical staffing plan and meets or exceeds CMS direct nursing staff ratios of 4 – 1. Each single and double bed room has a shared bathroom, individual wardrobes, and personal storage areas. Other programmatic functions within each pod include family-like

amenities such as dining areas, activity space, nurse administration space, medication management space, and equipment storage. Other functions that improve efficiencies are included in the space program such as activity space for on-site physical therapy, occupational therapy, and speech therapy. There is also space within the new facilities to accommodate physician office space for on-site rounding and for on-site behavioral health professional visits.

Program goals that impact DD nursing facility space requirements include:

- Implement a staffing plan that embraces the Fircrest School model which has consistently received 4 to 5- star status from CMS annual audits.
- Optimize operational efficiencies
  - Develop single story buildings that minimize staff transport time
  - Utilize double loaded corridors to maximize staff observation capabilities and minimize walking distances for clients and staff
  - Include space within the nursing facility rather than transporting clients to other buildings on campus for heavily utilized programs and services. Services to be included within the nursing facility:
    - Physical, occupational, and speech therapy
    - Medical clinic space for physician rounding
    - Activity space
  - Include visual amenities such as windows for viewing the outdoors, covered patios for outdoor enjoyment, and skylights/clearstories for ample natural light.
- Minimize costly duplication of services where possible
  - Utilize centralized services available elsewhere on campus, including the centralized kitchen, laundry, and maintenance that can be transported to the new facility easily and economically.
  - Establish single point of entry for families and visitors with centralize reception area for check-in to promote safety and security for the entire building.
- Utilize existing space as much as possible while ensuring other program goals are met

A Nursing Facility program at Rainier School will allow each client who has aged out of the ICF model of care to engage in the services and programs offered through a nursing program that are age appropriate and achieve the continuity of care as defined by each individual's specific care plan. Those care plans embrace the DDA values for each person and their respective level of function, both physically and mentally. This includes clients in need of long-term care in a nursing facility as well as short term residents in need of respite and/or crisis management care.

Transition of nursing facility eligible clients to an appropriate age-specific program and separate facility ensures that ICF clients continue to receive the level of support and training they need to maximize their potential. Without transition of older and frailer clients to a nursing facility, the ICF program could potentially be decertified by CMS which would be a disservice for both sets of clients. In addition, there is potential for safety risks among clients who need a more intensive level of care but are housed in a

facility designed for a very different clientele and a very different model of care.

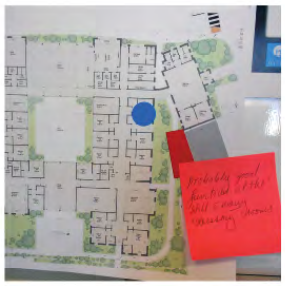
VISIONING WORKSHOPS

The SAGE team conducted a series of six visioning workshops to incorporate goals shared by staff and supporters at Fircrest School. The visioning workshops incorporated "lessons learned" from Fircrest's current four-star nursing facility, as well as future needs of aging residents at Fircrest Rainier School.

Honoring the human dignity of people with intellectual and developmental disabilities was one the most important goals cited in the visioning workshops. Staff at Fircrest School have close relationships with the residents there, many have worked with clients for over 20 years.

VISIONING

WORK-SHOPS



RESULTS

Results of workshops reveal a consensus towards certain architectural features and programmatic spaces

CURRENT STRENGTHS

"We're already one of the best nursing facilities in the state"
- Fircrest School

"Our medical team provides great care"
- Rainier School

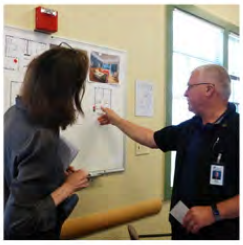
"Rainier School has excellent staff retention, 55% of our staff have worked here more than 15 years"
- Rainier School

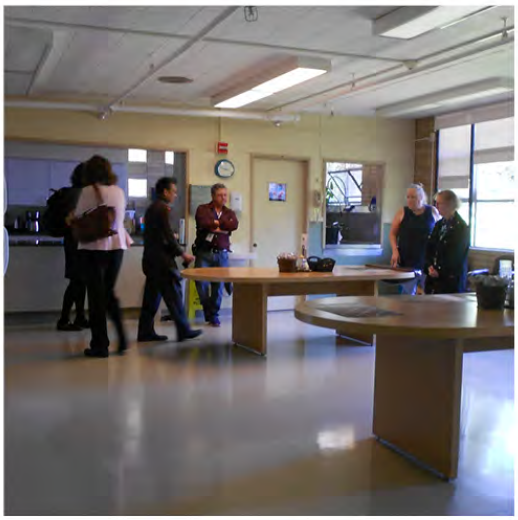
VISION OF NATURE AND LIGHT

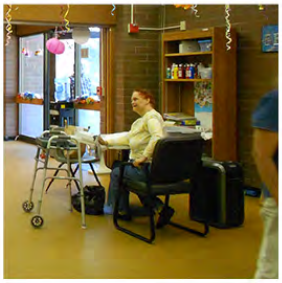
"A recreation zone, indoor greenhouse/ gardening, sensory room"
- Fircrest School

"It's important that clients can look out from the nursing home and see the world."
- Friends of Rainier

"Connection to nature, lots of natural light, lots of storage"
- Fircrest School







VISION OF A PLACE CALLED HOME

"more home-like"
- Fircrest School

"A fireplace in the Common Living Areas"
- Rainier School

"Nice place for social gathering between bedrooms"
- Fircrest School

SENSORY AREAS

"Open areas for clients to move about"
"Over-sized corridors are under-rated, wide corridors make for nice informal interior space."

"water fountain, bird bath, hummingbird feeder outdoors"

"Fenced gardening area, ability to feel different textile opportunities, and therapy area"

"Tactile things to touch and feel"

THE NURSING FACILITY

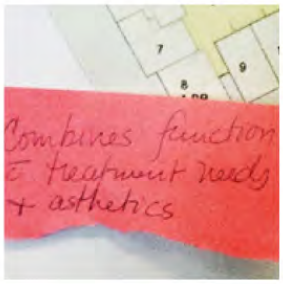
"One big building to house all nursing home clients and a space for indoor activities"
- Fircrest School

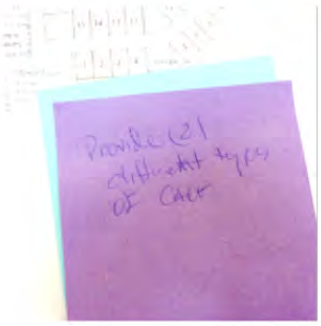
"AC in each bedroom with individual controls"
- Fircrest and Rainier School

NURSING MENITIES

More parking"
"Northwest portion of the campus, close to Activities Building"

"Combine all (NF) buildings"





WHAT IS NEEDED

Describe in general terms what is needed to solve the problem.

A new Nursing Facility is needed at Rainier. The preferred solution for the Rainier School is to create a new nursing facility on the existing campus:

- accomodates current clients who need nursing levels of care (60 clients eligible today)
- provide for growth in demand as existing ICF clients age-in and offer new programs in respite care and crisis management services

To accomodate needed nursing capacity, a 100-bed facility is proposed. The preferred alternative provides expansion potential., The optimal bed size per residential unit from a functional staffing perspective is 20 beds based on experience at the Fircrest School nursing facility which regularly receives excellent four-star ratings from their annual CMS Survey. Each 20 bed residential unit will include a mix of shared layout rooms and single rooms.

Staffing

The Direct Nursing staff plan includes Certified Nurse Assistants, Licensed Practical Nurses and Registered Nurses. The ratio of direct nursing staff per client at Rainier will be 4 staff per client, similar to the Fircrest School. The direct nursing staff will be supported within the facility by physical therapists and occupational therapists as well as on-site physicians and dentists, pharmacy and behavioral health services. Specialty medical care will be provided off-site by community based providers. Other key staff include services to be shared with the ICF such as administration, housekeeping, dietary, and central services for facility operations and maintenance.

Based on the Fircrest School's nursing facility, it is apparent that the optimal staffing model for the targeted population is a 20 bed unit with a 4:1 staff to patient ratio. This meets CMS requirements and provides maximum levels of staff hours per client per day as needed by most clients in need of nursing care. Each of the alternatives explored in this predesign plan builds upon the optimal staffing configuration which in some alternatives can be accommodated while other alternatives fall short.

Benefits

The benefits of creating a Nursing Facility at the Rainier School include:

- Reinstatement of existing decertification of one ICF program, including reactivation of federal funds to the Active Treatment of ICF clients in that facility, estimated to be $50 million per year
- Stabilization of the other two ICF facilities' accreditation status and avoidance of potential loss of federal funding that accompanies de-certification.
- Avoid the risk and life-safety liability of potentially deadly relocation trauma.
- Preserve the valuable expertise and personal connection the present long term Rainier staff have with the clients.
- Avoid loss of 1050 staff po
- Improved facilities and appropriate staffing plans to meet the long term care needs of those who are currently eligible for nursing care at Rainier School.
- Ability to diversify programs to optimize use of similar staff resources and expertise through added nursing services, respite care, and crisis stabilization services that support community based residential care and parental care for DD clients.
- Improved ability to recruit direct care nursing staff due to improved working environment of a new facility that focuses on nursing as compared to the ICF programs that focus on

Active Treatment to improve vocational and residential independence.

HISTORY

Include any relevant history of the project, including previous predesigns that did not go forward to design or construction.

Prior master plans and studies that informed this Predesign Study:

- Rainier School Master Plan, Rolluda Architects, April 20,2017
- Rainier School Drainage Investigation (in progress at the time of this report), AHBL, 2018
- Part 3 Feasibility Study for the Closure of State Residential Habilitation Centers, November 1, 2009
- Rainier School Property Use Analysis, Heartland, November 2003
- DSHS Planning for the Future of DDD Residential Habilitation Centers, Report to the Legislature, David Deshaies LLC, September 30, 2003

The studies cited have all investigated the potential of closing Rainier School altogether. While Rainer School's ICF continues to operate, at the time of this report, uncertainty about the the facility's long term sustainability has made it difficult to recruit new staff.

Construction of a new nursing facility and development of three new programs in long term care, respite care, and crisis management will help in numerous areas.

The new nursing facility will help stabilize Rainier School for many years to come. A state-of-the art facility will improve staff recruitment and strengthen the employment opportunities in and around the rapidly growing areas of Buckley and Bonnylake. And adding nursing capactiy will provide aging DD clients in need of nursing services a care setting designed specifically to meet their needs while maintaining relationships with their life-long friends and caregivers from the Rainier School.

ENDNOTES

1. Carolyn C. Tinglin (2013) Adults With Intellectual and Developmental Disabilities: A Unique Population, Today's Geriatric Medicine, Vol. 6 No. 3 P. 22
2. Alan Factor, Tamar Heller, Matthew Janicki (2012) Bridging the Aging and Developmental Disabilities Service Networks: Challenges and Best Practices , University of Illinois Department of Disability and Human Development www.acf.hhs.gov/sites/default/files/aidd/bridgingreport_3_15_2012.pdf
3. Gretchen Engquist, PhD, Cyndy Johnson, and William Courtland Johnson, PhD (2012) Systems of Care for Individuals with Intellectual and Developmental Disabilities: A Survey of States CHCS Center for Health Care Strategies, Inc.
4. Arthur Webb (2012) 'The role of nursing homes in national health care reform: From warehouse to medical home' 2-6
5. DSHS Nursing Facility List https://fortress.wa.gov/dshs/adsaapps/lookup/NHAdvLookup.aspx
6. DSHS (September 30, 2003) Planning for the Future of DDD Residential Habilitation Centers, Report to the Legislature

3 ANALYSIS OF ALTERNATIVES

"Every moment of light and dark is a miracle."—Walt Whitman

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ALTERNATIVES SUMMARY

Describe all alternatives that were considered, including the preferred alternative. Alternatives may include co-location, renovation, leased space, purchase, new construction, or other options explored:

This predesign study explored alternatives for a new nursing facility at Rainier School, both on and off campus. The impacts of taking "no action" were also investigated. Alternative 4 was unanimously selected by Rainier School's Predesign Visioning Committee. Rainier School's existing campus is shown below with alternative sites indicated.

RAINIER SCHOOL CAMPUS – ALTERNATIVE SITES

ALTERNATIVE 1
RENOVATE 6
1-STORY BUILDINGS
PINE, FIR, HEMLOCK, SPRUC
ROBIN, HURLBERT

ALTERNATIVE 2
RENOVATE 4
2-STORY BUILDINGS
CEDAR, MARTIN,
OLSON, ALDER

ALTERNATIVE 3
NEW CONSTRUCTION
ON EXISTING
AGRICULTURAL FIELDS

ALTERNATIVE 4
RENOVATE A 2-STORY
STAFF DORM +
NEW CONSTRUCTION

ALTERNATIVE 5
RENOVATE EXISTING
WOOD FRAME COTTAGES

Campus Map showing major functions at Rainier School. Potential repurposed buildings for the proposed nursing facility are indicated in color below:

ALTERNATIVE SITES:

ALTERNATIVE 1. PINE, FIR, HEMLOCK, SPRUCE ROBIN, HURLBERT
ALTERNATIVE 2. CEDAR, ALDER, MARTIN, OLSON
ALTERNATIVE 3. LEASED AGRICULTURAL LAND
ALTERNATIVE 4. VACANT STAFF DORM
ALTERNATIVE 5. WOOD FRAME COTTAGES

CAMPUS BUILDINGS:

6. MAIN KITCHEN & COFFEE SHOP
7. COMMERCIAL LAUNDRY
8. MAIN ADMINISTRATION
9. PAT-A 110 A AND B
10. LEASED RESIDENCE
11. RESIDENCES
12. MAPPED WETLAND
13. STEAM PLANT

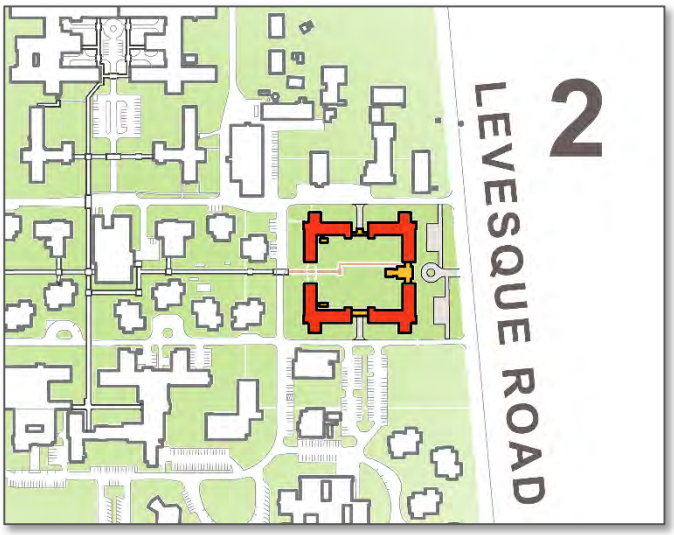
Alternatives investigated:

No Action Alternative

The effects if no action is taken.

Alternative 1

Renovate six 1-story buildings (Pine, Fir, Hurlbert, Hemlock, Spruce, Robin) with a possible new construction addition — 100 and 160 nursing bed options.



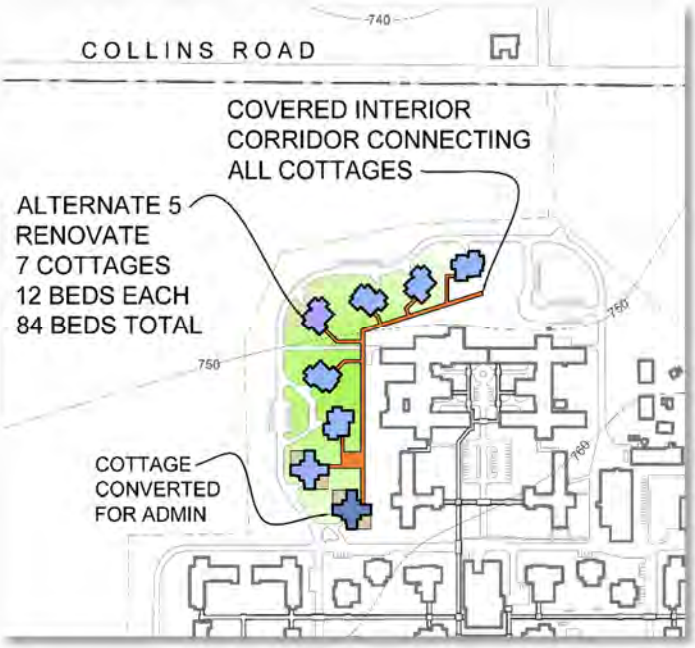
Alternative 2

Renovate four 2-story buildings, Cedar/Olson/Alder/Martin off Levesque Road — 104 nurisng beds.

Alternative 3

New construction on agricultural fields off Ryan Road — 100 and 160 nursing bed options.

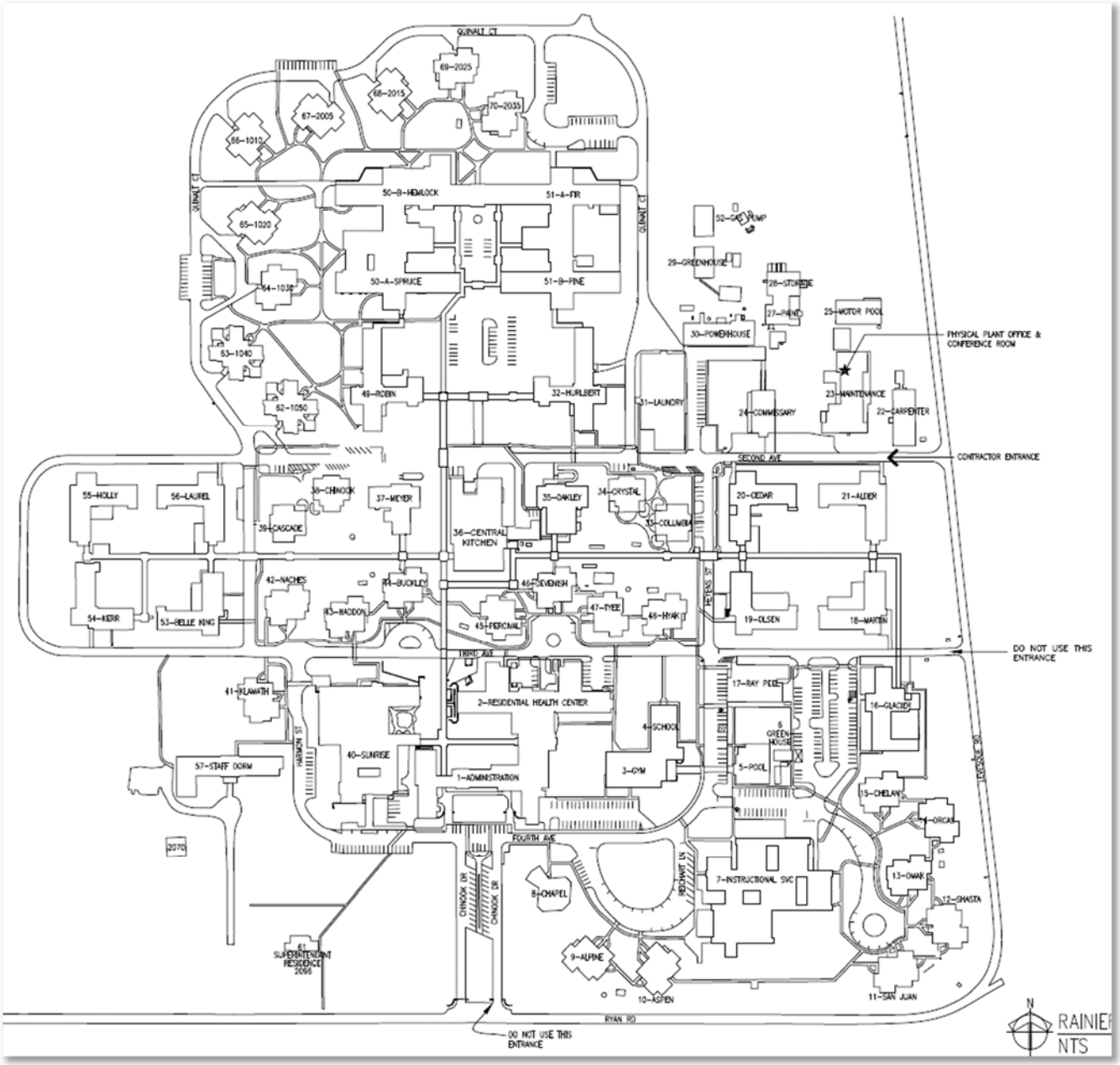
Alternative 4
Preferred
Renovate an existing unused staff dorm with new construction — 100 and 160 nursing bed options.



Alternative 5
Renovate 7 wood frame cottages connected with a new interior covered walkway — 84 nursing beds.

Off-Site Alternatives
Investigation of potential off-site pre-existing nursing facilities as well as repurposing of other buildings on campus. Off-site alternatives looked at available Pierce and King County nursing facilities. A public disclosure letter dated September 10, 2018 was provided from DSHS Aging and Long-Term Support Administration for the Nursing Homes that were closed in the last 24 months. See appendix for full letter. There were 5 Nursing Facilities identified and the feasibility of using each facility was studied.

Map of Existing Buildings at Rainier School



NO ACTION ALTERNATIVE

Programmatic Outcome

Describe the programmatic outcome of not addressing the problem or opportunity:

Rainier School does not have a nursing facility and clients are aging. The programmatic outcome of not addressing the problem means that elder residents at Rainier School will continue to not meet the training requirement of the ICF program and Rainier School's ICF programs will be decertified by CMS. Federal funding will be withdrawn.

Federal funding is a large portion of Rainier School's funding and the school will likely not be able to stay open long-term. The ICF programs have been a zero -rejection program. Without the ICF program, some DD clients will likely be sent to hospitals.

Growth projections in Washington State indicated a growing number DD people will need nursing care. There will be an inadequate number of RHC nursing facility beds. Community-based, Medicaid-funded skilled nursing facilities are already stretched due to the aging population and funding challenges and will likely not be able to take on DD enhanced-care needs. Nursing facility elligible DD clients will likely end up seeking care at hospitals, filling acute care beds with long-term needs.

The impacts of no action also effect Rainier School's workforce. As the ICF program is phased-out, the Buckley community will loose jobs and the specialized expertise and connection to clients will be lost.

No Action Alternative Advantages and Disadvantages

The advantages and disadvantages of each alternative. Please include a high-level summary table with your analysis.

Advantages

- None

Disadvantages

- Inadequate availability of nursing facility beds skilled at specialized needs of DD clients.
- Inadequate supply of long term nursing beds will mean greater use of hospital beds for long term care.
- Will likely result in the need to transfer clients and the risk of relocation trauma.
- Staff with specialized skills will need to find work elsewhere.

No Action Cost Estimates

Cost estimates for each alternative.

Not applicable

No Action Schedule

Schedule estimates for each alternative. Estimate the start, midpoint and completion dates

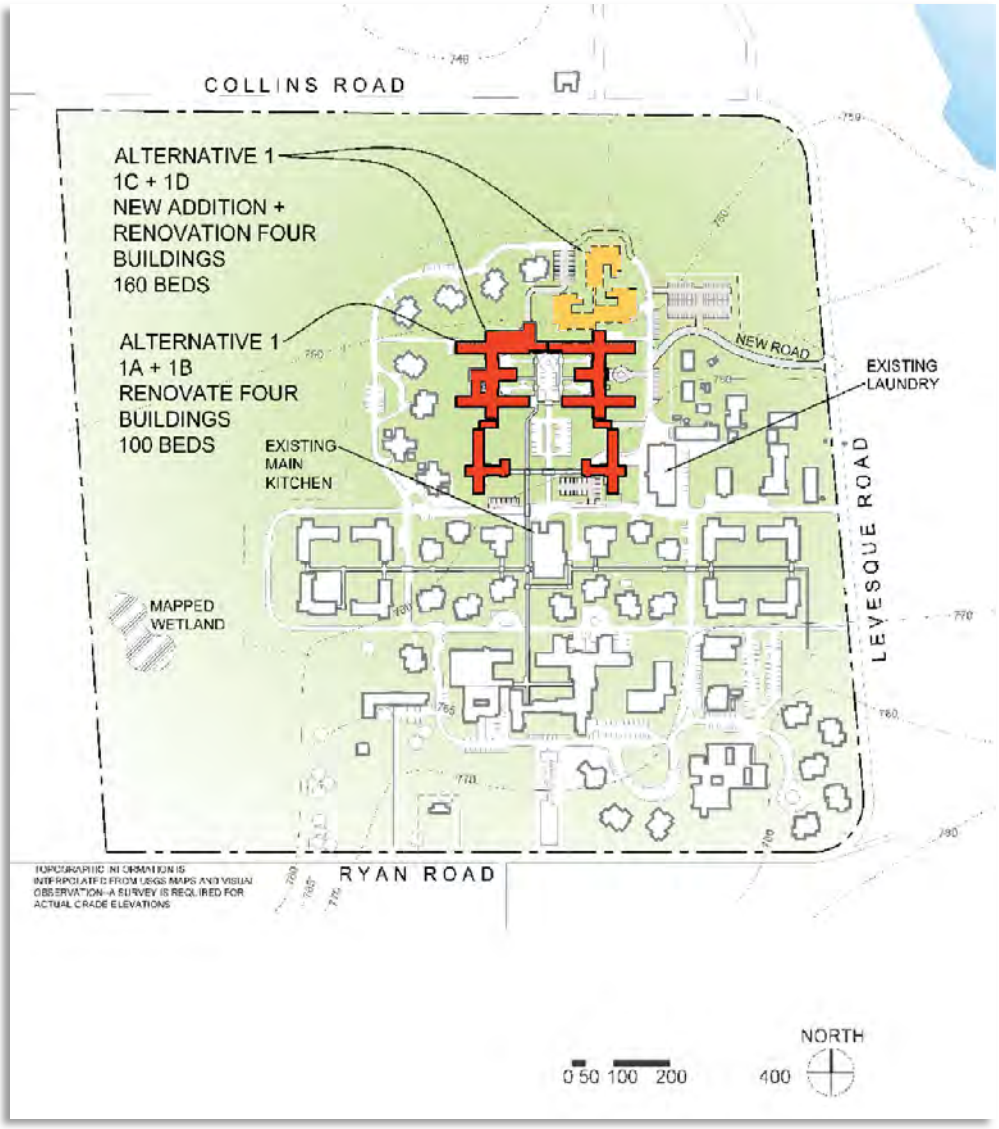
Not applicable

ALTERNATIVE 1
RENOVATE SIX BUILDINGS

Describe all the alternatives that were considered including the preferred alternative.

Alternative 1 is located at the north side of the Rainier School Campus. The 100 bed option includes the renovation of 6 existing campus buildings built in 1953—Pine, Fir, Hemlock, Spruce, Hurlbert and Robin. The 160-bed option includes the same renovation with a 60 bed new construction addition.

Rainier School's Pine and Hurlbert Buildings



Alternative 1 Variations

100-Bed Nursing Facility
1-Story and Partial Basement Renovations
122,910 GSF

1A. LEED Silver
1B. Zero Energy LEED Silver

160 Bed Nursing Facility
Renovation and New Addition
167,910 GSF

1C. LEED Silver
1D. Zero Energy LEED Silver

Advantages and Disadvantages

The advantages and disadvantages of each alternative. Please include a high-level summary table with your analysis.

Advantages

- Minimal structural demo
- A one-story nursing facility is easier for wheelchair exiting to outside in an emergency (no elevators or refuge areas on a 2nd floor)
- The nursing facility has its own entry off Levesque road
- Close to Rainier School's laundry facility and main kitchen
- Relatively flat site
- Enough south-facing solar panels can be mounted on the roof and in the new parking lots to achieve zero-energy. Parking lot solar panels are located inconspicuously in the back of the site

Disadvantages

- Existing column locations result in single-loaded hallways—low efficiency
- Longest distances for staff to walk (900 feet) of all alternatives.
- Resident beds are far apart resulting in increased staff operation costs.
- To fit into the existing building bedroom, resident rooms are scattered throughout the buildings increasing likelihood of isolation.
- Administration functions are split between two distant locations.
- Existing windows must be saw-cut lower at resident bedrooms to comply with code requirements.
- Solar panels on the roof may seem inappropriate for the style of the older buildings.
- Doesn't meet ideal program requirements for support spaces near bedrooms.
- The Hemlock / Spruce building contain functions that must be relocated elsewhere - triggers additional $ not shown.

Alternative 1 Cost Estimates

Cost estimates for each alternative.

Estimated construction cost, in 2018 dollars:

100 Bed LEED Silver:	$42.1mil
100 Bed LEED Silver +NetZero:	$46.1 mil
160 Bed LEED Silver:	$66.4 mil
160 Bed LEED Silver +NetZero:	$69.0 mil

Alternative 1 Schedule

Schedule estimates for each alternative. Estimate the start, midpoint and completion dates.

Design and Bidding Phases: November 2019 through February 2021

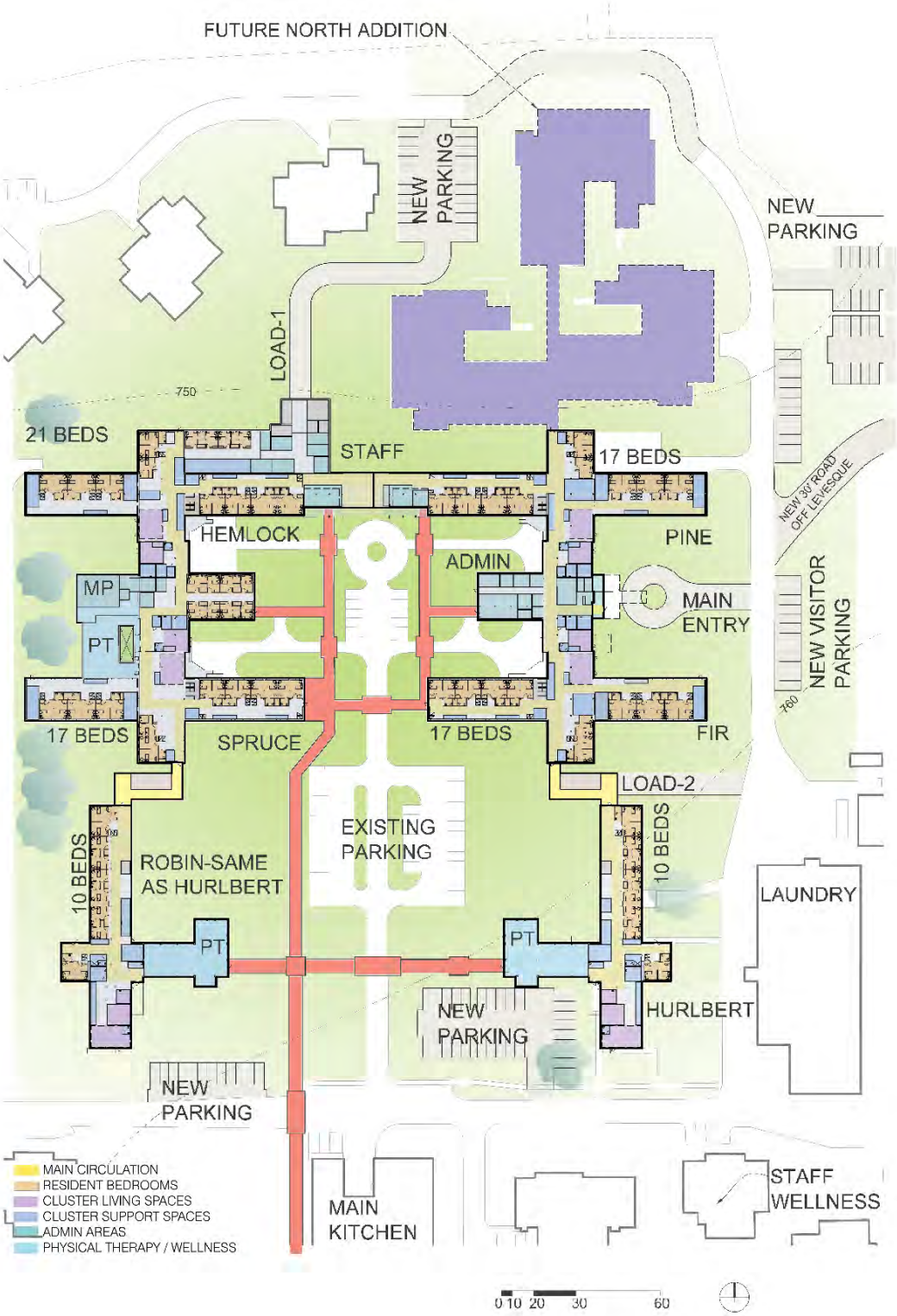
Construction Start Date: April 2021

Construction Midpoint Date: December 2021

Construction Completion Date: October 2022

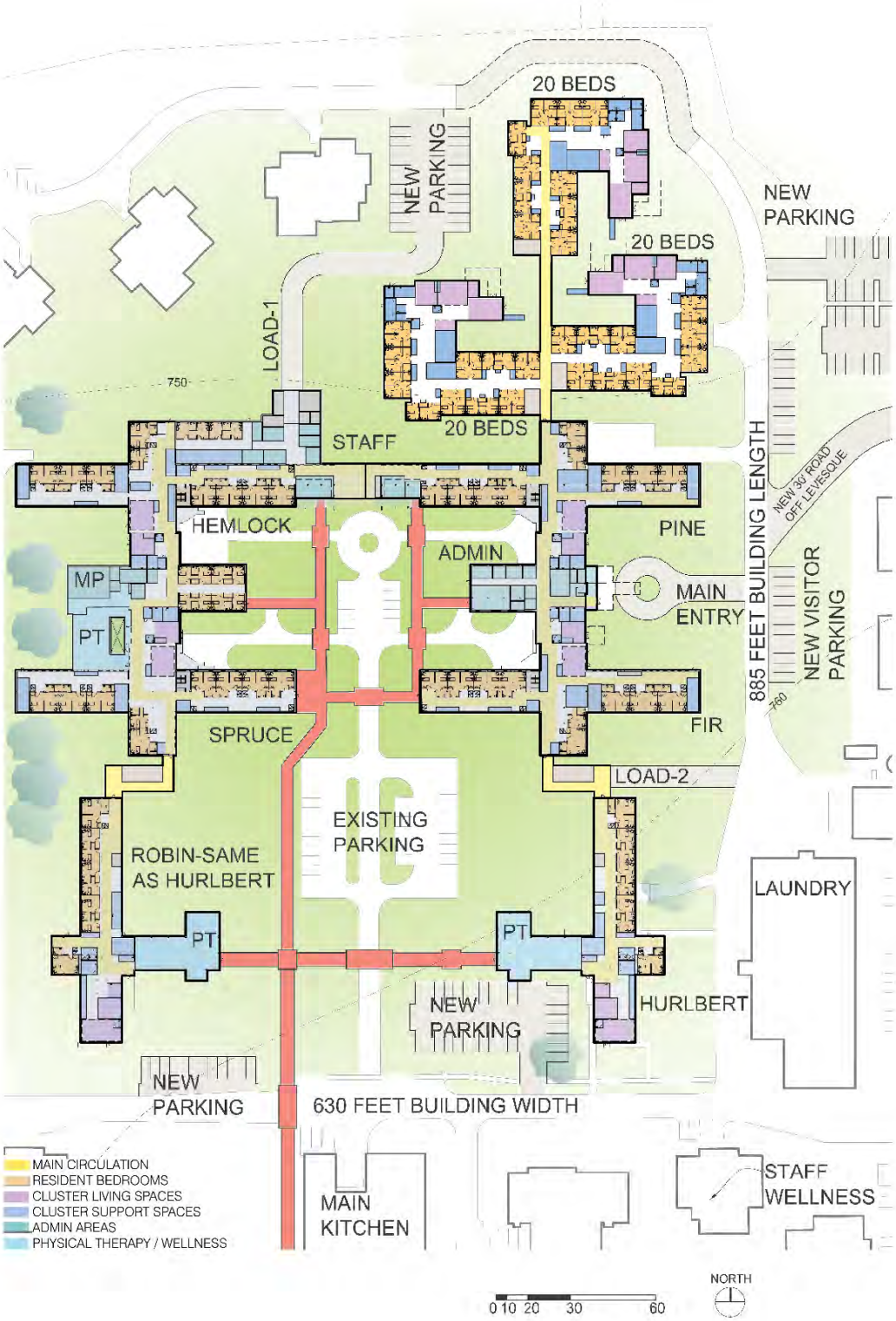
ALTERNATIVE 1

100-Bed Nursing Facility



ALTERNATIVE 1

160-Bed Nursing Facility

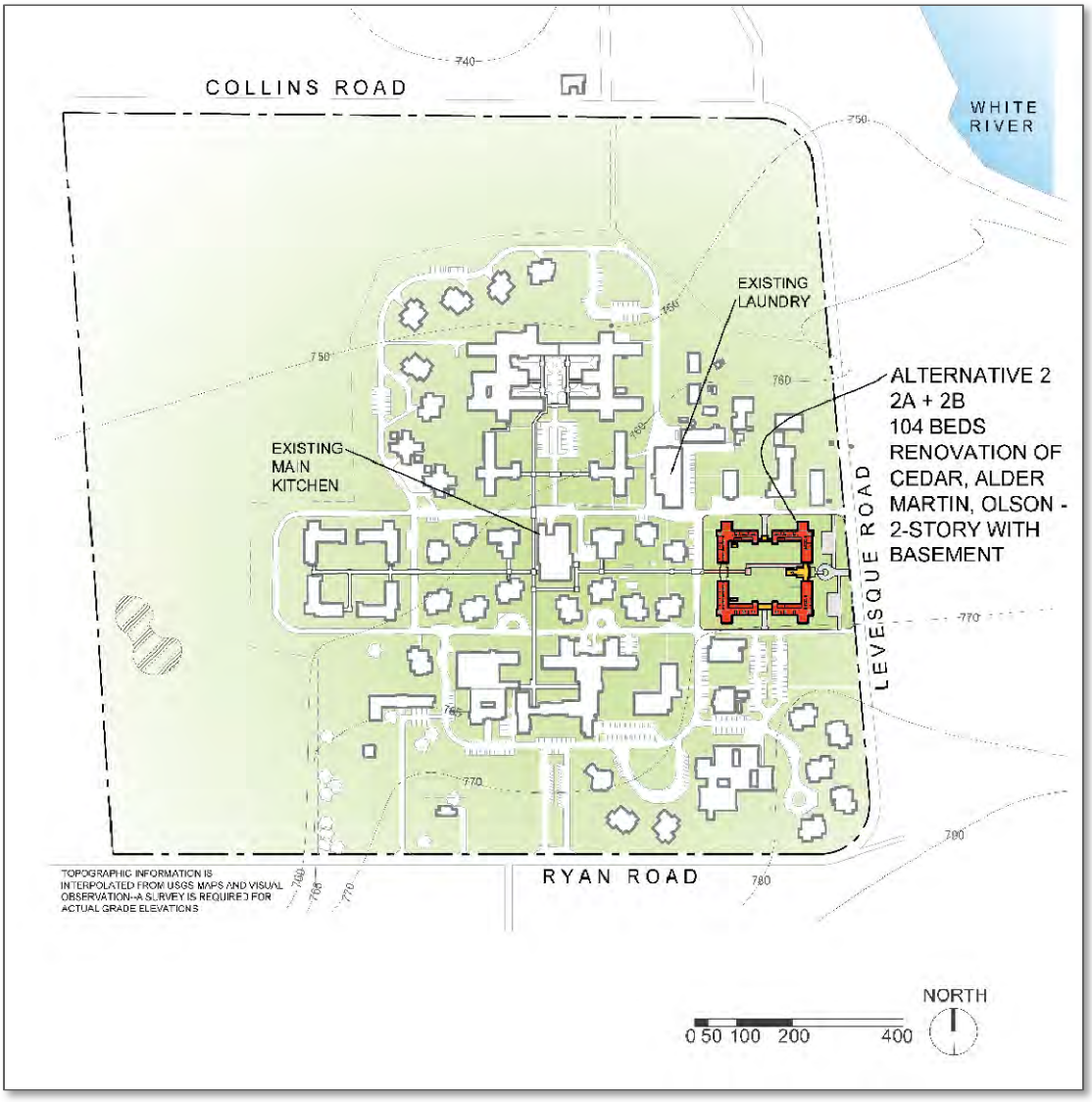


ALTERNATIVE 2
RENOVATE FOUR BUILDINGS

Describe all the alternatives that were considered including the preferred alternative.

Alternative 2 is located at the east of the Rainier School Campus, off Levesque Road. The 104 bed option includes the renovation of 4 existing campus buildings built in 1950—Cedar, Alder, Olson, and Martin . Alternative 2 is bound on four sides by roads, hence there is no room for future expansion for 160 nursing beds.

Rainier School's Cedar, Olson et al.



Alternative 2 Variations

104 Bed Nursing Facility

2-Story and Basement Renovations

123,360 GSF Renovation

11,210 GSF New Additions

1A. LEED Silver
1B. Zero Energy LEED Silver

Advantages and Disadvantages

The advantages and disadvantages of each alternative. Please include a high-level summary table with your analysis.

Advantages

- Makes use of an under-used existing building
- Nursing facility can have its own visitor entry off of Levesque road
- Close to Rainier School's laundry facility
- Level site

Disadvantages

- Existing column locations results in single-loaded hallways—low efficiency
- Long hallway distances for staff to walk (almost 900 feet for only 104 beds)
- 12 to 14 beds in each residential 'neighborhood' results in staffing inefficiencies
- Doesn't meet full program requirements
- Requires an 'area of refuge' on the 2nd floor for wheelchair safety in an emergency - can't move wheelchair users out of the building in an emergency
- Two story structure will trigger higher, more expensive construction type.
- In order to maximize use of the building at 104 beds, a portion of administrative functions are located in the basement
- Existing 1st floor is 3' above grade - requires numerous ramps, 36 feet long

Alternative 2 Cost Estimates

Cost estimates for each alternative.

Cost estimates were not performed for this option. Costs to completely demolish each building was estimated at $2 million each, taking into account asbestos and hazardous material abatement.

Alternative 2 Schedule

Schedule estimates for each alternative. Estimate the start, midpoint and completion dates.

Design and Bidding Phases: November 2019 through February 2021

Construction Start Date: April 2021

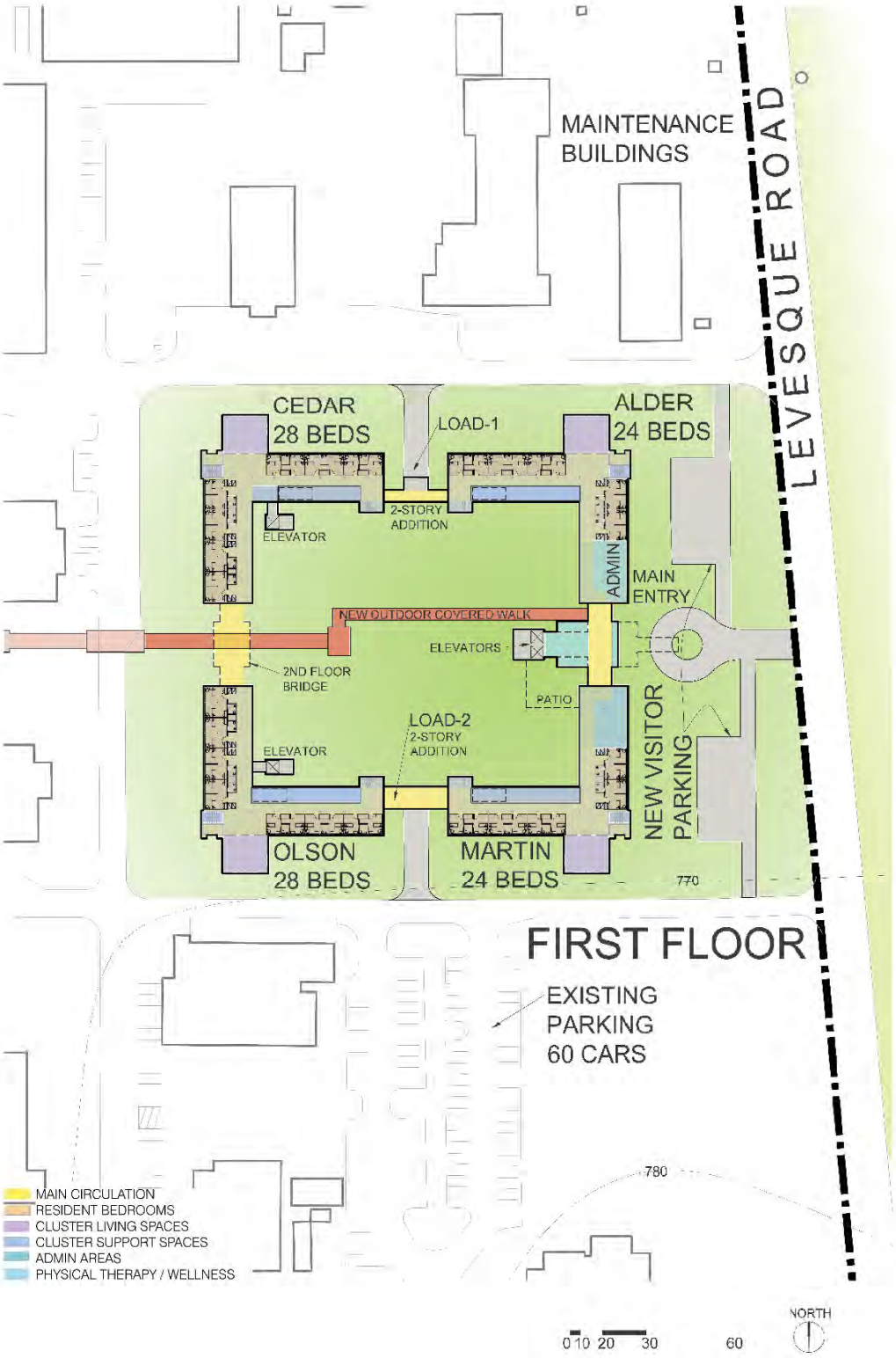
Construction Midpoint Date: December 2021

Construction Completion Date: October 2022

Schedule is the same for both alternatives

ALTERNATIVE 2

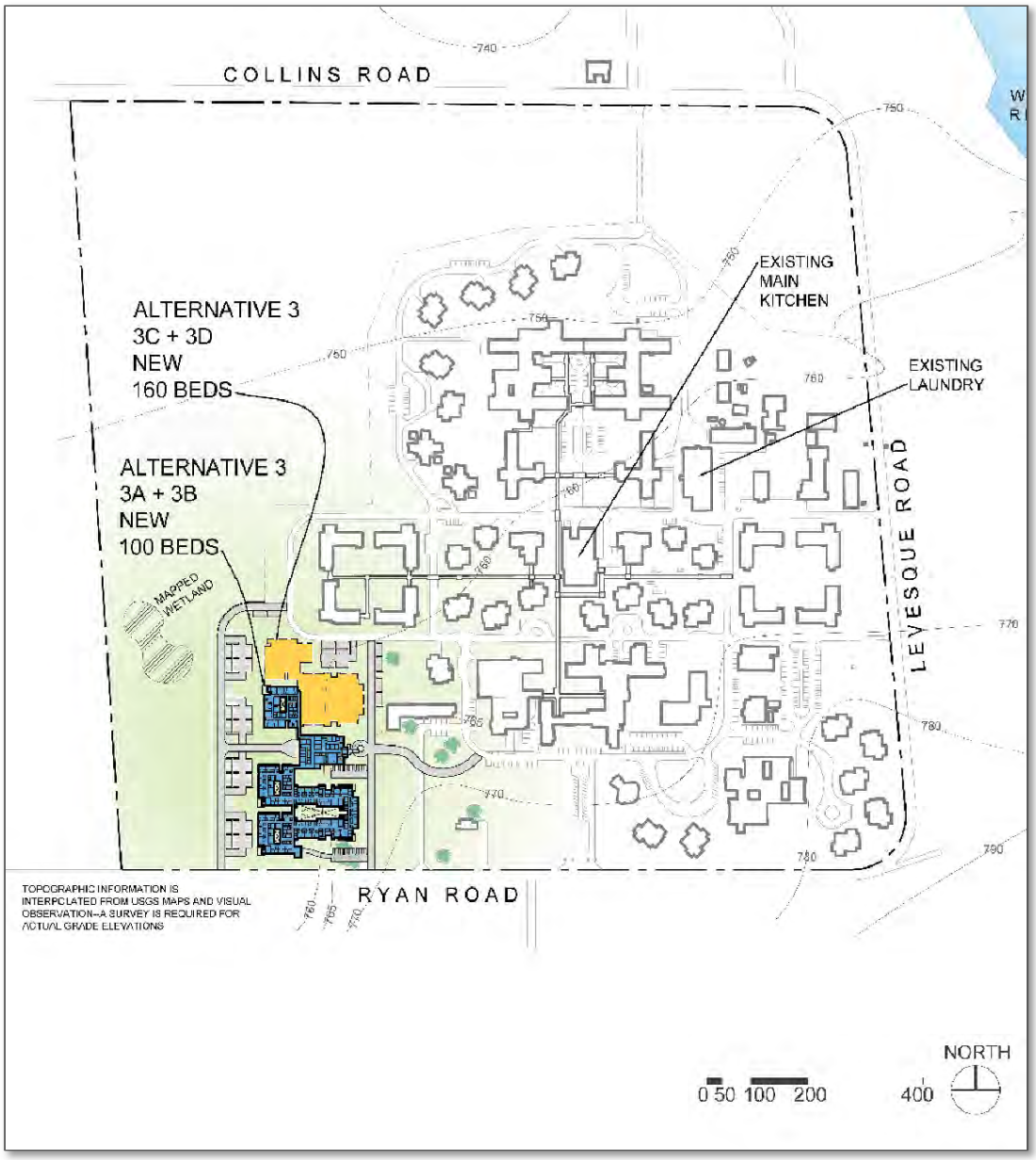
104-Bed Nursing Facility



ALTERNATIVE 3
AGRICULTURAL FIELD

Describe all the alternatives that were considered including the preferred alternative.

Alternative 3 is located at the west of the Rainier School Campus, off Ryan Road. Alternative 3 makes use of a portion of an agricultural field, currently used for farming. 100-bed and 160-bed options are entirely new construction.



Alternative 3 Variations

100 Bed Nursing Facility

1-Story New Construction

94,880 GSF

1A. LEED Silver

1B. Zero Energy LEED Silver

160 Bed Nursing Facility

1-Story New Construction

142,000 GSF

1C. LEED Silver

1D. Zero Energy LEED Silver

Advantages and Disadvantages

The advantages and disadvantages of each alternative. Please include a high-level summary table with your analysis.

Advantages

- Allows for largest facility, lots of room for future expansion
- Allows for a more efficient layout than the full renovation at alternate 1 pine-fir, or alternate 2 Cedar-Olson
- More beds in less square feet
- Can operate as a stand-alone facility apart from the main campus
- Meets all programmatic requirements
- Allows for a facility that can best meet the needs of DD residents by encouraging community-building while allowing staff to work at their best.
- Allows for most efficient staffing at 20 beds for each pod neighborhood-cluster.
- Encourages staff pride in a new state-of-the-art facility.
- One-story new construction allows use of wood frame construction.

Disadvantages

- Doesn't make use of an existing building
- Not a flat site. Grade slopes 7 feet from main administration building. Requires fill to level the site.
- Expands campus' overall footprint
- Requires removal of many trees
- Nearby wetlands and liquefaction-prone soils (per 2013 Hart-Crowser geotechnical report of this proposed location)

Alternative 3 Cost Estimates

Cost estimates for each alternative.

Estimated construction cost, in 2018 dollars:

100 Bed LEED Silver:	$47.3 mil
100 Bed LEED Silver +NetZero:	$49.5 mil
160 Bed LEED Silver:	$70.8 mil
160 Bed LEED Silver +NetZero:	$76.9 mil

Alternative 3 Schedule

Schedule estimates for each alternative. Estimate the start, midpoint and completion dates.

Design and Bidding Phases: November 2019 through February 2021

Construction Start Date: April 2021

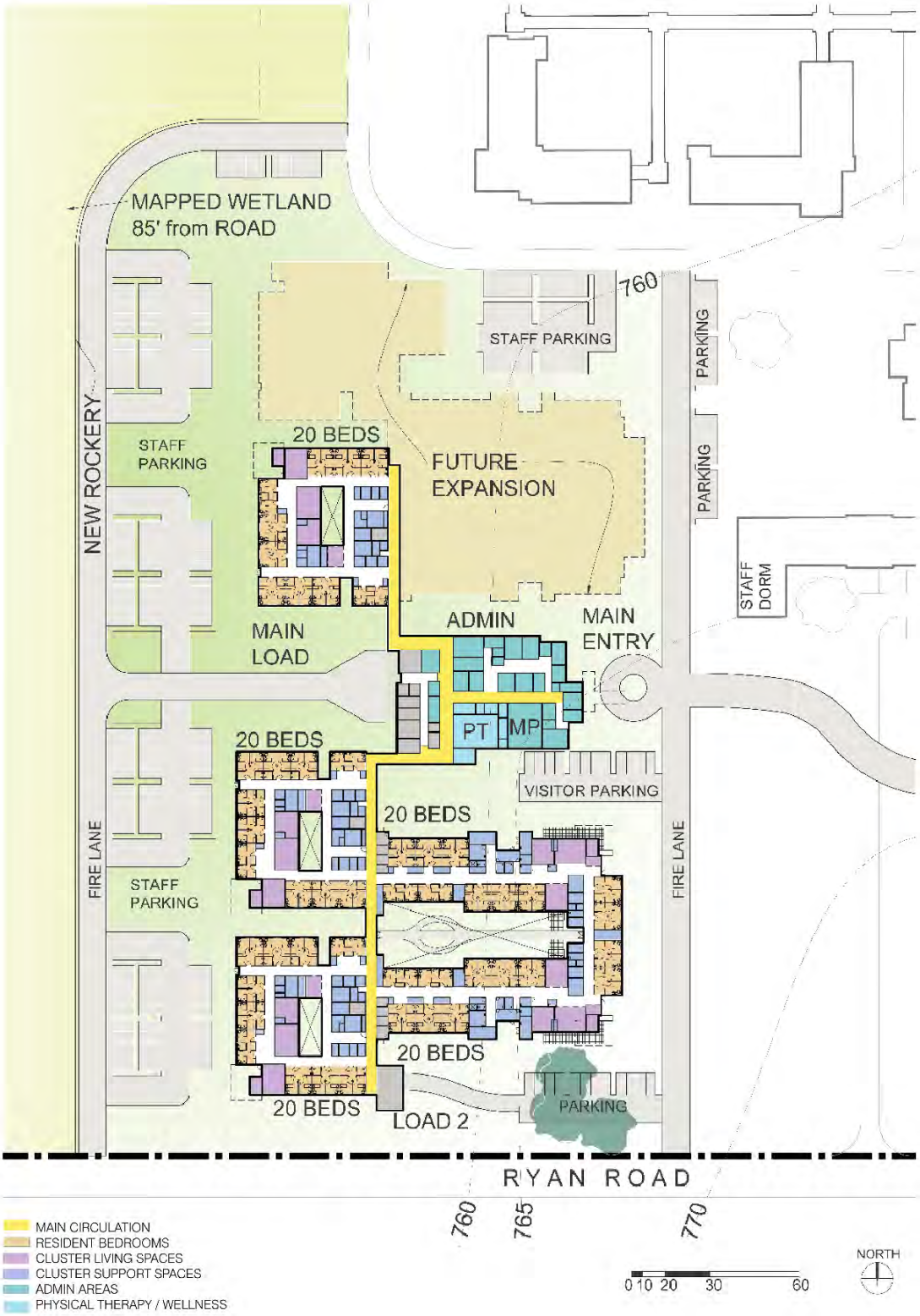
Construction Midpoint Date: December 2021

Construction Completion Date: October 2022

Schedule is the same for all alternatives

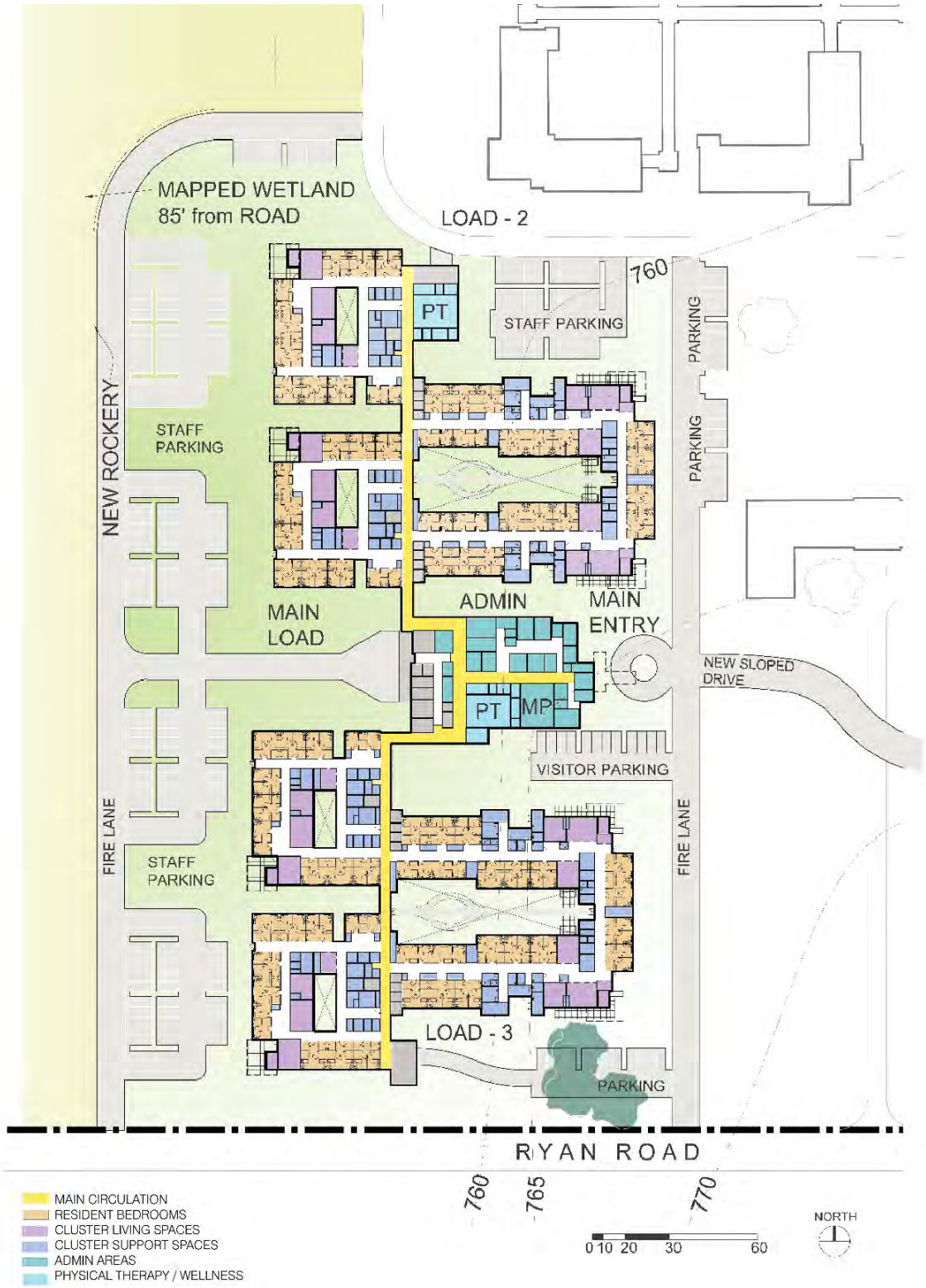
ALTERNATIVE 3

100-Bed Nursing Facility



ALTERNATIVE 3

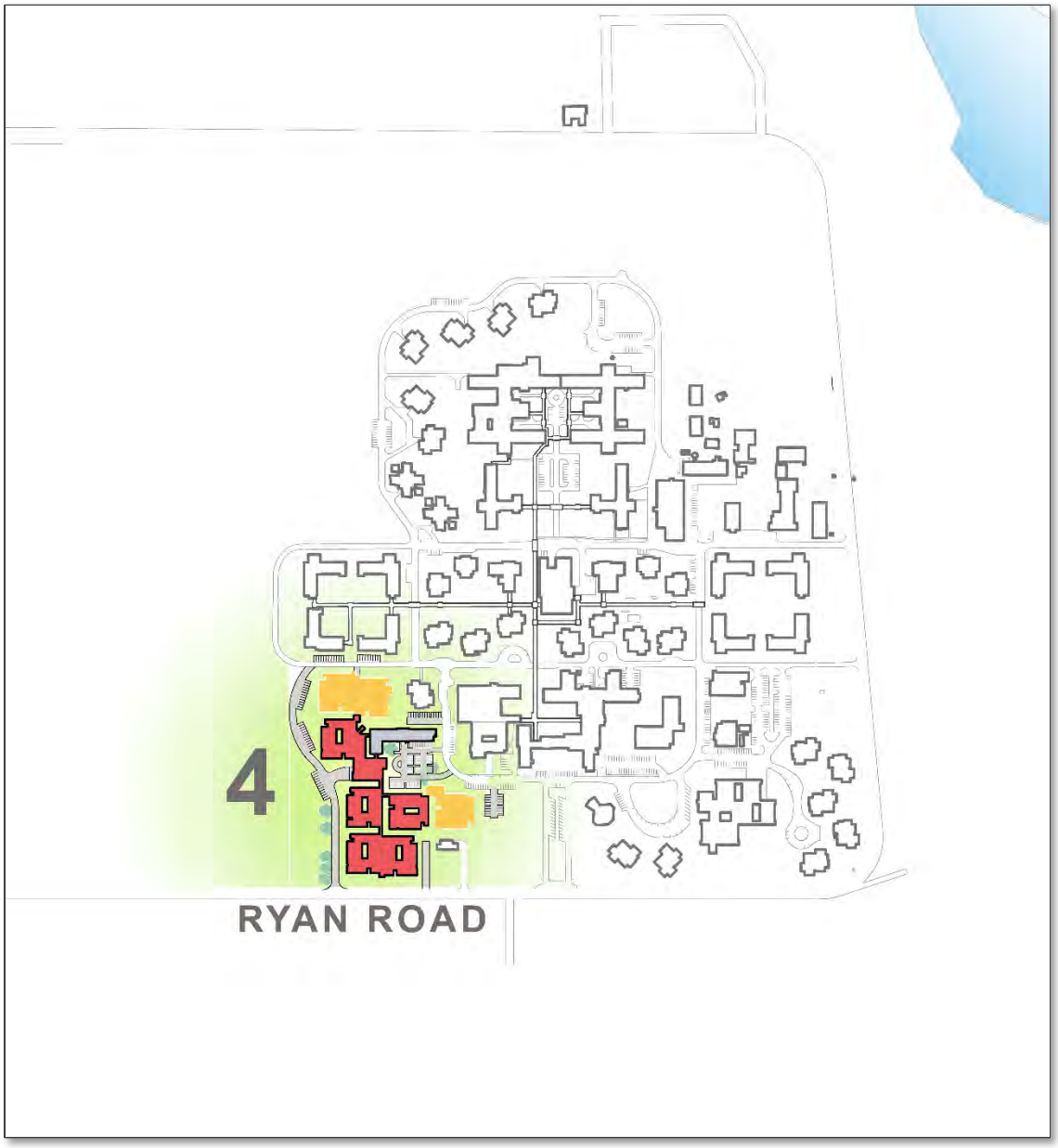
160-Bed Nursing Facility



ALTERNATIVE 4 PREFERRED

Describe all the alternatives that were considered including the preferred alternative.

Alternative 4 is located at the west of the Rainier School Campus, off Ryan Road. Alternative 4 makes use of an existing 2-story staff dorm built in the 1950s. 100-bed and 160-bed options include both new construction and renovation.



Alternative 4 Variations

100 Bed Nursing Facility

1-Story New Construction +
2-Story with Basement Renovation
91,480 GSF New, 12,200 GSF Renovated
1A. LEED Silver
1B. Zero Energy LEED Silver

160 Bed Nursing Facility

1-Story New Construction +
2-Story with Basement Renovation
142,160 GSF New, 12,200 GSF Renovated
1C. LEED Silver
1D. Zero Energy LEED Silver

Advantages and Disadvantages

The advantages and disadvantages of each alternative. Please include a high-level summary table with your analysis.

Advantages

- Makes use of an under-used existing building - staff dorm used for administration
- Allows for a more efficient layout than the full renovation at alternate 1 pine-fir, or alternate 2 Cedar-Olson.
- More beds in less square feet
- Can operate as a stand-alone facility apart from the main campus but doesn't expand campus footprint.
- Meets all programmatic requirements
- Allows for a facility that can best meet the needs of IDD residents by encouraging community-building while allowing staff to work at their best.
- Allows for most efficient staffing at 20 beds for each pod neighborhood-cluster.
- Encourages staff pride in a new state-of-the-art facility.
- One-story new construction allows use of type VA wood frame construction.
- Only a small wood frame structure is demolished (the leased alternative school building)—cost savings.
- Basement and 2nd floor of staff dorm available for future expansion

Disadvantages

- Some tree removal, although less than Alternative 3
- Slight slope, requires grading at north fire lane next to agricultural fields, although less than Alternative 3
- Only the 1st floor of the existing staff dorm is renovated for use in the new nursing facility. Costs are incurred for exterior insulation, window replacement, and general interior cleanup for the unused 2nd floor and basement.

Alternative 4 Cost Estimates

Cost estimates for each alternative.

Estimated construction cost, in 2018 dollars:

100 Bed LEED Silver:	$50.6 mil
100 Bed LEED Silver +NetZero:	$51.5 mil
160 Bed LEED Silver:	$73.1 mil
160 Bed LEED Silver +NetZero:	$76.9 mil

Alternative 4 Schedule

Schedule estimates for each alternative. Estimate the start, midpoint and completion dates.

Design and Bidding Phases: November 2019 through February 2021

Construction Start Date: April 2021

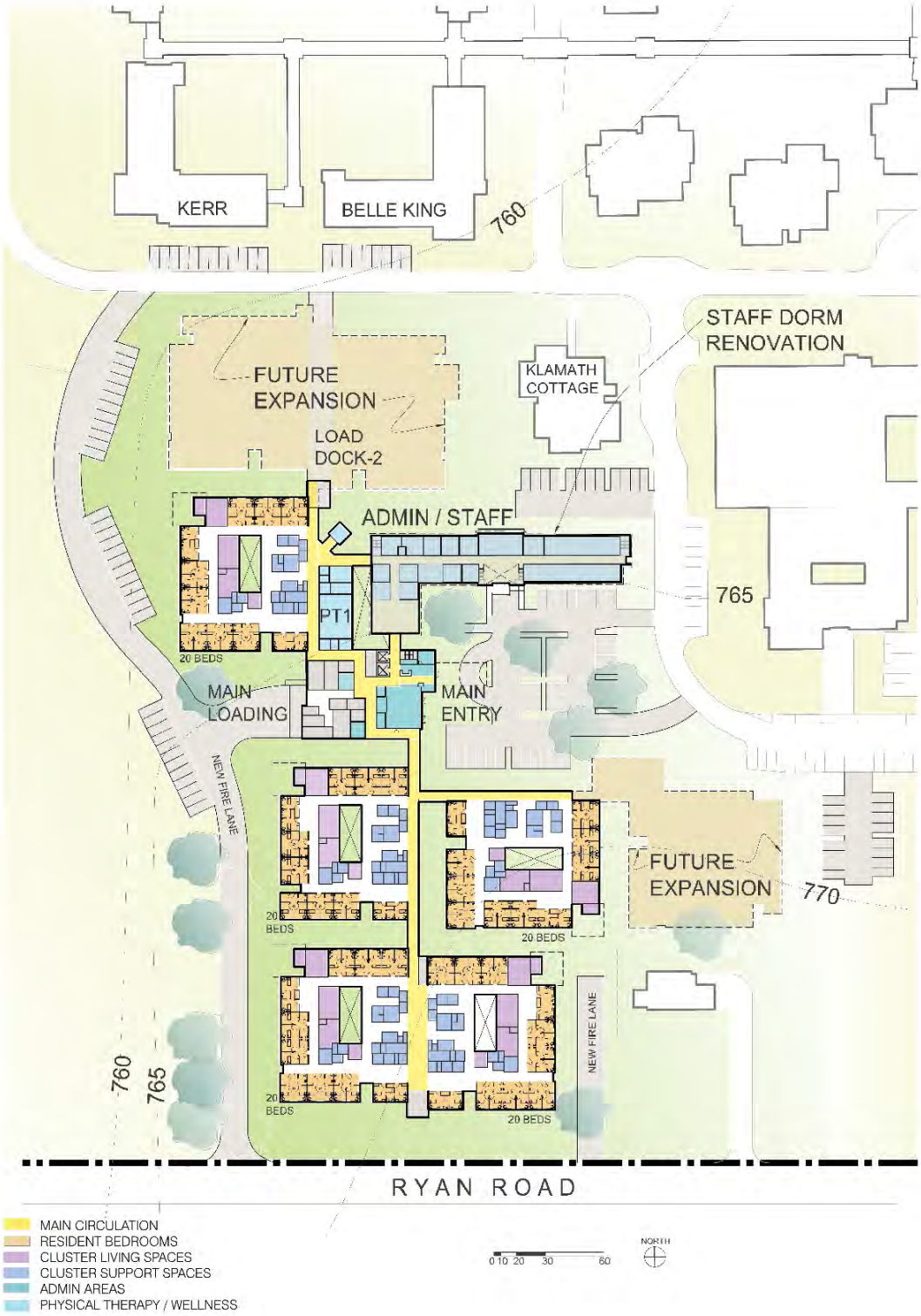
Construction Midpoint Date: December 2021

Construction Completion Date: October 2022

Schedule is the same for all alternatives

ALTERNATIVE 4

100-Bed Nursing Facility



ALTERNATIVE 4

160-Bed Nursing Facility

ALTERNATIVE 5
RENOVATE 7 COTTAGES

Describe all the alternatives that were considered including the preferred alternative.

Seven house-like cottages, repurposed for Alternative 5, are located at the northwest of the Rainier School Campus. Alternative 5 makes use of seven existing 1-story residential cottages built in the 1980s. The cottages will be connected by a new enclosed interior walkway. Cost estimates were not performed for this option.

Alternative 5 Variations

84 Bed Nursing Facility

1-Story Renovations

6,500 GSF Renovation Each Cottage

8,000 GSF New Connecting Corridor

1A. LEED Silver

Advantages and Disadvantages

The advantages and disadvantages of each alternative. Please include a high-level summary table with your analysis.

Advantages

- Cottages already have a residential feel to them
- Low cost solution, but doesn't meet required number of beds for anticipated clients
- Level site

Disadvantages

- Requires relocating existing building occupants to another facility
- Not enough roof area for solar panels. Solar panels must be mounted on the ground taking away valuable landscape areas.
- Doesn't meet program requirements - no physical therapy and minimal administrative functions
- No room for future expansion, few beds provided
- Doesn't meet program requirements unless adjacent hemlock/spruce functions are used.
- Existing showers do not meet code - requires bedrooms converted to a new shower
- Of all the alternatives, the cottages are the farthest from the main kitchen and laundry facilities
- The existing non-rated wood construction would need to be upgraded to 1-hour throughout
- Major remodel to provide 8 foot wide hallways for gurneys and 4 foot doors.
- Cottages are far apart

Alternative 5 Cost Estimates

Cost estimates for each alternative.

Cost estimates were not performed for this option.

Alternative 5 Schedule

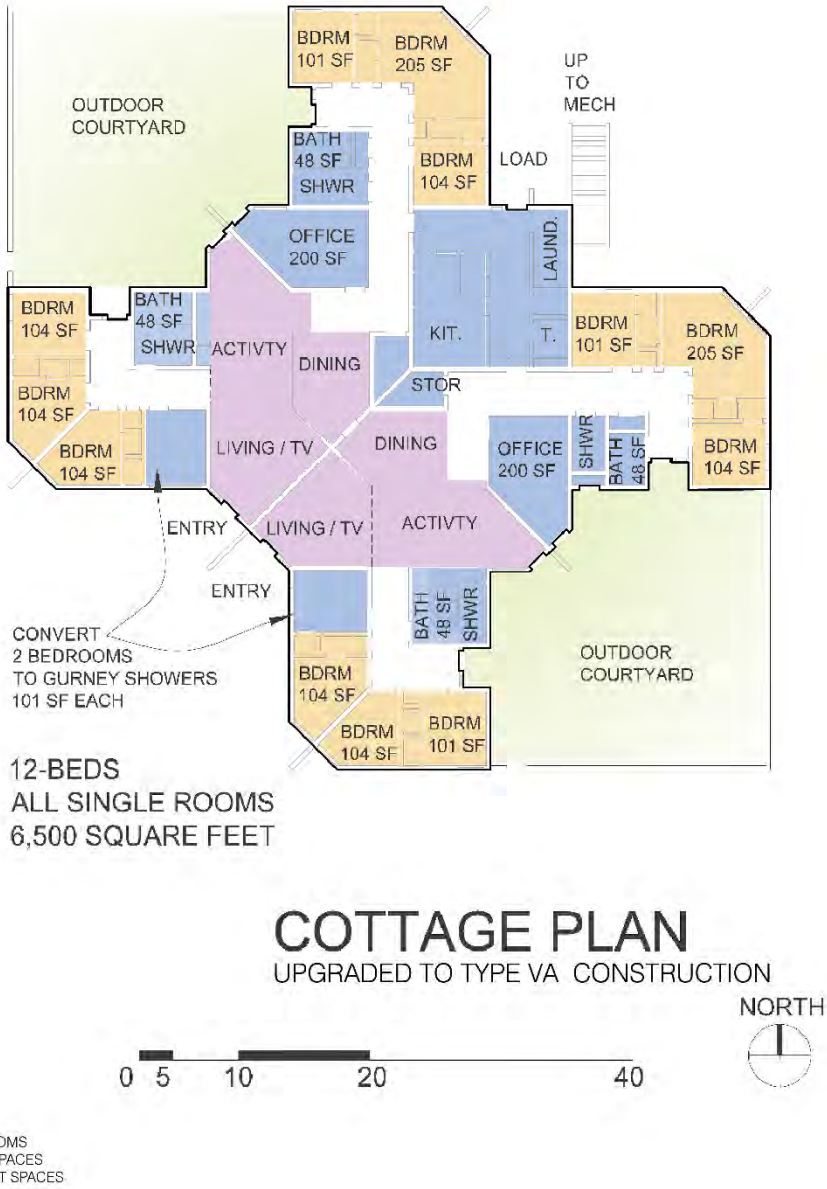
Schedule estimates for each alternative. Estimate the start, midpoint and completion dates.

Design to Bidding: 12 months
Construction Start: 13 months
Construction Midpoint: 9 months
Construction Completion: 9 months

Schedule is the same for all alternatives. It is assumed that relocation residents who live in the cottages will occur during the design phase. If relocation requires an additional permit, allow an extra 6 months in the schedule.

ALTERNATIVE 5

84-Bed Nursing Facility



COTTAGE PLAN

UPGRADED TO TYPE VA CONSTRUCTION

RESIDENT BEDROOMS
CLUSTER LIVING SPACES
CLUSTER SUPPORT SPACES

OTHER ALTERNATIVES

Other Alternatives On Campus

In February, 2018, the Washington State Department of Health (DOH) performed a construction review of existing building campus that could be renovated to house a nursing facility. The DOH analysis focused on the following campus buildings: 2010A, 2010B, PAT-A HQ, Haddon, and Cascade, Rainier Center (Health Care Center), Oakley, Fir, Pine Hall, Robin, Hurlbert, Spruce Hall, Hemlock Hall and, Laurel. Of those buildings, Pine-Fir was most adaptable to conversion to skilled nursing.

2010A and 2010B are located on opposite sides of a 2-story structure that houses one of Rainier School's Intermediate Care Facilities. Aging and elder clients reside here. 2010A and B were rejected for the following reasons:

- The building is a two-story building which would require moving clients up and down in an elevator.
- Additional costs incurred in higher construction costs associated with a 2-story nursing facility.
- Residents living in 2010A and B would have to be relocated somewhere during renovation incurring additional costs, schedule delays, and trauma for those residents.

The existing Health Care Center was rejected due to limited size for conversion to enough nursing beds.

OFF-SITE ALTERNATIVES

Describe all the alternatives that were considered including the preferred alternative. Alternatives may include co-location, renovation, leased space, purchase, new construction or other options explored.

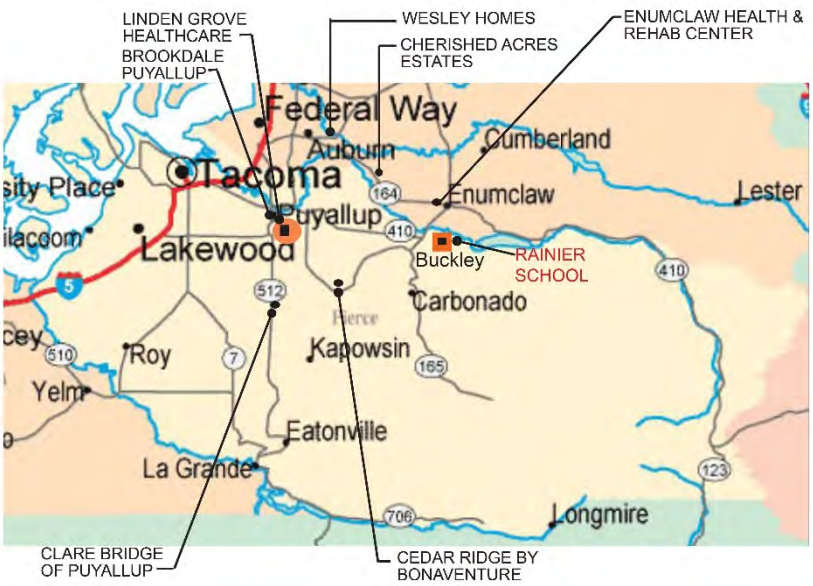
There are 221 nursing homes in Washington State for a total 21,053 beds. In Pierce County, that are 21 Nursing Homes and all of them are currently in operation. In 2016, Kindred Transitional Care in Puyallup transferred ownership to be operated as Linden Grove Healthcare. This was apparently a property transfer and does not appear on the accessors records as a sale.

On September 10, 2018 DSHS Aging and Long-Term Support Administration provided an updated public disclosure of Nursing Homes in King and Pierce County that were closed in the last 24 months:

- Health and Rehabilitation of North Seattle, Lic# 1309
- Anderson House, Lic# 1328
- Kindred Seattle – Northgate, Lic# 1445
- Life Care Center of San Juan Islands, Lic# 1232
- San Juan Rehabilitation and Care Center, Lic# 1546
- Kindred Seattle – First Hill, Lic# 1447
- The Kenney, Lic# 241
- Nisqually Valley Care Center, Lic# 858
- Messenger House Care Center, Lic# 862

None of these Nursing Homes are in Pierce County. There are many operational nursing facilities surrounding Rainier School as shown in the map below.

NURSING FACILITIES SURROUNDING RAINIER SCHOOL ARE ALL IN OPERATION



COST SUMMARIES FOR EACH ALTERNATIVE

Refer to Appendix B for cost detail estimates for each alternative.

Washington State Department of Social & Health Services
Transforming lives

RAINIER SCHOOL NEW NURSING CAPACITY

Predesign Study | October 25, 2018

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DESCRIPTION - PREFERRED ALTERNATIVE 4B

Description

Describe the preferred project alternative in detail, including nature of space – how much of the proposed space will be used for what purpose (i.e., office, lab, conference, classroom, etc.)

Alternative 4B is the preferred alternative and includes renovation and new construction for a 100- bed nursing facility. Alternative 4B features a LEED Silver design that is also net-zero energy with the use of solar panels. The proposed nursing facility will be located to the west of the Rainier School Campus off Ryan Road. Alternative 4 repurposes an existing Staff Dorm for the nursing facility's administration and office functions.

Nature of Spaces

Lessons were learned from the functionality of Fircrest School's nursing facility located in six separate buildings. The separate buildings have proved challenging to staff. It is important that the proposed nursing facility at Rainier School be contained within a single building to maximize operations and communications efficiency.

The preferred alternative includes five 20-bed residential household neighborhoods called "cottages." Each cottage is organized around an inner, light-filled courtyard to maximize natural light and connection to nature for clients and staff. The cottages are interconnected by a covered walkway.

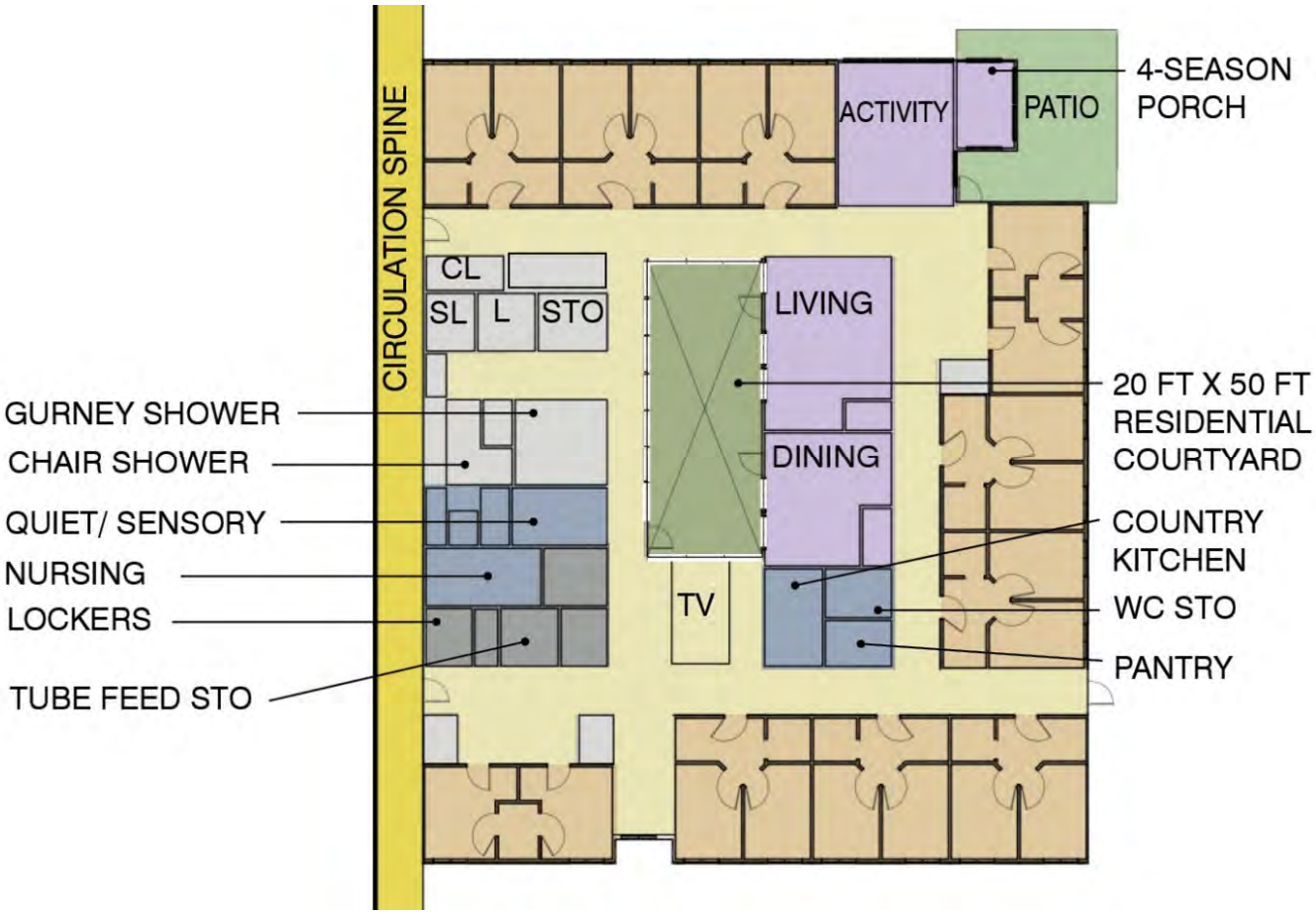
- Home-like, non-institutional atmosphere
- Natural light
- Connection to outdoors
- Cluster of bedrooms centered around a living room and off the main circulation path—the idea is to keep bedrooms away from the noisy main corridor.
- Maximize nursing operational and staffing efficiency by the use of 20-beds in each cottage.
- Use of a 1-story building on ground level to allow cost savings through the use of Type V-A wood frame construction for nursing functions (administrative functions could be at 2nd level but not the residential cottages).
- Located in a single building connected by indoor corridors.
- Mix of private and semi-private rooms with 20-30 % private.
- 5% of the bedrooms should be bariatric for larger people.
- 1 bathroom with sink and toilet for each two bedrooms.
- A circular walking path since many clients have autism and if they walk into a dead end corridor they will just stop there.

USE OF PROPOSED SPACES

how much of the proposed space will be used for what purpose (i.e., office, lab, conference, classroom, etc.)

Residential Cottages: Common Spaces within each 20-bed Cottage should include the following:

- Living Room/ Sitting Area
- Activity Room
- TV Room
- Dining Area
- Country-Style Prep Kitchen
- Lockable Prep Room
- Quiet Room for calming clients and sensory activities
- 4-Season Porch
- Covered Outdoor Patio, adjacent to common spaces



20-Bed Neighborhood Cottage - Predesign Concept Plan
4 Semi-Private Bedrooms, 16 Private Bedrooms

Cottage Living and Activity Rooms: The Living Room should have a fireplace and soothing colors and lighting. Multiple activities can occur simultaneously in the cottage by having a separate activity/TV room for residents, meeting spaces for staff, space for family visits, and a nook for video-conferencing.

Cottage Dining Area: Capacity for 10 clients in wheelchairs. The audio characteristics of spaces should be softened. The number of tube-feeding pumps has increased and they are noisy. The Dining Room should include a music system and flat screen TV's. The tables should be adjustable to different heights and adaptive chairs designed to meet individual needs.

Cottage Kitchen: Dietary services delivery should be designed for food quality and engaging clients in a home-like meal setting. A Country-Kitchen style Prep Kitchen with serving counter provides clients a sense of engagement with food preparation. Plating food from steam tables at the serving counter has the benefit of including meal aromas found in the home setting. The Prep Kitchen should include:

- Lockable Prep Room with stainless steel counters.
- Non-slip flooring
- Commercial Refrigerator
- Coffee maker
- Built-in microwaves
- Automatic washer/ sanitizer
- Kitchen sink with telescope faucets
- Commercial style ovens

Cottage Laundry: Rainier School has a new state-of-the art laundry facility already in existence, with excess capacity, that will be used by the new nursing home. A washer and dryer shall provided in each cottage to allow for immediate washing of soiled linens, if needed. Spaces for residential laundry shall allow for pickup and delivery away from resident spaces. Clean and Soiled laundry rooms shall be separate rooms.

Nursing Support and Services at Each Cottage: A silent call system should be used. Most clients don't use call buttons but with the increase in behavioral health and less mental impairment, the call systems are needed. Services within each 20-bed Cottage should:

- Nursing Office
- Med Room
- Clean Work Room
- Clean Linen Room
- Soiled Linen and Handwashing Sink
- Bathing facilities accessed from the Pod corridor. Each Pods should have 2 gurney showers and 1 chair shower. Each Pod should have 1 tub. Bathing facilities should have overhead heat lamps. Slip-resistant flooring.
- Storage Room for tube-feeding formula.
- Storage for wheelchairs, beds, shower and bath chairs, commodes, etc.
- Lift storage. 1 lift per 4 clients.
- Janitor Closet with mop sink.
- Place for staff to store belongings.

Preferred Bedroom Options

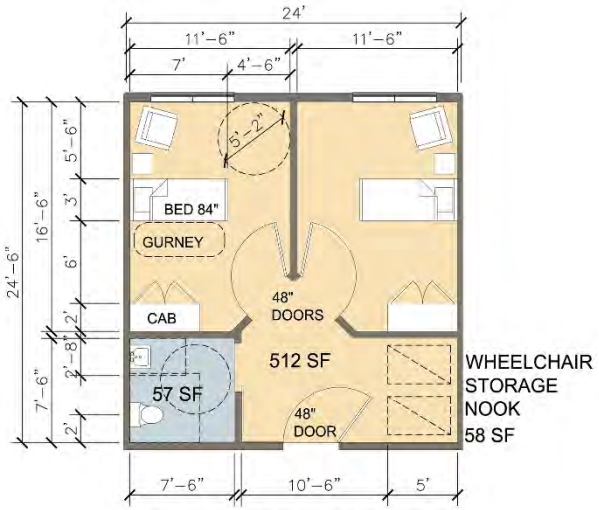
The preferred bedroom options for private, double, and bariatric bedrooms are shown below:

Bedroom Program and Features

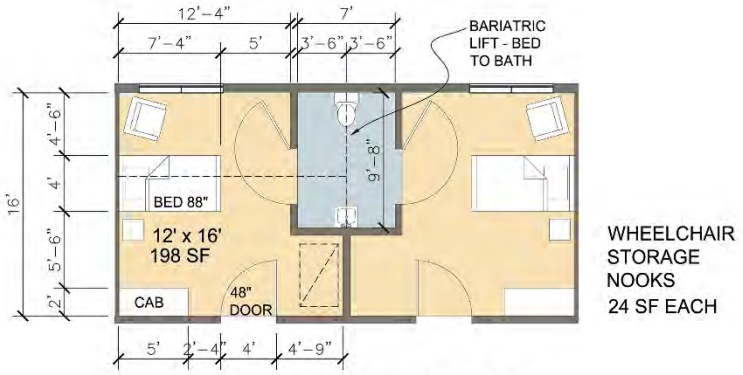
Sleeping Rooms should have the following design elements:

- Window for review and natural light.
- 14 foot x 16 foot of clear area for the bed and maneuvering.
- One bathroom with sink, toilet and grooming cubby.
- Bathing facilities will be accessed from the corridor.
- Storage niche for large wheelchair.
- Lockable drawer in wardrobe.
- The ability to close a bedroom door to separate the client when sick.
- Lots of outlets and multi-lighting systems including wall sconces and/or bedside lamps.
- Flat screen TVs and sturdy shelves for stereos.
- Remote control blinds and shutters.
- Should look directly out to the Commons so those that are in bed can feel part of the activity.

A PRIVATE



B DOUBLES



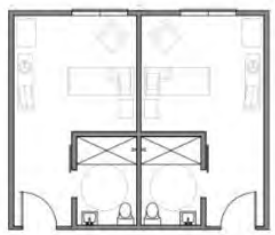
C BARIATRIC

Bedroom Options Considered

Bedroom Options were evaluated for efficient use of space, functionality, natural light, lines of sight into room and storage provided.

PRIVATE BEDROOM OPTIONS

Layout Option 1

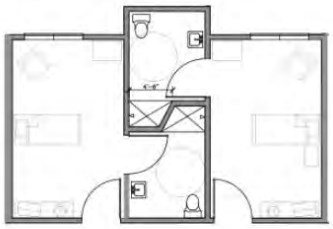


ST-B - 330 SF

- 2 private rooms can share a toileting / grooming room. Few clients can use a toilet.
- Showers/ tubs should be off cottage hallway.

Layout Option 2

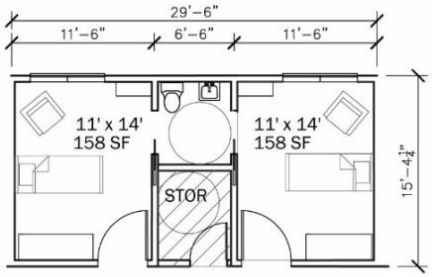
- Good visibility into bedrooms.
- Share toilet room & convert 2nd bathroom to storage.



ST-A - 330 SF

Layout Option 3

- Good visibility into bedrooms.
- Storage should open to each bedroom for large private wheelchairs.
- At toilet, use barn doors instead of pocket doors.

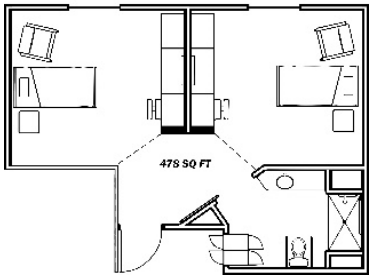


454 SF

DOUBLE BEDROOM OPTIONS

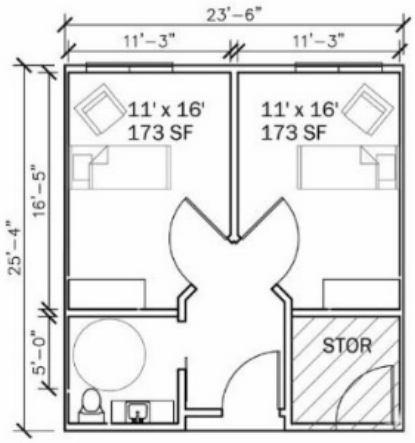
Layout Option 4

- 2 private rooms can share a toileting / grooming room. Few clients can use a toilet.



Layout Option 5

- Storage room should open to shared entry for private wheelchair storage.



595 SF

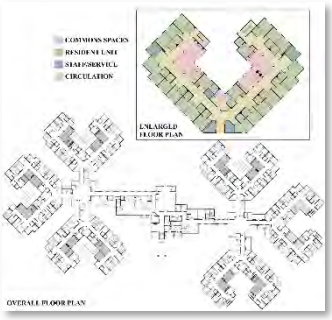
Cottage Layouts Considered

Cottage Layout Options were evaluated for quality of environment they provided for clients and staff and for nursing operational efficiency. Rainier School staff, Fircrest nursing staff and operations specialists, Attune Healthcare, all arrived at 20-bed groupings being the most operationally efficient size

Layout Option 1

- Bedrooms open to major circulation reduces privacy.
- Long circulation reduces operational efficiency.

Layout Option 2



- Organization similar to connected cottages is good.
- More efficient if ends of corridors are joined.

Layout Option 3

- Less institutional than Option 1.
- Major circulation is outside bedrooms.
- Long linear circulation

Layout Option 4

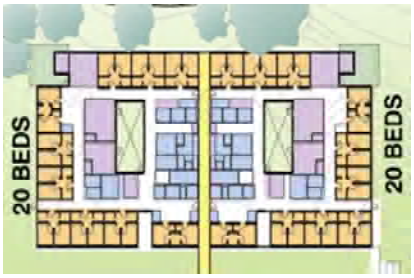
- Bedrooms open to major circulation reduces privacy.
- Long linear circulation.

Layout Option 5

- Bedrooms open to cottage living rooms-more homey & private.
- Compact 20-bed circulation
- Central cottage courtyard maximizes natural light & connection to outdoors.

Layout Option 6

- Back to back cottages – nursing staff can support adjacent cottage
- Main circulation bypasses cottages and has views to outdoors.



Nursing Facility "Village Center" and Administration: General use program spaces, used by all cottages, include:

- Main Entry
- Administration
- Multipurpose Room
- Large Meeting Room for 50
- Physical Therapy
- Sensory Rooms
- Coffee Shop/ Gift Shop are desireable
- Staff Break Room
- Service and Receiving Area

Main Entry: Should have a covered porte coche so clients can board vans under cover. There should be a reception desk and small lobby area at the Main Entry.

Administration includes:

- Admin Director's Office
- Assistant Director's Office
- Medical Staff Offices
- IT Office
- Work Room/ Copier
- Family Meeting Room with video conferencing.
- Unisex Toilet.

Multipurpose Room: Can function as a Media Room and Theater. Entertainers provide performances so a small stage would be ideal. There should be storage for tables and equipment.

Physical Therapy and Sensory Rooms include:

- Parallel bars, stairs, tread mill, stationery bike.
- Ample storage for wheel chairs, lifts, walkers, extra beds.
- Ability to double as a therapy staff room.
- Separate room for speech therapy.
- Sensory Rooms offer sensory lighting, sound and auditory equipment.

Maintenance, Service and Receiving Areas include:

- Loading Dock
- Trash / Recycling Room
- Maintenance Room.
- MDF Telecommunications Room
- Electrical Room
- Mechanical Room
- Indoor Generator Room
- Emergency Electrical Room

Rainier School has a standby emergency generator, but it is recommended that the proposed nursing facility have its own generator for essential power. The existing campus generator will take over power service in a power outage. The new essential power generator will provide power for life safety functions.

To address maintenence and durability issues, the facility should provide plenty of clean-outs since clogged plumbing is a frequent concern. Maintenance staff advocated for a 30-inch high crawl space, below the main floor at residential areas, where there is a high concentration of plumbing fixtures. The estimated cost of the crawlspace feature is $51 / square foot and is included in estimated costs. Other durability features include low-wax welded seam vinyl flooring to contain urine spills, carpet squares,

ceramic tile and FRP or Acrovyn wainscots for impact resistance.

Corridor Circulation: Facility circulation doors should be automatic or power assist. A Walkie talkie communication system is currently used. Security cameras should be provided inside and out.

Outdoor Spaces: An Outdoor Activity Space is proposed for therapy and wellness programs and the social connection of visiting families. In addition, an Inner Courtyard is proposed for each 20-bed residential cottage, open to the air and light above, filled with plants. The outdoor spaces are central to the quality of life and important for connecting clients with natural light and the outdoors. Additional outdoor activity spaces, shared campus-wide, include:

- Therapy Garden with accessible paths
- Garden Gazebo
- Flower Gardens

The Garden should include shaded areas, swings, raised beds, non-poisonous plants, different scents, barbeque area, chimes, wind streamers, water features,fire pits, bird baths, bird feeders and other features to allow uplifting or new experiences.

OCCUPANCY AND BUILDING CONFIGURATION

Include occupancy numbers, and basic configuration of the building, including square footage and the number of floors.

Occupancy Numbers

A 100-bed facility is the preferred Nursing Facility size. The 100-bed nursing home consist of five 20-bed Residential Cottages. 20-Beds is the optimum number of beds for the maximum operational efficiency and for the number of nursing staff required.

Configuration

Each Cottage: 14,690 square feet

Proposed Nursing Facility: 97,340 square feet

An important layout feature of the 20-bed pods is that they are linked to other pods and the Administration Wing by a circulation spine that doesn't enter the pod, providing the 20-bed pods and their living area with a more residential, private environment.

It is important to nursing staff that the Nursing Facility residential pods be ground-related and single story. Elevators are a restrictive encumberence for clients with large wheelchairs and connection with nature and the outdoors is of prime importance for the clients.

Proposed Nursing Facility - Predesign Concept Plan
Preferred Alternative 4 – 100 Beds Net-Zero Energy

Proposed Nursing Facility - Predesign Concept Plan
Preferred Alternative 4 – Campus Plan

Proposed Nursing Facility - Predesign Concept Plan
Preferred Alternative 4 – Aerial 3D View

SPACE NEEDS ASSESSMENT

Compare the project space needs to currently recognized space planning guidelines, such as DES's Space Allocation Guidelines or the Facilities Evaluation and Planning Guide for four-year higher education facilities. Identify the guidelines used.

There are no State recognized space planning guidelines for nursing facilities. The project team referenced CFR (Code of Federal Regulations) Title 42 Part 483 Requirements for States and Long Term Care Facilities, 2012 Health Care Facilities – NFPA 99 (CMS adopted standard for Medicare certified facilities) and WAC (Washington Administrative Code) 388-97.

The project team conducted programming workshops attended by the Fircrest nursing and care staff reviewing and evaluating comparable long-term, skilled nursing facilities for very frail seniors, using their current nursing facility as a springboard.

Questionnaire responses from staff at both Rainier School and Fircrest School suggested space needs problems to be addressed in preferred alternative. A detailed program with space requirements is found in the appendix.

ADAPTIVE USE

Respite care, crisis- care and behavioral health would best be served by a different layout than the 20-bed cottages, designed for long-term residents. The adaptive use needs are expected to be 10% of the bed count, or 10-beds for the proposed design. Adaptive uses would be better arranged in traditional corridor layout with double loaded corridors. More study is needed, including operational efficiency, but 10 additional beds are shown on the plan, page 4.9, added on the south side of the Main Entry along the circulation spine.

The adaptive use beds actually would bring the preferred alternative to 110-beds, which were not included in the cost estimate. To include these beds, the costs should be increased by roughly 10%.

Existing Rainier School Campus And Surrounding Areas

SITE ANALYSIS

Site Studies

Identify site studies that are completed or under way.

The following site studies were referenced for this predesign study:

- An Initial Geotech Assessment for the west agricultral fields of the campus (the location of alternative 3) was performed for another building. The Geotech Report, performed by Hart Crowser LLC, was referenced for this project. Preferred Alternative 4 is about 100 feet from the soil borings in the Geotech Report.
- Rainier School Drainage Investigation (in progress at the time of this report), AHBL, 2018
- Geotech and Environmental consulting will still be required for schematic design phases of this project.

Overall Site Information

Location

2120 Ryan Road
Buckley, WA 98321-9115

Building footprint and its relationship to adjacent facilities and site features. Provide an aerial view, sketches of the building site, and basic floor plans.

See drawings.

Stormwater requirements.

- 2018 City of Buckley Stormwater Management Plan
- Stormwater management requirements per City of Buckley Chapter 14.30 Stormwater Management and manual shall apply.
- 2012 Department of Ecology Stormwater Management Manual for Western Washington (adopted with amendments)
- Low Impact Development Technical Guidance Manual for Puget Sound (LID Manual) by Washington State University and Puget Sound Partnership
- City of Buckley Development Guidelines and Public Works Standards

Site ownership and acquisition issues

No issues, site is already owned by the state.

Easements and setback requirements

No issues. Setbacks are governed by City of Buckley Municipal Code (BMC) Title 19 Zoning and Title 20 Land Use and Development Code

Potential issues with the surrounding neighborhood, during construction and ongoing once operational.

None anticipated

Utility extension or relocation issues.

No major issues. The proposed project will connect to an existing electric power pole on Ryan Road. An existing gas line will be relocated.

Potential environmental impacts

None.

Green space and natural amenities that need to be preserved or accorded special treatment

None

Potential site mitigation, history of possible contamination

None, pending completion of an environmental study—recommended.

Wetlands impacts

No wetlands on the Preferred Alternative 4 Site, pending completion of an environmental study and geotech report. A wetland was noted on the site west of Alternative 4, however the preferred alternative is outside of it's buffer.

Shoreline impacts/ Shoreline jurisdiction issues

City of Buckley designates lands within 200 feet of a river or floodway as a shoreline. The White River is more than 2000 feet from the site for Preferred Alternative 4. Hence Buckley's Shoreline Management Plan will likely not apply for Preferred Alternative 4.

State Environmental Policy Act (SEPA), National Environmental Policy Act, or an environmental impact statement

The Washington Legislature enacted the State Environmental Policy Act in 1971. Commonly called SEPA, the law helps state and local agencies identify environmental impacts. The City of Buckley has adopted the following regulations in regards to SEPA review:

Title 43, 43.21C RCW, WA State Environmental Policy

SEPA Exemptions: Construction less than 4000 square feet for commercial use, or less that 100 cubic yards of fill (not applicable for the proposed Nursing Facility)

Submittal Requirements: At a minimum, the City of Buckley will require submittal of an environmental checklist. Following review, the Citymay require the applicant to submit an environmental impact statement (EIS). For the purposes of this Predesign Study, and following conversations with the City of Buckley, the predesign team has assumed that an EIS will be required for this project and construction will be allowed.

Other regulatory requirements, such as hydraulic project approval and U.S. Army Corps of Engineers permits

Adjacent Environmentally Sensitive Areas:

Wetland (1990 SAO)

Parking and access issues, including improvements required by local ordinances, local road impacts and parking demand

No issues

Impact on surroundings and existing development with construction lay-down areas and construction phasing

No issues

LONG TERM PLANS

Identify whether the proposed project is consistent with applicable long-term plans as required by RCW 43.88.110

2017 Master Plan

The proposed nursing facility is consistent with the Rainier School Master Plan, performed by Rolluda Architects, April 20, 2017, in that the proposed project does not hinder future goals of selling off portions of the Campus for other uses.

City of Buckley Comprehensive Plan

The proposed one-story nursing facilty, with a residential feel, is consistent with the City of Buckely's comprehensive plan.

LAWS & REGULATIONS

i. All state-funded buildings 5,000 square feet or more are required to be designed, constructed, and certified to at least a LEED silver standard.

A LEED Silver building with net-zero energy is proposed. See LEED checklists in Appendix C.

ii.a. Meets state's limits on the emissions of greenhouse gases established in RCW 70.235.020

Project will not increase greenhouse emissions.

ii.b. Meets Statewide goals to reduce annual per capita vehicle miles traveled by 2050, in accordance with RCW 47.01.440, except that the agency shall consider whether project locations in rural counties, as defined in RCW 43.160.020, will maximize the reduction of vehicle miles traveled

ii.c. Meets applicable federal emissions reduction requirements

Rainier School's current Intermediate Care Facility program (ICF) is being phased out. Many staff who currently work at Rainier School will be retained for the proposed nursing facility, while others will leave the ICF program. The number of staff is expected to remain the same for this project.

Some staff travel from as far away as Tacoma, however Buckely and nearby Bonney Lake are rapidly growing. Many workers are moving away from more expensive cities to Buckley. Hence, future projections indicate an increase in the number of staff coming from Buckley. It is anticipated that the proposed project will meet Statewide goals to reduce annual per capita vehicle miles traveled by 50% by 2050.

Rainier School is located in Pierce County. The county is 1,806 square miles and is projected to have 516 persons per square mile by 2019, hence Pierce County is not a rural county per RCW 43.160.020.

iii. Archeological and cultural resources

Department of Archaeology and Historic Preservation (DAHP) letter in progress.

iv. Americans with Disabilities Act implementation

The proposed project will comply per all requirements and codes.

v. Compliance with planning and information required by RCW 43.88.0301(1)

At the time of this predesign study, the proposed project was not in an urban growth center, or identified in the City of Buckely's comprehensive plan. The proposed project is in compliance with the requirements of RCW 43.888.0301(1) as of 2018.

vii. Other codes or regulations.

The current set of codes and regulations as required by Authorities Having Jurisdiction (AHJs)

Federal Requirements by the Centers of Medicare and Medicaid Services (CMS):

42 CFR Chapter IV, Section 483.90, October 1, 2017 edition (CMS adopted standard for Medicare certified nursing facilities)

2012 Life Safety Code – NFPA 101 (CMS adopted standard for Medicare certified facilities)

2012 Health Care Facilities – NFPA 99 (CMS adopted standard for Medicare certified facilities)

Note: CMS may waive specific provisions of the NFPA Life Safety Code which, if rigidly applied, would result in unreasonable hardship upon the facility, but only if the wavier does not adversely affect the health and safety of the patients.

Regulatory Codes:

City of Buckley Municipal Code (BMC) Title 19 Zoning

City of Buckley Municipal Code (BMC) Title 20 Land Use and Development Code

Washington State Administrative Code (WAC) 197-11 Nursing Homes

2015 International Building Code (IBC) amended by WAC 51-50 for Group I-2

2015 International Fire Code (IFC) as amended by WAC 51-54A and Chapter 16.24 BMC

RCW 70.92.100 thru 160, Public Buildings – Provisions for Aged and Handicapped adopted by City of Buckley

2010 Americans with Disabilities Act (ADA) Standards for Accessible Design

Per City of Buckley Municipal Code (BMC) Chapter 16.06—the current edition of the Washington State Energy Code, as adopted by the State Building Code Council in Chapter 51-11C WAC.

2015 International Mechanical Code (IMC) as amended by WAC 51-52

2015 Uniform Plumbing Code (UPC) as amended by WAC 51-56

2017 National Electric code (NEC) NFPA 70

Additional Requirements and Guidelines:

2018 Guidelines for Design and Construction of Residential Health, Care, and Support Facilities

Compliance with planning and information required by RCW 43.88.0301(1)

ADDITIONAL STATE POLICIES

WA Growth Management Act of 1990

WA Clean Air Act of 1991

Chapter 12, Laws of 2005 (ESSB 5509)

WA SEEP Exective Order 18-01, newly-constructed state-owned buildings shall be designed to be zero energy or zero energy-capable

FURTHER STUDY AREAS

Identify problems that require further study (for example, environmental contaminants, traffic studies, or IT or other infrastructure challenges)

Recommended areas of further study are:

- Environmental Phase 1 for suspected soil contamination.
- Environmental study of the site including potential wetlands and buffers.
- Geotech borings and report at the proposed site.
- Asbestos abatement report for the existing staff dorm to be renovated
- DAHP requirements.
- Involve Department of Health (DOH)Construction Review Services early in next design phases.
- Upgrading to electronic medical records.

SIGNIFICANT COMPONENTS

Identify significant or distinguishable components, including major equipment and ADA requirements in excess of existing code.

Rainier School has an existing high-end commercial laundry facility that is recommended for continued use to serve the campus. However, the project included analysis of costs for a new Laundry Facility, so the following analysis is provided.

SIGNIFICANT COMPONENT- LAUNDRY

The laundry building cost estimate assumed the building alone is LEED Silver plus Net Zero energy usage because it is not feasible for current commercial laundry equipment to meet the criteria.

The team worked with Lind Industries of Lynden, who provided commercial equipment costs. Checking with their suppliers, Lind found there is no feasible commercial heat pump laundry washing system and most cost-effective and practical system uses a gas boiler. The use of gas is not allowed by Netzero, so the equipment has to be exempted from the Netzero calculations.

The equipment does have other sustainable features that were included in the cost estimate: equipment for recapture of rinse water and use of drier exhaust heat for pre-heating the hot water boiler system. The list of equipment, hours of operation of each piece of equipment, Maximum Allowed Construction Cost, (MACC) and Life Cycle Cost Model (LCCM) are found in Appendix L. The building is budgeted at 7000 sf, 24 ft ceiling clearance with office and two staff toilets.

The Maximum Allowable Construction Cost of a new Laundry Facility is $6,064,109.

The project cost is $8,705,785.

Transition Costs

Transition costs are an additional component that need to be added to the initial operating budget. The Transition Budget should include additional management staff and a superintendent expert in Nursing Facility operations for establishing the initial procedures and institutional staff culture. Additional nursing and CNA staff should be budgeted, so long term staff who know the clients are available for more 1 to 1 connection with clients to ease the stress of frail clients entering the new environment.

IT SYSTEMS

Identify planned IT systems that affect the building plans. Coordinate IT requirements with the Office of the Chief Information Officer (OCIO), including completion of a conceptual review. Some projects may also be subject to oversight by the OCIO and the Technology Services Board. See RCW 43.88.092

The project team should coordinate with the Office of the Chief Information Officer during schematic design.

Campus telecommunication services will be brought into a Building main distribution facility (MDF) located in one of the residential cottages. Fiber for telephone, data, internet, security, and fire alarm will be distributed from the MDF to Intermediate Distribution Facilities (IDF) located at each residential cottage. Distributed telecommunications throughout the facility will be from the MDF and IDF's.

BUILDING COMMISSIONING

Describe planned building commissioning to ensure systems function as designed.

WA SEEP Exective Order 18-01 requires newly-constructed state-owned buildings shall be designed to be zero energy or zero energy-capable, and the State requires a minimum LEED Silver certification. In order to meet LEED requirements, the project will require enhance commissioning.

The commissioning must be provided by a Commissioning authority (CxA) that has documented commissioning process experience on at least two building projects with a similar scope of work.The commissioning experience must extend from early design phase through at least 10 months of occupancy; the CxA is typically an independent consultant, but can be a qualified employee of the Owner or a disinterested subcontractor of the design team.

Commissioning process (CxP) activities will be completed for mechanical, electrical, plumbing, and renewable energy systems and assemblies in accordance with ASHRAE Guideline 0–2005 and ASHRAE Guideline 1.1–2007 for HVAC&R systems, as they relate to energy, water, indoor environmental quality, and durability.

FUTURE PHASES AND PLANS

Describe any future phases, plans or other facilities that will affect this project.

Preferred Alternative 4 is designed for 100 nursing beds. The predesign investigated future construction phases to allow for an additional 60 beds for a 160 bed nursing facility to allow for expansion in the future.

PROJECT MANAGEMENT & DELIVERY METHOD

Identify the proposed project delivery method, such as design-build, phased construction, general contractor / construction manager (GC/CM), or conventional design/bid/build.

Project Delivery

General Contractor/Construction Manager (GC/CM) is the proposed project delivery method.

In the GC/CM process, the owner contracts with an Architect/Engineer firm for design and also retains the services of a GC/CM through a preconstruction services contract. After the design has sufficiently progressed, the owner negotiates a Maximum Allowable Construction Cost (MACC) and Guaranteed Maximum Price (GMP) with the GC/CM.

GC/CM offers advantages:

1. The proposed project is to be certified LEED Silver. Design-Bid-Build does not allow for collaboration between contractors and the design team during design, which can impact attainable LEED credits, jeopardizing LEED Silver accredidation.
2. With the contractor on board during design, a GC/CM can increase the likelihood of meeting DSHS goals for sustainability, especially LEED silver requirements.
3. Reduces risk of change orders during construction.
4. Having a contractor on board during design can help reconcile conflicting cost estimates and provide more accurate value engineering.
5. Overall reduced schedule, given the likelihood of a fast-track schedule for this project.

One disadvantage to GC/CM delivery, is that it requires multiple contracts during design. The process often involves payment of a premium for additional time and investment by the GC/CM.

GC/CM Approvals

Justify the proposed method of project delivery, and link the justification for using GC/CM to the requirements in RCW 39.10.340

In order to use the GC/CM project delivery method, DSHS must seek project approval from the Capital Project Advisory Review Board, Project Review Committee, to utilize the GC/CM process per RCW 39.10.340

GC/CM is allowed in WA State per RCW . 39.10.340 limitations. The proposed nursing facility project meets the following under RCW 39.10.340:

1. Implementation of the project involves complex scheduling, phasing, or coordination—fast-track scheduling is proposed.
2. The project involves construction at an occupied facility which must continue to operate during construction — buildings adjacent to the nursing facility site are occupied.
3. The involvement of the general contractor / construction manager during the design stage is critical to the success of the project — specifically attaining LEED Silver credits.
4. The project requires specialized work on a building that has historic significance — specifically the renovation of an existing 1940s historically-significant staff dorm as part of the propsed nursing facility.

Project Management

Describe how the project will be managed within the agency Identify roles and responsibilities for the project. Identify in-house staffing requirements for the proposed project. Identify consultant services, DES resources, or additional staff needed to manage the project.

Consistent with prior DSHS capital projects, the project will be managed through The Department of Social and Health Services (DSHS) Office of Capital Programs (OCP).

The DSHS Project Manager (PM) assigned to the project will be supported by resources across several state departments and agencies:

- DSHS Assistant Director of Capital Facilities Management and other operational support staff as needed.
- Department of Enterprise Services (DES) contract specialists for executing of the projects agreements for services and contracts for construction.

Recommended project managment and support staffing includes a DSHS full-time project manager from schematic design through occupancy. Optional liasion staff from Rainier School include a representative from facilities maintenance and the assistant superintedant to attend design meetings and constructability review meetings. A Contract Specialist 3 from DES should be assigned to this project.

SCHEDULE

i. Provide a high-level milestone schedule for the project, including key dates for budget approval, design, bid, acquisition, construction, equipment installation, testing, occupancy, and full operation.

ii. Incorporate value-engineering analysis and constructability review into the project schedule, as required by RCW 43.88.110(5)(c)

Milestone Schedule

Master Development Plan	August 2018 to August 2019
Budget Approval	March 2019
Funding Alottments	August 2019
Environmental Phase I / DAHP/ Geotech/ Survey	August 2019
Consultant Selection / Agreement	November 2019
Water System Schematic Design-Construction Documents	November 2019 – July 2020
Nursing Facility Schematic Design	November 2019 – March 2020
GC/CM Bid & Selection	March 2020
Decontamination of soils as required	March 2020
NF Design Development -Construction Documents	April 2020 – November 2020
Value-Engineering/ Constructibility Analysis	December 2020 – January 2021
Permitting	November 2020 to March 2021
Permitting Sub-Contractor Bidding:	February 2021
Construction Start Date:	April 2021
Construction Completion Date:	October 2022
Commissioning & FFE Installation	November 2022
Occupancy	December 2022-February 2023

5 PROJECT BUDGET PREFERRED ALTERNATIVE

RAINIER SCHOOL NEW NURSING CAPACITY
Predesign Study | October 23, 2018

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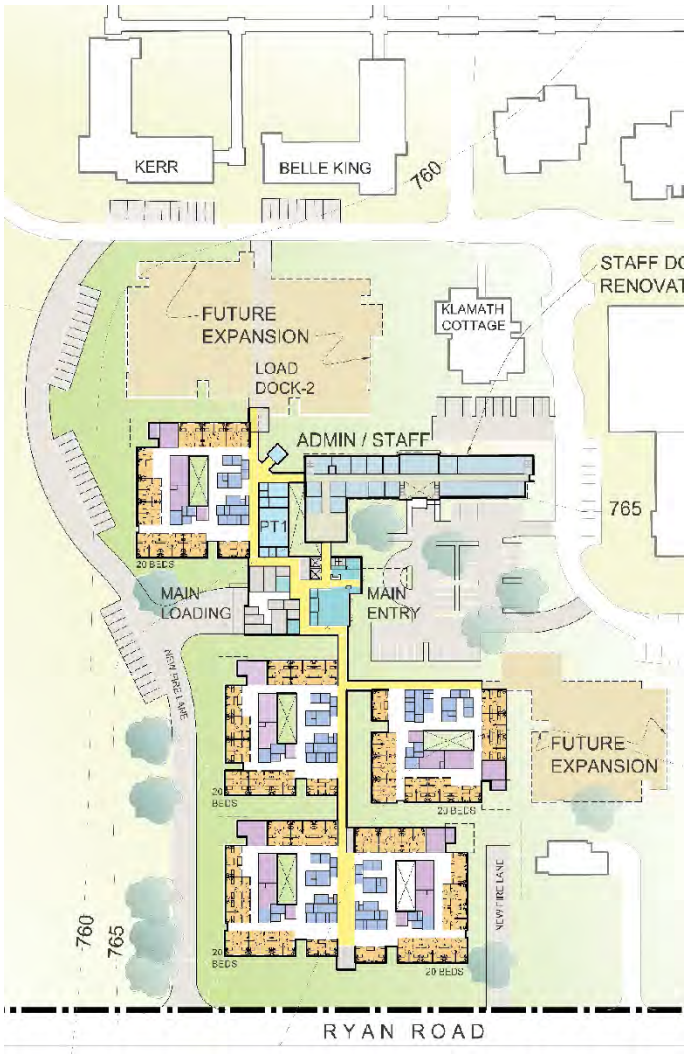
ASSUMPTIONS

Major assumptions used in preparing the cost estimate:

The preferred alternative includes repurposing an existing underutilized staff dorm building and new construction. The following assumptions were used in cost estimating:

1. Assumes an April 2021 Construction Start and an anticipated move-in date of Decemver 2022 to February 2013 for an 18 month construction schedule.
2. Cost estimates assume a 3.12% inflation rate.
3. Cost estimates assume an Architect / Engineer fee class B at 6.12%.
4. Assumed construction delivery method is GCCM (General Contractor / Construction Manager).
5. Cost estimates reflect either a LEED Silver green certification or LEED Silver plus Net-Zero Energy for all alternatives.
6. Based on soils borings and a geotechnical report from an adjacent site. Liquefaction potential and hydric soils are anticipated and assumed in the cost estimates.



Preferred Alternative 4 -100 Bed Nursing Facility

A LEED Silver and Net-Zero Energy Building

COST COMPARISONS

Summary table of Uniformat II Level 2 cost estimates

The following construction cost estimate summaries of Alternatives 1, 3 and 4 do not include management, consultant, furniture, equipment, or artwork—see C-100 for full project costs.

ALTERNATIVE 1

100 BEDS

ALTERNATIVE 1A - LEED SILVER

100-Beds, Major Renovation + Minor New Construction

Item	Description	Gross Square Feet	$/ GSF	Cost
1	Site Work			$ 1,555,200
2	Hazardous Materials			$ 100,000
3	Selected Demolition			$ 5,536,028
4	Facility Construction	122,910	$284	$ 34,960,293
Total Estimated Construction Cost (MAAC) in Today's Dollars			**$343**	**$ 42,151,521**

Escalation is EXCLUDED. See C-100 Form for Total Project Budget w/ Escalation

ALTERNATIVE 1B - LEED SILVER + NET-ZERO

100-Beds, Major Renovation + Minor New Construction

Item	Description	Gross Square Feet	$/ GSF	Cost
1	Site Work			$ 1,555,200
2	Hazardous Materials			$ 100,000
3	Selected Demolition			$ 5,536,028
4	PV Panels			$ 2,267,229
5	Facility Construction	122,910	$298	$ 36,634,169
Total Estimated Construction Cost (MAAC) in Today's Dollars			**$375**	**$ 46,092,626**

Escalation is EXCLUDED. See C-100 Form for Total Project Budget w/ Escalation

160 BEDS

ALTERNATIVE 1C - LEED SILVER

160-Beds, Major Renovation + Major New Addition

Item	Description	Gross Square Feet	$/ GSF	Cost
1	Site Work			$ 5,040,026
2	Hazardous Materials			$ 100,000
3	Selected Demolition			$ 5,536,028
4	Facility Construction	167,910	$315	$ 52,854,884
Total Estimated Construction Cost (MAAC) in Today's Dollars			**$378**	**$ 63,530,938**

Escalation is EXCLUDED. See C-100 Form for Total Project Budget w/ Escalation

ALTERNATIVE 1D - LEED SILVER + NET-ZERO

160-Beds, Major Renovation + Major New Addition

Item	Description	Gross Square Feet	$/ GSF	Cost
1	Site Work			$ 5,040,026
2	Hazardous Materials			$ 100,000
3	Selected Demolition			$ 5,536,028
4	PV Panels			$ 3,050,230
5	Facility Construction	167,910	$329	$ 55,307,696
Total Estimated Construction Cost (MAAC) in Today's Dollars			**$411**	**$ 69,033,980**

Escalation is EXCLUDED. See C-100 Form for Total Project Budget w/ Escalation

ALTERNATIVE 3

100 BEDS

ALTERNATIVE 3A - LEED SILVER

100-Beds

Item	Description	Gross Square Feet	$/ GSF	Cost
1	Site Work			$ 6,950,728
2	Hazardous Material Removal			$ 100,000
3	Facility Construction	94,880	$412	$ 39,137,026
Total Estimated Construction Cost (MAAC) in Today's Dollars			**$487**	**$ 46,187,754**

Escalation is EXCLUDED. See C-100 Form for Total Project Budget w/ Escalation

ALTERNATIVE 3B - LEED SILVER + NET-ZERO

100-Beds

Item	Description	Gross Square Feet	$/ GSF	Cost
1	Site Work			$ 6,950,728
2	Hazardous Material Removal			$ 100,000
3	PV Panels			$ 2,100,063
4	Facility Construction	94,880	$426	$ 40,393,491
Total Estimated Construction Cost (MAAC) in Today's Dollars			**$522**	**$ 49,544,282**

Escalation is EXCLUDED. See C-100 Form for Total Project Budget w/ Escalation

160 BEDS

ALTERNATIVE 3C - LEED SILVER

160-Beds

Item	Description	Gross Square Feet	$/ GSF	Cost
1	Site Work			$ 9,876,189
2	Hazardous Material Removal			$ 100,000
3	Facility Construction	142,000	$410	$ 58,219,803
Total Estimated Construction Cost (MAAC) in Today's Dollars			**$480**	**$ 68,195,992**

Escalation is EXCLUDED. See C-100 Form for Total Project Budget w/ Escalation

ALTERNATIVE 3D - LEED SILVER + NET-ZERO

160-Beds

Item	Description	Gross Square Feet	$/ GSF	Cost
1	Site Work			$ 9,876,189
2	Hazardous Material Removal			$ 100,000
3	PV Panels			$ 3,582,845
4	Facility Construction	142,000	$430	$ 61,113,251
Total Estimated Construction Cost (MAAC) in Today's Dollars			**$526**	**$ 74,672,285**

Escalation is EXCLUDED. See C-100 Form for Total Project Budget w/ Escalation

ALTERNATIVE 4

100 BEDS

ALTERNATIVE 4A - LEED SILVER

100-Beds

Item	Description	Gross Square Feet	$/ GSF	Cost
1	Site Work			$ 6,316,752
2	Hazardous Material Removal			$ 100,000
3	Selective Demolition			$ 289,872
4	Facility Construction	103,680	$397	$ 41,208,887
	Total Estimated Construction Cost (MAAC) in Today's Dollars		**$462**	**$ 47,915,511**

Escalation is EXCLUDED. See C-100 Form for Total Project Budget w/ Escalation

PREFERRED ALTERNATIVE 4B - LEED SILVER + NET-ZERO

100-Beds

Item	Description	Gross Square Feet	$/ GSF	Cost
1	Site Work			$ 6,316,752
2	Hazardous Material Removal			$ 100,000
3	Selective Demolition			$ 289,872
4	PV Panels			$ 2,139,141
3	Facility Construction	103,680	$412	$ 42,671,208
	Total Estimated Construction Cost (MAAC) in Today's Dollars		**$497**	**$ 51,516,973**

Escalation is EXCLUDED. See C-100 Form for Total Project Budget w/ Escalation

160 BEDS

ALTERNATIVE 4C - LEED SILVER

160-Beds

Item	Description	Gross Square Feet	$/ GSF	Cost
1	Site Work			$ 8,376,289
2	Hazardous Material Removal			$ 100,000
3	Selective Demolition			$ 289,872
4	Facility Construction	154,360	$399	$ 61,547,543
	Total Estimated Construction Cost (MAAC) in Today's Dollars		**$456**	**$ 70,313,704**

Escalation is EXCLUDED. See C-100 Form for Total Project Budget w/ Escalation

ALTERNATIVE 4D - LEED SILVER + NET-ZERO

160-Beds

Item	Description	Gross Square Feet	$/ GSF	Cost
1	Site Work			$ 8,376,289
2	Hazardous Material Removal			$ 100,000
3	Selective Demolition			$ 289,872
4	PV Panels			$ 3,572,714
3	Facility Construction	154,360	$418	$ 64,585,047
	Total Estimated Construction Cost (MAAC) in Today's Dollars		**$498**	**$ 76,923,922**

Escalation is EXCLUDED. See C-100 Form for Total Project Budget w/ Escalation

STATE OF WASHINGTON
AGENCY / INSTITUTION PROJECT COST SUMMARY

Agency	Department of Social and Health Services
Project Name	Rainer Nursing Facility- 4B 100 Beds Zero Energy
OFM Project Number	

Contact Information	
Name	Sage Architectural Alliance/The Robinson Company
Phone Number	206 556-4181/206 441-8872
Email	

Statistics			
Gross Square Feet	103,680	MACC per Square Foot	$497
Usable Square Feet	65,900	Escalated MACC per Square Foot	$553
Space Efficiency	63.6%	A/E Fee Class	B
Construction Type	Nursing homes	A/E Fee Percentage	6.10%
Remodel	No	Projected Life of Asset (Years)	
Additional Project Details			
Alternative Public Works Project	No	Art Requirement Applies	
Inflation Rate	3.12%	Higher Ed Institution	
Sales Tax Rate %	10.10%	Location Used for Tax Rate	
Contingency Rate	5%		
Base Month	June-18		
Project Administered By	Agency		

Schedule			
Predesign Start	June-18	Predesign End	October-18
Design Start	November-19	Design End	February-21
Construction Start	April-21	Construction End	October-22
Construction Duration	18 Months		

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Project Cost Estimate

Total Project	**$72,893,568**	Total Project Escalated	**$80,937,337**
		Rounded Escalated Total	**$80,937,000**

STATE OF WASHINGTON
AGENCY / INSTITUTION PROJECT COST SUMMARY

Agency	Department of Social and Health Services	
Project Name	Rainer Nursing Facility- 4B 100 Beds Zero Energy	
OFM Project Number		

Cost Estimate Summary

Acquisition			
Acquisition Subtotal	**$0**	**Acquisition Subtotal Escalated**	**$0**

Consultant Services			
Predesign Services	$0		
A/E Basic Design Services	$2,276,767		
Extra Services	$2,031,000		
Other Services	$1,242,895		
Design Services Contingency	$277,533		
Consultant Services Subtotal	**$5,828,195**	**Consultant Services Subtotal Escalated**	**$6,284,901**

Construction			
Construction Contingencies	$2,575,849	Construction Contingencies Escalated	$2,875,936
Maximum Allowable Construction Cost (MACC)	$51,516,973	Maximum Allowable Construction Cost (MACC) Escalated	$57,357,624
Sales Tax	$5,463,375	Sales Tax Escalated	$6,083,590
Construction Subtotal	**$59,556,196**	**Construction Subtotal Escalated**	**$66,317,150**

Equipment			
Equipment	$4,406,400		
Sales Tax	$445,046		
Non-Taxable Items	$0		
Equipment Subtotal	**$4,851,446**	**Equipment Subtotal Escalated**	**$5,416,641**

Artwork			
Artwork Subtotal	**$286,788**	**Artwork Subtotal Escalated**	**$286,788**

Agency Project Administration			
Agency Project Administration Subtotal	$1,270,941		
DES Additional Services Subtotal	$0		
Other Project Admin Costs	$0		
Project Administration Subtotal	**$1,770,941**	**Project Administation Subtotal Escalated**	**$1,977,257**

Other Costs			
Other Costs Subtotal	**$600,000**	**Other Costs Subtotal Escalated**	**$654,600**

Project Cost Estimate			
Total Project	**$72,893,568**	Total Project Escalated	**$80,937,337**
		Rounded Escalated Total	**$80,937,000**

Cost Estimate Details

Acquisition Costs					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
Purchase/Lease					
Appraisal and Closing					
Right of Way					
Demolition					
Pre-Site Development					
Other					
Insert Row Here					
ACQUISITION TOTAL	**$0**		**NA**	**$0**	

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Cost Estimate Details

Consultant Services				
Item	**Base Amount**	**Escalation Factor**	**Escalated Cost**	**Notes**
1) Pre-Schematic Design Services				
Programming/Site Analysis				
Environmental Analysis				
Predesign Study				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.0446**	**$0**	Escalated to Design Start
2) Construction Documents				
A/E Basic Design Services	$2,276,767			69% of A/E Basic Services
Other				
Insert Row Here				
Sub TOTAL	**$2,276,767**	**1.0649**	**$2,424,530**	Escalated to Mid-Design
3) Extra Services				
Civil Design (Above Basic Svcs)	$70,000			
Geotechnical Investigation	$55,000			
Commissioning	$50,000			
Site Survey	$75,000			
Testing	$150,000			
LEED Services	$170,000			
Voice/Data Consultant	$35,000			
Value Engineering	$80,000			
Constructability Review	$85,000			
Environmental Mitigation (EIS)	$55,000			
Landscape Consultant	$85,000			
ELCCA	$50,000			
LCCT	$75,000			
Reimburseables incl Reprographics prior to bid	$100,000			
Advertising	$3,000			
Traffic analysis	$65,000			
Envelope Consultant	$65,000			
Interior Design	$90,000			
Acoustic Design	$50,000			
Security Consultant	$60,000			
Audio Visual Consultant	$25,000			
Cost and Scheduling	$65,000			
Value Engineering Participation	$65,000			
Constructability Review Participation	$60,000			
Environmental Graphics/Signage	$40,000			
Lighting Consultant	$50,000			
Heatlhcare Services Consultant	$58,000			
Door Hardware Consultant	$15,000			
SEPA/Land Use	$35,000			
Net Zero Energy Consultant	$150,000			
Insert Row Here				
Sub TOTAL	**$2,031,000**	**1.0649**	**$2,162,812**	Escalated to Mid-Design

4) Other Services				
Bid/Construction/Closeout	$1,022,895			31% of A/E Basic Services
HVAC Balancing				
Staffing				
Commissioning and Training	$100,000			
Reimburseables/Reprographics for bid and construction	$45,000			
Construction Materials Testing	$75,000			
Insert Row Here				
Sub TOTAL	**$1,242,895**	**1.1165**	**$1,387,693**	Escalated to Mid-Const.
5) Design Services Contingency				
Design Services Contingency	$277,533			
Other				
Insert Row Here				
Sub TOTAL	**$277,533**	**1.1165**	**$309,866**	Escalated to Mid-Const.
CONSULTANT SERVICES TOTAL	**$5,828,195**		**$6,284,901**	

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Cost Estimate Details

Construction Contracts				
Item	**Base Amount**	**Escalation Factor**	**Escalated Cost**	**Notes**
1) Site Work				
G10 - Site Preparation	$567,004			
G20 - Site Improvements	$1,385,735			
G30 - Site Mechanical Utilities	$1,951,763			
G40 - Site Electrical Utilities	$64,800			
G60 - Other Site Construction				
Stone Columns	$2,347,450			
Insert Row Here				
Sub TOTAL	**$6,316,752**	**1.0910**	**$6,891,577**	
2) Related Project Costs				
Offsite Improvements				
City Utilities Relocation				
Parking Mitigation				
Stormwater Retention/Detention				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.0910**	**$0**	
3) Facility Construction				
A10 - Foundations	$2,353,992			
A20 - Basement Construction	$479,071			
B10 - Superstructure	$4,995,220			
B20 - Exterior Closure	$5,744,768			
B30 - Roofing	$2,180,447			
C10 - Interior Construction	$5,479,046			
C20 - Stairs				
C30 - Interior Finishes	$4,767,625			
D10 - Conveying				
D20 - Plumbing Systems	$2,754,670			
D30 - HVAC Systems	$2,905,411			
D40 - Fire Protection Systems	$860,971			
D50 - Electrical Systems	$7,795,872			
F10 - Special Construction				
F20 - Selective Demolition	$289,872			
General Conditions	$2,245,422			
Other				
Building Related Site Improvements	$208,692			
PV Panels	$2,139,141			
Insert Row Here				
Sub TOTAL	**$45,200,221**	**1.1165**	**$50,466,047**	
4) Maximum Allowable Construction Cost				
MACC Sub TOTAL	**$51,516,973**		**$57,357,624**	

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7) Construction Contingency				
Allowance for Change Orders	$2,575,849			
Other				
Insert Row Here				
Sub TOTAL	**$2,575,849**	**1.1165**	**$2,875,936**	
8) Non-Taxable Items				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.1165**	**$0**	
Sales Tax				
Sub TOTAL	**$5,463,375**		**$6,083,590**	
CONSTRUCTION CONTRACTS TOTAL	**$59,556,196**		**$66,317,150**	

Green cells must be filled in by user

Cost Estimate Details

Equipment					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
E10 - Equipment	$1,296,000				
E20 - Furnishings	$1,555,200				
F10 - Special Construction					
IT Equip/computers/printers	$1,555,200				
Insert Row Here					
Sub TOTAL	**$4,406,400**		**1.1165**	**$4,919,746**	
1) Non Taxable Items					
Other					
Insert Row Here					
Sub TOTAL	**$0**		**1.1165**	**$0**	
Sales Tax					
Sub TOTAL	**$445,046**			**$496,895**	
EQUIPMENT TOTAL	**$4,851,446**			**$5,416,641**	

Green cells must be filled in by user

Cost Estimate Details

Artwork					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
Project Artwork	$286,788				0.5% of Escalated MACC for new construction
Higher Ed Artwork	$0				0.5% of Escalated MACC for new and renewal construction
Other					
Insert Row Here					
ARTWORK TOTAL	**$286,788**		**NA**	**$286,788**	

Green cells must be filled in by user

Cost Estimate Details

Project Management					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
Agency Project Management	$1,270,941				
Additional Services					
Additional Management/Administration	$500,000				
Insert Row Here					
PROJECT MANAGEMENT TOTAL	**$1,770,941**		**1.1165**	**$1,977,257**	

Green cells must be filled in by user

Cost Estimate Details

Other Costs					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
Mitigation Costs					
Hazardous Material Remediation/Removal	$100,000				
Historic and Archeological Mitigation					
Permit and Plan Review Fees	$500,000				
Insert Row Here					
OTHER COSTS TOTAL	**$600,000**		**1.0910**	**$654,600**	

Green cells must be filled in by user

PROPOSED FUNDING

Identify the fund sources and expected receipt of the funds. If alternatively financed, provide the projected debt service and fund source:

Funds are expected to be sourced from the Washington State building construction account. Funding approval date is unkown. Alternative financing is not being pursued.

OPERATIONS & MAINTENANCE

Define the anticipated impact of the proposed project on the operating budget for the agency or institution. Include maintenance and operating assumptions (including FTEs) Show five biennia of capital and operating costs from the time of occupancy, including an estimate of building repairs, replacement, and maintenance:

Staffing Operations

Staffing projections and associated operations costs were generated by operations consultant Attune Healthcare.

Staffing operations budget projections include the following assumptions:

1. Five Bieniums of capital and staffing operations costs (10 years, 2022-2031)
2. 5% per year discount rate for NPV (net present value).
3. 3.34% per year escalation rate for budget line items.
4. Many of Rainier School's AC staff will be trained to work in the new nursing facility.

For the 100-bed preferred alternative, 208.8 FTEs (full time equivalents) were projected for clinical, administrative, support and centralized staff.

For the 160-bed preferred alternative, 334.2 FTEs (full time equivalent) were projected for clinical, administrative, support and centralized staff.

Both the 100-bed and 160-bed options require 2.09 staff per bed. It is anticipated that 45 of the required FTE staff will come from existing staff at Rainier School.

Building Operations & Maintenance

Operations and maintenance costs for the proposed nursing facility were derived by looking at historical utility charges and the costs of deferred building maintenance at Rainier School. Anticipated utility rates and on-going maintenance for the nursing facility were projected, and included in a Life Cycle Cost Analysis.

For the preferred alternative, anticipated Building Operations and Maintenance costs over 30 years are as follows:

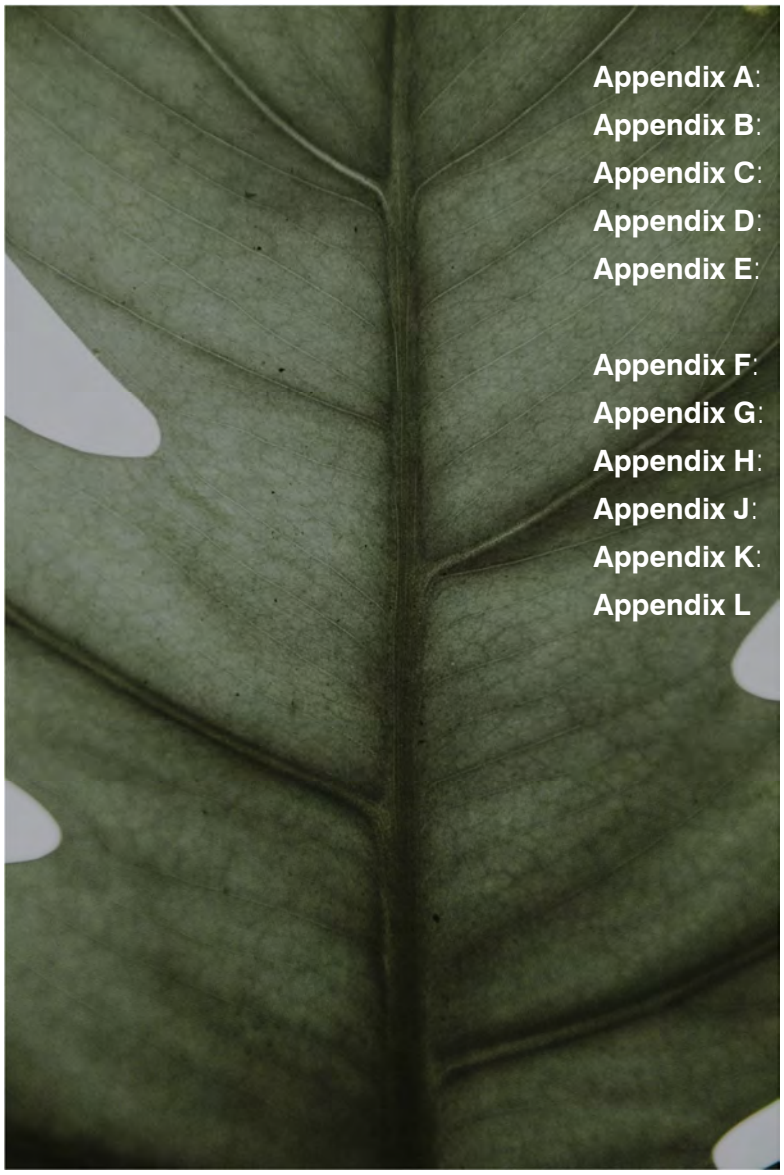
$134.7 Million -4A-100 Bed LEED Silver
$131.5 Million -4B-100 Bed Zero-Energy
$195.1 Million -4C-160 Bed LEED Silver
$196.1 Million -4D-160 Bed Zero-Energy

FURNITURE & EQUIPMENT

Clarify whether furniture, fixtures, and equipment are included in the project budget. If not included, explain:

Furniture and Equipment is included in the total project cost.

6 APPENDICES



Appendix A: Predesign Checklist
Appendix B: Life Cycle Cost Models (LCCA)
Appendix C: LEED Checklist
Appendix D: Not Used
Appendix E: Visioning and Questionnaire Results
Appendix F: Detailed Space Needs Program
Appendix G: Operations Consultant Report
Appendix H: Engineer's Reports
Appendix J: Sustainability Report
Appendix K: Glossary
Appendix L Analysis of New Laundry Option

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APPENDIX A: PREDESIGN CHECKLIST

A predesign should include the content detailed here. OFM will approve limited scope predesigns on a case-by-case basis.

- ❖ **Executive Summary**
- ❖ **Problem Statement, Opportunity or Program Requirement**
  - ☑ **PAGE 2.1** Identify the problem, opportunity or program requirement that the project addresses and how it will be accomplished.
  - ☑ **PAGE 2.7** Identify and explain the statutory or other requirements that drive the project's operational programs and how these affect the need for space, location or physical accommodations. **PAGE 2.9** Include anticipated population projections (growth or decline) and assumptions.
  - ☑ **PAGE 2.10** Explain the connection between the agency's mission, goals and objectives; statutory requirements; and the problem, opportunity, or program requirements.
  - ☑ **PAGE 2.20** Describe in general terms what is needed to solve the problem.
  - ☑ **PAGE 2.21** Include any relevant history of the project, including previous predesigns that did not go forward to design or construction.
- ❖ **Analysis of Alternatives (including the preferred alternative)**
  - ☑ **PAGE 3.1** Describe all alternatives that were considered, including the preferred alternative. Include:
    - ☑ A no action alternative.
    - ☑ Advantages and disadvantages of each alternative. Please include a high-level summary table with your analysis.
    - ☑ Cost estimates for each alternative.
      - ☑ Provide enough information so decision makers have a general understanding of the costs.
      - ☑ Complete OFM's Life Cycle Cost Model (RCW 39.35B.050).
    - ☑ Schedule estimates for each alternative. Estimate the start, midpoint, and completion dates.
- ❖ **Detailed Analysis of Preferred Alternative**
  - ☑ Nature of space – how much of the proposed space will be used for what purpose (i.e., office, lab, conference, classroom, etc.)
  - ☑ Occupancy numbers.
  - ☑ Basic configuration of the building, including square footage number of floors.
  - ☑ Space needs assessment. Identify the guidelines used.
  - ☑ Site Analysis
    - ☑ Identify site studies that are completed or under way.
    - ☑ Location.

- ☑ Building footprint and its relationship to adjacent facilities and site features. Provide an aerial view, sketches of the building site, and basic floorplans.
- ☑ Stormwater requirements.
- ☑ Ownership of the site and any acquisition issues.
- ☑ Easements and setback requirements.
- ☑ Potential issues with the surrounding neighborhood, during construction and ongoing.
- ☑ Utility extension or relocation issues.
- ☑ Potential environmental impacts.
- ☑ Parking and access issues, including improvements required by local ordinances, local road impacts, and parking demand.
- ☑ Impact on surroundings and existing development with construction lay-down areas and construction phasing.
- ☑ Consistency with applicable long-term plans (such as the Thurston County and Capitol Campus master plans and agency or area master plans) as required by RCW 43.88.110.
- ☑ Consistency with other laws and regulations
- ☑ High-performance public buildings (Chapter 39.35D RCW).
- ☑ Greenhouse gas emissions reduction policy (RCW 70.235.070).
- ☑ Archeological and cultural resources (Executive Order 05-05 and Section 106 of the National Historic Preservation Act of 1966).
- ☑ Americans with Disabilities Act implementation (Executive Order 96-04).
- ☑ Compliance with planning under Chapter 36.70A RCW, as required by RCW 43.88.0301.
- ☑ Information required by RCW 43.88.0301(1).
- ☑ Other codes or regulations.
- ☑ Identify problems that require further study. Evaluate identified problems to establish probable costs and risk.
- ☑ Identify significant or distinguishable components, including major equipment and ADA requirements in excess of existing code.
- ☑ Identify planned IT systems that affect the building plans.
- ☑ Describe planned commissioning to ensure systems function as designed.
- ☑ Describe any future phases or other facilities that will affect this project.
- ☑ Identify and justify the proposed project delivery method. For GC/CM, link to the requirements in RCW 39.10.340.
- ☑ Describe how the project will be managed within the agency.

- ☑ Schedule
  - ☑ Provide a high-level milestone schedule for the project, including key dates for budget approval, design, bid, acquisition, construction, equipment installation, testing, occupancy, and full operation.
  - ☑ Incorporate value-engineering analysis and constructability review into the project schedule, as required by RCW 43.88.110(5)(c).
  - ☑ Describe factors that may delay the project schedule.
  - ☑ Describe the permitting or local government ordinances or neighborhood issues (such as location or parking compatibility) that could affect the schedule.
  - ☑ Identify when the local jurisdiction will be contacted and whether community stakeholder meetings are a part of the process.

❖ Project Budget Analysis for the Preferred Alternative

- ☑ Cost estimate
  - ☑ Major assumptions used in preparing the cost estimate.
  - ☑ Summary table of Uniformat Level II cost estimates.
  - ☑ The C-100. If project costs are outside the C-100 cost control range, explain.
- ☑ Proposed funding
  - ☑ Identify the fund sources and expected receipt of the funds.
  - ☑ If alternatively financed, provide the projected debt service and fund source. Include the assumptions used for calculating finance terms and interest rates.
- ☑ Facility operations and maintenance requirements
  - ☑ Define the anticipated impact of the proposed project on the operating budget for the agency or institution. Include maintenance and operating assumptions (including FTEs).
  - ☑ Show five biennia of capital and operating costs from the time of occupancy, including an estimate of building repair, replacement, and maintenance.
- ☑ Clarify whether furniture, fixtures, and equipment are included in the project budget. If not included, explain.

❖ Predesign Appendix

- ☑ Completed Life Cycle Cost Model.
- ❑ A letter from the Department of Archaeology and Historic Preservation.

EXHIBIT B - LIFE CYCLE COST MODEL
100 BED - LEED SILVER

Life Cycle Cost Analysis - Project Summary

Agency	
Project Title	

Existing Description	

Lease Option 1 Description	

Lease Option 2 Description	

Ownership Option 1 Description	Rainier 1A 100 Bed LEED Silver

Ownership Option 2 Description	Rainier 3A 100 Bed LEED Silver

Ownership Option 3 Description	Rainier 4A 100 Bed LEED Silver

Lease Options Information	**Existing Lease**	**Lease Option 1**	**Lease Option 2**
Total Rentable Square Feet	-	-	-
Annual Lease Cost (Initial Term of Lease)	$ -	$ -	$ -
Full Service Cost/SF (Initial Term of Lease)	$ -	1/15/2023	$ -
Occupancy Date	n/a		
Project Initial Costs	n/a	$ -	$ -
Persons Relocating	-	-	-
RSF/Person Calculated			

Ownership Information	**Ownership 1**	**Ownership 2**	**Ownership 3**
Total Gross Square Feet	122,910	94,880	103,680
Total Rentable Square Feet	63,874	63,874	65,900
Occupancy Date	1/15/2023	1/15/2023	1/15/2023
Initial Project Costs	$ -	$ -	$ -
Est Construction TPC ($/GSF)	$ 557	$ 822	$ 803
RSF/Person Calculated	-	-	-

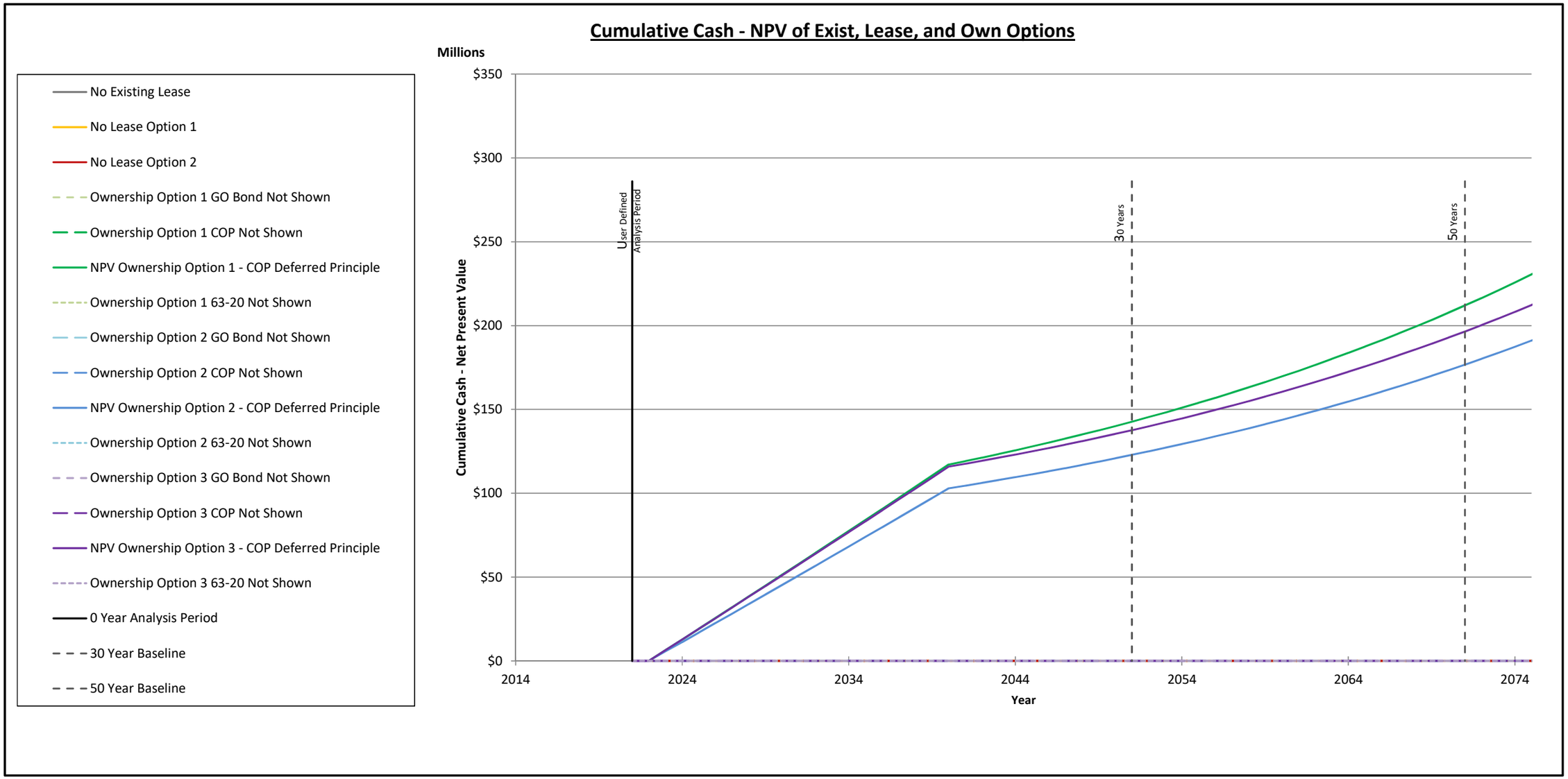
Financial Analysis of Options

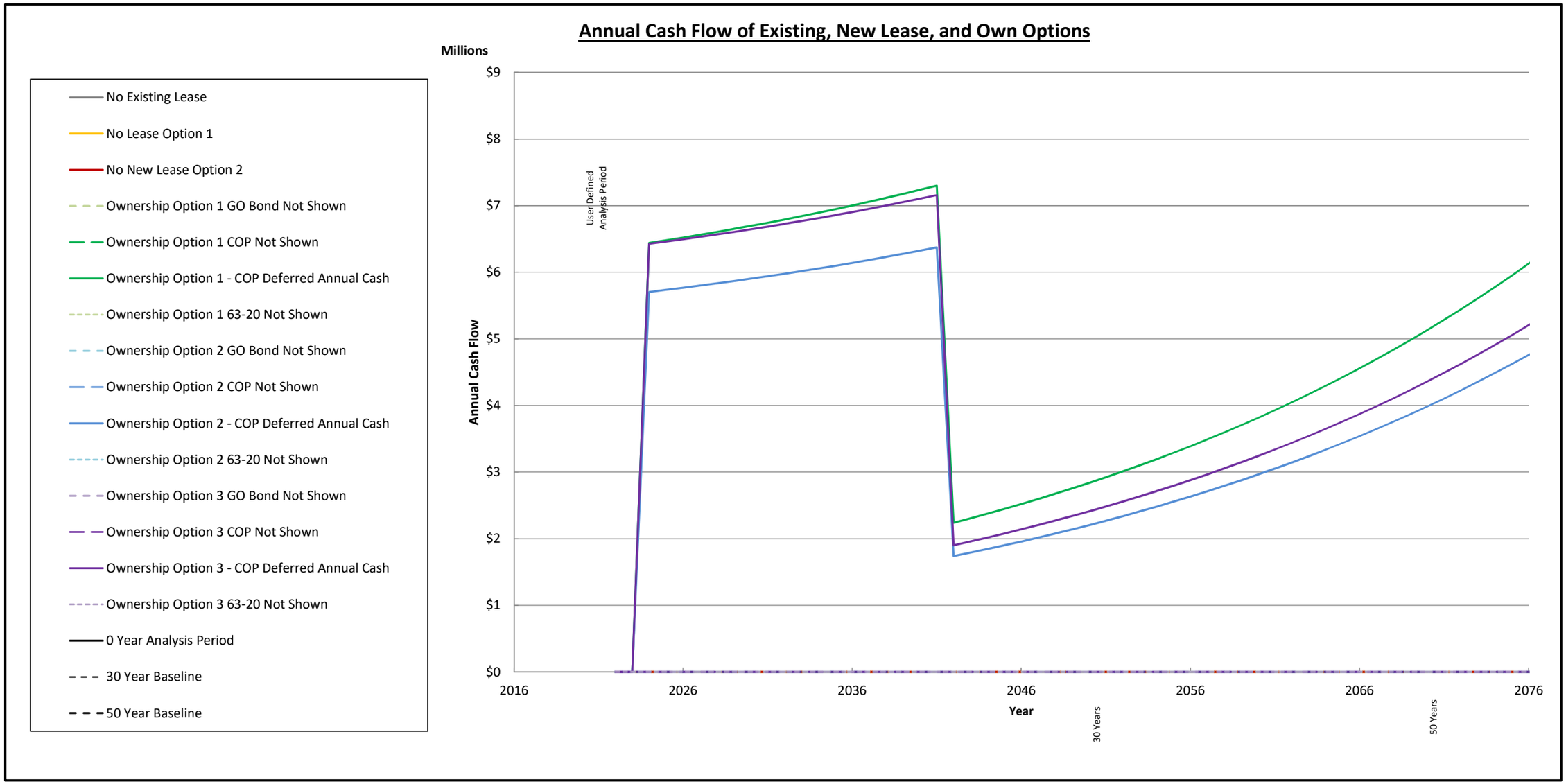
	Display Option?	Yes	Yes	Yes	No	No	Yes	No	No	No	Yes	No	No	No	Yes	No
	Financial Comparisons	**Existing Lease**	**Lease 1**	**Lease 2**	**Ownership 1**				**Ownership 2**				**Ownership 3**			
Years	**Financing Means**	**Current**	**Current**	**Current**	**GO Bond**	**COP**	**COP Deferred ***	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**
0	0 Year Cumulative Cash	$ -	$ -	$ -			$ -				$ -				$ -	
	0 Year Net Present Value	$ -	$ -	$ -			$ -				$ -				$ -	
	Lowest Cost Option (Analysis Period)															

	Financial Comparisons	**Existing Lease**	**Lease 1**	**Lease 2**	**Ownership 1**				**Ownership 2**				**Ownership 3**			
Years	**Financing Means**	**Current**	**Current**	**Current**	**GO Bond**	**COP**	**COP Deferred ***	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**
30	30 Year Cumulative Cash	$ -	$ -	$ -			$ 148,457,885				$ 127,943,877				$ 143,324,284	
	30 Year Net Present Value	$ -	$ -	$ -			$ 139,836,659				$ 120,645,255				$ 135,179,978	
	Lowest Cost Option (30 Years)						**3**				**1**				**2**	

	Financial Comparisons	**Existing Lease**	**Lease 1**	**Lease 2**	**Ownership 1**				**Ownership 2**				**Ownership 3**			
Years	**Financing Means**	**Current**	**Current**	**Current**	**GO Bond**	**COP**	**COP Deferred ***	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**
50	50 Year Cumulative Cash	$ -	$ -	$ -			$ 229,185,810				$ 190,647,633				$ 211,907,616	
	50 Year Net Present Value	$ -	$ -	$ -			$ 207,284,713				$ 173,034,144				$ 192,481,243	
	Lowest Cost Option (50 Years)						**3**				**1**				**2**	

** - Defers payment on principle for 2 years while the building is being constructed. See instructions on Capitalized Interest.*


Cumulative Cash - NPV of Exist, Lease, and Own Options
Millions
Cumulative Cash - Net Present Value
$350
$300
$250
$200
$150
$100
$50
$0
2014
2024
2034
2044
2054
2064
2074
Year
User Defined Analysis Period
30 Years
50 Years
No Existing Lease
No Lease Option 1
No Lease Option 2
Ownership Option 1 GO Bond Not Shown
Ownership Option 1 COP Not Shown
NPV Ownership Option 1 - COP Deferred Principle
Ownership Option 1 63-20 Not Shown
Ownership Option 2 GO Bond Not Shown
Ownership Option 2 COP Not Shown
NPV Ownership Option 2 - COP Deferred Principle
Ownership Option 2 63-20 Not Shown
Ownership Option 3 GO Bond Not Shown
Ownership Option 3 COP Not Shown
NPV Ownership Option 3 - COP Deferred Principle
Ownership Option 3 63-20 Not Shown
0 Year Analysis Period
30 Year Baseline
50 Year Baseline


Annual Cash Flow of Existing, New Lease, and Own Options
Millions
$9
$8
$7
$6
$5
$4
$3
$2
$1
$0
Annual Cash Flow
User Defined Analysis Period
2016
2026
2036
2046
2056
2066
2076
Year
30 Years
50 Years
No Existing Lease
No Lease Option 1
No New Lease Option 2
Ownership Option 1 GO Bond Not Shown
Ownership Option 1 COP Not Shown
Ownership Option 1 - COP Deferred Annual Cash
Ownership Option 1 63-20 Not Shown
Ownership Option 2 GO Bond Not Shown
Ownership Option 2 COP Not Shown
Ownership Option 2 - COP Deferred Annual Cash
Ownership Option 2 63-20 Not Shown
Ownership Option 3 GO Bond Not Shown
Ownership Option 3 COP Not Shown
Ownership Option 3 - COP Deferred Annual Cash
Ownership Option 3 63-20 Not Shown
0 Year Analysis Period
30 Year Baseline
50 Year Baseline

Financial Assumptions

Date of Life Cycle Cost Analysis:	
Analysis Period Start Date	1/15/2021
User Input Years of Analysis	0

All assumptions subject to change to reflect updated costs and conditions.

	Lease Options			Ownership Option 1			Ownership Option 2			Ownership Option 3		
	Existing Lease	**Lease Option 1**	**Lease Option 2**	**GO Bond**	**COP**	**63-20**	**GO Bond**	**COP**	**63-20**	**GO Bond**	**COP**	**63-20**
Inflation / Interest Rate	3.006%	3.006%	3.006%	3.160%	3.460%	3.660%	3.160%	3.460%	3.660%	3.160%	3.460%	3.660%
Discount Rate	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%
Length of Financing	N/A	N/A	N/A	20	20	20	20	20	20	20	20	20

See Financial Assumptions tab for more detailed information

COP Deferred and 63-20 Financing defer the payment on principle until construction completion.

New Lease Assumptions

Real Estate Transaction fees are 2.5% of the lease for the first 5 years and 1.25% for each year thereafter in the initial term of the lease.

Tenant Improvements are typically estimated at $15 per rentable square foot.

IT infrastructure is typically estimated at $350 per person.

Furniture costs are typically estimated at $500 per person and do not include new workstations.

Moving Vendor and Supplies are typically estimated at $205 per person.

Default Ownership Options Assumptions

Assumes a 2 month lease to move-in overlap period for outfitting building and relocation.

Assumes surface parking.

The floor plate of the construction option office building is 25,000 gross square feet.

The estimated total project cost for construction is $420.00 per square foot.

See the Capital Construction Defaults tab for more construction assumptions.

Ownership Option 1 Information Sheet

*	***Requires a user input***	*Green Cell*	*= Value can be entered by user.*	*Yellow Cell*	*= Calculated value.*

*	**Project Description**	Rainier 1A 100 Bed LEED Silver
*	**Construction or Purchase/Remodel**	Purchase/Remodel
*	**Project Location**	Buckley — Market Area = Pierce County

	Statistics	
*	Gross Sq Ft	122,910
*	Usable Sq Ft	63,874
	Space Efficiency	52%
	Estimated Acres Needed	5.00
	MACC Cost per Sq Ft	$342.95
	Estimated Total Project Costs per Sq Ft	$480.12
	Escalated MACC Cost per Sq Ft	$397.68
	Escalated Total Project Costs per Sq Ft	$556.76

*	**Move In Date**	1/15/2023

Interim Lease Information	**Start Date**
Lease Start Date	
Length of Lease (in months)	
Square Feet (holdover/temp lease)	
Lease Rate- Full Serviced ($/SF/Year)	
One Time Costs (if double move)	

	Construction Cost Estimates (See Capital Budget System For Detail)			
		Known Costs	Estimated Costs	Cost to Use
	Acquisition Costs Total		$ 1,250,000	$ 1,250,000
A & E	**Consultant Services**			
	A & E Fee Percentage (if services not specified)		8.18% Std	8.18%
	Pre-Schematic Design services	$ 192,054		
	Construction Documents	$ 2,849,268		
	Extra Services	$ 1,881,000		
	Other Services	$ 1,500,106		
	Design Services Contingency	$ 321,121		
	Consultant Services Total	$ 6,743,549	$ 2,546,554	$ 6,743,549
MACC	**Construction Contracts**			
	Site Work	$ 1,555,200		
	Related Project Costs			
	Facility Construction	$ 40,596,321		
	MACC SubTotal	$ 42,151,521	$ 36,873,000	$ 42,151,521
	Construction Contingency (5% default)		$ 2,107,576	$ 2,107,576
	Non Taxable Items			$ -
	Sales Tax	$ 4,470,169		$ 4,470,169
	Construction Additional Items Total	$ 4,470,169	$ 2,107,576	$ 4,470,169
	Equipment			
	Equipment	$ 5,223,675		
	Non Taxable Items			
	Sales Tax	$ 527,591		
	Equipment Total	$ 5,751,266		$ 5,751,266
	Art Work Total	$ 230,048	$ 210,758	$ 230,048
	Other Costs			
		$ 600,000		
	Other Costs Total	$ 600,000		$ 600,000
	Project Management Total	$ 1,702,342		$ 1,702,342
	Grand Total Project Cost	**$ 61,648,895**	**$ 42,987,888**	**$ 62,898,895**

Construction One Time Project Costs			
One Time Costs	Estimate	Calculated	
Moving Vendor and Supplies		$ -	*$205 / Person in FY09*
Other (not covered in construction)			
Total	$ -	$ -	

	Ongoing Building Costs				
Added Services	New Building Operating Costs	Known Cost /GSF/ 2023	Estimated Cost /GSF/ 2023	Total Cost / Year	Cost / Month
☑	Energy (Electricity. Natural Gas)	$ 0.83	$ 1.25	$ 102,015	$ 8,501
☑	Janitorial Services	$ -	$ 1.47	$ 180,694	$ 15,058
☑	Utilities (Water, Sewer, & Garbage)	$ -	$ 0.68	$ 84,116	$ 7,010
☑	Grounds	$ -	$ 0.16	$ 20,250	$ 1,688
☐	Pest Control	$ -	$0.00	$ -	$ -
☑	Security	$ -	$ 0.13	$ 15,577	$ 1,298
☑	Maintenance and Repair	$ -	$ 6.29	$ 772,624	$ 64,385
☑	Management	$ -	$ 0.75	$ 91,905	$ 7,659
☐	Road Clearance	$ -	$0.00	$ -	$ -
☐	Telecom	$ 0.35	$0.00	$ 43,019	$ 3,585
	Additional Parking	$ -	$ -	$ -	$ -
	Other	$ -	$ -	$ -	$ -
	Total Operating Costs	**$ 1.18**	**$ 10.73**	**$ 1,310,201**	**$ 109,183**

Ownership Option 2 Information Sheet

*	***Requires a user input***	*Green Cell*	*= Value can be entered by user.*	*Yellow Cell*	*= Calculated value.*

*	**Project Description**	Rainier 3A 100 Bed LEED Silver
*	**Construction or Purchase/Remodel**	Construction
*	**Project Location**	Buckley — Market Area = Pierce County

	Statistics	
*	Gross Sq Ft	94,880
*	Usable Sq Ft	63,874
	Space Efficiency	67%
	Estimated Acres Needed	4.00
	MACC Cost per Sq Ft	$498.92
	Estimated Total Project Costs per Sq Ft	$709.02
	Escalated MACC Cost per Sq Ft	$578.55
	Escalated Total Project Costs per Sq Ft	$822.19

*	**Move In Date**	1/15/2023

Interim Lease Information	**Start Date**
Lease Start Date	
Length of Lease (in months)	
Square Feet (holdover/temp lease)	
Lease Rate- Full Serviced ($/SF/Year)	
One Time Costs (if double move)	

	Construction Cost Estimates (See Capital Budget System For Detail)			
		Known Costs	Estimated Costs	Cost to Use
	Acquisition Costs Total		$ 1,000,000	$ 1,000,000
A & E	**Consultant Services**			
	A & E Fee Percentage (if services not specified)		6.04% Std	6.04%
	Pre-Schematic Design services	$ 192,054		
	Construction Documents	$ 2,122,915		
	Extra Services	$ 1,881,000		
	Other Services	$ 1,173,773		
	Design Services Contingency	$ 268,487		
	Consultant Services Total	$ 5,638,229	$ 2,859,850	$ 5,638,229
MACC	**Construction Contracts**			
	Site Work	$ 8,100,280		
	Related Project Costs			
	Facility Construction	$ 39,237,026		
	MACC SubTotal	$ 47,337,306	$ 28,464,000	$ 47,337,306
	Construction Contingency (5% default)		$ 2,366,865	$ 2,366,865
	Non Taxable Items			$ -
	Sales Tax			
	Construction Additional Items Total	$ -	$ 2,366,865	$ 2,366,865
	Equipment			
	Equipment	$ 1,186,000		
	Non Taxable Items	$ 1,423,200		
	Sales Tax	$ 407,272		
	Equipment Total	$ 3,016,472		$ 3,016,472
	Art Work Total	$ 257,515	$ 236,687	$ 257,515
	Other Costs			
		$ 600,000		
	Other Costs Total	$ 600,000		$ 600,000
	Project Management Total	$ 1,725,139		$ 1,725,139
	Grand Total Project Cost		**$ -**	**$ 61,941,526**

Construction One Time Project Costs			
One Time Costs	Estimate	Calculated	
Moving Vendor and Supplies		$ -	*$205 / Person in FY09*
Other (not covered in construction)			
Total	$ -	$ -	

	Ongoing Building Costs				
Added Services	New Building Operating Costs	Known Cost /GSF/ 2023	Estimated Cost /GSF/ 2023	Total Cost / Year	Cost / Month
☑	**Energy (Electricity. Natural Gas)**	$ 0.82	$ 1.25	$ 77,802	$ 6,483
☑	**Janitorial Services**	$ -	$ 1.47	$ 139,486	$ 11,624
☑	**Utilities (Water, Sewer, & Garbage)**	$ -	$ 0.68	$ 64,933	$ 5,411
☑	**Grounds**	$ -	$ 0.16	$ 15,632	$ 1,303
☐	**Pest Control**	$ -	$0.00	$ -	$ -
☑	**Security**	$ -	$ 0.13	$ 12,025	$ 1,002
☑	**Maintenance and Repair**	$ -	$ 6.29	$ 596,425	$ 49,702
☑	**Management**	$ -	$ 0.75	$ 70,946	$ 5,912
☑	**Road Clearance**	$ -	$ 0.08	$ 7,215	$ 601
☑	**Telecom**	$ 0.35	$ -	$ 33,208	$ 2,767
	Additional Parking	$ -	$ -	$ -	$ -
	Other	$ -	$ -	$ -	$ -
	Total Operating Costs	**$ 1.17**	**$ 10.81**	**$ 1,017,672**	**$ 84,806**

Ownership Option 3 Information Sheet

*	***Requires a user input***	*Green Cell*	*= Value can be entered by user.*	*Yellow Cell*	*= Calculated value.*

*	**Project Description**	Rainier 4A 100 Bed LEED Silver
*	**Construction or Purchase/Remodel**	Construction
*	**Project Location**	Buckley — Market Area = Pierce County

	Statistics	
*	Gross Sq Ft	103,680
*	Usable Sq Ft	65,900
	Space Efficiency	64%
	Estimated Acres Needed	4.00
	MACC Cost per Sq Ft	$487.71
	Estimated Total Project Costs per Sq Ft	$692.44
	Escalated MACC Cost per Sq Ft	$565.55
	Escalated Total Project Costs per Sq Ft	$802.96

*	**Move In Date**	1/15/2023

Interim Lease Information	**Start Date**
Lease Start Date	
Length of Lease (in months)	
Square Feet (holdover/temp lease)	
Lease Rate- Full Serviced ($/SF/Year)	
One Time Costs (if double move)	

	Construction Cost Estimates (See Capital Budget System For Detail)			
		Known Costs	Estimated Costs	Cost to Use
	Acquisition Costs Total		$ 1,000,000	$ 1,000,000
A & E	**Consultant Services**			
	A & E Fee Percentage (if services not specified)		5.96% Std	5.96%
	Pre-Schematic Design services	$ 192,054		
	Construction Documents	$ 2,242,045		
	Extra Services	$ 1,881,000		
	Other Services	$ 1,227,296		
	Design Services Contingency	$ 277,120		
	Consultant Services Total	$ 5,819,515	$ 3,015,856	$ 5,819,515
MACC	**Construction Contracts**			
	Site Work	$ 8,966,774		
	Related Project Costs			
	Facility Construction	$ 41,598,759		
	MACC SubTotal	$ 50,565,533	$ 31,104,000	$ 50,565,533
	Construction Contingency (5% default)		$ 2,528,277	$ 2,528,277
	Non Taxable Items			$ -
	Sales Tax	$ 5,362,475		$ 5,362,475
	Construction Additional Items Total	$ 5,362,475	$ 5,362,475	$ 5,362,475
	Equipment			
	Equipment	$ 4,406,400		
	Non Taxable Items			
	Sales Tax	$ 445,046		
	Equipment Total	$ 4,851,446		$ 4,851,446
	Art Work Total	$ 275,035	$ 252,828	$ 275,035
	Other Costs			
		$ 600,000		
	Other Costs Total	$ 600,000		$ 600,000
	Project Management Total	$ 1,761,682		$ 1,761,682
	Grand Total Project Cost		**$ -**	**$ 70,235,686**

Construction One Time Project Costs			
One Time Costs	Estimate	Calculated	
Moving Vendor and Supplies		$ -	*$205 / Person in FY09*
Other (not covered in construction)			
Total	$ -	$ -	

	Ongoing Building Costs				
Added Services	New Building Operating Costs	Known Cost /GSF/ 2023	Estimated Cost /GSF/ 2023	Total Cost / Year	Cost / Month
☑	**Energy (Electricity. Natural Gas)**	$ 0.83	$ 1.25	$ 86,054	$ 7,171
☑	**Janitorial Services**	$ -	$ 1.47	$ 152,424	$ 12,702
☑	**Utilities (Water, Sewer, & Garbage)**	$ -	$ 0.68	$ 70,956	$ 5,913
☑	**Grounds**	$ -	$ 0.16	$ 17,082	$ 1,423
☐	**Pest Control**	$ -	$0.00	$ -	$ -
☑	**Security**	$ -	$ 0.13	$ 13,140	$ 1,095
☑	**Maintenance and Repair**	$ -	$ 6.29	$ 651,743	$ 54,312
☑	**Management**	$ -	$ 0.75	$ 77,526	$ 6,460
☑	**Road Clearance**	$ -	$ 0.08	$ 7,884	$ 657
☑	**Telecom**	$ 0.35	$ -	$ 36,288	$ 3,024
	Additional Parking	$ -	$ -	$ -	$ -
	Other	$ -	$ -	$ -	$ -
	Total Operating Costs	**$ 1.18**	**$ 10.81**	**$ 1,113,096**	**$ 92,758**

EXHIBIT B - LIFE CYCLE COST MODEL
100 BED - LEED SILVER+ NETZERO

Life Cycle Cost Analysis - Project Summary

Agency	
Project Title	

Existing Description	

Lease Option 1 Description	

Lease Option 2 Description	

Ownership Option 1 Description	Rainier 1B 100 Bed Zero Energy Building w/Associated Site Work

Ownership Option 2 Description	Rainier 3B 100 Bed Zero Energy Building w/Associated Site Work

Ownership Option 3 Description	Rainier 4B 100 Bed Zero Energy Building w/Associated Site Work

Lease Options Information	**Existing Lease**	**Lease Option 1**	**Lease Option 2**
Total Rentable Square Feet	-	-	-
Annual Lease Cost (Initial Term of Lease)	$ -	$ -	$ -
Full Service Cost/SF (Initial Term of Lease)	$ -	$ -	$ -
Occupancy Date	n/a		
Project Initial Costs	n/a	$ -	$ -
Persons Relocating	-	-	-
RSF/Person Calculated			

Ownership Information	**Ownership 1**	**Ownership 2**	**Ownership 3**
Total Gross Square Feet	122,910	94,880	103,680
Total Rentable Square Feet	63,874	63,874	65,900
Occupancy Date	3/15/2022	3/15/2022	1/15/2023
Initial Project Costs	$ -	$ -	$ -
Est Construction TPC ($/GSF)	$ 591	$ 835	$ 818
RSF/Person Calculated	-	-	-

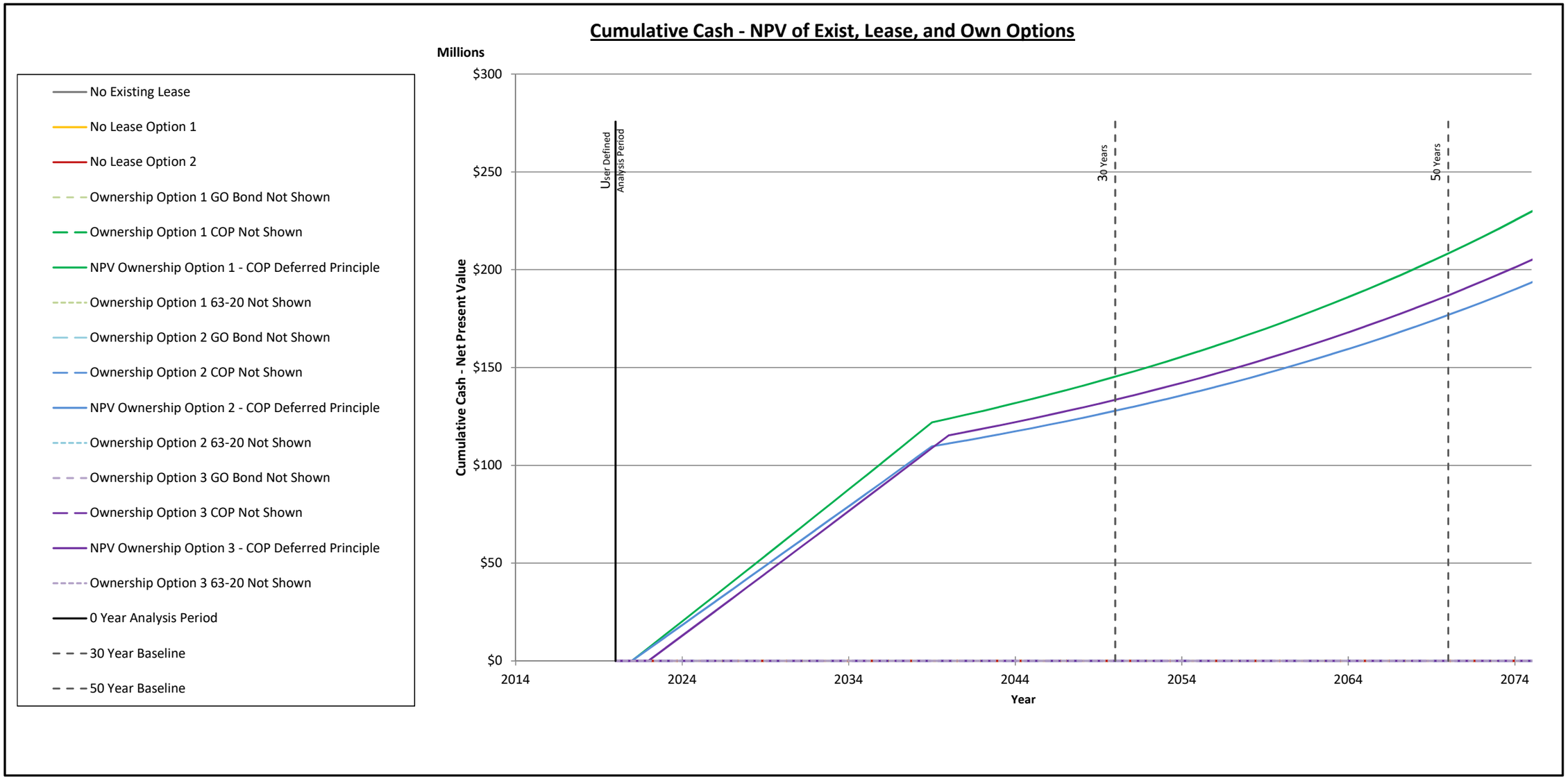
Financial Analysis of Options

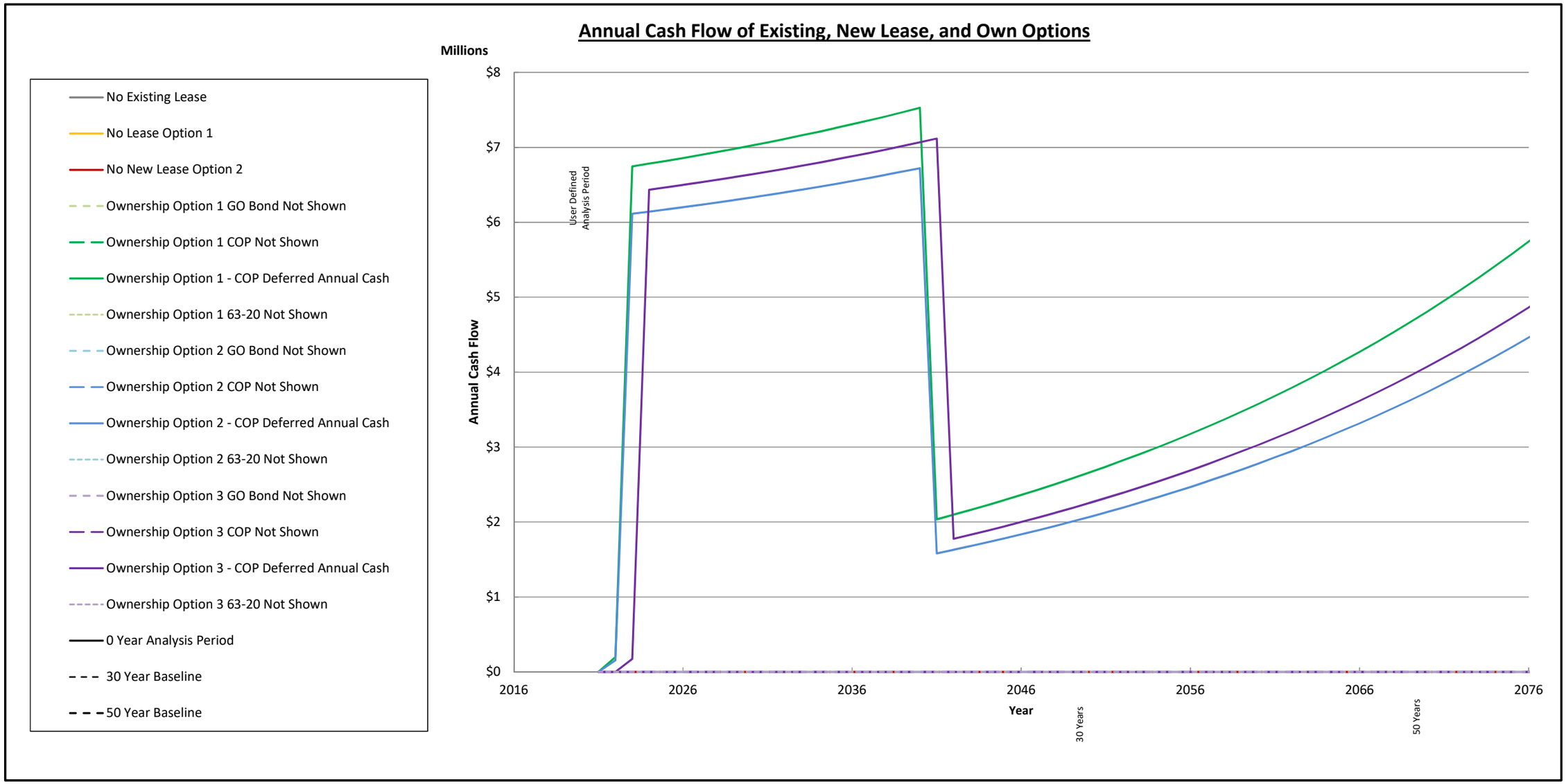
	Display Option?	Yes	Yes	Yes	No	No	Yes	No	No	No	Yes	No	No	No	Yes	No
	Financial Comparisons	**Existing Lease**	**Lease 1**	**Lease 2**	**Ownership 1**				**Ownership 2**				**Ownership 3**			
Years	**Financing Means**	**Current**	**Current**	**Current**	**GO Bond**	**COP**	**COP Deferred ***	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**
0	0 Year Cumulative Cash	$ -	$ -	$ -			$ -				$ -				$ -	
	0 Year Net Present Value	$ -	$ -	$ -			$ -				$ -				$ -	
	Lowest Cost Option (Analysis Period)															

	Financial Comparisons	**Existing Lease**	**Lease 1**	**Lease 2**	**Ownership 1**				**Ownership 2**				**Ownership 3**			
Years	**Financing Means**	**Current**	**Current**	**Current**	**GO Bond**	**COP**	**COP Deferred ***	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**
30	30 Year Cumulative Cash	$ -	$ -	$ -			$ 151,454,271				$ 133,374,107				$ 139,700,443	
	30 Year Net Present Value	$ -	$ -	$ -			$ 142,889,465				$ 125,981,964				$ 131,466,839	
	Lowest Cost Option (30 Years)						**3**				**1**				**2**	

	Financial Comparisons	**Existing Lease**	**Lease 1**	**Lease 2**	**Ownership 1**				**Ownership 2**				**Ownership 3**			
Years	**Financing Means**	**Current**	**Current**	**Current**	**GO Bond**	**COP**	**COP Deferred ***	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**
50	50 Year Cumulative Cash	$ -	$ -	$ -			$ 225,077,632				$ 190,579,814				$ 202,058,896	
	50 Year Net Present Value	$ -	$ -	$ -			$ 204,378,371				$ 173,759,139				$ 183,547,495	
	Lowest Cost Option (50 Years)						**3**				**1**				**2**	

** - Defers payment on principle for 2 years while the building is being constructed. See instructions on Capitalized Interest.*


Cumulative Cash - NPV of Exist, Lease, and Own Options
Millions
$300
$250
$200
$150
$100
$50
$0
Cumulative Cash - Net Present Value
User Defined Analysis Period
30 Years
50 Years
2014
2024
2034
2044
2054
2064
2074
Year
No Existing Lease
No Lease Option 1
No Lease Option 2
Ownership Option 1 GO Bond Not Shown
Ownership Option 1 COP Not Shown
NPV Ownership Option 1 - COP Deferred Principle
Ownership Option 1 63-20 Not Shown
Ownership Option 2 GO Bond Not Shown
Ownership Option 2 COP Not Shown
NPV Ownership Option 2 - COP Deferred Principle
Ownership Option 2 63-20 Not Shown
Ownership Option 3 GO Bond Not Shown
Ownership Option 3 COP Not Shown
NPV Ownership Option 3 - COP Deferred Principle
Ownership Option 3 63-20 Not Shown
0 Year Analysis Period
30 Year Baseline
50 Year Baseline


Annual Cash Flow of Existing, New Lease, and Own Options
Millions
Annual Cash Flow
$8
$7
$6
$5
$4
$3
$2
$1
$0
2016
2026
2036
2046
2056
2066
2076
Year
User Defined Analysis Period
30 Years
50 Years
No Existing Lease
No Lease Option 1
No New Lease Option 2
Ownership Option 1 GO Bond Not Shown
Ownership Option 1 COP Not Shown
Ownership Option 1 - COP Deferred Annual Cash
Ownership Option 1 63-20 Not Shown
Ownership Option 2 GO Bond Not Shown
Ownership Option 2 COP Not Shown
Ownership Option 2 - COP Deferred Annual Cash
Ownership Option 2 63-20 Not Shown
Ownership Option 3 GO Bond Not Shown
Ownership Option 3 COP Not Shown
Ownership Option 3 - COP Deferred Annual Cash
Ownership Option 3 63-20 Not Shown
0 Year Analysis Period
30 Year Baseline
50 Year Baseline

Financial Assumptions

Date of Life Cycle Cost Analysis:	
Analysis Period Start Date	3/15/2020
User Input Years of Analysis	0

All assumptions subject to change to reflect updated costs and conditions.

	Lease Options			Ownership Option 1			Ownership Option 2			Ownership Option 3		
	Existing Lease	**Lease Option 1**	**Lease Option 2**	**GO Bond**	**COP**	**63-20**	**GO Bond**	**COP**	**63-20**	**GO Bond**	**COP**	**63-20**
Inflation / Interest Rate	3.006%	3.006%	3.006%	3.160%	3.460%	3.660%	3.160%	3.460%	3.660%	3.160%	3.460%	3.660%
Discount Rate	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%
Length of Financing	N/A	N/A	N/A	20	20	20	20	20	20	20	20	20

See Financial Assumptions tab for more detailed information

COP Deferred and 63-20 Financing defer the payment on principle until construction completion.

New Lease Assumptions

Real Estate Transaction fees are 2.5% of the lease for the first 5 years and 1.25% for each year thereafter in the initial term of the lease.

Tenant Improvements are typically estimated at $15 per rentable square foot.

IT infrastructure is typically estimated at $350 per person.

Furniture costs are typically estimated at $500 per person and do not include new workstations.

Moving Vendor and Supplies are typically estimated at $205 per person.

Default Ownership Options Assumptions

Assumes a 2 month lease to move-in overlap period for outfitting building and relocation.

Assumes surface parking.

The floor plate of the construction option office building is 25,000 gross square feet.

The estimated total project cost for construction is $420.00 per square foot.

See the Capital Construction Defaults tab for more construction assumptions.

Ownership Option 1 Information Sheet

*	***Requires a user input***	*Green Cell*	*= Value can be entered by user.*	*Yellow Cell*	*= Calculated value.*

*	**Project Description**	Rainier 1B 100 Bed Zero Energy Building w/Associated Site Work
*	**Construction or Purchase/Remodel**	Purchase/Remodel
*	**Project Location**	Buckley — Market Area = Pierce County

	Statistics	
*	Gross Sq Ft	122,910
*	Usable Sq Ft	63,874
	Space Efficiency	52%
	Estimated Acres Needed	5.00
	MACC Cost per Sq Ft	$375.01
	Estimated Total Project Costs per Sq Ft	$525.02
	Escalated MACC Cost per Sq Ft	$422.18
	Escalated Total Project Costs per Sq Ft	$591.05

*	**Move In Date**	3/15/2022

Interim Lease Information	**Start Date**
Lease Start Date	
Length of Lease (in months)	
Square Feet (holdover/temp lease)	
Lease Rate- Full Serviced ($/SF/Year)	
One Time Costs (if double move)	

	Construction Cost Estimates (See Capital Budget System For Detail)			
		Known Costs	Estimated Costs	Cost to Use
	Acquisition Costs Total		$ 1,250,000	$ 1,250,000
A & E	**Consultant Services**			
	A & E Fee Percentage (if services not specified)		8.07% Std	8.07%
	Pre-Schematic Design services			
	Construction Documents	$ 3,156,602		
	Extra Services	$ 2,031,000		
	Other Services	$ 1,638,183		
	Design Services Contingency	$ 546,063		
	Consultant Services Total	$ 7,371,848	$ 2,760,078	$ 7,371,848
MACC	**Construction Contracts**			
	Site Work	$ 1,555,200		
	Related Project Costs			
	Facility Construction	$ 44,537,426		
	MACC SubTotal	$ 46,092,626	$ 36,873,000	$ 46,092,626
	Construction Contingency (5% default)		$ 2,304,631	$ 2,304,631
	Non Taxable Items			$ -
	Sales Tax	$ 5,027,784		$ 5,027,784
	Construction Additional Items Total	$ 5,027,784	$ 2,304,631	$ 5,027,784
	Equipment			
	Equipment	$ 5,223,675		
	Non Taxable Items			
	Sales Tax	$ 527,591		
	Equipment Total	$ 5,751,266		$ 5,751,266
	Art Work Total	$ 251,576	$ 230,463	$ 251,576
	Other Costs			
	Abatement	$ 100,000		
	Permits/Plan Review/Misc.	$ 500,000		
	Other Costs Total	$ 600,000		$ 600,000
	Project Management Total	$ 1,764,766		$ 1,764,766
	Grand Total Project Cost	**$ 66,859,866**	**$ 43,418,172**	**$ 68,109,866**

Construction One Time Project Costs			
One Time Costs	Estimate	Calculated	
Moving Vendor and Supplies		$ -	*$205 / Person in FY09*
Other (not covered in construction)			
Total	$ -	$ -	

	Ongoing Building Costs				
Added Services	New Building Operating Costs	Known Cost /GSF/ 2022	Estimated Cost /GSF/ 2022	Total Cost / Year	Cost / Month
☑	Energy (Electricity. Natural Gas)	$ 0.10	$ 1.22	$ 11,799	$ 983
☑	Janitorial Services	$ -	$ 1.43	$ 175,421	$ 14,618
☑	Utilities (Water, Sewer, & Garbage)	$ -	$ 0.66	$ 81,662	$ 6,805
☑	Grounds	$ -	$ 0.16	$ 19,659	$ 1,638
☐	Pest Control	$ -	$0.00	$ -	$ -
☑	Security	$ -	$ 0.12	$ 15,123	$ 1,260
☑	Maintenance and Repair	$ -	$ 6.10	$ 750,077	$ 62,506
☑	Management	$ -	$ 0.73	$ 89,223	$ 7,435
☐	Road Clearance	$ -	$0.00	$ -	$ -
☐	Telecom	$ 0.35	$0.00	$ 43,019	$ 3,585
	Additional Parking	$ -	$ -	$ -	$ -
	Other	$ -	$ -	$ -	$ -
	Total Operating Costs	**$ 0.45**	**$ 10.42**	**$ 1,185,983**	**$ 98,832**

Ownership Option 2 Information Sheet

*	***Requires a user input***	*Green Cell*	*= Value can be entered by user.*	*Yellow Cell*	*= Calculated value.*

*	**Project Description**	Rainier 3B 100 Bed Zero Energy Building w/Associated Site Work
*	**Construction or Purchase/Remodel**	Construction
*	**Project Location**	Buckley — Market Area = Pierce County

	Statistics	
*	Gross Sq Ft	94,880
*	Usable Sq Ft	63,874
	Space Efficiency	67%
	Estimated Acres Needed	4.00
	MACC Cost per Sq Ft	$522.18
	Estimated Total Project Costs per Sq Ft	$741.59
	Escalated MACC Cost per Sq Ft	$587.85
	Escalated Total Project Costs per Sq Ft	$834.86

*	**Move In Date**	3/15/2022

Interim Lease Information	**Start Date**
Lease Start Date	
Length of Lease (in months)	
Square Feet (holdover/temp lease)	
Lease Rate- Full Serviced ($/SF/Year)	
One Time Costs (if double move)	

	Construction Cost Estimates (See Capital Budget System For Detail)			
		Known Costs	Estimated Costs	Cost to Use
	Acquisition Costs Total		$ 1,000,000	$ 1,000,000
A & E	**Consultant Services**			
	A & E Fee Percentage (if services not specified)		5.99% Std	5.99%
	Pre-Schematic Design services			
	Construction Documents	$ 2,203,943		
	Extra Services	$ 2,031,000		
	Other Services	$ 1,210,177		
	Design Services Contingency	$ 272,256		
	Consultant Services Total	$ 5,717,376	$ 2,966,767	$ 5,717,376
MACC	**Construction Contracts**			
	Site Work	$ 6,950,728		
	Related Project Costs			
	Facility Construction	$ 42,593,554		
	MACC SubTotal	$ 49,544,282	$ 28,464,000	$ 49,544,282
	Construction Contingency (5% default)		$ 2,477,214	$ 2,477,214
	Non Taxable Items			$ -
	Sales Tax	$ 5,254,171		$ 5,254,171
	Construction Additional Items Total	$ 5,254,171	$ 5,254,171	$ 5,254,171
	Equipment			
	Equipment	$ 4,032,400		
	Non Taxable Items	$ -		
	Sales Tax	$ 407,272		
	Equipment Total	$ 4,439,672		$ 4,439,672
	Art Work Total	$ 269,722	$ 247,721	$ 269,722
	Other Costs			
	Hazardous Material Removal	$ 100,000		
	Permits/Plan Review/Misc.	$ 500,000		
	Other Costs Total	$ 600,000		$ 600,000
	Project Management Total	$ 1,748,452		$ 1,748,452
	Grand Total Project Cost		**$ -**	**$ 68,573,675**

Construction One Time Project Costs			
One Time Costs	Estimate	Calculated	
Moving Vendor and Supplies		$ -	*$205 / Person in FY09*
Other (not covered in construction)			
Total	$ -	$ -	

	Ongoing Building Costs				
Added Services	New Building Operating Costs	Known Cost /GSF/ 2022	Estimated Cost /GSF/ 2022	Total Cost / Year	Cost / Month
☑	**Energy (Electricity. Natural Gas)**	$ 0.09	$ 1.22	$ 8,103	$ 675
☑	**Janitorial Services**	$ -	$ 1.43	$ 135,416	$ 11,285
☑	**Utilities (Water, Sewer, & Garbage)**	$ -	$ 0.66	$ 63,038	$ 5,253
☑	**Grounds**	$ -	$ 0.16	$ 15,176	$ 1,265
☐	**Pest Control**	$ -	$0.00	$ -	$ -
☑	**Security**	$ -	$ 0.12	$ 11,674	$ 973
☑	**Maintenance and Repair**	$ -	$ 6.10	$ 579,020	$ 48,252
☑	**Management**	$ -	$ 0.73	$ 68,875	$ 5,740
☑	**Road Clearance**	$ -	$ 0.07	$ 7,004	$ 584
☑	**Telecom**	$ 0.35	$ -	$ 33,208	$ 2,767
	Additional Parking	$ -	$ -	$ -	$ -
	Other	$ -	$ -	$ -	$ -
	Total Operating Costs	**$ 0.44**	**$ 10.50**	**$ 921,514**	**$ 76,793**

Ownership Option 3 Information Sheet

*	***Requires a user input***	*Green Cell*	*= Value can be entered by user.*	*Yellow Cell*	*= Calculated value.*

*	**Project Description**	Rainier 4B 100 Bed Zero Energy Building w/Associated Site Work
*	**Construction or Purchase/Remodel**	Construction
*	**Project Location**	Buckley — Market Area = Pierce County

	Statistics	
*	Gross Sq Ft	103,680
*	Usable Sq Ft	65,900
	Space Efficiency	64%
	Estimated Acres Needed	4.00
	MACC Cost per Sq Ft	$496.88
	Estimated Total Project Costs per Sq Ft	$705.28
	Escalated MACC Cost per Sq Ft	$576.19
	Escalated Total Project Costs per Sq Ft	$817.85

*	**Move In Date**	1/15/2023

Interim Lease Information	**Start Date**
Lease Start Date	
Length of Lease (in months)	
Square Feet (holdover/temp lease)	
Lease Rate- Full Serviced ($/SF/Year)	
One Time Costs (if double move)	

	Construction Cost Estimates (See Capital Budget System For Detail)			
		Known Costs	Estimated Costs	Cost to Use
	Acquisition Costs Total		$ 1,000,000	$ 1,000,000
A & E	**Consultant Services**			
	A & E Fee Percentage (if services not specified)		5.94% Std	5.94%
	Pre-Schematic Design services			
	Construction Documents	$ 2,276,767		
	Extra Services	$ 2,031,000		
	Other Services	$ 1,242,895		
	Design Services Contingency	$ 277,533		
	Consultant Services Total	$ 5,828,195	$ 3,061,376	$ 5,828,195
MACC	**Construction Contracts**			
	Site Work	$ 6,316,752		
	Related Project Costs			
	Facility Construction	$ 45,200,221		
	MACC SubTotal	$ 51,516,973	$ 31,104,000	$ 51,516,973
	Construction Contingency (5% default)		$ 2,575,849	$ 2,575,849
	Non Taxable Items			$ -
	Sales Tax	$ 5,463,375		$ 5,463,375
	Construction Additional Items Total	$ 5,463,375	$ 5,463,375	$ 5,463,375
	Equipment			
	Equipment	$ 4,406,400		
	Non Taxable Items			
	Sales Tax	$ 445,046		
	Equipment Total	$ 4,851,446		$ 4,851,446
	Art Work Total	$ 280,581	$ 257,585	$ 280,581
	Other Costs			
	Hazardous Material Removal	$ 100,000		
	Permits/Plan Review/Misc.	$ 500,000		
	Other Costs Total	$ 600,000		$ 600,000
	Project Management Total	$ 1,770,941		$ 1,770,941
	Grand Total Project Cost		**$ -**	**$ 71,311,511**

Construction One Time Project Costs			
One Time Costs	Estimate	Calculated	
Moving Vendor and Supplies		$ -	*$205 / Person in FY09*
Other (not covered in construction)			
Total	$ -	$ -	

	Ongoing Building Costs				
Added Services	New Building Operating Costs	Known Cost /GSF/ 2023	Estimated Cost /GSF/ 2023	Total Cost / Year	Cost / Month
☑	**Energy (Electricity. Natural Gas)**	$ 0.07	$ 1.25	$ 7,672	$ 639
☑	**Janitorial Services**	$ -	$ 1.47	$ 152,424	$ 12,702
☑	**Utilities (Water, Sewer, & Garbage)**	$ -	$ 0.68	$ 70,956	$ 5,913
☑	**Grounds**	$ -	$ 0.16	$ 17,082	$ 1,423
☐	**Pest Control**	$ -	$0.00	$ -	$ -
☑	**Security**	$ -	$ 0.13	$ 13,140	$ 1,095
☑	**Maintenance and Repair**	$ -	$ 6.29	$ 651,743	$ 54,312
☑	**Management**	$ -	$ 0.75	$ 77,526	$ 6,460
☑	**Road Clearance**	$ -	$ 0.08	$ 7,884	$ 657
☑	**Telecom**	$ 0.35	$ -	$ 36,288	$ 3,024
	Additional Parking	$ -	$ -	$ -	$ -
	Other	$ -	$ -	$ -	$ -
	Total Operating Costs	**$ 0.42**	**$ 10.81**	**$ 1,034,714**	**$ 86,226**

EXHIBIT B - LIFE CYCLE COST MODEL
160 BED - LEED SILVER

Life Cycle Cost Analysis - Project Summary

Agency	
Project Title	

Existing Description	

Lease Option 1 Description	

Lease Option 2 Description	

Ownership Option 1 Description	Rainier 1C 160 Bed LEED Silver

Ownership Option 2 Description	Rainier 3C 160 Bed LEED Silver

Ownership Option 3 Description	Rainier 4C 160 Bed LEED Silver

Lease Options Information	**Existing Lease**	**Lease Option 1**	**Lease Option 2**
Total Rentable Square Feet	-	-	-
Annual Lease Cost (Initial Term of Lease)	$ -	$ -	$ -
Full Service Cost/SF (Initial Term of Lease)	$ -	$ -	$ -
Occupancy Date	n/a		
Project Initial Costs	n/a	$ -	$ -
Persons Relocating	-	-	-
RSF/Person Calculated			

Ownership Information	**Ownership 1**	**Ownership 2**	**Ownership 3**
Total Gross Square Feet	167,910	142,000	154,360
Total Rentable Square Feet	93,874	93,467	98,600
Occupancy Date	1/15/2023	1/15/2023	1/15/2023
Initial Project Costs	$ -	$ -	$ -
Est Construction TPC ($/GSF)	$ 642	$ 819	$ 781
RSF/Person Calculated	-	-	-

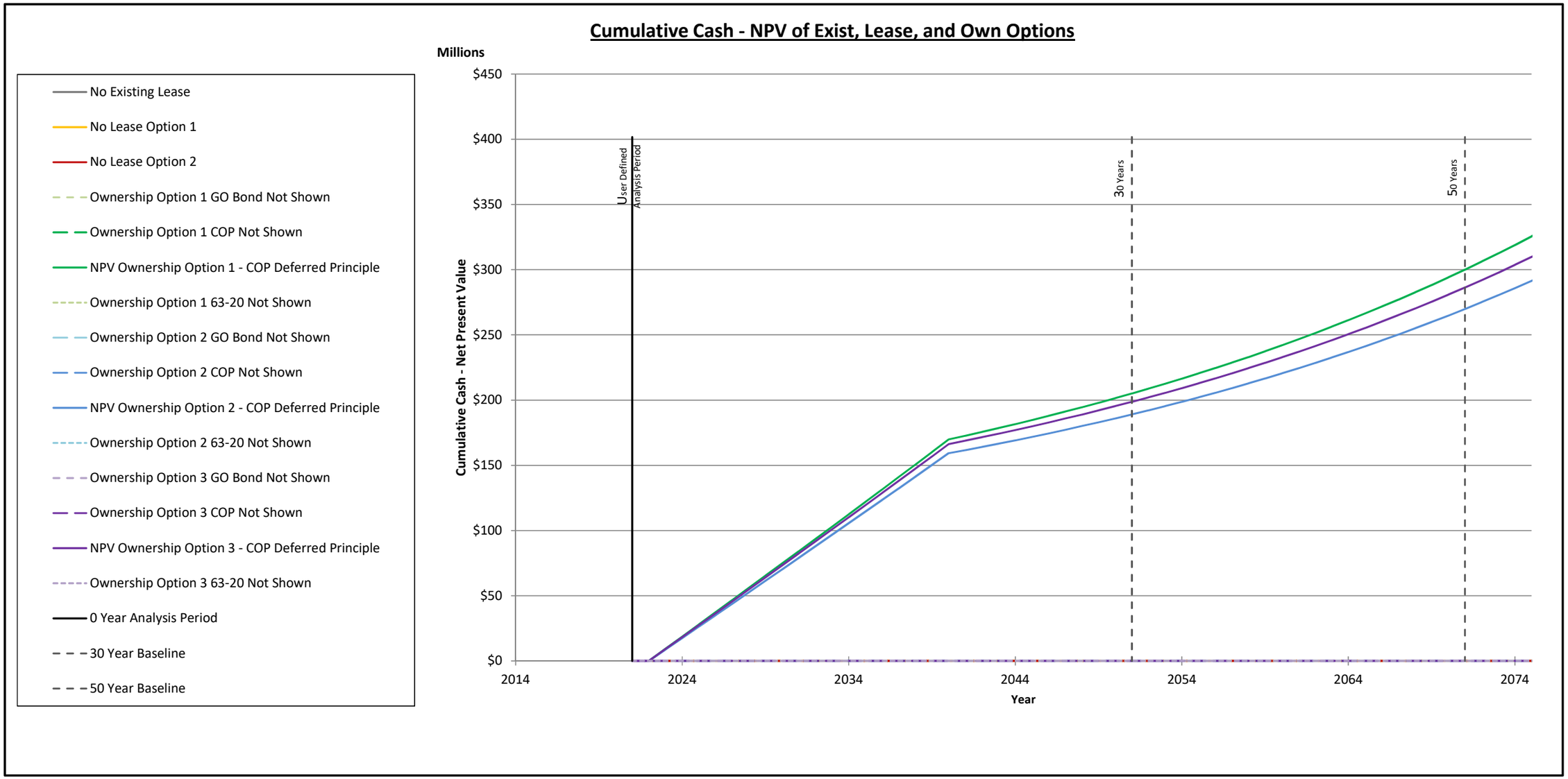
Financial Analysis of Options

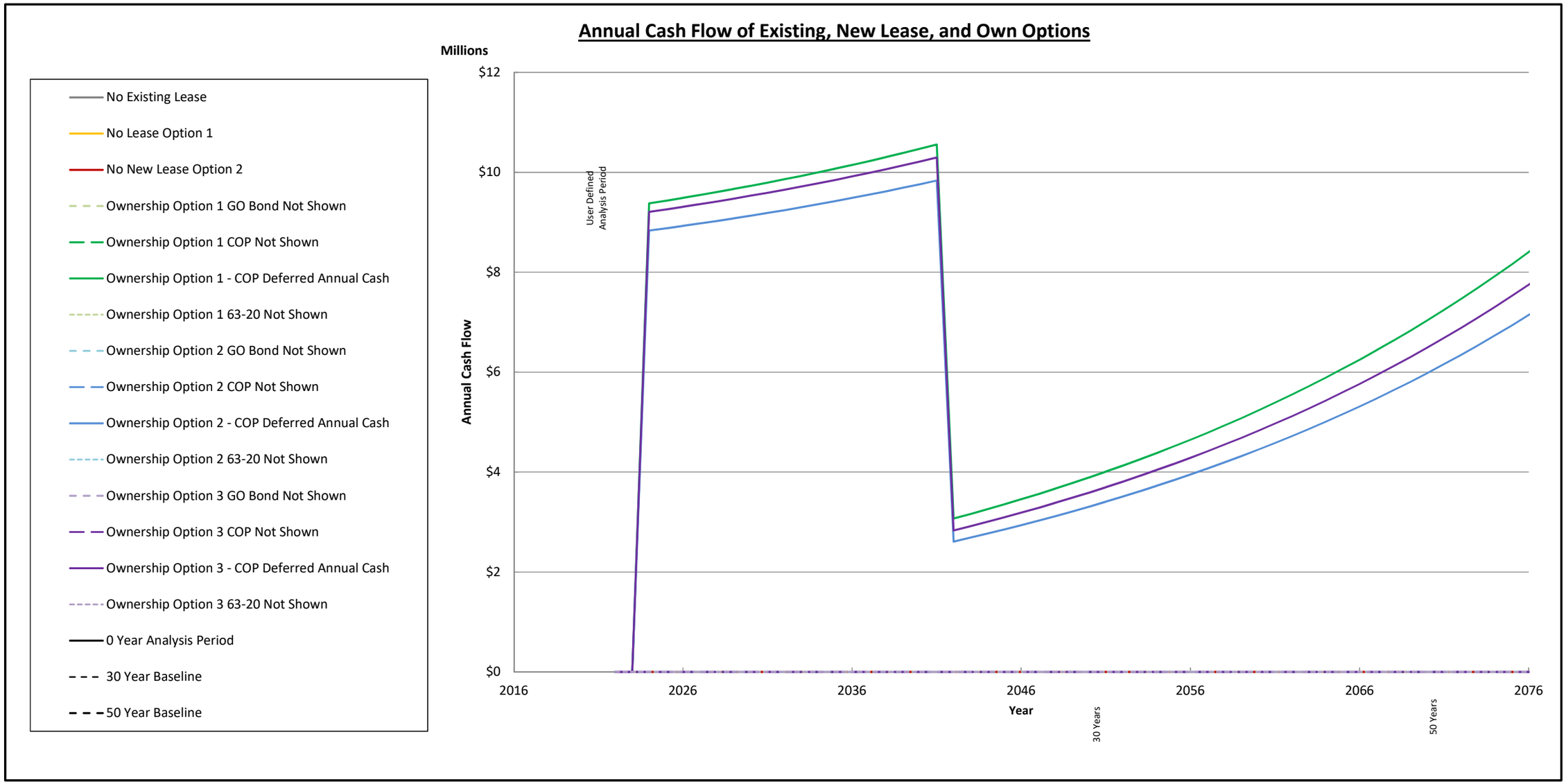
	Display Option?	Yes	Yes	Yes	No	No	Yes	No	No	No	Yes	No	No	No	Yes	No
	Financial Comparisons	**Existing Lease**	**Lease 1**	**Lease 2**	**Ownership 1**				**Ownership 2**				**Ownership 3**			
Years	**Financing Means**	**Current**	**Current**	**Current**	**GO Bond**	**COP**	**COP Deferred ***	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**
0	0 Year Cumulative Cash	$ -	$ -	$ -			$ -				$ -				$ -	
	0 Year Net Present Value	$ -	$ -	$ -			$ -				$ -				$ -	
	Lowest Cost Option (Analysis Period)															

	Financial Comparisons	**Existing Lease**	**Lease 1**	**Lease 2**	**Ownership 1**				**Ownership 2**				**Ownership 3**			
Years	**Financing Means**	**Current**	**Current**	**Current**	**GO Bond**	**COP**	**COP Deferred ***	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**
30	30 Year Cumulative Cash	$ -	$ -	$ -			$ 213,423,503				$ 196,916,740				$ 206,887,821	
	30 Year Net Present Value	$ -	$ -	$ -			$ 201,132,008				$ 185,729,405				$ 195,072,145	
	Lowest Cost Option (30 Years)						**3**				**1**				**2**	

	Financial Comparisons	**Existing Lease**	**Lease 1**	**Lease 2**	**Ownership 1**				**Ownership 2**				**Ownership 3**			
Years	**Financing Means**	**Current**	**Current**	**Current**	**GO Bond**	**COP**	**COP Deferred ***	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**
50	50 Year Cumulative Cash	$ -	$ -	$ -			$ 324,121,492				$ 291,023,373				$ 308,995,491	
	50 Year Net Present Value	$ -	$ -	$ -			$ 293,620,002				$ 264,355,348				$ 280,382,941	
	Lowest Cost Option (50 Years)						**3**				**1**				**2**	

** - Defers payment on principle for 2 years while the building is being constructed. See instructions on Capitalized Interest.*


Cumulative Cash - NPV of Exist, Lease, and Own Options
Millions
Cumulative Cash - Net Present Value
$450
$400
$350
$300
$250
$200
$150
$100
$50
$0
2014
2024
2034
2044
2054
2064
2074
Year
User Defined Analysis Period
30 Years
50 Years
No Existing Lease
No Lease Option 1
No Lease Option 2
Ownership Option 1 GO Bond Not Shown
Ownership Option 1 COP Not Shown
NPV Ownership Option 1 - COP Deferred Principle
Ownership Option 1 63-20 Not Shown
Ownership Option 2 GO Bond Not Shown
Ownership Option 2 COP Not Shown
NPV Ownership Option 2 - COP Deferred Principle
Ownership Option 2 63-20 Not Shown
Ownership Option 3 GO Bond Not Shown
Ownership Option 3 COP Not Shown
NPV Ownership Option 3 - COP Deferred Principle
Ownership Option 3 63-20 Not Shown
0 Year Analysis Period
30 Year Baseline
50 Year Baseline


Annual Cash Flow of Existing, New Lease, and Own Options
Millions
$12
$10
$8
$6
$4
$2
$0
Annual Cash Flow
User Defined Analysis Period
2016
2026
2036
2046
2056
2066
2076
Year
30 Years
50 Years
No Existing Lease
No Lease Option 1
No New Lease Option 2
Ownership Option 1 GO Bond Not Shown
Ownership Option 1 COP Not Shown
Ownership Option 1 - COP Deferred Annual Cash
Ownership Option 1 63-20 Not Shown
Ownership Option 2 GO Bond Not Shown
Ownership Option 2 COP Not Shown
Ownership Option 2 - COP Deferred Annual Cash
Ownership Option 2 63-20 Not Shown
Ownership Option 3 GO Bond Not Shown
Ownership Option 3 COP Not Shown
Ownership Option 3 - COP Deferred Annual Cash
Ownership Option 3 63-20 Not Shown
0 Year Analysis Period
30 Year Baseline
50 Year Baseline

Financial Assumptions

Date of Life Cycle Cost Analysis:	
Analysis Period Start Date	1/15/2021
User Input Years of Analysis	0

All assumptions subject to change to reflect updated costs and conditions.

	Lease Options			Ownership Option 1			Ownership Option 2			Ownership Option 3		
	Existing Lease	**Lease Option 1**	**Lease Option 2**	**GO Bond**	**COP**	**63-20**	**GO Bond**	**COP**	**63-20**	**GO Bond**	**COP**	**63-20**
Inflation / Interest Rate	3.006%	3.006%	3.006%	3.160%	3.460%	3.660%	3.160%	3.460%	3.660%	3.160%	3.460%	3.660%
Discount Rate	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%
Length of Financing	N/A	N/A	N/A	20	20	20	20	20	20	20	20	20

See Financial Assumptions tab for more detailed information

COP Deferred and 63-20 Financing defer the payment on principle until construction completion.

New Lease Assumptions

Real Estate Transaction fees are 2.5% of the lease for the first 5 years and 1.25% for each year thereafter in the initial term of the lease.

Tenant Improvements are typically estimated at $15 per rentable square foot.

IT infrastructure is typically estimated at $350 per person.

Furniture costs are typically estimated at $500 per person and do not include new workstations.

Moving Vendor and Supplies are typically estimated at $205 per person.

Default Ownership Options Assumptions

Assumes a 2 month lease to move-in overlap period for outfitting building and relocation.

Assumes surface parking.

The floor plate of the construction option office building is 25,000 gross square feet.

The estimated total project cost for construction is $420.00 per square foot.

See the Capital Construction Defaults tab for more construction assumptions.

Ownership Option 1 Information Sheet

*	***Requires a user input***	*Green Cell*	*= Value can be entered by user.*	*Yellow Cell*	*= Calculated value.*

*	**Project Description**	Rainier 1C 160 Bed LEED Silver
*	**Construction or Purchase/Remodel**	Purchase/Remodel
*	**Project Location**	Buckley — Market Area = Pierce County

	Statistics	
*	Gross Sq Ft	167,910
*	Usable Sq Ft	93,874
	Space Efficiency	56%
	Estimated Acres Needed	6.00
	MACC Cost per Sq Ft	$395.74
	Estimated Total Project Costs per Sq Ft	$554.04
	Escalated MACC Cost per Sq Ft	$458.90
	Escalated Total Project Costs per Sq Ft	$642.47

*	**Move In Date**	1/15/2023

Interim Lease Information	**Start Date**
Lease Start Date	
Length of Lease (in months)	
Square Feet (holdover/temp lease)	
Lease Rate- Full Serviced ($/SF/Year)	
One Time Costs (if double move)	

	Construction Cost Estimates (See Capital Budget System For Detail)			
		Known Costs	Estimated Costs	Cost to Use
	Acquisition Costs Total		$ 1,500,000	$ 1,500,000
A & E	**Consultant Services**			
	A & E Fee Percentage (if services not specified)		7.65% Std	7.65%
	Pre-Schematic Design services	$ 192,054		
	Construction Documents	$ 2,792,244		
	Extra Services	$ 2,028,000		
	Other Services	$ 1,474,486		
	Design Services Contingency	$ 321,121		
	Consultant Services Total	$ 6,807,905	$ 3,702,963	$ 6,807,905
MACC	**Construction Contracts**			
	Site Work	$ 7,957,853		
	Related Project Costs			
	Facility Construction	$ 58,490,912		
	MACC SubTotal	$ 66,448,765	$ 50,373,000	$ 66,448,765
	Construction Contingency (5% default)		$ 3,322,438	$ 3,322,438
	Non Taxable Items			$ -
	Sales Tax	$ 7,046,892		$ 7,046,892
	Construction Additional Items Total	$ 7,046,892	$ 3,322,438	$ 7,046,892
	Equipment			
	Equipment	$ 7,136,175		
	Non Taxable Items			
	Sales Tax	$ 720,754		
	Equipment Total	$ 7,856,929		$ 7,856,929
	Art Work Total	$ 361,930	$ 332,244	$ 361,930
	Other Costs			
		$ 800,000		
	Other Costs Total	$ 800,000		$ 800,000
	Project Management Total	$ 2,142,882		$ 2,142,882
	Grand Total Project Cost	**$ 91,465,303**	**$ 59,230,645**	**$ 92,965,303**

Construction One Time Project Costs			
One Time Costs	Estimate	Calculated	
Moving Vendor and Supplies		$ -	*$205 / Person in FY09*
Other (not covered in construction)			
Total	$ -	$ -	

	Ongoing Building Costs				
Added Services	New Building Operating Costs	Known Cost /GSF/ 2023	Estimated Cost /GSF/ 2023	Total Cost / Year	Cost / Month
☑	Energy (Electricity. Natural Gas)	$ 0.87	$ 1.25	$ 146,082	$ 12,173
☑	Janitorial Services	$ -	$ 1.47	$ 246,850	$ 20,571
☑	Utilities (Water, Sewer, & Garbage)	$ -	$ 0.68	$ 114,913	$ 9,576
☑	Grounds	$ -	$ 0.16	$ 27,664	$ 2,305
☐	Pest Control	$ -	$0.00	$ -	$ -
☑	Security	$ -	$ 0.13	$ 21,280	$ 1,773
☑	Maintenance and Repair	$ -	$ 6.29	$ 1,055,499	$ 87,958
☑	Management	$ -	$ 0.75	$ 125,553	$ 10,463
☐	Road Clearance	$ -	$0.00	$ -	$ -
☐	Telecom	$ 0.35	$0.00	$ 58,769	$ 4,897
	Additional Parking	$ -	$ -	$ -	$ -
	Other	$ -	$ -	$ -	$ -
	Total Operating Costs	**$ 1.22**	**$ 10.73**	**$ 1,796,610**	**$ 149,718**

Ownership Option 2 Information Sheet

*	***Requires a user input***	*Green Cell*	*= Value can be entered by user.*	*Yellow Cell*	*= Calculated value.*

*	**Project Description**	Rainier 3C 160 Bed LEED Silver
*	**Construction or Purchase/Remodel**	Construction
*	**Project Location**	Buckley — Market Area = Pierce County

	Statistics	
*	Gross Sq Ft	142,000
*	Usable Sq Ft	93,467
	Space Efficiency	66%
	Estimated Acres Needed	5.00
	MACC Cost per Sq Ft	$498.49
	Estimated Total Project Costs per Sq Ft	$706.69
	Escalated MACC Cost per Sq Ft	$578.05
	Escalated Total Project Costs per Sq Ft	$819.48

*	**Move In Date**	1/15/2023

Interim Lease Information	**Start Date**
Lease Start Date	
Length of Lease (in months)	
Square Feet (holdover/temp lease)	
Lease Rate- Full Serviced ($/SF/Year)	
One Time Costs (if double move)	

	Construction Cost Estimates (See Capital Budget System For Detail)			
		Known Costs	Estimated Costs	Cost to Use
	Acquisition Costs Total		$ 1,250,000	$ 1,250,000
A & E	**Consultant Services**			
	A & E Fee Percentage (if services not specified)		5.57% Std	5.57%
	Pre-Schematic Design services	$ 192,054		
	Construction Documents	$ 2,933,466		
	Extra Services	$ 2,028,000		
	Other Services	$ 1,537,925		
	Design Services Contingency	$ 334,571		
	Consultant Services Total	$ 7,026,016	$ 3,944,629	$ 7,026,016
MACC	**Construction Contracts**			
	Site Work	$ 12,465,597		
	Related Project Costs			
	Facility Construction	$ 58,319,803		
	MACC SubTotal	$ 70,785,400	$ 42,600,000	$ 70,785,400
	Construction Contingency (5% default)		$ 3,539,270	$ 3,539,270
	Non Taxable Items			$ -
	Sales Tax	$ 7,506,792		$ 7,506,792
	Construction Additional Items Total	$ 7,506,792	$ 7,506,792	$ 7,506,792
	Equipment			
	Equipment	$ 6,035,000		
	Non Taxable Items	$ -		
	Sales Tax	$ 609,535		
	Equipment Total	$ 6,644,535		$ 6,644,535
	Art Work Total	$ 385,026	$ 353,927	$ 385,026
	Other Costs			
		$ 800,000		
	Other Costs Total	$ 800,000		$ 800,000
	Project Management Total	$ 2,162,991		$ 2,162,991
	Grand Total Project Cost		**$ -**	**$ 96,560,760**

Construction One Time Project Costs			
One Time Costs	Estimate	Calculated	
Moving Vendor and Supplies		$ -	*$205 / Person in FY09*
Other (not covered in construction)			
Total	$ -	$ -	

	Ongoing Building Costs				
Added Services	New Building Operating Costs	Known Cost /GSF/ 2023	Estimated Cost /GSF/ 2023	Total Cost / Year	Cost / Month
☑	**Energy (Electricity. Natural Gas)**	$ 0.85	$ 1.25	$ 120,700	$ 10,058
☑	**Janitorial Services**	$ -	$ 1.47	$ 208,759	$ 17,397
☑	**Utilities (Water, Sewer, & Garbage)**	$ -	$ 0.68	$ 97,181	$ 8,098
☑	**Grounds**	$ -	$ 0.16	$ 23,395	$ 1,950
☐	**Pest Control**	$ -	$0.00	$ -	$ -
☑	**Security**	$ -	$ 0.13	$ 17,996	$ 1,500
☑	**Maintenance and Repair**	$ -	$ 6.29	$ 892,626	$ 74,385
☑	**Management**	$ -	$ 0.75	$ 106,179	$ 8,848
☑	**Road Clearance**	$ -	$ 0.08	$ 10,798	$ 900
☑	**Telecom**	$ 0.35	$ -	$ 49,700	$ 4,142
	Additional Parking	$ -	$ -	$ -	$ -
	Other	$ -	$ -	$ -	$ -
	Total Operating Costs	**$ 1.20**	**$ 10.81**	**$ 1,527,335**	**$ 127,278**

Ownership Option 3 Information Sheet

*	***Requires a user input***	*Green Cell*	*= Value can be entered by user.*	*Yellow Cell*	*= Calculated value.*

*	**Project Description**	Rainier 4C 160 Bed LEED Silver
*	**Construction or Purchase/Remodel**	Construction
*	**Project Location**	Buckley — Market Area = Pierce County

	Statistics	
*	Gross Sq Ft	154,360
*	Usable Sq Ft	98,600
	Space Efficiency	64%
	Estimated Acres Needed	6.00
	MACC Cost per Sq Ft	$473.90
	Estimated Total Project Costs per Sq Ft	$673.17
	Escalated MACC Cost per Sq Ft	$549.53
	Escalated Total Project Costs per Sq Ft	$780.62

*	**Move In Date**	1/15/2023

Interim Lease Information	**Start Date**
Lease Start Date	
Length of Lease (in months)	
Square Feet (holdover/temp lease)	
Lease Rate- Full Serviced ($/SF/Year)	
One Time Costs (if double move)	

	Construction Cost Estimates (See Capital Budget System For Detail)			
		Known Costs	Estimated Costs	Cost to Use
	Acquisition Costs Total		$ 1,500,000	$ 1,500,000
A & E	**Consultant Services**			
	A & E Fee Percentage (if services not specified)		5.53% Std	5.53%
	Pre-Schematic Design services	$ 192,054		
	Construction Documents	$ 3,015,560		
	Extra Services	$ 2,028,000		
	Other Services	$ 1,574,817		
	Design Services Contingency	$ 340,522		
	Consultant Services Total	$ 7,150,953	$ 4,048,606	$ 7,150,953
MACC	**Construction Contracts**			
	Site Work	$ 11,213,078		
	Related Project Costs			
	Facility Construction	$ 61,937,416		
	MACC SubTotal	$ 73,150,494	$ 46,308,000	$ 73,150,494
	Construction Contingency (5% default)		$ 3,657,525	$ 3,657,525
	Non Taxable Items			$ -
	Sales Tax	$ 7,757,610		$ 7,757,610
	Construction Additional Items Total	$ 7,757,610	$ 7,757,610	$ 7,757,610
	Equipment			
	Equipment	$ 6,560,300		
	Non Taxable Items			
	Sales Tax	$ 662,590		
	Equipment Total	$ 7,222,890		$ 7,222,890
	Art Work Total	$ 398,110	$ 365,752	$ 398,110
	Other Costs			
		$ 800,000		
	Other Costs Total	$ 800,000		$ 800,000
	Project Management Total	$ 2,182,427		$ 2,182,427
	Grand Total Project Cost		**$ -**	**$ 100,162,484**

Construction One Time Project Costs			
One Time Costs	Estimate	Calculated	
Moving Vendor and Supplies		$ -	*$205 / Person in FY09*
Other (not covered in construction)			
Total	$ -	$ -	

	Ongoing Building Costs				
Added Services	New Building Operating Costs	Known Cost /GSF/ 2023	Estimated Cost /GSF/ 2023	Total Cost / Year	Cost / Month
☑	**Energy (Electricity. Natural Gas)**	$ 0.83	$ 1.25	$ 128,119	$ 10,677
☑	**Janitorial Services**	$ -	$ 1.47	$ 226,930	$ 18,911
☑	**Utilities (Water, Sewer, & Garbage)**	$ -	$ 0.68	$ 105,640	$ 8,803
☑	**Grounds**	$ -	$ 0.16	$ 25,432	$ 2,119
☐	**Pest Control**	$ -	$0.00	$ -	$ -
☑	**Security**	$ -	$ 0.13	$ 19,563	$ 1,630
☑	**Maintenance and Repair**	$ -	$ 6.29	$ 970,322	$ 80,860
☑	**Management**	$ -	$ 0.75	$ 115,421	$ 9,618
☑	**Road Clearance**	$ -	$ 0.08	$ 11,738	$ 978
☑	**Telecom**	$ 0.35	$ -	$ 54,026	$ 4,502
	Additional Parking	$ -	$ -	$ -	$ -
	Other	$ -	$ -	$ -	$ -
	Total Operating Costs	**$ 1.18**	**$ 10.81**	**$ 1,657,191**	**$ 138,099**

EXHIBIT B - LIFE CYCLE COST MODEL
160 BED - LEED SILVER + NET ZERO ENERGY

Life Cycle Cost Analysis - Project Summary

Agency	
Project Title	

Existing Description	

Lease Option 1 Description	

Lease Option 2 Description	

Ownership Option 1 Description	Rainier 1D 160 Bed Zero Energy Building w/Associated Site Work

Ownership Option 2 Description	Rainier 3D 160 Bed Zero Energy Building w/Associated Site Work

Ownership Option 3 Description	Rainier 4D 160 Bed Zero Energy Building w/Associated Site Work

Lease Options Information	**Existing Lease**	**Lease Option 1**	**Lease Option 2**
Total Rentable Square Feet	-	-	-
Annual Lease Cost (Initial Term of Lease)	$ -	$ -	$ -
Full Service Cost/SF (Initial Term of Lease)	$ -	$ -	$ -
Occupancy Date	n/a		
Project Initial Costs	n/a	$ -	$ -
Persons Relocating	-	-	-
RSF/Person Calculated			

Ownership Information	**Ownership 1**	**Ownership 2**	**Ownership 3**
Total Gross Square Feet	167,910	142,000	154,360
Total Rentable Square Feet	93,874	93,467	98,600
Occupancy Date	1/15/2023	1/15/2023	1/15/2023
Initial Project Costs	$ -	$ -	$ -
Est Construction TPC ($/GSF)	$ 667	$ 864	$ 820
RSF/Person Calculated	-	-	-

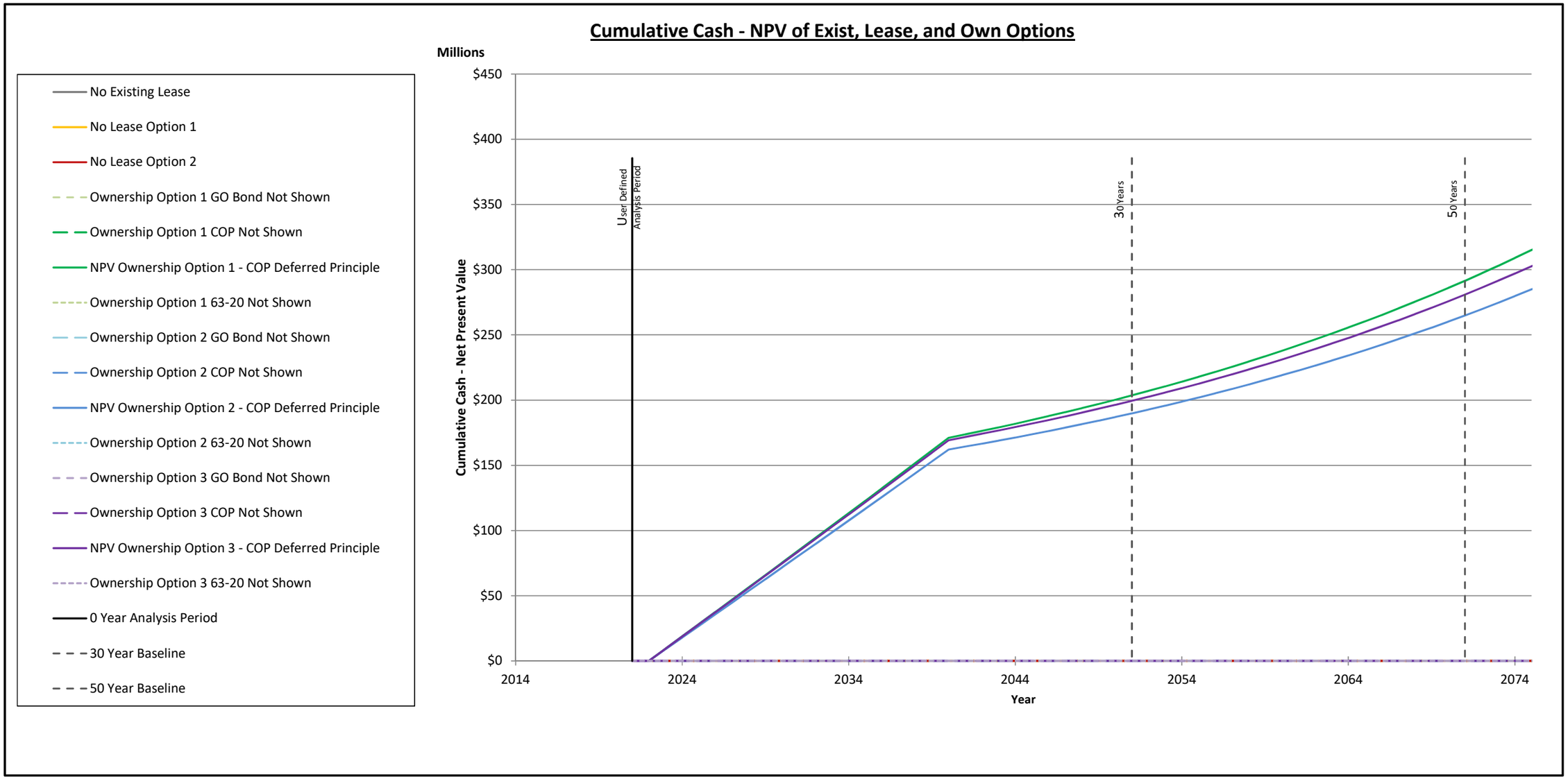
Financial Analysis of Options

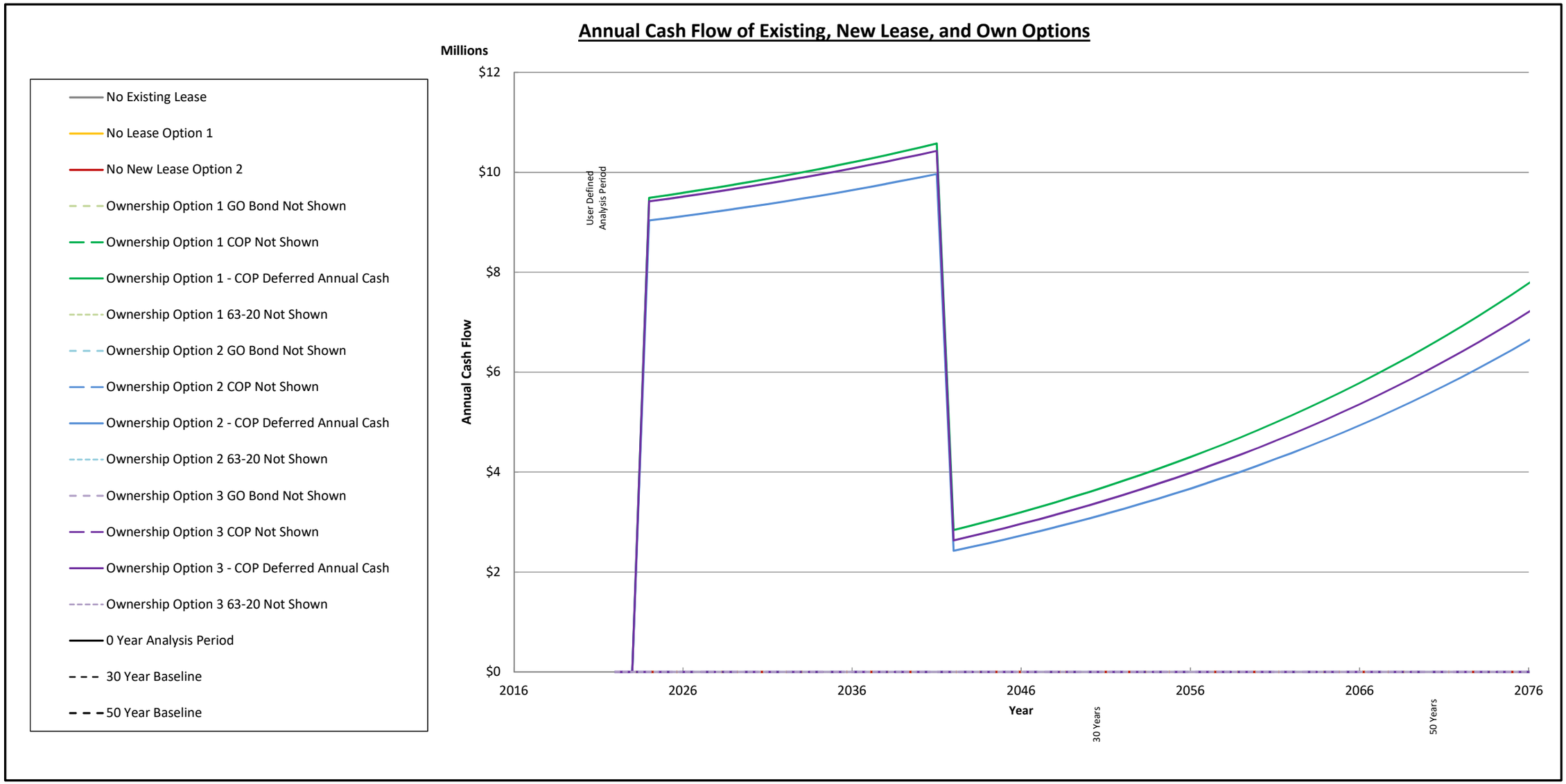
	Display Option?	Yes	Yes	Yes	No	No	Yes	No	No	No	Yes	No	No	No	Yes	No
	Financial Comparisons	**Existing Lease**	**Lease 1**	**Lease 2**	**Ownership 1**				**Ownership 2**				**Ownership 3**			
Years	**Financing Means**	**Current**	**Current**	**Current**	**GO Bond**	**COP**	**COP Deferred ***	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**
0	0 Year Cumulative Cash	$ -	$ -	$ -			$ -				$ -				$ -	
	0 Year Net Present Value	$ -	$ -	$ -			$ -				$ -				$ -	
	Lowest Cost Option (Analysis Period)															

	Financial Comparisons	**Existing Lease**	**Lease 1**	**Lease 2**	**Ownership 1**				**Ownership 2**				**Ownership 3**			
Years	**Financing Means**	**Current**	**Current**	**Current**	**GO Bond**	**COP**	**COP Deferred ***	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**
30	30 Year Cumulative Cash	$ -	$ -	$ -			$ 212,041,796				$ 197,868,926				$ 207,794,709	
	30 Year Net Present Value	$ -	$ -	$ -			$ 199,973,805				$ 186,764,148				$ 196,072,978	
	Lowest Cost Option (30 Years)						**3**				**1**				**2**	

	Financial Comparisons	**Existing Lease**	**Lease 1**	**Lease 2**	**Ownership 1**				**Ownership 2**				**Ownership 3**			
Years	**Financing Means**	**Current**	**Current**	**Current**	**GO Bond**	**COP**	**COP Deferred ***	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**
50	50 Year Cumulative Cash	$ -	$ -	$ -			$ 314,494,214				$ 285,282,331				$ 302,726,421	
	50 Year Net Present Value	$ -	$ -	$ -			$ 285,572,638				$ 259,797,910				$ 275,388,272	
	Lowest Cost Option (50 Years)						**3**				**1**				**2**	

** - Defers payment on principle for 2 years while the building is being constructed. See instructions on Capitalized Interest.*


Cumulative Cash - NPV of Exist, Lease, and Own Options
Millions
Cumulative Cash - Net Present Value
$450
$400
$350
$300
$250
$200
$150
$100
$50
$0
2014
2024
2034
2044
2054
2064
2074
Year
User Defined Analysis Period
30 Years
50 Years
No Existing Lease
No Lease Option 1
No Lease Option 2
Ownership Option 1 GO Bond Not Shown
Ownership Option 1 COP Not Shown
NPV Ownership Option 1 - COP Deferred Principle
Ownership Option 1 63-20 Not Shown
Ownership Option 2 GO Bond Not Shown
Ownership Option 2 COP Not Shown
NPV Ownership Option 2 - COP Deferred Principle
Ownership Option 2 63-20 Not Shown
Ownership Option 3 GO Bond Not Shown
Ownership Option 3 COP Not Shown
NPV Ownership Option 3 - COP Deferred Principle
Ownership Option 3 63-20 Not Shown
0 Year Analysis Period
30 Year Baseline
50 Year Baseline


Annual Cash Flow of Existing, New Lease, and Own Options
Millions
$12
$10
$8
$6
$4
$2
$0
Annual Cash Flow
User Defined Analysis Period
2016
2026
2036
2046
2056
2066
2076
Year
30 Years
50 Years
No Existing Lease
No Lease Option 1
No New Lease Option 2
Ownership Option 1 GO Bond Not Shown
Ownership Option 1 COP Not Shown
Ownership Option 1 - COP Deferred Annual Cash
Ownership Option 1 63-20 Not Shown
Ownership Option 2 GO Bond Not Shown
Ownership Option 2 COP Not Shown
Ownership Option 2 - COP Deferred Annual Cash
Ownership Option 2 63-20 Not Shown
Ownership Option 3 GO Bond Not Shown
Ownership Option 3 COP Not Shown
Ownership Option 3 - COP Deferred Annual Cash
Ownership Option 3 63-20 Not Shown
0 Year Analysis Period
30 Year Baseline
50 Year Baseline

Financial Assumptions

Date of Life Cycle Cost Analysis:	
Analysis Period Start Date	1/15/2021
User Input Years of Analysis	0

All assumptions subject to change to reflect updated costs and conditions.

	Lease Options			Ownership Option 1			Ownership Option 2			Ownership Option 3		
	Existing Lease	**Lease Option 1**	**Lease Option 2**	**GO Bond**	**COP**	**63-20**	**GO Bond**	**COP**	**63-20**	**GO Bond**	**COP**	**63-20**
Inflation / Interest Rate	3.006%	3.006%	3.006%	3.160%	3.460%	3.660%	3.160%	3.460%	3.660%	3.160%	3.460%	3.660%
Discount Rate	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%
Length of Financing	N/A	N/A	N/A	20	20	20	20	20	20	20	20	20

See Financial Assumptions tab for more detailed information

COP Deferred and 63-20 Financing defer the payment on principle until construction completion.

New Lease Assumptions

Real Estate Transaction fees are 2.5% of the lease for the first 5 years and 1.25% for each year thereafter in the initial term of the lease.

Tenant Improvements are typically estimated at $15 per rentable square foot.

IT infrastructure is typically estimated at $350 per person.

Furniture costs are typically estimated at $500 per person and do not include new workstations.

Moving Vendor and Supplies are typically estimated at $205 per person.

Default Ownership Options Assumptions

Assumes a 2 month lease to move-in overlap period for outfitting building and relocation.

Assumes surface parking.

The floor plate of the construction option office building is 25,000 gross square feet.

The estimated total project cost for construction is $420.00 per square foot.

See the Capital Construction Defaults tab for more construction assumptions.

Ownership Option 1 Information Sheet

*	***Requires a user input***	*Green Cell*	*= Value can be entered by user.*	*Yellow Cell*	*= Calculated value.*

*	**Project Description**	Rainier 1D 160 Bed Zero Energy Building w/Associated Site Work
*	**Construction or Purchase/Remodel**	Purchase/Remodel
*	**Project Location**	Buckley — Market Area = Pierce County

	Statistics	
*	Gross Sq Ft	167,910
*	Usable Sq Ft	93,874
	Space Efficiency	56%
	Estimated Acres Needed	6.00
	MACC Cost per Sq Ft	$411.14
	Estimated Total Project Costs per Sq Ft	$575.59
	Escalated MACC Cost per Sq Ft	$476.76
	Escalated Total Project Costs per Sq Ft	$667.46

*	**Move In Date**	1/15/2023

Interim Lease Information	**Start Date**
Lease Start Date	
Length of Lease (in months)	
Square Feet (holdover/temp lease)	
Lease Rate- Full Serviced ($/SF/Year)	
One Time Costs (if double move)	

	Construction Cost Estimates (See Capital Budget System For Detail)			
		Known Costs	Estimated Costs	Cost to Use
	Acquisition Costs Total		$ 1,500,000	$ 1,500,000
A & E	**Consultant Services**			
	A & E Fee Percentage (if services not specified)		7.6% Std	7.60%
	Pre-Schematic Design services			
	Construction Documents	$ 2,875,869		
	Extra Services	$ 2,178,000		
	Other Services	$ 1,512,057		
	Design Services Contingency	$ 328,296		
	Consultant Services Total	$ 6,894,222	$ 3,804,341	$ 6,894,222
MACC	**Construction Contracts**			
	Site Work	$ 5,040,026		
	Related Project Costs			
	Facility Construction	$ 63,993,954		
	MACC SubTotal	$ 69,033,980	$ 50,373,000	$ 69,033,980
	Construction Contingency (5% default)		$ 3,451,699	$ 3,451,699
	Non Taxable Items			$ -
	Sales Tax	$ 7,321,054		$ 7,321,054
	Construction Additional Items Total	$ 7,321,054	$ 3,451,699	$ 7,321,054
	Equipment			
	Equipment	$ 7,136,175		
	Non Taxable Items			
	Sales Tax	$ 720,754		
	Equipment Total	$ 7,856,929		$ 7,856,929
	Art Work Total	$ 376,435	$ 345,170	$ 376,435
	Other Costs			
	Abatement	$ 100,000		
	Permit/Plan Review/Misc.	$ 700,000		
	Other Costs Total	$ 800,000		$ 800,000
	Project Management Total	$ 2,153,148		$ 2,153,148
	Grand Total Project Cost	**$ 94,435,768**	**$ 59,474,210**	**$ 95,935,768**

Construction One Time Project Costs			
One Time Costs	Estimate	Calculated	
Moving Vendor and Supplies		$ -	*$205 / Person in FY09*
Other (not covered in construction)			
Total	$ -	$ -	

	Ongoing Building Costs				
Added Services	New Building Operating Costs	Known Cost /GSF/ 2023	Estimated Cost /GSF/ 2023	Total Cost / Year	Cost / Month
☑	Energy (Electricity. Natural Gas)	$ 0.07	$ 1.25	$ 12,257	$ 1,021
☑	Janitorial Services	$ -	$ 1.47	$ 246,850	$ 20,571
☑	Utilities (Water, Sewer, & Garbage)	$ -	$ 0.68	$ 114,913	$ 9,576
☑	Grounds	$ -	$ 0.16	$ 27,664	$ 2,305
☐	Pest Control	$ -	$0.00	$ -	$ -
☑	Security	$ -	$ 0.13	$ 21,280	$ 1,773
☑	Maintenance and Repair	$ -	$ 6.29	$ 1,055,499	$ 87,958
☑	Management	$ -	$ 0.75	$ 125,553	$ 10,463
☐	Road Clearance	$ -	$0.00	$ -	$ -
☐	Telecom	$ 0.35	$0.00	$ 58,769	$ 4,897
	Additional Parking	$ -	$ -	$ -	$ -
	Other	$ -	$ -	$ -	$ -
	Total Operating Costs	**$ 0.42**	**$ 10.73**	**$ 1,662,786**	**$ 138,565**

Ownership Option 2 Information Sheet

*	***Requires a user input***	*Green Cell*	*= Value can be entered by user.*	*Yellow Cell*	*= Calculated value.*

*	**Project Description**	Rainier 3D 160 Bed Zero Energy Building w/Associated Site Work
*	**Construction or Purchase/Remodel**	Construction
*	**Project Location**	Buckley — Market Area = Pierce County

	Statistics	
*	Gross Sq Ft	142,000
*	Usable Sq Ft	93,467
	Space Efficiency	66%
	Estimated Acres Needed	5.00
	MACC Cost per Sq Ft	$525.86
	Estimated Total Project Costs per Sq Ft	$745.01
	Escalated MACC Cost per Sq Ft	$609.79
	Escalated Total Project Costs per Sq Ft	$863.92

*	**Move In Date**	1/15/2023

Interim Lease Information	**Start Date**
Lease Start Date	
Length of Lease (in months)	
Square Feet (holdover/temp lease)	
Lease Rate- Full Serviced ($/SF/Year)	
One Time Costs (if double move)	

	Construction Cost Estimates (See Capital Budget System For Detail)			
		Known Costs	Estimated Costs	Cost to Use
	Acquisition Costs Total		$ 1,250,000	$ 1,250,000
A & E	**Consultant Services**			
	A & E Fee Percentage (if services not specified)		5.51% Std	5.51%
	Pre-Schematic Design services			
	Construction Documents	$ 3,062,064		
	Extra Services	$ 2,178,000		
	Other Services	$ 1,595,710		
	Design Services Contingency	$ 341,789		
	Consultant Services Total	$ 7,177,563	$ 4,115,058	$ 7,177,563
MACC	**Construction Contracts**			
	Site Work	$ 9,876,189		
	Related Project Costs			
	Facility Construction	$ 64,796,096		
	MACC SubTotal	$ 74,672,285	$ 42,600,000	$ 74,672,285
	Construction Contingency (5% default)		$ 3,733,614	$ 3,733,614
	Non Taxable Items			$ -
	Sales Tax	$ 7,918,996		$ 7,918,996
	Construction Additional Items Total	$ 7,918,996	$ 7,918,996	$ 7,918,996
	Equipment			
	Equipment	$ 6,035,000		
	Non Taxable Items	$ -		
	Sales Tax	$ 609,535		
	Equipment Total	$ 6,644,535		$ 6,644,535
	Art Work Total	$ 406,599	$ 373,361	$ 406,599
	Other Costs			
	Hazardous Material Removal	$ 100,000		
	Permit/Plan Review/Misc.	$ 700,000		
	Other Costs Total	$ 800,000		$ 800,000
	Project Management Total	$ 2,183,965		$ 2,183,965
	Grand Total Project Cost		**$ -**	**$ 101,053,943**

Construction One Time Project Costs			
One Time Costs	Estimate	Calculated	
Moving Vendor and Supplies		$ -	*$205 / Person in FY09*
Other (not covered in construction)			
Total	$ -	$ -	

	Ongoing Building Costs				
Added Services	New Building Operating Costs	Known Cost /GSF/ 2023	Estimated Cost /GSF/ 2023	Total Cost / Year	Cost / Month
☑	**Energy (Electricity. Natural Gas)**	$ 0.09	$ 1.25	$ 12,070	$ 1,006
☑	**Janitorial Services**	$ -	$ 1.47	$ 208,759	$ 17,397
☑	**Utilities (Water, Sewer, & Garbage)**	$ -	$ 0.68	$ 97,181	$ 8,098
☑	**Grounds**	$ -	$ 0.16	$ 23,395	$ 1,950
☐	**Pest Control**	$ -	$0.00	$ -	$ -
☑	**Security**	$ -	$ 0.13	$ 17,996	$ 1,500
☑	**Maintenance and Repair**	$ -	$ 6.29	$ 892,626	$ 74,385
☑	**Management**	$ -	$ 0.75	$ 106,179	$ 8,848
☑	**Road Clearance**	$ -	$ 0.08	$ 10,798	$ 900
☑	**Telecom**	$ 0.35	$ -	$ 49,700	$ 4,142
	Additional Parking	$ -	$ -	$ -	$ -
	Other	$ -	$ -	$ -	$ -
	Total Operating Costs	**$ 0.44**	**$ 10.81**	**$ 1,418,705**	**$ 118,225**

Ownership Option 3 Information Sheet

*	***Requires a user input***	*Green Cell*	*= Value can be entered by user.*	*Yellow Cell*	*= Calculated value.*

*	**Project Description**	Rainier 4D 160 Bed Zero Energy Building w/Associated Site Work
*	**Construction or Purchase/Remodel**	Construction
*	**Project Location**	Buckley — Market Area = Pierce County

	Statistics	
*	Gross Sq Ft	154,360
*	Usable Sq Ft	98,600
	Space Efficiency	64%
	Estimated Acres Needed	6.00
	MACC Cost per Sq Ft	$498.34
	Estimated Total Project Costs per Sq Ft	$707.39
	Escalated MACC Cost per Sq Ft	$577.88
	Escalated Total Project Costs per Sq Ft	$820.30

*	**Move In Date**	1/15/2023

Interim Lease Information	**Start Date**
Lease Start Date	
Length of Lease (in months)	
Square Feet (holdover/temp lease)	
Lease Rate- Full Serviced ($/SF/Year)	
One Time Costs (if double move)	

	Construction Cost Estimates (See Capital Budget System For Detail)			
		Known Costs	Estimated Costs	Cost to Use
	Acquisition Costs Total		$ 1,500,000	$ 1,500,000
A & E	**Consultant Services**			
	A & E Fee Percentage (if services not specified)		5.48% Std	5.48%
	Pre-Schematic Design services			
	Construction Documents	$ 3,137,677		
	Extra Services	$ 2,178,000		
	Other Services	$ 1,629,681		
	Design Services Contingency	$ 347,268		
	Consultant Services Total	$ 7,292,626	$ 4,212,752	$ 7,292,626
MACC	**Construction Contracts**			
	Site Work	$ 8,376,289		
	Related Project Costs			
	Facility Construction	$ 68,547,633		
	MACC SubTotal	$ 76,923,922	$ 46,308,000	$ 76,923,922
	Construction Contingency (5% default)		$ 3,846,196	$ 3,846,196
	Non Taxable Items			$ -
	Sales Tax	$ 8,157,782		$ 8,157,782
	Construction Additional Items Total	$ 8,157,782	$ 8,157,782	$ 8,157,782
	Equipment			
	Equipment	$ 6,560,300		
	Non Taxable Items			
	Sales Tax	$ 662,590		
	Equipment Total	$ 7,222,890		$ 7,222,890
	Art Work Total	$ 419,095	$ 384,620	$ 419,095
	Other Costs			
	Hazardous Material Removal	$ 100,000		
	Permit/Plan Review/Misc.	$ 700,000		
	Other Costs Total	$ 800,000		$ 800,000
	Project Management Total	$ 2,198,463		$ 2,198,463
	Grand Total Project Cost		**$ -**	**$ 104,514,778**

Construction One Time Project Costs			
One Time Costs	Estimate	Calculated	
Moving Vendor and Supplies		$ -	*$205 / Person in FY09*
Other (not covered in construction)			
Total	$ -	$ -	

	Ongoing Building Costs				
Added Services	New Building Operating Costs	Known Cost /GSF/ 2023	Estimated Cost /GSF/ 2023	Total Cost / Year	Cost / Month
☑	**Energy (Electricity. Natural Gas)**	$ 0.08	$ 1.25	$ 11,654	$ 971
☑	**Janitorial Services**	$ -	$ 1.47	$ 226,930	$ 18,911
☑	**Utilities (Water, Sewer, & Garbage)**	$ -	$ 0.68	$ 105,640	$ 8,803
☑	**Grounds**	$ -	$ 0.16	$ 25,432	$ 2,119
☐	**Pest Control**	$ -	$0.00	$ -	$ -
☑	**Security**	$ -	$ 0.13	$ 19,563	$ 1,630
☑	**Maintenance and Repair**	$ -	$ 6.29	$ 970,322	$ 80,860
☑	**Management**	$ -	$ 0.75	$ 115,421	$ 9,618
☑	**Road Clearance**	$ -	$ 0.08	$ 11,738	$ 978
☑	**Telecom**	$ 0.35	$ -	$ 54,026	$ 4,502
	Additional Parking	$ -	$ -	$ -	$ -
	Other	$ -	$ -	$ -	$ -
	Total Operating Costs	**$ 0.43**	**$ 10.81**	**$ 1,540,726**	**$ 128,394**

APPENDIX C - LEED SILVER CHECKLIST

O'brien & company

Project: Fircrest School Nursing Facility

Date: 7/17/2018

Yes	Silver	Plat	No			
52	17	20	21	**Total Project Score**		Certified 40-49 po

Silver	ZEB	Plat	No			
1				**Integrative Process**	Possible Points	1
1				Credit 1 Integrative Process		1

Silver	ZEB	Plat	No			
2		4		**Location and Transportation**	Possible Points	16
			16	Credit 1 LEED ND Location		16
1				Credit 2 Sensitive Land Protection		1
		2		Credit 3 High Priority Site		2
			5	Credit 4 Surrounding Density and Diverse Uses		5
			5	Credit 5 Access to Quality Transit		5
1				Credit 6 Bicycle Facilities		1
		1		Credit 7 Reduced Parking Footprint		1
		1		Credit 8 Green Vehicles		1

Silver	ZEB	Plat	No			
3		4	3	**Sustainable Sites**	Possible Points	10
Y				Prerq 1 Construction Activity Pollution Prevention		required
1				Credit 1 Site Assessment		1
		2		Credit 2 Site Development: Protect or Restore Habitat		2
1				Credit 3 Open Space		1
			3	Credit 4 Rainwater Management		3
		2		Credit 5 Heat Island Reduction		2
1				Credit 6 Light Pollution Reduction		1

Silver	ZEB	Plat	No			
5		3	3	**Water Efficiency**	Possible Points	11
Y				Prerq 1 Outdoor Water Use Reduction		required
Y				Prerq 2 Indoor Water Use Reduction		required
Y				Prerq 3 Building-Level Water Metering		required
1			1	Credit 1 Outdoor Water Use Reduction		2
3		3		Credit 2 Indoor Water Use Reduction		6
			2	Credit 3 Cooling Tower Water Use		2
1				Credit 4 Water Metering		1

Silver	ZEB	Plat	No			
14	16	2	1	**Energy & Atmosphere**	Possible Points	33
Y				Prerq 1 Fundamental Building Commissioning and Verification		required
Y				Prerq 2 Minimum Energy Performance		required
Y				Prerq 3 Building-Level Energy Metering		required
Y				Prerq 4 Fundamental Refrigerant Management		required
6				Credit 1 Enhanced Commissioning		6
5	13			Credit 2 Optimize Energy Performance		18
1				Credit 3 Advanced Energy Metering		1
		1	1	Credit 4 Demand Response		2
	3			Credit 5 Renewable Energy Production		3
		1		Credit 6 Enhanced Refrigeration Management		1
2				Credit 7 Green Power and Carbon Offsets		2

Prepared by O'Brien and Company

9 points Silver 50-59 points Gold 60-79 points Platinum 80 points and above

esign \ construction

Possible Points 110

Silver	ZEB	Plat	No				
7		2	4		**Materials & Resources**	Possible Points	13
Y				P	Prereq 1	Storage & Collection of Recyclables	required
Y				C	Prereq 2	Construction and Demolition Waste Management Planning	required
3			2	C	Credit 1	Building Life-Cycle Impact Reduction	5
1			1	C	Credit 2	Environmental Product Declarations	2
		1	1	C	Credit 3	Sourcing of Raw Materials	2
1		1		C	Credit 4	Material Ingredients	2
2				C	Credit 5	Construction Waste Management: Divert 50% (75%)	2

Silver	ZEB	Plat	No				
13		3			**Indoor Environmental Quality**	Possible Points	16
Y				P	Prereq 1	Minimum IAQ Performance	required
Y				P	Prereq 2	Environmental Tobacco Smoke (ETS) Control	required
1		1		P	Credit 1	Enhanced Indoor Air Quality Strategies	2
2		1		C	Credit 2	Low-Emitting Materials	3
1				C	Credit 3	Construction IAQ Management Plan	1
2				C	Credit 4	Indoor Air Quality Assessment	2
1				P	Credit 5	Thermal Comfort	1
2				P	Credit 6	Interior Lighting	2
3				P	Credit 7	Daylight	3
1				P	Credit 8	Quality Views	1
		1		P	Credit 9	Acoustic Performance	1

Silver	ZEB	Plat	No				
6					**Innovation in Design**	Possible Points	6
1				P	Credit 1	Innovation in Design: Green Building Education	1
1				P	Credit 2	Innovation in Design: LEED O&M Starter Kit	1
1				P	Credit 3	Innovation in Design: Exemplary performance for Optimize Energy or Other	1
1				P	Credit 4	Innovation in Design: Exemplary performance for Renewable Energy or Other	1
1				P	Credit 5	Innovation in Design: [Specific Title]	1
1				C	Credit 6	LEED™ Accredited Professional	1

Yes	Silver	Plat	No				
1	1	2			Regional Priority Credits	Possible Points	4
		1			Credit 1	RPC 1 - Demand Response	1
	1				Credit 2	RPC 2 - Renewable Energy Production	1
1					Credit 3	RPC 3 - Environmental Product Declarations	1
		1			Credit 4	RPC 4 - Sourcing of Raw Materials	1
		1			Credit 5	RPC 5 - Rainwater Management	1
			1		Credit 6	RPC 6 - Indoor Water Use Reduction	1

RAINIER SCHOOL NURSING FACILITY - QUESTIONNAIRE RESULTS TALLY

PROGRAM & FACILITY OVERVIEW

STRENGTHS

Some elder clients like to do same stuff as other clients. Ability to continue interests.
Medical team provides great care.
Community / home setting

WEAKNESSES

Space
Clients needs
Communication, lack of EMR/EHR
We do not have enough medically trained staff –
nursing Assistant/NCA for the acute care and the hierarchy

THREATS

Staff not getting training
status of buildings to meet the medical/nursing needs of the client and
availability of staff to respond promptly to needs – call light,
paging system, computer/phone lines

BENEFITS OF A NURSING FACILITY AT RAINIER SCHOOL

The advantage to our clients who have lived here all or most of their lives –
this would provide continuity of care, environment and staff. We have in the past
admitted clients with intellectual disabilities from LTC facilities because
of the ID dx and because the LTC facility was failing to meet the
mental/emotional and social needs of the client.

GENERAL INFORMATION

Most residents reside at Rainier until passing. Hospice was once done on campus.
Most residents do not have families in Pierce County.
Residents get medical care from doctors on campus or go to hospital.
No electronic medical records yet
Clients are transported to the Main Clinic on grounds for immediate
client medical services
for other acute or planned services
they would be transported to outside facilities.
Every client in a SNF should utilize the same types of trips into the community
shopping, picnics, trips to Northwest Trek, zoo, eating out, etc
I think our (NF) clients could go to the pool, coffee shop, canteen and gym as they wish.

WHERE DO ELDER RESIDENTS GO WHEN THEY NEED SKILLED NURSING

Hospital / nursing home, we tend to manage them here at Rainier as there
have not always been facilities to take our clients, or
we think we can do a better job than a LTC facility

SITE

ADA van parking at main entry
Visitors should come straight to NF.

NEIGHBORHOOD CLUSTERS

ICF's - 13 residents per DR

We like this idea - 3or 4 in a cluster, definitely less than 8.
Need bigger spaces for W/C, lifts, bathing/beds
Need call lights and wheelchair access

better for bedrooms to be secluded off a short hall from commons than open directly to commons
need bigger spaces that are W/C friendly - bedrooms, bathrooms, hallways,
shower/bed bathrooms, DR, LR
For clients who wander an enclosed courtyard would be supportive of them, cameras
and monitors are not being used now except for bed alarms clients
who roll out of bed or try to get up now. Should not be any different.
Height of sinks

Program elements per Neighborhood

DR
Quiet Area
Separate TV
Separate Activity
4-season porch/ sunroom
resident laundry
Exterior flower gardens/ shaded area
bathroom shared by adjacent bedrooms
shower in hall, off a bathroom
residents also take bed-baths (with the trolley)
bariatric rooms to have built-in lifts
storage specific to individual clients

NURSING CARE

Work Shifts: 6:15 12:15-10:30 10:15-06:30
no specialty caregivers
Need both centralized Nurse Area and mobile nurse stations
No caregivers live on campus
Some residential areas will be locked depending on behaviors or safety
mobile medication cart,
Medication storage areas for nursing supplies, equipment,
medication carts, charting areas

DINING

Steam tables could be used at prep kitchen counters
Some residents can help with food prep
The existing Main Kitchen can be used to prepare food. Then no new dietary staff needed.
Greatest concern - protocols for special diets and textures
many of our clients who would qualify for LTC services often do not have the skills
to be involved in food preparation

ADMINISTRATION

Receptionist
Medical staff offices
lobby/ small waiting room/ public toilets

FACILITIES & MAINTENANCE

improvements most important to efficiency: hopper room / laundry
maintenance storage within NF not needed.
At service area need storage for all cleaning supplies
trash truck collects trash, recycle, compost
generator is sufficient

SHARED AMENITY SPACES

Physical Therapy
Central Media / Theater
Library / Computer Room
Sensory Rooms
Large Meeting Rm/ Multipurpose Rm
Utilize existing on-site Pharmacy
Should have good connection to ICF residents
NF residents will use existing spaces throughout campus
Circulation from NF to activities, recreation, chapel

RAINIER SCHOOL PREFERRED ALTERNATIVE 4

BUILDING PROGRAM: INDOOR COMPONENTS

TYPE OF SPACE	Number of Rooms per Cottage	Number of Rooms	SF per Room	Net ASF Required
A TYPICAL BEDROOMS AT COTTAGES				
Grouped in **4** *Neighborhood Cottages of 20 rooms each*				
1-Bed Private Rooms	4	16	210	3360
with wheelchair storage				
1-Bed Shared Sink/Toilet Room	2	8	70	560
shared between 2 private rooms				
2-Bed Double Rooms	8	32	500	16000
2-Bed Shared Sink/Toilet Room	4	16	70	1120
1 per each double room				
Total Beds	80			
ASF per Cottage	5,260			
Subtotal Net ASF				21,040
B BARIATRIC BEDROOMS AT COTTAGES				
Grouped in **1** *Neighborhood Cottage of 20 rooms*				
1-Bed Private Rooms		0	210	0
with wheelchair storage				
1-Bed Shared Sink/Toilet Room		0	70	0
shared between 2 private rooms				
2-Bed Double Rooms	8	8	500	4000
2-Bed Shared Sink/Toilet Room	4	4	70	280
1 per each double room				
Bariatric Private Bedrooms	4	4	225	900
with hoist to shared bathroom				
Bariatric Shared Sink/Toilet Room	2	2	75	150
shared between 2 bariatric bedrooms				
Total Beds	20			
ASF per Cottage	5,330			
Subtotal Net ASF				5,330

RAINIER SCHOOL PREFERRED ALTERNATIVE 4

BUILDING PROGRAM: INDOOR COMPONENTS

TYPE OF SPACE	Number of Rooms per Cottage	Number of Rooms	SF per Room	Net SF Required
C RESIDENT SUPPORT AT COTTAGES				
Proposed Cottages: **5**				
Clustered at Each Neighborhood Cottage				
Living / Sitting Area / Lounge *w/ fish tank + video-conferencing nook*	1	5	600	3000
Dining Area	1	5	450	2250
Dining Storage	1	5	50	250
Activity Room *w/ sink, service counter, cabinets, large flat TV & sound system*	1	5	500	2500
TV Room *flat screen TV, sound system*	1	5	180	900
Country Kitchen	1	5	200	1000
Country Kitchen staff only	1	5	80	400
Locked Storage Closet	1	5	225	1125
Quiet Room / Sensory Room	1	5	100	500
4-Season Sunroom	1	5	150	750
Uni-Sex Toilet Room	1	5	40	200
Resident Laundry	1	5	80	400
Laundry Storage	1	5	80	400
ASF per Cottage 2,735				
Subtotal Net ASF				13,675
D RESIDENT BATHING AT COTTAGES				
Clustered at Each Neighborhood Cottage				
Resident Bathing				
Gurney shower	2	10	210	2100
Chair Shower	1	5	125	625
Toilet/ Sink shared between bathing	2	5	40	200
ASF per Cottage 585				
Subtotal Net ASF				2,925

RAINIER SCHOOL PREFERRED ALTERNATIVE 4

BUILDING PROGRAM: INDOOR COMPONENTS

TYPE OF SPACE	Number of Rooms per Cottage	Number of Rooms	SF per Room	Net SF Required
E SERVICE AREAS AT COTTAGES				
Clustered at Each Neighborhood Cottage				
Nursing Staff Office	1	5	200	1000
Clean Work Room	1	5	150	750
Clean Linen Area	1	5	75	375
Soiled Linen Area + Handwashing Station	1	5	75	375
Tube Feeding Prep Area and Storage	1	5	80	400
Oxygen Storage	1	5	36	180
Housekeeping Supplies w/ mop sink	1	5	80	400
Storage - Hoyer Lifts *with nearby charging, near Living*	2	10	30	300
Storage *commodes, shower chair, beds*	1	5	100	500
Sub Electrical Rooms		5	65	325
Staff Mail Slots	1	5	35	175
Staff Locker Room	1	5	30	150
Staff Bathroom M/W	1	5	60	300
ASF per Cottage 1,046				
Subtotal Net ASF				5,230
F CENTRAL / COMMON SERVICE AREAS				
Central Clean Linen Room		1	200	200
Central Soiled Linen Storage		1	200	200
Housekeeping Room *with mop sink / chemical storage*		1	200	200
Indoor Trash		1	100	100
Food Receiving Area *Connected to Outdoor Loading Dock*		1	400	400
Equipment Storage Room		1	100	100
Indoor Furniture Storage Room		1	200	200
Future Expansion Storage Room		1	200	200
Subtotal Net ASF				1,600
G CENTRAL NURSING				
Nursing Office (no central meds room)		1	300	300
Doctor's Office		1	150	150
Visiting Consultants/Volunteers Office		2	100	200
Recreation Staff / Work Room / Copier		1	300	300
Subtotal Net ASF				950

RAINIER SCHOOL PREFERRED ALTERNATIVE 4

BUILDING PROGRAM: INDOOR COMPONENTS

TYPE OF SPACE	Number of Rooms	SF per Room	Net SF Required	
H THERAPY / REHAB / WELLNESS				
Community Physical Therapy/Exercise	3	1200	3600	
adjacent to outdoor area				
Unisex Toilet	3	70	210	
Rehab Therapy Equipment Storage	3	200	600	
Rehab Office	3	80	240	
Sensory Rooms	6	150	900	
Clean Linen Storage	3	80	240	
Beauty/Salon	1	180	180	
One-On-One Therapy Room	1	80	80	
Resident SoakingTub	2	210	420	
Hydrotherapy Tank	1	300	300	
Housekeeping/ Janitor	3	60	180	
Subtotal Net ASF				6,950
I STAFF BREAK ROOM / WELLNESS				
Staff/Volunteer Lounge Indoor	1	300	300	
connected to an outdoor patio				
Staff Restrooms	1	300	300	
Staff Rest/Quiet Area	1	80	80	
Staff showers	1	150	150	
Lockable Staff/Volunteer Lockers	1	80	80	
Subtotal Net ASF				910
J ADMINISTRATIVE / VISITOR AREAS				
Lobby / Entry / Waiting Area	1	225	225	
Lobby Reception Desk	1	80	80	
Admin Director Office	1	200	200	
Assistance Director Office	1	150	150	
Work Room / Copier	1	200	200	
Family/Volunteer Meeting Room	1	150	150	
with video conferencing				
Communications / IT	1	80	80	
Visitor Uni-Sex Restroom	1	50	50	
Subtotal Net ASF				1,135

RAINIER SCHOOL PREFERRED ALTERNATIVE 4

BUILDING PROGRAM: INDOOR COMPONENTS

TYPE OF SPACE	Number of Rooms	SF per Room	Net SF Required	
K VILLAGE CENTER (Meeting Rooms, Coffee/Gift Shop)				
Large Multi-Purpose / Meeting Room	1	1200	1200	
Multi-Purpose Room Stage	1	100	100	
Multi-Purpose Room Storage	1	100	100	
M/W Toilets	1	160	160	
Small Mult-Purpose Room	1	500	500	
Coffee/Ice Cream/ Gift Shop *for Visitors and Clients*	1	225	225	
Subtotal Net ASF				2,285
L MAINTENANCE / MECHANICAL / ELECTRICAL				
Main Electrical Room	1	350	350	
MDF Telecommunications Room	1	144	144	
Sub Telecommunications Rooms	4	100	400	
Mechanical Room	1	300	300	
Sprinkler Closet	1	100	100	
Maintenance Room	1	150	150	
Emergency Electrical Room	1		320	
Subtotal Net ASF				1,764

NET ASF TYPICAL COTTAGE (A)				9,626
GROSS SF	5,135 SF CIRCULATION / WALLS AT	53%	=	14,761
NET ASF BARIATRIC COTTAGE (B)				9,696
GROSS SF	5140 SF CIRCULATION / WALLS AT	53%	=	14,836

TOTAL NET ASF ALL COTTAGES (A+B+C+D+E)	48,200
TOTAL NET ASF COMMON SPACES (F+G+H+I+J+K+L)	15,594

TOTAL NET ASSIGNABLE SQUARE FEET	63,794
TOTAL GROSS SQUARE FEET (1.5 x)	95,691

M PROGRAM SPACES SHARED WITH CAMPUS

None

Abbreviations

ASF: Assignable Square Feet
FTE: Full Time Equivalent (staff)
GSF: Gross Square Feet
M/W: Men's and Women's
NSF: Net Square Feet
SF: Square Feet
W/: With
W/C: Wheelchair

Rainier School

Nursing Facility Operating Plan and Budget Analysis

October 27, 2018

Prepared By:

ATTUNE
Healthcare Partners

Contents

1. Projected Demand for DD Nursing Facility Beds
2. Nursing Facility Programmatic Requirements
3. Staffing Projections
4. Projected Operating Budgets by Alternative
5. Net Present Value Analysis
6. Preferred Facility Option
7. Transition Costs

1. Projected Demand for DD Nursing Facility Beds

There are currently 258 certified Nursing Facility beds in Washington State. This includes 92 beds at the Fircrest School in Shoreline, WA, 93 beds at Lakeland Village in Medical Lake near Spokane, WA and 73 beds at the Yakima Valley School. In 2018, the state identified 282 DD clients who meet the criteria for nursing facility level of care, including 60 at the Rainier School. This indicates there is a shortage of 24 certified nursing beds to meet current needs.

The Rainier School does not have a licensed Nursing Facility and currently accommodates these clients within its Intermediate Care Facilities (ICF) that are certified by the Centers for Medicare and Medicaid Services (CMS). There are three ICF facilities at Rainier. One facility has been decertified by CMS due to the high number of nursing eligible clients who are unable to participate in Active Training, a program funded by CMS to provide vocational and rehabilitative training to support clients' independence to the maximum extent physically and mentally possible. Unfortunately, as DD clients age, their ability to participate in Active Training diminishes similar to the decline in physical capacity as the general population ages.

The other two ICFs at the Rainier School are in varying stages of decertification for the same problem – too many nursing eligible clients who are not able to participate in Active Training within the ICF program. In order to reverse CMS decisions to decertify all three programs, it is necessary to develop a DD Nursing Facility at the Rainier School. This will meet existing pent-up demand at the School as well as address future growth in demand as other Rainier ICF clients age-in.

Statewide growth in demand among DD Nursing Facility clients is expected to increase from 282 in 2018 to approximately 232 by 2030 and possibly 352 by 2040, yielding a deficit of 138 and 167 beds respectively. This is based on current population projections prepared by OFM for Washington State as well as continuation of current DD rates per thousand among nursing eligible clients (including the Rainier School clients).

In addition, it is expected that the programmatic needs of the DD population will likely change over time. Over the last 30 years, the Developmental Disabilities Administration has transitioned the majority of DD clients to community based residential care settings. While this has worked very well, this group of clients is aging and will increasingly need access to interim solutions, such as respite care for short term (30 day) stays to relieve aging caregivers, as well as crisis management care for clients that are developing more severe chronic conditions similar to the general population. This will change the mix of clients served within the facility and will require a mix of double bed rooms and single bed rooms to accommodate individual client needs among the three client types (long term care, short term respite care, and crisis management). The projected demand for nursing facility beds at the Rainier School will grow from a current demand of 60 beds for long term care to 100 or more to meet the projected growth in demand for long term care, respite and crisis management over time.

2. Programmatic Requirements

Based on experience at the Fircrest Nursing Facility, the most operationally efficient bed configuration involves 20-bed pods. This allows for the most economical staffing plan and meets or exceeds CMS direct nursing staff ratios of 4 – 1. Each single and double bed room has a shared bathroom, individual wardrobes, and personal storage areas. Other programmatic functions within each pod include family-like amenities such as dining areas, activity space, nurse administration space, medication management space, and equipment storage.

Program goals that impact DD nursing facility space requirements include:

- Implement a staffing plan that embraces the Fircrest School model which has consistently received 4 star status from CMS annual audits
- Optimize operational efficiencies
  - Develop single story buildings that minimize staff transport time
  - Utilize double loaded corridors to maximize staff observation capabilities and minimize walking distances for clients and staff
  - Include space within the nursing facility rather than transporting clients to other buildings on campus for heavily utilized programs and services.
- Services to be included within the nursing facility:
  - Physical, occupational, and speech therapy
  - Medical clinic space for physician rounding
  - Activity space
- Include visual amenities such as windows for viewing the outdoors, covered patios for outdoor enjoyment, and skylights/clearstories for ample natural light.
- Minimize costly duplication of services where possible
  - Utilize centralized services available elsewhere on campus, including the centralized kitchen, laundry, and maintenance that can be transported to the facility easily and economically
  - Establish single point of entry for families and visitors with centralize reception area for check-in to promote safety and security for the entire building
- Utilize existing space as much as possible while ensuring other program goals are met
- Comply with Rainier's existing facility master plan that promotes
  - Reduction of the overall facility footprint across the campus
  - Consolidate physical space to the south of 3rd street which bisects the compass in half and allows for non-DD government functions to be accommodated north of 3rd avenue in new and/or existing space.

3. Staffing Projections

The projected staffing requirements to operate a new nursing facility at Rainier School are based on the staffing plan outlined for the Fircrest School as defined in the 2017 study "Facility Wide Resource Assessment". This detailed study described the staffing mix for three staff categories, including:

- Clinical staff which is comprised of direct nursing staff, medical practitioners, dentists, pharmacists, and therapists

- Administrative and support staff for the nursing facility
- Centralized staff for the campus who are allocated to the nursing facility including housekeeping, maintenance, dietary, laundry, and others.

Direct Nursing Staff

The direct nursing staff configuration for the Fircrest School is core to the entire staffing model developed for the Rainier School Nursing Facility. Table 1 describes the Fircrest Model which results in an average of 5.5 hours of nursing face-time per bed per day.

Table 1: Direct Nursing Care Staff – 2017 Fircrest School Staffing Model

		Staffing Plan by Type of Staff by Shift						
		6:30 am 3:00 pm	3:00 pm 9:00 pm	9:00 pm 11:00 pm	11:00 pm 6:30 am	Nursing Hours/Day	Nursing Hours/Week	FTEs @ 40 Hrs/Week
# of Staff	CNA* LPN** RN*** Total	20 5 1 26	20 5 1 26	10 5 1 16	10 2 1 13	385.0 97.5 24	2,695.0 682.5 168.0	67.4 17.1 4.2
Hrs/Shift		8.5	6.0	2.0	7.5			
Total Hrs/Shift		221	156	32	97.5	505.5	3,545.5	88.6
Total Hours/ Bed/Day		2.4	1.7	0.3	1.1	**5.5**		

Notes

*CNA: Certified Nurse Assistant provides hands-on direct patient care
**LPN: Licensed Practical Nurse provides medication management
*** RN: Registered Nurse provides staff management and care planning for each client
Fircrest Nursing Beds: 92

The information provided in Table 2 below extrapolates the 2017 staffing model to the five physical space alternatives developed for the Rainier School Nursing Facility. Operating efficiencies are measured in terms of FTEs per bed where lower ratios reflect higher operating efficiencies. The results indicate that Alternatives 3 and 4 provide the highest operating efficiencies due to the ability to 1) accommodate 20 bed pods in new space; 2) implement a functional plan that eliminates two floor configurations; and 3) provide optimal ratios of single bed rooms with double bed rooms. Alternatives 3 and 4 also include double loaded corridors that maximize sight distances and minimize walking distances. And both Alternatives 3 & 4 minimize the number of client transports to external facilities to access services that would be included within the new nursing facility. Altogether, the same number of clients can be better served in new space that promotes better client outcomes, greater convenience for clients and staff, as well as lower cost operating costs.

Table 2: Estimated Direct Nursing FTEs by Facility Alternative

Direct Nursing Staff	Alt 1A FTEs for 100 Beds in Renovated Space	Alt 1B FTEs for 160 Beds in Renovated Space + 60 beds New Space	Alt 2 FTEs for 104 Beds in Renovated Space	Alt 3 & 4 FTEs in 100 Beds in New Space (2 Separate Site Options)	Alt 3 & 4 FTEs in 160 Beds in New Space (2 Separate Site Options)
CNA	86.4	128.9	93.3	73.2	117.2
LPN	21.9	32.6	23.6	18.5	29.7
RN	5.4	8.0	5.8	4.6	7.3
Total	113.7	169.6	122.7	96.3	154.2
Adjustments for Reuse of Existing Space	+18.0%	+10.0%	+22.5%		
Nursing FTEs/Bed*	1.14	1.06	1.18	.96	.96
*Lower is better					

Other Clinical Personnel

In addition to direct nursing staff, there are other clinical personal who interact with clients on an as needed basis per their individualized care plan. This includes physicians, dentists, pharmacy, therapies, and behavioral health specialists. For the Rainier Campus, it also includes on-site ophthalmology, imaging, and laboratory services. While these services are shared with the ICF facilities, they are available on site for more convenient client access to medical professionals skilled in managing the challenges of DD medical, dental, and behavioral health care. Most specialty services are provided off-site by community based hospitals and specialty care providers.

Table 3: Other Clinical Personnel for Rainier School

Personnel Currently Available On-Site	Routinely Purchased Specialty Services
Medical Director	Podiatry
Physicians	Gastroenterology
Physician Assistants	Neurology
Psychiatrist	EKC
Dentist	Mammography
Dental Assistants	
Dental Hygienist	
Sedation Recovery	
Pharmacy	
Occupational Therapy	
Physical Therapy	
Speech Therapy	
Behavioral Health Specialists	
Ophthalmology	
Imaging	
Laboratory Services	

Table 4: Estimated FTEs for Clinical Staff by Alternative

	Alt 1A FTEs for 100 Beds in Renovated Space	Alt 1B FTEs for 160 Beds in Renovated Space + 60 beds New Space	Alt 2 FTEs for 104 Beds in Renovated Space Double Story	Alt 3 & 4 FTEs in 100 Beds in New Space (2 Separate Sites)	Alt 3 & 4 FTEs in 160 Beds in New Space (2 Separate Sites)
Other Medical FTEs	21.3	34.1	26.6	21.3	34.1
Direct Nursing FTEs	113.7	169.6	122.7	96.3	154.2
Total Clinical FTEs on Site	135.0	203.7	149.3	117.6	188.3
Clinical FTEs per Bed	1.35	1.27	1.44	1.18	1.18

As shown in Table 4, the most efficient facility program plans are reflected in Alternatives 3 and 4 regardless of facility size which have the lowest ratio of clinical staff per bed @ 1.18. Both alternatives include other medical personnel space within the nursing facility which avoids transporting clients to other on-site facilities for regular PT/OT, medical and behavioral health care. In addition, both alternatives involve new single story structures for residential care while Alternative 4 also includes renovation of an existing three-story building to accommodate administrative services only. All residential services are in newly constructed space that are properly sized for efficiencies and client/staff convenience as well as improved access within the facility for routine medical care.

Administrative and Support Personnel

Administrative and support personnel include direct support staff for a new Rainier Nursing Facility as well as centralized personnel that is shared with the ICF program at Rainier. Centralized services as depicted below account for those additional FTEs needed to operationalize the new Rainier Nursing Facility and exclude the number of FTEs needed to support other campus services and facilities.

Table 5: Support Personnel for Rainier Nursing Facility

Direct Support Staff	Support Services for Nursing Facility Only	Centralized Services (Nursing Facility –NF- Only)
Nursing Facility (NF) Administrator	NF Building Operations and Maintenance	NF Quality Management
NF Director of Nursing	NF Housekeeping	NF Human Resources
NF Assistant Director	Dietary	NF Medical Records
NF Activities Coordinator	Commissary	NF Short Stay Management
Habilitation Plan Administrator	Other	NF Safety
CNA Managers		NF Business Services
Secretary		NF Regional Support Services

Table 6: Rainier School Estimated Nursing Facility TOTAL FTEs by Alternative

Nursing Facility FTEs	Alt 1A FTEs for 100 Beds in Renovated Spac21.9e	Alt 1B FTEs for 160 Beds in Renovated Space + 60 beds New Space	Alt 2 FTEs for 104 Beds in Renovated Space Double Story	Alt 3 & 4 FTEs in 100 Beds in New Space (2 Separate Sites)	Alt 3 & 4 FTEs in 160 Beds in New Space (2 Separate Sites)
Clinical FTES	135.0	203.7	149.3	117.6	188.2
Admin & Support FTEs	78.0	124.9	97.4	78.0	124.9
Centralized FTEs	13.2	21.0	16.4	13.2	21.0
Total FTEs	226.2	349.6	263.1	208.8	334.2
Total FTEs/Bed	2.26	2.19	2.53	2.09	2.09

As shown in Table 6, Alternatives 3 and 4 both offer the most operationally efficient staffing plan compared to the other three facility design opportunities. This is attributed to following attributes that describe Alternatives 3 and 4:

- All new construction
- Maximum use of 20 bed pod design
- Maximum use of double loaded corridors
- Inclusion of clinical space within the facility for PT/OT/Speech as well as clinical space for medical staff rounding for routine medical checkups
- Inclusion of activity space with the facility design – minimizes on-campus transports and frees staff time for direct nursing care
- Optimal mix of single and double bed rooms to accommodate long term care, respite care, and crisis management care within the facility
- Ability to leverage current administrative and support staff to accommodate increased client volumes

4. Projected Operating Budgets by Alternative

The projected operating budget for a Nursing Facility at the Rainier School is based on the historical budget for 2016 - 2017 actual Biennium and the projected budget for the 2018 -2019 Biennium. Another source document is the Developmental Disabilities Administration 2017 Caseload and Cost Report. The budget analysis addresses only the proposed Nursing Facility and excludes the ICF program at the Rainier School

The major line items in the budget estimates for 2020 through 2031 include:

- Salaries and Wages, escalated at 3.4% per year
- Employee Benefits, calculated at 54% of Compensation
- Goods and Services
- Travel

- Capital Outlays
- Grants, Benefits, and Client Services
- Debt Service
- Inter and Intra-agency Reimbursements

Table 7: Budget Estimate - $$ in Millions
Alternative 1A: 100 Beds in Renovated Space

	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Salaries	$12.7	$13.1	$13.7	$14.0	$14.5	$15.0	$15.5	$16.0	$16.6	$17.0
Benefits	7.2	7.5	7.7	8.0	8.3	8.5	8.8	9.1	9.4	9.8
Goods/Services	3.3	3.4	3.5	3.7	3.8	4.0	4.1	4.2	4.4	4.5
Other*	.6	.6	.5	.5	.5	.5	.6	.6	.6	.7
Total	$23.8	$24.6	$25.4	$26.2	$27.1	$28.0	$29.0	$29.9	$31.00	$32.0

* Includes Travel, Capital Outlays, Grants & Client Services, Prior Debt Service, Intra and Inter-Agency Reimbursements

Table 8: Budget Estimate - $$ in Millions
Alternative 1B: 160 Beds in Renovated Space + 60 Bed Expansion in new space

	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Salaries	$19.7	$20.3	$21.0	$21.7	$22.4	$23.2	$23.9	$24.7	$25.5	$26.4
Benefits	11.2	11.6	12.0	12.4	12.8	13.2	13.6	13.8	14.3	15.0
Goods/Services	5.2	5.3	5.5	5.7	5.9	6.1	6.3	6.5	6.7	7.0
Other*	.6	.8	.8	.8	.9	.9	1.0	1.1	1.1	1.0
Total	$36.7	$38.0	$39.3	$40.6	$42.0	$43.4	$44.8	$46.1	$47.6	$49.4

* Includes Travel, Capital Outlays, Grants & Client Services, Prior Debt Service, Intra and Inter-Agency Reimbursements

Table 9: Budget Estimate - $$ in Millions
Alternative 2: 104 Beds in Renovated Space

	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Salaries	$14.8	$15.3	$15.8	$16.3	$16.9	$17.4	$18.0	$18.6	$19.2	$20.0
Benefits	8.4	8.7	9.0	9.3	9.6	9.9	10.4	10.6	10.9	11.3
Goods/Services	3.9	4.0	4.2	4.3	4.5	4.6	4.8	5.0	5.2	5.3
Other*	.6	.9	.6	.7	.6	.7	.5	.6	.6	.6
Total	$27.7	$28.6	$29.6	$30.6	$31.6	$32.6	$33.7	$34.8	$35.9	$37.2

* Includes Travel, Capital Outlays, Grants & Client Services, Prior Debt Service, Intra and Inter-Agency Reimbursements

Table 10: Budget Estimate - $$ in Millions

Alternative 3A & 4A: 100 Beds in Newly Constructed Space

	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Salaries	$11.7	$12.1	$12.5	$13.0	$13.4	$13.8	$14.3	$14.8	$15.3	$15.8
Benefits	6.7	6.9	7.1	7.4	7.6	7.9	8.1	8.4	8.6	8.9
Goods/Services	3.1	3.2	3.3	3.4	3.5	3.7	3.8	3.9	4.0	4.2
Other*	.5	.5	.6	.5	.6	.5	.6	.6	.6	.6
Total	$22.0	$22.7	$23.5	$24.3	$25.1	$25.9	$26.8	$27.7	$28.5	$29.5

* Includes Travel, Capital Outlays, Grants & Client Services, Prior Debt Service, Intra and Inter-Agency Reimbursements

Table 11: Budget Estimate - $$ in Millions
Alternative 3B & 4B: 160 Beds in Newly Constructed Space

	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Salaries	$18.8	$19.4	$20.1	$20.7	$21.4	$22.2	$22.9	$23.7	$24.5	$25.3
Benefits	10.7	11.1	11.4	11.8	12.2	12.6	13.0	13.4	13.9	14.4
Goods/Services	5.0	5.1	5.3	5.5	5.7	5.9	6.0	6.1	6.2	6.8
Other*	.7	.8	.8	.8	.8	.8	.9	.9	.9	.8
Total	$35.2	$36.4	$37.6	$38.8	$40.1	$41.5	$42.8	$$44.1	$45.5	$47.3

* Includes Travel, Capital Outlays, Grants & Client Services, Prior Debt Service, Intra and Inter-Agency Reimbursements

5. Net Present Value Analysis

The net present value analysis allows evaluation and comparison of the relative costs associated with operating a Nursing Facility by alternative. When paired with the life cycle costs of construction, maintenance, and utilities (as prepared by the architectural and engineering team) it offers an assessment of which alternative is most cost effective over the life of the facility and examines the tradeoffs of capital costs versus operating costs. For example, it may be more cost effective to renovate existing facilities for less capital expenditures up front but may cost more to operate the facility over time and vice versa. Both pieces of the equation need to be evaluated and compared to identify the more economical approach toward meeting the need for nursing care at the Rainier School.

The net present value of operating the facility has been calculated assuming a 5% annual discount rate over a ten year time horizon. Table 12 summarizes the net present value of each alternative.

6. Preferred Alternative

As shown in Table 12 below, Alternatives 3 & 4, both of which involve mostly new construction offer the best financial results for operating the facility over time, regardless of facility size. The other three alternatives involve repurposing existing buildings that negatively impacts operating efficiencies. For example, Alternative 2 which involves renovation of 4 existing buildings would cost 21.1% more per bed to operate over a 10 year time horizon compared to either Alternative 3 or 4. And alternatives 1A and 1B which also include renovated space would cost 7.7% and 4.8% more respectively over the same time

Table 12: Net Present Value Analysis of Operations

Alternative	Bed Size	Net Present Value	Net Present Value/Bed	Comparison to Alt. 3 & 4 B
Alternative 1A: Retrofit 6 Existing Buildings	100 Beds	$179.9Million	$1.79 Million / Bed	+7.7%
Alternative 1B: Retrofit 6 Existing Buildings Plus Add 60 Newly Constructed Beds	160 Beds	$278.2 Million	$1.74 Million / Bed	+4.8%
Alternative 2: Retrofit 4 Existing Buildings	104 Beds	$209.4 Million	$2.01 Million /Bed	+21.1%
Alternatives 3 & 4A: New Construction on Separate Greenfield Sites	100 Beds	$166.1 Million	$1.66 Million /Bed	0%
Alternatives 3 & 4B: New Construction on Separate Greenfield Sites	160 Beds	$266.0 Million	$1.66 Million / Bed	0%

The net present value analysis of alternatives is only one factor to address when selecting the preferred alternative. It should be evaluated as part of a broader analysis of capital costs, maintenance costs, and utility costs over the life cycle of the facility.

7. Transition Costs

In addition to the capita costs, operating costs, maintenance costs and utility costs, there are transition costs associated with the project. This includes the cost to prepare a Certificate of Need which includes costs associated with community input via public meetings. These costs will be incurred during the design period.

Other transition costs will occur as part of operationalizing the new facility. This includes recruitment of a new facility administrator as well as recruitment of new staff and retraining of existing staff to provide direct nursing care, medical and dental care as well as therapies and pharmacy. And finally, there are costs associated with transitioning clients from the ICF facilities to their new home.

RAINIER SCHOOL (10 26 2018)

Nursing Facility Predesign Budget Projections
(Projections Exclude ICF Operating Costs)

					2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	
Alternative 1A: 100 Beds																		
Renovation of 6 Existing Buildings					Nursing Facility Only													
FTEs	0	0	0	0	226	226	226	226	226	226	226	226	226	226	226	226	226	Capped @ Optimal Occupancy
Average Salary	47076	$ 47,938	$ 48,619	$ 49,309	$ 50,956	$ 52,658	$ 54,417	$ 56,234	$ 58,112	$ 60,053	$ 62,059	$ 64,132	$ 66,274	$ 68,488	$ 70,775	$ 73,139	$ 75,582	Escalated 3.4% / year (Fircrest Salary History)
SALARIES & WAGES	$ 40,580,000	$42,672,000	$ -	$ -	$11,516,063	$11,900,699	$12,298,183	$12,708,942	$13,133,420	$13,572,077	$14,025,384	$14,493,832	$14,977,926	$15,478,189	$ 15,995,160	$ 16,529,398	$ 17,081,480	
EMPLOYEE BENEFITS	$ 22,724,000	$24,361,000	$ -	$ -	$ 6,564,156	$ 6,783,399	$ 7,009,964	$ 7,244,097	$ 7,486,050	$ 7,736,084	$ 7,994,469	$ 8,261,484	$ 8,537,418	$ 8,822,568	$ 9,117,241	$ 9,421,757	$ 9,736,444	57% of Compensation
TOTAL COMPENSATION	$ 63,304,000	$67,033,000	$ -	$ -	$18,080,218	$18,684,098	$19,308,147	$19,953,039	$20,619,470	$21,308,160	$22,019,853	$22,755,316	$23,515,344	$24,300,756	$ 25,112,401	$ 25,951,156	$ 26,817,924	
GOODS & SERVICES	$ 10,927,000	$11,452,000	$ -	$ -	$ 3,042,901	$ 3,144,534	$ 3,249,561	$ 3,358,096	$ 3,470,257	$ 3,586,163	$ 3,705,941	$ 3,829,720	$ 3,957,632	$ 4,089,817	$ 4,226,417	$ 4,367,579	$ 4,513,457	16.83% of Compensation
TRAVEL	$ 37,000	$ 37,000	$ -	$ -	$ 9,944	$ 10,276	$ 10,619	$ 10,974	$ 11,341	$ 11,719	$ 12,111	$ 12,515	$ 12,933	$ 13,365	$ 13,812	$ 14,273	$ 14,750	.055% ofCompensation
CAPITAL OUTLAYS	$ 428,000	$ 428,000	$ -	$ -	$ 113,905	$ 117,710	$ 121,641	$ 125,704	$ 129,903	$ 134,241	$ 138,725	$ 143,358	$ 148,147	$ 153,095	$ 158,208	$ 163,492	$ 168,953	.63% of Compensation
GRANTS & CLIENT SERVICES	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	NA
DEBT SERVICE	$ 220,000	$ 168,000	$ -	$ -	$ 45,201	$ 46,710	$ 48,270	$ 49,883	$ 51,549	$ 53,270	$ 55,050	$ 56,888	$ 58,788	$ 60,752	$ 62,781	$ 64,878	$ 67,045	.25% of Compensation
INTER-AGENCY REIMBURSEMT	$ (60,000)	$ (60,000)	$ -	$ -	$ (16,272)	$ (16,816)	$ (17,377)	$ (17,958)	$ (18,558)	$ (19,177)	$ (19,818)	$ (20,480)	$ (21,164)	$ (21,871)	$ (22,601)	$ (23,356)	$ (24,136)	(.09%) of Compens
INTRA-AGENCY REIMBURSEMT	$ 985,000	$ 1,032,000	$ -	$ -	$ 274,819	$ 283,998	$ 293,484	$ 303,286	$ 313,416	$ 323,884	$ 334,702	$ 345,881	$ 357,433	$ 369,371	$ 381,709	$ 394,458	$ 407,632	1.52% of Compensation
TOTAL BUDGET	$ 75,841,000	$80,090,000	$ -	$ -	$21,550,716	$22,270,510	$23,014,345	$23,783,024	$24,577,377	$25,398,262	$26,246,564	$27,123,199	$28,029,114	$28,965,286	$ 29,932,727	$ 30,932,480	$ 31,965,625	
NPV 2018 Dollars @ 5% per year discount rate			**$179,853,551** 2023 - 2032		$20,524,491	$20,200,009	$19,880,656	$19,566,352	$19,257,017	$18,952,574	$18,652,943	$18,358,048	$18,067,816	$17,782,173	$ 16,667,662	$ 16,404,154	$ 16,144,812	

Alternative 1B: 160 Beds																		
Renovate 4 Buildings & Add New																		
FTEs	0	0	0	0	349.6	349.6	349.6	349.6	349.6	349.6	349.6	349.6	349.6	349.6	349.6	349.6	349.6	Capped @ Optimal Occupancy
Average Salary	47076	$ 47,938	$ 48,619	$ 49,309	$ 50,956	$ 52,658	$ 54,417	$ 56,234	$ 58,112	$ 60,053	$ 62,059	$ 64,132	$ 66,274	$ 68,488	$ 70,775	$ 73,139	$ 75,582	Escalated 3.4% / year (Fircrest Salary History)
SALARIES & WAGES	$ 40,580,000	$42,672,000	$ -	$ -	$17,814,228	$18,409,223	$19,024,091	$19,659,496	$20,316,123	$20,994,682	$21,695,904	$22,420,547	$23,169,393	$23,943,251	$ 24,742,956	$ 25,569,370	$ 26,423,387	
EMPLOYEE BENEFITS	$ 22,724,000	$24,361,000	$ -	$ -	$10,154,110	$10,493,257	$10,843,732	$11,205,913	$11,580,190	$11,966,968	$12,366,665	$12,779,712	$13,206,554	$13,647,653	$ 14,103,485	$ 14,574,541	$ 15,061,331	57% of Compensation
TOTAL COMPENSATION	$ 63,304,000	$67,033,000	$ -	$ -	$27,968,338	$28,902,480	$29,867,823	$30,865,408	$31,896,313	$32,961,650	$34,062,569	$35,200,259	$36,375,948	$37,590,904	$ 38,846,440	$ 40,143,911	$ 41,484,718	
GOODS & SERVICES	$ 10,927,000	$11,452,000	$ -	$ -	$ 4,707,071	$ 4,864,287	$ 5,026,755	$ 5,194,648	$ 5,368,149	$ 5,547,446	$ 5,732,730	$ 5,924,204	$ 6,122,072	$ 6,326,549	$ 6,537,856	$ 6,756,220	$ 6,981,878	16.83% of Compensation
TRAVEL	$ 37,000	$ 37,000	$ -	$ -	$ 15,383	$ 15,896	$ 16,427	$ 16,976	$ 17,543	$ 18,129	$ 18,734	$ 19,360	$ 20,007	$ 20,675	$ 21,366	$ 22,079	$ 22,817	.055% ofCompensation
CAPITAL OUTLAYS	$ 428,000	$ 428,000	$ -	$ -	$ 176,201	$ 182,086	$ 188,167	$ 194,452	$ 200,947	$ 207,658	$ 214,594	$ 221,762	$ 229,168	$ 236,823	$ 244,733	$ 252,907	$ 261,354	.63% of Compensation
GRANTS & CLIENT SERVICES	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	NA
DEBT SERVICE	$ 220,000	$ 168,000	$ -	$ -	$ 69,921	$ 72,256	$ 74,670	$ 77,164	$ 79,741	$ 82,404	$ 85,156	$ 88,001	$ 90,940	$ 93,977	$ 97,116	$ 100,360	$ 103,712	.25% of Compensation
INTER-AGENCY REIMBURSEMT	$ (60,000)	$ (60,000)	$ -	$ -	$ (25,172)	$ (26,012)	$ (26,881)	$ (27,779)	$ (28,707)	$ (29,665)	$ (30,656)	$ (31,680)	$ (32,738)	$ (33,832)	$ (34,962)	$ (36,130)	$ (37,336)	(.09%) of Compens
INTRA-AGENCY REIMBURSEMT	$ 985,000	$ 1,032,000	$ -	$ -	$ 425,119	$ 439,318	$ 453,991	$ 469,154	$ 484,824	$ 501,017	$ 517,751	$ 535,044	$ 552,914	$ 571,382	$ 590,466	$ 610,187	$ 630,568	1.52% of Compensation
TOTAL BUDGET	$ 75,841,000	$80,090,000	$ -	$ -	$33,336,860	$34,450,311	$35,600,952	$36,790,024	$38,018,810	$39,288,639	$40,600,879	$41,956,949	$43,358,311	$44,806,478	$ 46,303,015	$ 47,849,535	$ 49,447,710	
NPV 2018 Dollars @ 5% per year discount rate			**$278,216,703** 2023-2032		$31,749,390	$31,247,447	$30,753,440	$30,268,007	$29,788,732	$29,317,787	$28,854,286	$28,398,114	$27,949,153	$27,507,290	$ 25,783,251	$ 25,375,630	$ 24,974,453	

Alternative 2: 104 Beds																		
Renovate 4 2-story Buildings																		
FTEs	0	0	0	0	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	Capped @ Optimal Occupancy
Average Salary	47076	$ 47,938	$ 48,619	$ 49,309	$ 50,956	$ 52,658	$ 54,417	$ 56,234	$ 58,112	$ 60,053	$ 62,059	$ 64,132	$ 66,274	$ 68,488	$ 70,775	$ 73,139	$ 75,582	Escalated 3.4% / year (Fircrest Salary History)
SALARIES & WAGES	$ 40,580,000	$42,672,000	$ -	$ -	$13,406,531	$13,854,310	$14,317,043	$14,795,233	$15,289,393	$15,800,059	$16,327,781	$16,873,129	$17,436,692	$18,019,077	$ 18,620,914	$ 19,242,853	$ 19,885,564	
EMPLOYEE BENEFITS	$ 22,724,000	$24,361,000	$ -	$ -	$ 7,641,723	$ 7,896,956	$ 8,160,715	$ 8,433,283	$ 8,714,954	$ 9,006,034	$ 9,306,835	$ 9,617,684	$ 9,938,914	$10,270,874	$ 10,613,921	$ 10,968,426	$ 11,334,772	57% of Compensation
TOTAL COMPENSATION	$ 63,304,000	$67,033,000	$ -	$ -	$21,048,254	$21,751,266	$22,477,758	$23,228,515	$24,004,348	$24,806,093	$25,634,616	$26,490,813	$27,375,606	$28,289,951	$ 29,234,835	$ 30,211,279	$ 31,220,336	
GOODS & SERVICES	$ 10,927,000	$11,452,000	$ -	$ -	$ 3,542,421	$ 3,660,738	$ 3,783,007	$ 3,909,359	$ 4,039,932	$ 4,174,865	$ 4,314,306	$ 4,458,404	$ 4,607,314	$ 4,761,199	$ 4,920,223	$ 5,084,558	$ 5,254,382	16.83% of Compensation
TRAVEL	$ 37,000	$ 37,000	$ -	$ -	$ 11,577	$ 11,963	$ 12,363	$ 12,776	$ 13,202	$ 13,643	$ 14,099	$ 14,570	$ 15,057	$ 15,559	$ 16,079	$ 16,616	$ 17,171	.055% ofCompensation
CAPITAL OUTLAYS	$ 428,000	$ 428,000	$ -	$ -	$ 132,604	$ 137,033	$ 141,610	$ 146,340	$ 151,227	$ 156,278	$ 161,498	$ 166,892	$ 172,466	$ 178,227	$ 184,179	$ 190,331	$ 196,688	.63% of Compensation
GRANTS & CLIENT SERVICES	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	NA
DEBT SERVICE	$ 220,000	$ 168,000	$ -	$ -	$ 52,621	$ 54,378	$ 56,194	$ 58,071	$ 60,011	$ 62,015	$ 64,087	$ 66,227	$ 68,439	$ 70,725	$ 73,087	$ 75,528	$ 78,051	.25% of Compensation
INTER-AGENCY REIMBURSEMT	$ (60,000)	$ (60,000)	$ -	$ -	$ (18,943)	$ (19,576)	$ (20,230)	$ (20,906)	$ (21,604)	$ (22,325)	$ (23,071)	$ (23,842)	$ (24,638)	$ (25,461)	$ (26,311)	$ (27,190)	$ (28,098)	(.09%) of Compens
INTRA-AGENCY REIMBURSEMT	$ 985,000	$ 1,032,000	$ -	$ -	$ 319,933	$ 330,619	$ 341,662	$ 353,073	$ 364,866	$ 377,053	$ 389,646	$ 402,660	$ 416,109	$ 430,007	$ 444,369	$ 459,211	$ 474,549	1.52% of Compensation
TOTAL BUDGET	$ 75,841,000	$80,090,000	$ -	$ -	$25,088,467	$25,926,421	$26,792,364	$27,687,229	$28,611,982	$29,567,623	$30,555,181	$31,575,724	$32,630,353	$33,720,207	$ 34,846,462	$ 36,010,334	$ 37,213,079	
NPV 2018 Dollars @ 5% per year discount rate			**$209,378,184** 2023-2032		$23,893,778	$23,516,028	$23,144,251	$22,778,351	$22,418,236	$22,063,815	$21,714,996	$21,371,692	$21,033,819	$20,701,281	$ 19,403,813	$ 19,097,048	$ 18,795,133	

Alternative 3 & 4: 100 Beds

New Construction																			
FTEs	0	0	0	0	208.8	208.8	208.8	208.8	208.8	208.8	208.8	208.8	208.8	208.8	208.8	208.8	208.8	208.8	Capped @ Optimal Occupancy
Average Salary	47076	$ 47,938	$ 48,619	$ 49,309	$ 50,956	$ 52,658	$ 54,417	$ 56,234	$ 58,112	$ 60,053	$ 62,059	$ 64,132	$ 66,274	$ 68,488	$ 70,775	$ 73,139	$ 75,582	Escalated 3.4% / year (Fircrest Salary History)	
SALARIES & WAGES	$ 40,580,000	$42,672,000	$ -	$ -	$10,639,619	$10,994,982	$11,362,215	$11,741,713	$12,133,886	$12,539,158	$12,957,965	$13,390,762	$13,838,013	$14,300,203	$ 14,777,829	$ 15,271,409	$ 15,781,474		
EMPLOYEE BENEFITS	$ 22,724,000	$24,361,000	$ -	$ -	$ 6,064,583	$ 6,267,140	$ 6,476,462	$ 6,692,776	$ 6,916,315	$ 7,147,320	$ 7,386,040	$ 7,632,734	$ 7,887,667	$ 8,151,115	$ 8,423,363	$ 8,704,703	$ 8,995,440	57% of Compensation	
TOTAL COMPENSATION	$ 63,304,000	$67,033,000	$ -	$ -	$16,704,202	$17,262,122	$17,838,677	$18,434,489	$19,050,201	$19,686,477	$20,344,006	$21,023,496	$21,725,680	$22,451,318	$ 23,201,192	$ 23,976,112	$ 24,776,914		
GOODS & SERVICES	$ 10,927,000	$11,452,000	$ -	$ -	$ 2,811,317	$ 2,905,215	$ 3,002,249	$ 3,102,524	$ 3,206,149	$ 3,313,234	$ 3,423,896	$ 3,538,254	$ 3,656,432	$ 3,778,557	$ 3,904,761	$ 4,035,180	$ 4,169,955	16.83% of Compensation	
TRAVEL	$ 37,000	$ 37,000	$ -	$ -	$ 9,187	$ 9,494	$ 9,811	$ 10,139	$ 10,478	$ 10,828	$ 11,189	$ 11,563	$ 11,949	$ 12,348	$ 12,761	$ 13,187	$ 13,627	.055% ofCompensation	
CAPITAL OUTLAYS	$ 428,000	$ 428,000	$ -	$ -	$ 105,236	$ 108,751	$ 112,384	$ 116,137	$ 120,016	$ 124,025	$ 128,167	$ 132,448	$ 136,872	$ 141,443	$ 146,168	$ 151,050	$ 156,095	.63% of Compensation	
GRANTS & CLIENT SERVICES	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	NA	
DEBT SERVICE	$ 220,000	$ 168,000	$ -	$ -	$ 41,761	$ 43,155	$ 44,597	$ 46,086	$ 47,626	$ 49,216	$ 50,860	$ 52,559	$ 54,314	$ 56,128	$ 58,003	$ 59,940	$ 61,942	.25% of Compensation	
INTER-AGENCY REIMBURSEMT	$ (60,000)	$ (60,000)	$ -	$ -	$ (15,034)	$ (15,536)	$ (16,055)	$ (16,591)	$ (17,145)	$ (17,718)	$ (18,310)	$ (18,921)	$ (19,553)	$ (20,206)	$ (20,881)	$ (21,579)	$ (22,299)	(.09%) of Compens	
INTRA-AGENCY REIMBURSEMT	$ 985,000	$ 1,032,000	$ -	$ -	$ 253,904	$ 262,384	$ 271,148	$ 280,204	$ 289,563	$ 299,234	$ 309,229	$ 319,557	$ 330,230	$ 341,260	$ 352,658	$ 364,437	$ 376,609	1.52% of Compensation	
TOTAL BUDGET	$ 75,841,000	$80,090,000	$ -	$ -	$19,910,573	$20,575,586	$21,262,811	$21,972,989	$22,706,887	$23,465,297	$24,249,038	$25,058,956	$25,895,925	$26,760,849	$ 27,654,661	$ 28,578,327	$ 29,532,843		
NPV 2018 Dollars @ 5% per year discount rate			**$166,086,308** 2023-2032		$18,962,450	$18,662,663	$18,267,615	$18,077,232	$17,791,440	$17,510,165	$17,233,338	$16,960,887	$16,692,744	$16,428,840	$ 15,399,150	$ 15,076,420	$ 14,916,092		

Alternative 3 & 4: 160 Beds

New Construction																			
FTEs	0	0	0	0	334.3	334.3	334.3	334.3	334.3	334.3	334.3	334.3	334.3	334.3	334.3	334.3	334.3	Capped @ Optimal Occupancy	
Average Salary	47076	$ 47,938	$ 48,619	$ 49,309	$ 50,956	$ 52,658	$ 54,417	$ 56,234	$ 58,112	$ 60,053	$ 62,059	$ 64,132	$ 66,274	$ 68,488	$ 70,775	$ 73,139	$ 75,582	Escalated 3.4% / year (Fircrest Salary History)	
SALARIES & WAGES	$ 40,580,000	$42,672,000	$ -	$ -	$17,034,601	$17,603,556	$18,191,515	$18,799,112	$19,427,002	$20,075,864	$20,746,398	$21,439,327	$22,155,401	$22,895,391	$ 23,660,097	$ 24,450,345	$ 25,266,986		
EMPLOYEE BENEFITS	$ 22,724,000	$24,361,000	$ -	$ -	$ 9,709,722	$10,034,027	$10,369,164	$10,715,494	$11,073,391	$11,443,242	$11,825,447	$12,220,417	$12,628,579	$13,050,373	$ 13,486,256	$ 13,936,696	$ 14,402,182	57% of Compensation	
TOTAL COMPENSATION	$ 63,304,000	$67,033,000	$ -	$ -	$26,744,323	$27,637,583	$28,560,679	$29,514,605	$30,500,393	$31,519,106	$32,571,845	$33,659,744	$34,783,980	$35,945,764	$ 37,146,353	$ 38,387,041	$ 39,669,168		
GOODS & SERVICES	$ 10,927,000	$11,452,000	$ -	$ -	$ 4,501,070	$ 4,651,405	$ 4,806,762	$ 4,967,308	$ 5,133,216	$ 5,304,666	$ 5,481,841	$ 5,664,935	$ 5,854,144	$ 6,049,672	$ 6,251,731	$ 6,460,539	$ 6,676,321	16.83% of Compensation	
TRAVEL	$ 37,000	$ 37,000	$ -	$ -	$ 14,709	$ 15,201	$ 15,708	$ 16,233	$ 16,775	$ 17,336	$ 17,915	$ 18,513	$ 19,131	$ 19,770	$ 20,430	$ 21,113	$ 21,818	.055% ofCompensation	
CAPITAL OUTLAYS	$ 428,000	$ 428,000	$ -	$ -	$ 168,489	$ 174,117	$ 179,932	$ 185,942	$ 192,152	$ 198,570	$ 205,203	$ 212,056	$ 219,139	$ 226,458	$ 234,022	$ 241,838	$ 249,916	.63% of Compensation	
GRANTS & CLIENT SERVICES	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	NA	
DEBT SERVICE	$ 220,000	$ 168,000	$ -	$ -	$ 66,861	$ 69,094	$ 71,402	$ 73,787	$ 76,251	$ 78,798	$ 81,430	$ 84,149	$ 86,960	$ 89,864	$ 92,866	$ 95,968	$ 99,173	.25% of Compensation	
INTER-AGENCY REIMBURSEMT	$ (60,000)	$ (60,000)	$ -	$ -	$ (24,070)	$ (24,874)	$ (25,705)	$ (26,563)	$ (27,450)	$ (28,367)	$ (29,315)	$ (30,294)	$ (31,306)	$ (32,351)	$ (33,432)	$ (34,548)	$ (35,702)	(.09%) of Compens	
INTRA-AGENCY REIMBURSEMT	$ 985,000	$ 1,032,000	$ -	$ -	$ 406,514	$ 420,091	$ 434,122	$ 448,622	$ 463,606	$ 479,090	$ 495,092	$ 511,628	$ 528,716	$ 546,376	$ 564,625	$ 583,483	$ 602,971	1.52% of Compensation	
TOTAL BUDGET	$ 75,841,000	$80,090,000	$ -	$ -	$31,877,896	$32,942,618	$34,042,901	$35,179,934	$36,354,944	$37,569,199	$38,824,010	$40,120,732	$41,460,764	$42,845,554	$ 44,276,595	$ 45,755,434	$ 47,283,665		
NPV 2018 Dollars @ 5% per year discount rate			**$266,040,012** 2023-2032		$30,359,900	$29,063,855	$29,407,537	$28,942,618	$28,485,049	$28,034,714	$27,591,499	$27,155,290	$26,725,978	$26,303,453	$ 24,654,865	$ 24,265,083	$ 23,881,463		

BACKGROUND

Building 51 consists of Fir Hall to the north and Pine Hall to the south. This one story concrete building is a mirror image of and identical to building 50 (Hemlock and Spruce Halls), which is to the west, and are separated by a 1-inch wide expansion joint. These buildings were constructed around 1954.

Western Washington is in a high seismicity region and the project site has been identified to be susceptible to soil liquefaction.

Building 51 consists of seven (7) structures designated as wings on Figure 1, separated by either a 1-inch wide expansion joint or a two-inch wide seismic (earthquake) joint as indicated on Figure 1. Currently, the building is mostly unoccupied. The structures are constructed with cast-in-place concrete consisting of footings, slab on grade, load bearing walls, columns, beam and slab flat roof and a wood framed gable roof to form an interstitial space. Near the center of the building is a section of basement for mechanical equipment and a roof enclosure for fan units as shown (Photo 1).

Photo 1 – Courtyard between Grids HH and MM (Looking East)

EXISTING CONDITION

Based on structural notes of the existing drawings, the seismic force resisting system consists of interior and exterior concrete shear walls with rigid (concrete) roof diaphragms. Hence, the concrete columns do not participate in resisting lateral seismic loads, yet they must be stable and capable of carrying gravity loads during seismic events.

The building condition assessment and seismic evaluation included visual field observations of unconcealed structural elements and a review of the original drawings. No records of past building renovations or improvements are available for our review. However, it was observed that the original clay roof tiles have been replaced with asphalt shingles.

The existing building appears to be in general conformance with the original drawings. No visible signs of settlement, distress, spalls, exposed reinforcing bars, damage or deterioration were observed. On the outside face of the exterior walls, several scattered vertical and horizontal hairline cracks and diagonal hairline cracks at lower reentrant corners of a few windows were observed. These cracks do not appear to be recent and are stable (Photos 2 and 3).

Photo 2 – Wall along Grid HH between Grids 34 and 39

Photo 3 – Wall corner at Grids DD and 31

Based on our site observation and evaluation, it is our judgement that in general, this building is in good condition for its age. We did not observe any exterior structural or non-structural components that may result in falling debris hazards during a seismic event. This conclusion does not guarantee the condition of the existing building construction or its future performance.

SEISMIC EVALUATION

Building 51 was evaluated using the Three-Tiered procedure outlined in the ASCE 41-13 Standards – Seismic Evaluation and Retrofit of Existing Buildings. The three tiers and their scope are:

Tier 1 – Screening: Structural inspection, review of existing drawings to ascertain well defined load path, identify deteriorations, defects, damages and potential deficiencies and completing a checklist to produce a deficiency list of Non-Compliant (NC) elements of structural systems and non-structural components. This is a quick check using simple analysis. Non-Compliant does not necessarily imply that the structure is unsafe but indicates that further and more detailed analysis is required to rule out the deficiencies noted.

Tier 2 – Deficiency-based Evaluation: A further evaluation of identified deficiencies in the Checklist in Tier 1. Elements that are still Non-Compliant or have unresolved noted deficiencies may indicate an inherent weakness in their ability to performance satisfactorily in a seismic event.

Tier 3 – Systematic Evaluation: Further evaluation and detailed analysis or more sophisticated analysis of elements not resolved in Tier 2 evaluation. This may involve the entire building. These items would be subject to retrofit or seismic upgrade. Site specific geotechnical seismic information (i.e. site spectrum) will be required for use in these analyses since the site has been identified to be subject to soil liquefaction during an earthquake.

Tier 1 – Screening was performed on structural elements for the purposes of this report. Tier 2 was beyond the scope of this project.

Performance Objective

ASCE 41-13 seismic evaluation process is required to be conducted with defined performance objectives consisting of Basic Performance Objective for Existing Buildings (BPOE) that varies with the Performance Objective and is defined in ASCE41-13, and Seismic Hazard Levels as defined in the International Building Code (IBC) for different Risk Categories. It should be noted that it is up to the owner of the building or facility to decide what performance level is desired.

Performance Objective is targeted to Building Performance Levels as it relates to Seismic Hazard Level.

Risk Category

Risk Category is based on the use or occupancy of the building, and they are:

Risk Category I – Buildings that present a low risk to human life in the event of failure.

Risk Category II – Buildings not listed in Risk Categories I, II and IV.

Risk Category III – Buildings with potential to cause substantial impact and/or mass disruption to day-to-day civilian life in the event of failure.

Risk Category IV – Essential facilities required to maintain functionality immediately following an event.

Structural Performance Levels

The following structural performance levels and their potential level of damages:

1. Collapse Prevention: The building suffers extensive damage in an earthquake, but remains standing, even if barely.
2. Life Safety: The building sustains substantial damage in an earthquake, but remains stable and with significant reserve capacity. Occupants have an opportunity to egress the structure. Nonstructural elements remain secured to the structure.
3. Immediate Occupancy: The building remains essentially elastic in an earthquake, with most or all of its strength and stiffness intact. The building can be occupied immediately after the earthquake, even though minor repairs may be necessary.
4. Operational: The building remains occupied and operational during an earthquake

Risk Category II was selected for this evaluation for which a BPOE of Life Safety Structural Performance is required.

Design Earthquake

Two earthquake levels or Basic Safety Earthquake (BSE) as defined in ASCE 41-13 for existing buildings - BSE-1E with a probability of 20% occurrence in 50 years or 225 years return period and BSE-2E with a probability of 5% occurrence in 50 years or 975 years return period. ASCE 41-13 also defines BSEs where it is desired for existing buildings to have Basic Performance Objective Equivalent to New Building Standards (BPON) – BSE-1N and BSE-2N.

For this potential rehabilitation, a Basis Safety Earthquake BSE-1E targeted for Life Safety Performance was selected because the age of the building and the shorter remaining useful life of the structure compared to a new building.

Findings

Figures 2 to 4 contain ASCE 41-13 Seismic Evaluation Summary and applicable Checklists. The following is a summary and discussion on Non-Compliant Elements, if building upgrade option is selected:

1. *Building Configuration*
   a. *TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)*

The contribution of shear forces in the shear walls due to torsion would probably be insignificant and can be resolved in Tier II Evaluation. This is more a localized effect, i.e. individual shear wall elements.

2. *Geologic Site Hazards*
   a. *LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1).*

Since site soil in this area is classified as Site Class F, site specific earthquake spectrum is required to be developed by the geotechnical engineer for use in seismic analysis of the structure. This would be resolved in Tier II or more likely in Tier III evaluation depending upgrade decision taken. This has a global impact.

3. *Foundation Configuration*
   a. *OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than 0.6 S a . (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)*

This Non-Compliant is isolated and applies only to the interior shear wall along Grid 49 and on Grid N. Tier II evaluation is required to clear this potential slenderness/overturning inadequacy.

   b. *TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)*

This Non-Compliant is isolated and again applies only to the interior shear wall spread footing along Grid 49 and on Grid N. The building code requires that all footings/foundations be tied or connected to each other so that they all work together during an earthquake. This Non-Compliant item must be cleared and should be mitigated with the proposed building improvements/renovation.

4. *Connections*
   b. *FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation with vertical bars equal in size and spacing to the vertical wall reinforcing immediately above the foundation. (Commentary: Sec. A.5.3.5.Tier 2: Sec. 5.7.3.4)*

On several wall to footing connection details on the existing drawings indicated the footing vertical dowels are smaller in size and spaced further apart than the vertical wall reinforcing. Tier II evaluation is required to clear this potential inadequacy.

PROPOSED IMPROVEMENTS

Included in the proposed improvements under consideration, is to reduce the floor to window sill height. This will require cutting off 12-inches of all window sills, the width of the windows is not affect.

This increase in window height will:

1. Sever the horizontal and diagonal opening trim reinforcing bars at the bottom of the window. Potential issues are:
    a. Diagonal crack formation at the lower reentrant corners of the new openings.
    b. Increased design height (by 12-inches) will increase the bending moment of the ends of the piers (solid wall section) between the windows.
2. The development length of the vertical trim reinforcing bars will be decreased by 12-inches and may not be a sufficient embedment required to resist the increased bending moment in the pier. This potential reduction in pier strength can be confirmed in Tier II Evaluation.

In both cases, however, the opening can be reinforced or strengthened to accommodate the increase in window depth.

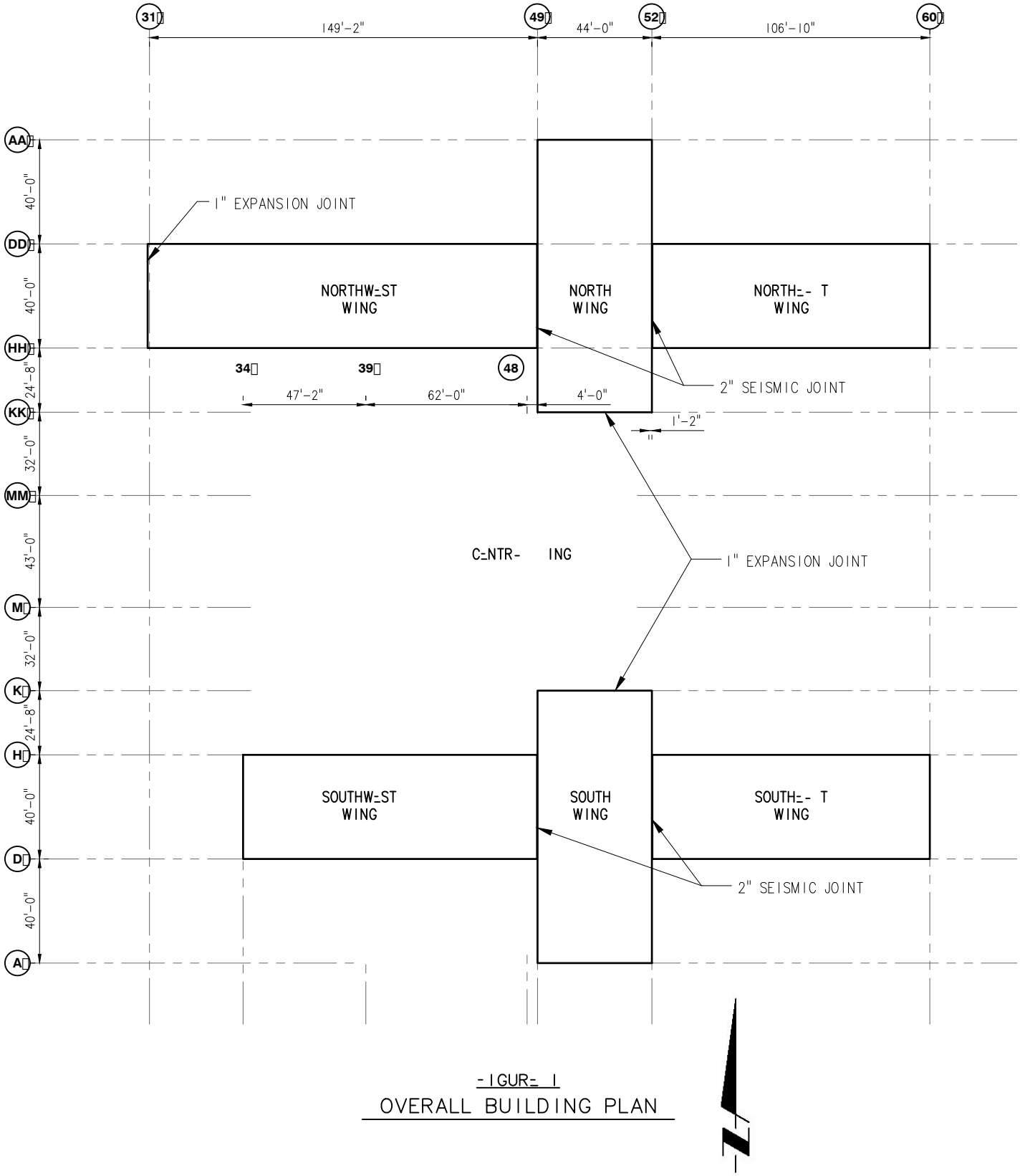


FIGURE 1

OVERALL BUILDING PLAN

FIGURE 2
ASCE 41-13 SUMMARY DATA SHEET

BUILDING DATA

Building Name: RAINIER STATE SCHOOL Date: 07/2018

Building Address: 2120 Ryan Road, Buckley, WA 98321

Latitude: 47.16082° N Longitude: 121.99711° W By: Ichiro Ikeda

Year Built: 1954 (Estimated) Year(s) Remodeled: No Info. Avail. Original Design Code: Unknown

Area (sf): 36,100 Length (ft): 317' (N-S) Width (ft): 301' (E-W)

No. of Stories: 1 Story Height: 10'-2" ~ 11'-6" Total Height: 27'-0" ±

USE ☐ Industrial ☐ Office ☐ Warehouse ☐ Hospital ☐ Residential ☐ Educational ☒ Other: Nursing Facility

CONSTRUCTION DATA

Gravity Load Structural System: Reinforced concrete slabs, beams, columns and walls

Exterior Transverse Walls: Reinforced concrete Openings? Yes

Exterior Longitudinal Walls: Reinforced concrete Openings? Yes

Roof Materials/Framing: Wood

Intermediate Floors/Framing: N/A

Ground Floor: Concrete (partially reinforced)

Columns: Reinforced concrete Foundation: Reinforced concrete

General Condition of Structure: Good

Levels Below Grade? Yes - Reinforced concrete basement walls

Special Features and Comments: Building is separated into seven segments with earthquake joints or expansion joints

LATERAL-FORCE-RESISTING SYSTEM

	Longitudinal	Transverse
System:	Concrete walls	Concrete walls
Vertical Elements:	Concrete walls	Concrete walls
Diaphragms:	Concrete slabs	Concrete slabs
Connections:	Slabs to walls	Slabs to walls

EVALUATION DATA

BSE-1N Spectral Response Accelerations: S_{Ds} = _____ S_{D1} = _____

Soil Factors: Class = _____ F_a = _____ F_v = _____

BSE-1E Spectral Response Accelerations: S_{XS} = _____ S_{X1} = _____

Level of Seismicity: _____ Performance Level: _____

Building Period: T = _____

Spectral Acceleration: S_a = _____

Modification Factor: $C_mC_1C_2$ = _____ Building Weight: W = _____

Pseudo Lateral Force: V=

$C_mC_1C_2S_aW$= _____

BUILDING CLASSIFICATION: _____

REQUIRED TIER 1 CHECKLISTS

	Yes	No
Basic Configuration Checklist	☒	☐
Building Type C2 **Structural Checklist**	☒	☐
Nonstructural Component Checklist	☐	☐

FURTHER EVALUATION REQUIREMENT:

1) Site-specific geotechnical investigation due to soil liquifaction
2) Check shear stress due to torsional effects resulting from the distance between the center of mass and the center of rigidity.
3) Check overturning moment of shear wall element

FIGURE 3
ASCE 41-13 CONFIGURATION CHECKLIST

Project: Rainier State School Location: Buckley, WA

Completed by: Ichiro Ikeda, Bright Engineering, Inc. Date: July 2018

LEGEND
C = Compliant
NC = Non-Compliant
N/A = Not Applicable
U = Unknown

16.1.2LS LIFE SAFETY BASIC CONFIGURATION CHECKLIST

Low Seismicity

Building System

General

C NC N/A U LOAD PATH: The structure shall contain a complete, well defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)

C NC N/A U ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4% of the height of the shorter building. This statement shall not apply for the following building types: W1, W1a, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)

C NC N/A U MEZZANINES: Interior mezzanine levels are braced independently from the main structure or are anchored to the seismic-force-resisting elements of the main structure. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3)

Building Configuration

C NC N/A U WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A2.2.2. Tier 2: Sec. 5.4.2.1)

C NC N/A U SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)

C NC N/A U VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)

C NC N/A U GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4)

C NC N/A U MASS: There is no change in effective mass more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5)

C NC N/A U TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)

Moderate Seismicity: Complete the Following Items in Addition to the Items for Low Seismicity.

Geologic Site Hazards

C NC N/A U LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1)

C NC N/A U SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)

C NC N/A U SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1)

High Seismicity: Complete the Following Items in Addition to the Items for Low and Moderate Seismicity.

Foundation Configuration

C NC N/A U OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than $0.6S_a$. (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)

C NC N/A U TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)

FIGURE 4
ASCE 41-13 BUILDING TYPE C2 CHECKLIST

Project: Rainier State School Location: Buckley, WA

Completed by: Ichiro Ikeda, Bright Engineering, Inc. Date: July 2018

16.10LS LIFE SAFETY STRUCTURAL CHECKLIST FOR BUILDING TYPES C2: CONCRETE SHEAR WALLS WITH STIFF DIAPHRAGMS AND C2A: CONCRETE SHEAR WALLS WITH FLEXIBLE DIAPHRAGMS

Low and Moderate Seismicity

Seismic-Force-Resisting System

C (NC) N/A U COMPLETE FRAMES: Steel or concrete frames classified as secondary components form a complete vertical-load-carrying system. (Commentary: Sec. A.3.1.6.1. Tier 2: Sec. 5.5.2.5.1)

(C) NC N/A U REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)

(C) NC N/A U SHEAR STRESS CHECK: The shear stress in the concrete shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than the greater of 100 lb/in.^{2} or $2\sqrt{f'_c}$. (Commentary: Sec. A.3.2.2.1. Tier 2: Sec. 5.5.3.1.1)

(C) NC N/A U REINFORCING STEEL: The ratio of reinforcing steel area to gross concrete area is not less than 0.0012 in the vertical direction and 0.0020 in the horizontal direction. (Commentary: Sec. A.3.2.2.2. Tier 2: Sec. 5.5.3.1.3)

Connections

C NC (N/A) U WALL ANCHORAGE AT FLEXIBLE DIAPHRAGMS: Exterior concrete or masonry walls that are dependent on flexible diaphragms for lateral support are anchored for out-of-plane forces at each diaphragm level with steel anchors, reinforcing dowels, or straps that are developed into the diaphragm. Connections have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)

(C) NC N/A U TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)

C (NC) N/A U FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation with vertical bars equal in size and spacing to the vertical wall reinforcing immediately above the foundation. (Commentary: Sec. A.5.3.5. Tier 2: Sec. 5.7.3.4)

High Seismicity: Complete the Following Items in Addition to the Items for Low and Moderate Seismicity.

Seismic-Force-Resisting System

C NC N/A (U) DEFLECTION COMPATIBILITY: Secondary components have the shear capacity to develop the flexural strength of the components. (Commentary: Sec. A.3.1.6.2. Tier 2: Sec. 5.5.2.5.2)

C NC (N/A) U FLAT SLABS: Flat slabs or plates not part of the seismic-force-resisting system have continuous bottom steel through the column joints. (Commentary: Sec. A.3.1.6.3. Tier 2: Sec. 5.5.2.5.3)

C NC (N/A) U COUPLING BEAMS: The stirrups in coupling beams over means of egress are spaced at or less than $d/2$ and are anchored into the confined core of the beam with hooks of 135 degrees or more. The ends of both walls to which the coupling beam is attached are supported at each end to resist vertical loads caused by overturning. (Commentary: Sec. A.3.2.2.3. Tier 2: Sec. 5.5.3.2.1)

Connections

C NC (N/A) U UPLIFT AT PILE CAPS: Pile caps have top reinforcement, and piles are anchored to the pile caps. (Commentary: Sec. A.5.3.8. Tier 2: Sec. 5.7.3.5)

Diaphragms (Flexible or Stiff)

(C) NC N/A U DIAPHRAGM CONTINUITY: The diaphragms are not composed of split-level floors and do not have expansion joints. (Commentary: Sec. A.4.1.1. Tier 2: Sec. 5.6.1.1)

(C) NC N/A U OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)

Flexible Diaphragms

C	NC	N/A	U	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)
C	NC	N/A	U	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)
C	NC	N/A	U	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)
C	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)
C	NC	N/A	U	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)

RAINIER STATE SCHOOL EXISTING CIVIL CONDITIONS

Site Topography and Soils

The Rainier School site generally slopes downward from an elevation of 770 at the south end of the campus toward the north at an elevation of 750. Slopes are generally uniform with very few areas of steep or varying slopes.

The NRCS Soil Survey of the area shows soils to generally be Alderwood and Buckley sandy and silty loam type soils. These soil groups are not generally well drained and have relativeley low depth to groudwater.

A geotechnical engineering report was prepared for an adjacent agricultural site immediately west of the Rainier School site. The report describes the soils as Gravelly Silty Sand. The soils are believed to be part of the Osceola Mudflow genrally containing significant amounts of debris and frequent variations over short distances. Groundwater was encoutered during the investigation at elevations 11 – 12 feet below grade. Mottling and indications of groundwater were obsered at 7 feet below grade. The report notes that due to the presense of loose soils and groundwater, deep foundations or ground improvements are recommended.

Storm Drainage Systems

A network of storm drainage catch basins and pipe exist on the site. Many existing building roof downspouts are connected to the campus storm system.

According to City of Buckley and Campus utility maps the storm drainage system generally drains to the north. Runoff is collected throughout the site and ultimately routed to three discharge pipes, a 15”, 24”, and 30”, at the north end of the site. These pipes appear to be tributary to roadside ditchs in Collins Road.

Site investigation and review of utility systems maps do not reveal any sort of flow control or water quality control systems in the existing storm system. The geotechnical investigation for the site west of Rainier School indicates unfavorable infiltration conditions with preliminary infiltration rates of 0.25 inches per hour.

Water Systems

The water system at the Rainier School is Jointly owned by the City of Buckley and the Rainier School. The water system is fed by south prarie creek at a jointly owned headworks located roughly 5 miles southeast of the Rainier School Site. In addition several wells feed the system, well number 5 is located on the Rainier School site. It is owned by DSHS and operated by Rainier School staff. This well is generally used to augment the water system when the primary sources are not keeping up with demmand. The system includes a treatment plant, sand filter, and storage facillity all jointly owned by the City of Buckley and Rainier School.

A network of existing water piping exists on the site to distribute domestic water and fire protection. The majority of the water piping shown on the site is 8” with hydrants genrally spaced at 250 – 400 feet. Fire

supression storage occurs in the jointly owned reservior.

Sanitary Sewer Systems

The Rainier School site is served by a series of private sewer mains. A network of pipe and sewer manholes convey sewage generally from south to north. Based on review of utility maps, most frequent pipe sizes are 8" generally increasing in size to 12" as you move closer to the discharge. The distcharge to the city system occurs at Collins Rd. Based on discussions with maintenance staff, the Rainier School owns and maintains a screen at the discharge that is cleaned on a daily basis.

Gas and Steam

Natural gas is distributed throughout the site with two connections on Ryan Road and one in Collins Street. In addition to natural gas a steam network exists on site. Steam piping is located both overhead in covered walkways as well as in below grade utility tunnels.

CIVIL ASSUMPTIONS

Storm Systems (General)

Storm drainage requirements for the Rainier School are guided by the *2012 Stormwater Management Manual for Western Washington amended in 2014* as adopted by and ammended by the City of Buckley.

Flow control is required for sites that add more than 5,000 square feet of impervious surface. Flow control is typically addressed by storage of stormwater in either above grade ponds or below grade storage vaults. Soils in the area are generally not condusive to infiltration as a flow control strategy.

Onsite Stormwater Management is required for all new and replaced impervious surface. Onsite Stormwater Management typically consists of pervious pavement, bioretention cells, vegetated roofs, and rainwater harvesting. Typically bioretention cells are the preferred option as they can serve as both onsite stormwater mangement and water quality treatment as well as provide a reduction in flow control volume. Bioretention cells are required at a rate of 5% of impervious surfaces and 2% of pervious surfaces.

Water Quality for any surface runoff from pollution generating surfaces (road, parking lots, etc) are required to provide Enhanced Water Quality Treatment since the downstream system, south prarrie creek, is fish bearing. Examples of water quality treatment systems that meet the enhanced treament standard include bioretention cells, silva cells, or modular wetlands. Bioretention cells and silva cells should be provided at the same rate as Onsite Stormwater Management.

Water Systems (General)

The water system at the Rainier School is Jointly owned by the City of Buckley and the Rainier School. The water system is fed by south prarie creek at a jointly owned headworks located roughly 5 miles southeast of the Rainier School Site. In addition several wells feed the system, well number 5 is located on the Rainier School site. It is owned by DSHS and operated by Rainier School staff. This well is generally used to augment the water system when the primary sources are not keeping up with demmand. The system includes a treatment plant, sand filter, and storage facillity all jointly owned by the City of Buckley and Rainier School.

A network of existing water piping exists on the site to distribute domestic water and fire protection. The majority of the water piping shown on the site is 8" with hydrants genrally spaced at 250 – 400 feet. Fire supression storage occurs in the jointly owned reservior. It is generally assumed that the water distribution system will need only minor modifications for rennovation options. New construction options will need additional runs for fire supression, irrigation, and domestic supply. All options will need to be reviwed for building demmand vs. capacity of the existing system.

Steam Systems (General)

Existing steam is in proximity to all three of the studied alternaves for the new Skilled Nursing Building.

It has been determined that the use of steam for the new building will likely not be used due to the efficiency of the proposed mechanical and electrical systems.

Frontage Improvements (General)

It is noted in the City of Buckley that full street frontage improvements are required for all zonings, although further details and triggers could not be located.

Alternative 1- Pine / Fir / Hemlock / Robin Renovated + Addition

The Alternative 1 site is located at the Northern end of the campus. The Alternative is noted as 117,900 square feet with 155 parking spaces. New building addition is noted as 45,000 square feet with 14,000 square feet for 100 additional stalls. We have assumed a larger number, 30,000 square feet, for 100 new parking stalls.

Earthwork

The site is generally flat and sloping from south to north, however, the new addition extends roughly 130' in the north direction. Stepping of the finished floor should be considered to minimize earthwork. Recent geotech reports in the area note groundwater to be roughly 10' below grade, but highly variable. The report also recommends 40' deep stone columns, extending 10 outside the building footprint, on a grid with a replacement ratio of 20 percent. It is our opinion that ground improvement should be assumed and estimated for the addition.

Storm

Proposed storm drainage will include a series of catch basins and pipes that will collect drainage from the proposed improvements and convey to flow control facilities. Flow control facilities will be needed for new impervious areas associated with the addition, pedestrian courtyards, and parking. We have assumed 120,000 square feet which generates roughly 55,000 cubic feet of flow control storage. Within the current campus area this is likely to require underground vaults under the new parking, it does not appear adequate space is available for a pond. For flow control volume estimating, it is assumed that existing impervious areas will not be largely reconfigured. Water quality treatment is required for all road and parking lot facilities and will include roughly 6,000 square feet of either bioretention or silva cells. All other impervious areas, including pedestrian and roof area, should have bioretention cells provided to the maximum extent feasible. Pervious pavement should be considered for pedestrian improvements. Vegetated roofs and rainwater harvesting will reduce the quantity of flow control and bioretention cells required; however, these systems tend not be as cost effective for the value of stormwater mitigation.

Water

Several 8" and 12" water mains are located in the area of the new addition. It appears that roughly 400' of each should be assumed for re-location around the addition. If new domestic and fire sprinkler connections are needed for the addition, connections are relatively close and available on all sides after the relocation.

Sewer

If additional sewer connections are needed to the addition, utility basemaps indicate several different options. Existing 6", 8", and 12" exist in the area and based on site inspection adequate depth is available for proper fall. Connection points appear to be within 100' of the proposed addition.

Steam

Steam utilities are located on the east side of the proposed building area. The proposed addition does not appear to interfere with existing steam conduits.

Gas

A natural gas line exists on the east side of the proposed development, although its size is unknown. Gas will be designed and constructed by PSE with trenching and surface restoration by a contractor. It appears that roughly 200' of gas line will need to be relocated to accommodate the addition.

Alternative 3 – New on Agricultural Fields off Ryan Road

The Alternative 3 site is to construct new on vacant land west of the Rainier School Campus adjacent to Ryan Road. The building is noted as 164,000 square feet of impervious surface. Roughly 160 parking stalls are noted, we have assumed roughly 50,000 square feet of impervious surfaces relative to parking.

Earthwork

The site is flat and relatively little earthwork would be expected with this option. Ground improvements should be assumed. A recent geotechnical study was completed for this site that recommended 40' deep stone columns on a grid with a 20% replacement ratio.

Storm

Proposed storm drainage will include a series of catch basins and pipes that will collect drainage from the proposed improvements and convey to flow control facilities. Flow control facilities will be needed for new impervious areas associated with the building, pedestrian sidwalks and courtyards, and parking. We have assumed 270,000 square feet which generates roughly 130,000 cubic feet of flow control storage. Within the current campus area this is likely to require underground vaults under the new parking, it does not appear adequate space is available for a pond. Water quality treatment is required for all road and parking lot facilities and will include roughly 14,000 square feet of either bioretention or silva cells. All other impervious areas, including pedestrian and roof area, should have bioretention cells provided to the maximum extent feasible. Pervious pavement should be considered for pedestrian improvements. Vegetated roofs and rainwater harvesting will reduce the quantity of flow control and bioretention

cells required; however, these systems tend not be as cost effective for the value of stormwater mitigation.

Water

A water main will be required to loop around the building and provide domestic and fire protection. Roughly 1,000 feet of 12" main should be assumed for estimating, as well as hydrants at 300 foot spacing. A new fire sprinkler service including PIV, FDC, and backflow preventer should be assumed. New domesting and irrigation should be assumed as well. The existing private water system should be evaluated for adequacy to provide fire flow as well as the city system. A 12" water main exists in Ryan Road and an 8" main exists on the north side of the development.

Sewer

8" sewer runs along the east side of the development near the staff dorm. Depth is not know at this time, but it can be assumed to be relatively shallow as it is at the high end of the campus system. Sewer does not appear to be available in Ryan Road.

Steam

It is our understanding steam will not be utilized for the new buidling.

Gas

A 2" gas line exists along the east side of the site. 2" gas is also located in Ryan Road. The new gas service would be designed and constructed by PSE. The Contractor would be responsible for trenching and surface restoration.

Alternative 4 – New + Renovated Staff Dorm off Ryan Road

Alternative 4 is located at the southwest corner of the campus between Ryan Road and Kerr / Belle King buildings. Alternative 4 is noted as 151,700 square feet of new building square footage. 138 parking spaces are noted, we have assumed roughly 41,000 square feet associated with parking.

Earthwork

The site is flat and relatively little earthwork would be expected with this option if finished floors are allowed to vary. Ground improvements should be assumed. A recent geotechnical study was completed for this site that recommended 40' deep stone columns on a grid with a 20% replacement ratio.

Storm

Proposed storm drainage will include a series of catch basins and pipes that will collect drainage from the proposed improvements and convey to flow control facilities. Flow control facilities will be needed for new impervious areas associated with the addition, pedestrian courtyards and sidewalks, and parking. We have assumed 240,000 square feet which generates roughly 110,000 cubic feet of flow control storage. A space near the southwest corner of the project site appears large enough for an open pond, which is typically on the order of $10 per cubic foot cheaper than underground storage. Water quality treatment is required for all road and parking

lot facilities and will include roughly 12,000 square feet of either bioretention or silva cells. All other impervious areas, including pedestrian and roof area, should have bioretention cells provided to the maximum extent feasible. Pervious pavement should be considered for pedestrian improvements. Vegetated roofs and rainwater harvesting will reduce the quantity of flow control and bioretention cells required; however, these systems tend not be as cost effective for the value of stormwater mitigation.

Water

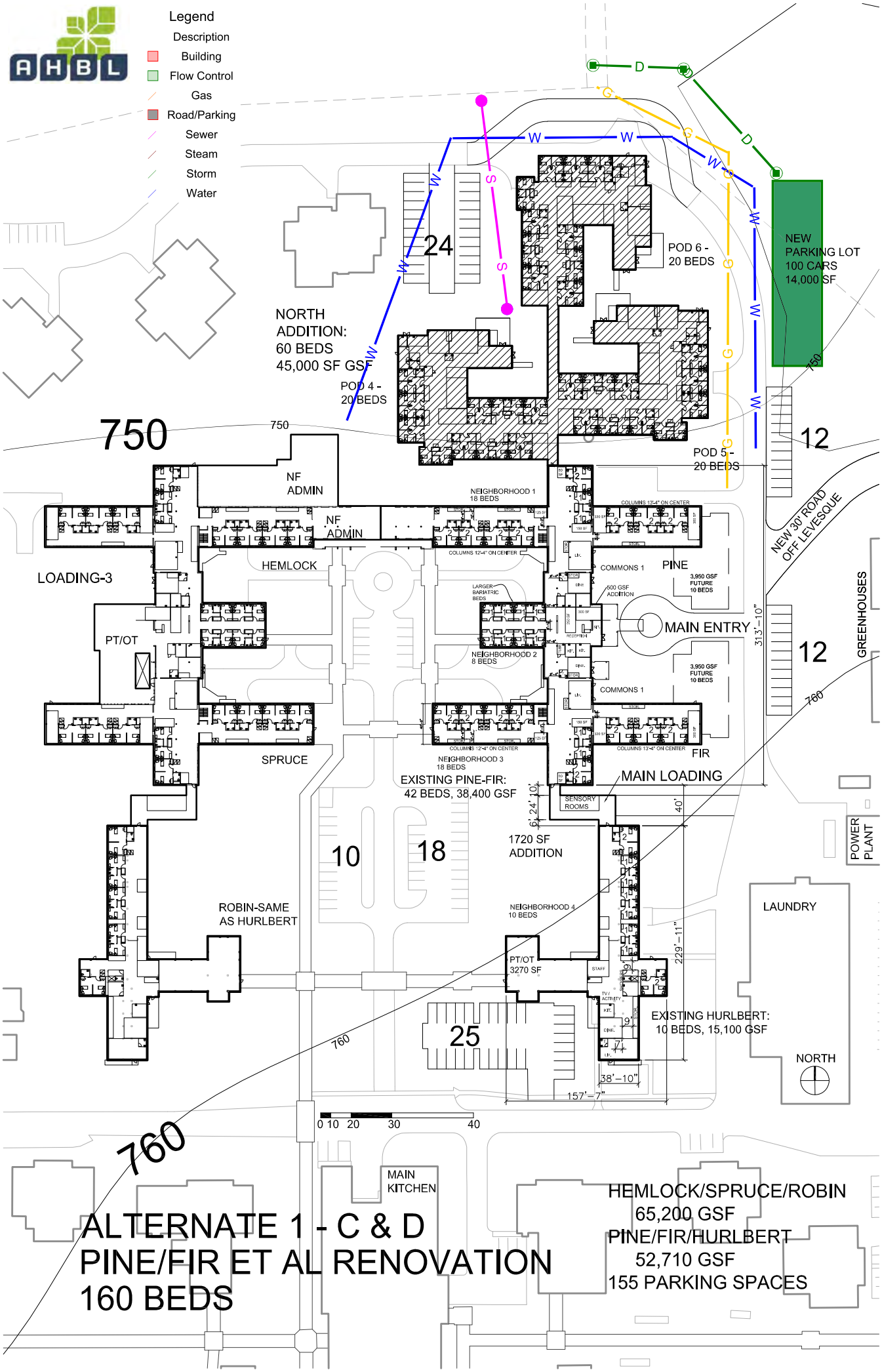
It is likely that new 12" main will be needed to loop the proposed building. Several segments of water service and main exist near the site however they appear to be 4" service lines and one 8" main along the north end of the proposed building. Rougly 1200' of new main should be assumed for estimating. A new fire sprinkler service including PIV, FDC, and backflow preventer should be assumed. New domesting and irrigation should be assumed as well. The existing private water system should be evaluated for adequacy to provide fire flow as well as the city system. A 12" water main exists in Ryan Road and an 8" main exists on the north side of the development.

Sewer

Sanitary sewer is located in the area of the proposed building and will likely need to be removed and re-routed. It is noted as 8" along the east side of the staff dorm. Depth is not know at this time, but it can be assumed to be relatively shallow as it is at the high end of the campus system. Sewer does not appear to be available in Ryan Road.

Gas

A 2" gas line exists near the center of the proposed building. It should be assumed that roughly 400 feet of 2" gas would need to be removed and replaced outside of the building footprints so it can continue to serve the rest of the campus. 2" gas is also located in Ryan Road. The new gas service would be designed and constructed by PSE. The Contractor would be responsible for trenching and surface restoration.


Legend
Description
Building
Flow Control
Gas
Road/Parking
Sewer
Steam
Storm
Water
NORTH ADDITION:
60 BEDS
45,000 SF GSF
POD 4 - 20 BEDS
POD 6 - 20 BEDS
POD 5 - 20 BEDS
NEW PARKING LOT
100 CARS
14,000 SF
NF ADMIN
NF ADMIN
HEMLOCK
LOADING-3
PT/OT
SPRUCE
NEIGHBORHOOD 1
18 BEDS
NEIGHBORHOOD 2
8 BEDS
NEIGHBORHOOD 3
18 BEDS
NEIGHBORHOOD 4
10 BEDS
COMMONS 1
PINE
MAIN ENTRY
COMMONS 1
FIR
MAIN LOADING
EXISTING PINE-FIR:
42 BEDS, 38,400 GSF
1720 SF
ADDITION
ROBIN-SAME
AS HURLBERT
PT/OT
3270 SF
EXISTING HURLBERT:
10 BEDS, 15,100 GSF
NEW 30' ROAD
OFF LEVESQUE
GREENHOUSES
POWER PLANT
LAUNDRY
NORTH
MAIN KITCHEN
750
760
24
12
12
10
18
25
0 10 20 30 40
ALTERNATE 1 - C & D
PINE/FIR ET AL RENOVATION
160 BEDS
HEMLOCK/SPRUCE/ROBIN
65,200 GSF
PINE/FIR/HURLBERT
52,710 GSF
155 PARKING SPACES

ALTERNATE 3 - C & D
FIELDS OFF RYAN ROAD
160 BEDS NEW

7-16-2018

ALTERNATE 4 - RYAN ROAD STAFF DORM 160 BEDS NEW--151,400 GSF

151,780 SF NEW WITH COURTYARDS
9,850 SF OPEN COURTYARDS
141,940 GSF NEW BUILDING
±12,200 GSF EXISTING STAFF DORM
138 PARKING SPACES

EXISTING CONDITION

Power House

There are two high pressure steam (HPS) boilers and there is one HPS boiler which is abandoned in place in the existing Power House Building. The Power House Building is located in the northeast corner of the campus (east of Pine-Fir Building). The two boilers generate 105 psi HPS and distribute to the entire campus through the underground piping and the overhead piping system within the covered walkways. One of the two active boilers is a lead boiler and it was installed 5 years ago. The other boiler is a standby boiler and it was installed in 1975. The abandoned boiler is an original boiler and is not in use.

The lead boiler is rated at 600 hp and has dual fuel burners. Under normal operation, the boiler uses natural gas and during alternate fuel source operation, it uses No. 2 diesel fuel oil fed from the above ground 20,000 gallon fuel oil tank. The fuel oil tank was updated in 2013 with the fuel oil leak detection system. Based on the discussion with the plant operator, the lead boiler has a sufficient capacity to support the entire campus heating requirements, including steam to the Laundry building. The boiler burner is rated at 180 gallons per hour. Based on the initial assessment, the 20,000-gallon fuel oil tank has sufficient capacity to support minimum of 96 hours of the campus heating and Laundry building steam requirements.

The original steam condensate return vacuum pump system has been removed and has been converted to the system that uses the condensate return pump at individual building. Based on the discussion with the plant operator, HPS condensate return temperature from the Laundry building sometimes gets too high and causes the Power House building condensate pump to cavitate which creates plant operational issues.

The existing lead boiler is equipped with a flue gas economizer system to extract heat from the flue gas and used to raise the cold water makeup temperature to conserve energy.

In general, the lead boiler is in good condition and has more than 25 yeas of expected useful service life. The lag boiler is in fair condition; however, it is 43 yeas old and is beyond it's expected useful service life.

Existing Lead Steam Boiler

20,000 Gallon No.2 Oil Tank

Emergency Generator

There are two 1 Megawatt emergency generators in the Power House Building located on the northeast corner of the campus (east of Pine-Fir Building). Each generator is fed with No. 2 diesel fuel oil from the dedicated above ground 6,000-gallon tank and dedicated 250-gallon day tank. A total of 12,500 gallons of fuel is available for 2 generators. Based on the initial assessment, there is not sufficient fuel capacity to run generators at 100% capacity for 96 hours when you consider that available fuel is less than the tank rated capacity in gallons. In general, 80 % of the fuel is considered to be available from the tank and can be used.

Existing Generators

Pine-Fir Building

The building is located on the northeast corner of the campus and is a single story building with partial basement. The building is approximately 35,300 sf. The building was built in 1953 and there have not been any renovations in the building. There is no sprinkler system in the building and the ventilation system is heating only and there is no cooling. However, Hemlock-Spruce Building which is connected to the Pine-Fir Building was renovated in early 1980's and it has a sprinkler system. The ventilation system with cooling was installed during the renovation in the Hemlock-Spruce Building.

Underground 4 inch high pressure steam and 2 inch steam return piping from the Power House enter the basement mechanical room, located in the southeast corner of the building. The high pressure steam is reduced to low pressure steam through a 2-stage pressure reducing station. The low pressure steam is used to heat the building heating water through a steam to liquid heat exchanger (HX). The heating water is circulated through the building by two end suction pumps. The low pressure steam also serves the air handling unit (AHU) heating coil located in the attic mechanical room. The steam condensate from the HX and AHU is returned to the Power House by the duplex steam condensate pump set located in the basement mechanical room. Most of the heating water piping insulation is missing in the basement mechanical room. The steam piping insulation is mostly in place; however, the insulation is the original and has many damages.

Heating Water Piping & Pumps

Steam Pressure Reducing Station

Electric Domestic Hot Water Heater

The heating water circulates the building to feed cabinet unit heaters and baseboard heaters to provide building heating. The original radiant floor heating system has been abandoned in place.

There are two attic mechanical rooms, one is for the Fir (north) Building and another is for the Pine (south) Building. Each mechanical room has a heating only AHU. AHU's are 100% outside air systems. All air is exhaust through the exhaust fan located in each attic mechanical room. The supply and exhaust air are distributed to the building including the basement through the ductwork located in the attic space. There is no cooling system in the building.

The steam was originally used for the domestic hot water heater; however, the hot water tank/heater has been abandoned in place. As the building hot water usage has been reduced over the years, the steam hot water system was replaced by two A. O. Smith electric domestic hot water heaters. 4-inch cold water enters the building from the east and is distributed throughout the building.

The original pneumatic control system has been abandoned in place and replaced by Andover Controls, direct digital control (DDC) system for the heating system control. The DDC system is connected to the operator's workstation located in the maintenance building.

Existing Control System

There is no natural gas service to the building.

All equipment in Pine-Fir Building is original to the building, with the exception of the domestic hot water heaters and control system, they are beyond their useful service life. Typically, those types of the equipment

have 25 to 30 years of expected useful service life.

2010 A & B Building

The building was originally built in 1937. The building is located on the southwest corner of the campus and is a single story building with a partial basement. Some part of the building was renovated in 1970's and 1980's. During the renovations, the sprinkler system was installed in the renovated portion of the building. 4" fire protection service enters the basement mechanical room with the service isolation valves and reduced pressure back flow preventer. The remainder of the building is not sprinklered.

2010 A & B Sprinkler Service

High pressure steam and steam condensate return from the Power House through the overhead piping system and enters the building mechanical room at the northeast side of the 2010 building. The high pressure steam is reduced to low pressure steam through a 2-stage pressure reducing station. The low pressure steam is used to heat the building heating water through a steam to liquid heat exchanger (HX). The heating water is circulated through the building by two end suction pumps. The steam condensate from the HX is returned to the Power House by the duplex steam condensate pump set.

The heating water circulates the building to feed cabinet unit heaters to provide heating in the sleeping rooms. There is only heating in the sleeping rooms and there is no cooling. However, currently, there is an ongoing project to install a variable refrigeration flow (VRF) system for sleeping rooms to provide cooling and heating. Based on the discussion with the facility's personnel, once the project is completed, the steam base heating system will not be used for the areas where the VRF system is installed. Typically, a new VRF system will have approximately 15 to 20 yeas of expected useful service life.

The original pneumatic control system has been abandoned in place and replaced by Andover Controls, direct digital control (DDC) system for the heating system control. The DDC system is connected to the operator's workstation located in the maintenance building.

ASSUMPTIONS

The following narratives for each mechanical system are separated by the following headings to minimize the repetitive common system descriptions as follow:

- Mechanical Code Analysis
- LEED Silver Mechanical Systems
- Net Zero Energy Mechanical Systems
  - Alternate 1 – Pine/Fir/Hurlbert Renovation
  - LEED Silver Equipment Sizes
  - Net Zero Energy Equipment Sizes
  - Alternate 3 – New On Agricultural Fields Off Ryan Road
  - LEED Silver Equipment Sizes
  - Net Zero Energy Equipment Sizes
  - Alternate 4 –Ryan Road Staff Dorm
  - LEED Silver Equipment Sizes
  - Net Zero Energy Equipment Sizes

MECHANICAL CODE ANALYSIS

Applicable codes and standards shall include, but not necessarily be limited to:

- 2018 FGI Guidelines for Design and Construction of Residential Health Care, and Support Facilities.
- 2015 Health Care Facilities Code (NFPA 99)
- 2015 Washington State Energy Code
- Uniform Plumbing Code, by International Association of Plumbing and Mechanical Officials.
- International Mechanical Code, by International Code Council.
- International Building Code, by International Code Council.
- Requirements of OSHA, EPA and WISHA.
- National Fire Protection Association Codes.
- ASME codes for boiler and pressure vessels.
- SMACNA HVAC Duct Construction Standards, latest edition.
- All local and state amendments.
- Requirements of all agencies have jurisdictional authority over installation of mechanical systems.

LEED SILVER MECHANICAL SYSTEMS

Fire Protection

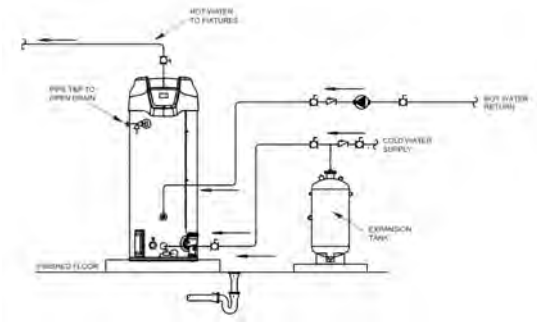
Fire protection system will be a wet sprinkler system and will provide coverage to all spaces. The fire protection system will include the following, but not necessarily be limited to:

- Belowground fire service to building
- Backflow preventer (double check valve assembly)
- Wet sprinkler piping
- Wet pipe alarm check valve
- Fire Department inlet connection
- Supervisory (tamper) switches
- Water flow switches
- Zone control valves
- Isolation and check valves
- Inspector's test connection
- Sprinkler heads
- Seismic restraints
- In new construction, crawl space will not be sprinkled.

Plumbing System

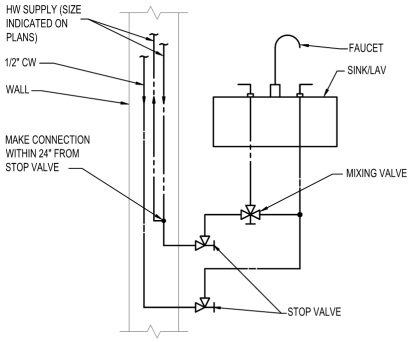
Domestic cold water service to the building will be connected to the campus water distribution loop with water meter and backflow preventer at the building service connection. The backflow preventer will be installed in the basement mechanical room with floor drain.

Domestic hot water system will be based on the condensing type, natural gas fired hot water heater. The hot water heater will be similar to AO Smith Cyclone Mxi Modulating Commercial Gas Water Heater. The hot water will be circulated through the system by circulated pump to maintain constant temperature in the piping. The hot water heater will maintain minimum of 145 deg F to minimize the potential growth of Legionella and 125 deg F water will be distributed through the building through thermostatic mixing valve. 125 deg F hot water will be further reduced to 110 deg F at the sink by the local thermostatic mixing valve. The plumbing system will be designed to include the consideration of Legionella response per 2018 FGI Guideline Section A2.5-2.2.3. The combustion air direct makeup system and flu gas venting will be provided.



HW System / Circulation Pump Diagram

Cold & Hot Water design will include consideration to minimize piping dead legs to prevent any growth within the piping system. In addition, hot water piping loop will be routed in the wall from the ceiling to plumbing fixture stop valve within 12 inches, so that each fixture will receive hot water immediately to minimize water waste. Each faucet will have laminar flow type low flow discharge tips (non-aerated). All hand washing sink including wall mounted lavatory will be selected without an over flow outlet.



1 SINK/LAVATORY TYPICAL PIPING CONNECTION DIAGRAM
SCALE: NONE

Hot water temperature to laundry washing machine will be raised to 165 deg F for proper sanitization of the soiled materials.

The plumbing system will include the following, but no necessarily be limited to:

- Domestic Water Service Meter
- Belowground domestic water service to the building
- Backflow Preventers
- Gas Service to the Building
- Gas Fired Hot Water Heater
- Electric Booster Hot Water Heater
- Roof Drainage, Waste and Vent Piping
- Indirect Waste Piping
- Hot and Cold Water Piping
- Hot Water Recirculation Piping and Circulating Pump
- Seismic Restraints
- Isolation Valves
- Hose Bibbs/Wall Hydrants
- Plumbing Fixtures and Trim
- Sewer Connection to Street
- Storm Connection to Street

HVAC

HVAC system will be based on a Variable Flow Refrigeration (VRF) system with Dedicated Outside Air System (DOAS).

DOAS system will be 100% outside air (OA) and sized to provide required airflow and air changes per hour requirement per 2018 FGI Guidelines for Design and Construction of Residential Health Care, and Support Facilities. DOAS unit will be a heat pump type packaged roof top unit similar to AAON RN Roof Top Unit with supplemental electric second stage heater for cold outside temperature operation. DOAS OA air intake will be minimum of 36 inches above finished roof elevation as required by FGI Guidelines.

Typical DOAS RTU

100% conditioned outside air will be distributed to each space through insulated ductwork.

Each space will be heated and cooled by VRF fan coil unit (FCU). Wall mounted type will be used for bedrooms and ceiling cassette type will be used for Living Rooms, Activity Rooms, TV Rooms, and other support rooms. Wall or ceiling mounted units will be used and will not require closet or floor space for installation and minimizes the total building square foot requirements. Air cooled outdoor unit will be located on the roof within the sloped roof well. The installation of the roof top equipment will include the review of the noise and the vibration to minimize any transmission to the occupied space below.

Wall Mounted Unit

Ceiling Cassette Unit

Exhaust will be provided to shower rooms, toilet rooms, and soiled rooms and collected through the ductwork. Exhaust fan will be located on the roof and will discharge air minimum of 25 feet away from DOAS air intake.

The building Direct Digital Control (DDC) system will be connected to the campus control system and all major equipment will be monitored through the DDC system operator's work station in the maintenance building.

The HVAC system will include the following, but no necessarily be limited to:

- VRF Air Cooled Condenser
- VRF Room Air Conditioner
- Refrigeration Piping
- Condensate drain piping
- DOAS Roof Top Unit
- Self-Contained Unitary Air Conditioner/Heat Pump
- Ductwork
- Diffusers, Registers and Grilles
- Electric Infrared Unit Heaters
- Energy Recovery Devices
- HVAC Control Systems
- Seismic Restraints
- Existing building renovation, basement space will be provided with minimum ventilation and will be conditioned to 45 deg F in winter, no cooling.

NET ZERO ENERGY MECHANICAL SYSTEMS

Fire Protection

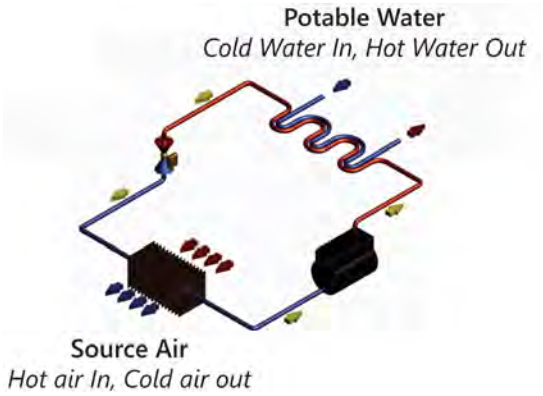
Fire protection system will be a wet sprinkler system and will provide coverage to all spaces. The fire protection system will include the following, but not necessarily be limited to:

- Belowground fire service to building
- Backflow preventer (double check valve assembly)
- Wet sprinkler piping
- Wet pipe alarm check valve
- Fire Department inlet connection
- Supervisory (tamper) switches
- Water flow switches
- Zone control valves
- Isolation and check valves
- Inspector's test connection
- Sprinkler heads
- Seismic restraints
- In new construction, crawl space will not be sprinkled.

Plumbing System

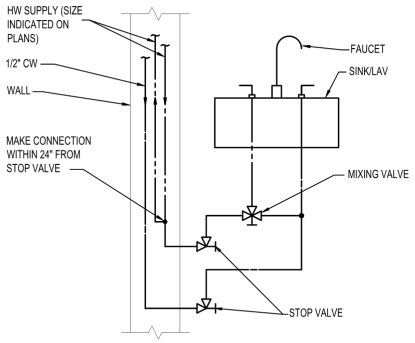
Domestic cold water service to the building will be connected to the campus water distribution loop with water meter and backflow preventer at the building service connection. The backflow preventer will be installed in the basement mechanical room with floor drain.

Domestic hot water system will be based on an air source heat pump water heater. The hot water heater will be similar to Colmac Waterheat model HPA7 Propeller Fan with hot water storage tank. The hot water will be circulated through the system by circulated pump to maintain constant temperature in the piping. The hot water heater will maintain minimum of 145 deg F to minimize the potential growth of Legionella and 125 deg F water will be distributed through the building through thermostatic mixing valve. 125 deg F hot water will be further reduced to 110 deg F at the sink by the local thermostatic mixing valve. The plumbing system will be designed to include the consideration of Legionella response per 2018 FGI Guideline Section A2.5-2.2.3. The combustion air direct makeup system and flu gas venting will be provided.



Air Source Heat Pump Water Heater

Cold & Hot Water design will include consideration to minimize piping dead legs to prevent any growth within the piping system. In addition, hot water piping loop will be routed in the wall from the ceiling to plumbing fixture stop valve within 12 inches, so that each fixture will receive hot water immediately to minimize water waste. Each faucet will have laminar flow type low flow discharge tips (non-aerated). All hand washing sink including wall mounted lavatory will be selected without an over flow outlet.



1 SINK/LAVATORY TYPICAL PIPING CONNECTION DIAGRAM
SCALE: NONE

Hot water temperature to laundry washing machine will be raised to 165 deg F for proper sanitization of the soiled materials.

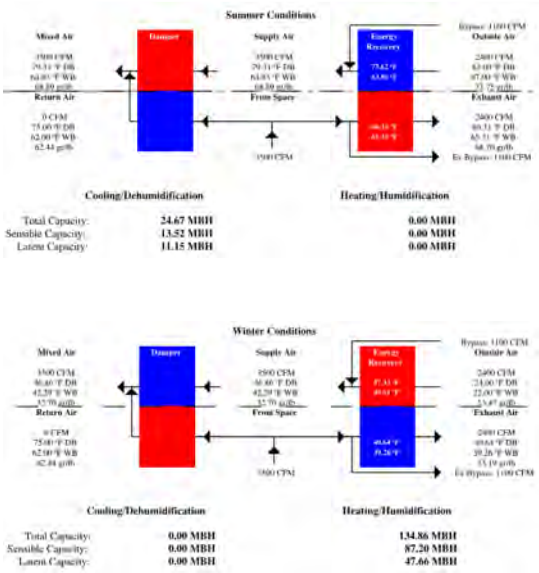
The plumbing system will include the following, but no necessarily be limited to:

- Domestic Water Service Meter
- Belowground domestic water service to the building
- Backflow Preventers
- Air Source Heat Pump Hot Water Heater
- Hot Water Storage Tank
- Electric Booster Hot Water Heater
- Roof Drainage, Waste and Vent Piping
- Indirect Waste Piping
- Hot and Cold Water Piping
- Hot Water Recirculation Piping and Circulating Pump
- Seismic Restraints
- Isolation Valves
- Hose Bibbs/Wall Hydrants
- Plumbing Fixtures and Trim
- Sewer Connection to Street
- Storm Connection to Street

HVAC

HVAC system will be based on a Variable Flow Refrigeration (VRF) system with Dedicated Outside Air System (DOAS).

DOAS system will be 100% outside air (OA) with energy recovery wheel and sized to provide required airflow and air changes per hour requirement per 2018 FGI Guidelines for Design and Construction of Residential Health Care, and Support Facilities. DOAS unit will be a heat pump type packaged roof top unit similar to AAON RN Roof Top Unit with Energy Recovery System. DOAS OA air intake will be minimum of 36 inches above finished roof elevation as required by FGI Guidelines.



Typical DOAS RTU with Energy Recover System Diagram

100% conditioned outside air will be distributed to each space through insulated ductwork.

Each space will be heated and cooled by VRF fan coil unit (FCU). Wall mounted type will be used for bedrooms and ceiling cassette type will be used for Living Rooms, Activity Rooms, TV Rooms, and other support rooms. Wall or ceiling mounted units will be used and will not require closet or floor space for installation and minimizes the total building square foot requirements. Air cooled outdoor unit will be located on the roof within the sloped roof well. The installation of the roof top equipment will include the review of the noise and the vibration to minimize any transmission to the occupied space below.

Wall Mounted Unit

Ceiling Cassette Unit

Exhaust will be provided to shower rooms, toilet rooms, and soiled rooms and collected through the ductwork. Exhaust fan will be located on the roof and will discharge air minimum of 25 feet away from DOAS air intake.

The building Direct Digital Control (DDC) system will be connected to the campus control system and all major equipment will be monitored through the DDC system operator's work station in the maintenance building.

The HVAC system will include the following, but no necessarily be limited to:

- VRF Air Cooled Condenser
- VRF Room Air Conditioner
- Refrigeration Piping
- Condensate drain piping
- DOAS Roof Top Unit
- Energy Recovery System
- Self-Contained Unitary Air Conditioner/Heat Pump
- Heat Recovery Equipment
- Ductwork
- Diffusers, Registers and Grilles
- Electric Infrared Unit Heaters
- HVAC Control Systems
- Seismic Restraints
- Existing building renovation, basement space will be provided with minimum ventilation and will be conditioned to 45 deg F in winter, no cooling.

ALTERNATE 1 – PINE/FIR/HURLBERT RENOVATION

38,400 SF Pine/Fir Renovation, 1,720 SF Addition, 15,100 Hurlbert Renovation , 38,400 SF Hemlock/Spruce Renovation, and 15,100 Robin Renovation, total 108,720 SF – 104 Beds

38,400 SF Pine/Fir Renovation, 1,720 SF Addition, 15,100 Hurlbert Renovation , 38,400 SF Hemlock/Spruce Renovation, and 15,100 Robin Renovation, 45,000 SF new building, total 153,720 SF – 160 Beds

LEED Silver Equipment Sizes – 100 Beds

- Domestic Cold Water Service to Building – 4"
- Natural Gas Service to Building – 2"
- Six Gas Fired Domestic Hot Water Heaters – each at 60-gallon tank, 120,000 BTU/Hr 173 GPH recovery rate at 80 deg F temperature rise.
- Six DOAS RTU, each at 3,500 CFM.
- Six 15-ton VRF Air Cooled Condensers.
- One hundred eighty VRF fan coil units.
- Six Exhaust Systems, each at 3,500 CFM.

LEED Silver Equipment Sizes – 160 Beds

- Domestic Cold Water Service to Building – 4"
- Natural Gas Service to Building – 2"
- Nine Gas Fired Domestic Hot Water Heaters – each at 60-gallon tank, 120,000 BTU/Hr 173 GPH recovery rate at 80 deg F temperature rise.
- Nine DOAS RTU, each at 3,500 CFM.
- Nine 15-ton VRF Air Cooled Condensers.
- Two hundred seventy VRF fan coil units.
- Nine Exhaust Systems, each at 3,500 CFM.

Net Zero Energy Equipment Sizes – 100 Beds

- Domestic Cold Water Service to Building – 4"
- Six Air Source Heat Pump Domestic Hot Water Heaters – each 80 MBH heating capacity, 1.2 GPM and three sets of two 200-gallon storage tanks.
- Six DOAS RTU, each at 3,500 CFM.
- Six 15-ton VRF Air Cooled Condensers.
- One hundred eighty VRF fan coil units.
- Six Energy Recovery Systems, each at 3,500 CFM.

Net Zero Energy Equipment Sizes – 160 Beds

- Domestic Cold Water Service to Building – 4"
- Nine Air Source Heat Pump Domestic Hot Water Heaters – each 80 MBH heating capacity, 1.2 GPM and three sets of two 200-gallon storage tanks.
- Nine DOAS RTU, each at 3,500 CFM.
- Nine 15-ton VRF Air Cooled Condensers.
- Two hundred Seventy VRF fan coil units.
- Nine Energy Recovery Systems, each at 3,500 CFM.

ALTERNATE 2 – RENOVATE CEDAR/OLSON/ALDER/MARTIN OFF LEVESQUE ROADS

82,240 sf - 112 Beds

LEED Silver Equipment Sizes

- Domestic Cold Water Service to Building – 4"
- Natural Gas Service to Building – 3"
- Four Gas Fired Domestic Hot Water Heaters – each at 100-gallon tank, 150,000 BTU/Hr 223 GPH recovery rate at 80 deg F temperature rise.
- Four DOAS RTU, each at 4,500 CFM.
- Four 20-ton VRF Air Cooled Condensers.
- One hundred eighty VRF fan coil units.
- Eight Exhaust Systems, each at 2,250 CFM.

Net Zero Energy Equipment Sizes

- Domestic Cold Water Service to Building – 4”
- Four Air Source Heat Pump Domestic Hot Water Heaters – each 100 MBH heating capacity, 1.5 GPM and four sets of two 200-gallon storage tanks.
- Four DOAS RTU, each at 4,500 CFM.
- Four 20-ton VRF Air Cooled Condensers.
- One hundred eighty VRF fan coil units.
- Four Energy Recovery Systems, each at 4,500 CFM.

ALTERNATE 3 – NEW ON AGRICULTURAL FIELDS OFF RYAN ROAD

94,880 GSF new building – 100 Beds

142,000 GSF new building – 160 Beds

LEED Silver Equipment Sizes – 100 Beds

- Domestic Cold Water Service to Building – 4”
- Natural Gas Service to Building – 3”
- Five Gas Fired Domestic Hot Water Heaters – each at 60-gallon tank, 120,000 BTU/Hr 173 GPH recovery rate at 80 deg F temperature rise.
- Six DOAS RTU, each at 3,500 CFM.
- Six 15-ton VRF Air Cooled Condensers.
- One hundred eighty VRF fan coil units.
- Six Exhaust Systems, each at 3,500 CFM.

LEED Silver Equipment Sizes – 160 Beds

- Domestic Cold Water Service to Building – 4”
- Natural Gas Service to Building – 3”
- Eight Gas Fired Domestic Hot Water Heaters – each at 60-gallon tank, 120,000 BTU/Hr 173 GPH recovery rate at 80 deg F temperature rise.
- Nine DOAS RTU, each at 3,500 CFM.
- Nine 15-ton VRF Air Cooled Condensers.
- Two hundred seventy VRF fan coil units.
- Nine Exhaust Systems, each at 3,500 CFM.

Net Zero Energy Equipment Sizes – 100 Beds

- Domestic Cold Water Service to Building – 4”
- Five Air Source Heat Pump Domestic Hot Water Heaters – each 80 MBH heating capacity, 1.2 GPM and nine sets of two 200-gallon storage tanks.
- Six DOAS RTU, each at 3,500 CFM.
- Six 15-ton VRF Air Cooled Condensers.
- One hundred eighty VRF fan coil units.
- Six Energy Recovery Systems, each at 3,500 CFM.

Net Zero Energy Equipment Sizes – 160 Beds

- Domestic Cold Water Service to Building – 4”
- Eight Air Source Heat Pump Domestic Hot Water Heaters – each 80 MBH heating capacity, 1.2 GPM and nine sets of two 200-gallon storage tanks.
- Nine DOAS RTU, each at 3,500 CFM.
- Nine 15-ton VRF Air Cooled Condensers.
- Two hundred seventy VRF fan coil units.
- Nine Energy Recovery Systems, each at 3,500 CFM.

ALTERNATE 4 – RYAN ROAD STAFF DORM

141,940 GSF new building and 24,400 GSF Existing Staff Dorm – 160 Beds

LEED Silver Equipment Sizes

- Domestic Cold Water Service to Building – 4”
- Natural Gas Service to Building – 3”

- Nine Gas Fired Domestic Hot Water Heaters – each at 60-gallon tank, 120,000 BTU/Hr 173 GPH recovery rate at 80 deg F temperature rise.
- Ten DOAS RTU, each at 3,500 CFM.
- Ten 15-ton VRF Air Cooled Condensers.
- Three hundred VRF fan coil units.
- Ten Exhaust Systems, each at 3,500 CFM.

Net Zero Energy Equipment Sizes

- Domestic Cold Water Service to Building – 4”
- Nine Air Source Heat Pump Domestic Hot Water Heaters – each 80 MBH heating capacity, 1.2 GPM and nine sets of two 200-gallon storage tanks.
- Ten DOAS RTU, each at 3,500 CFM.
- Ten 15-ton VRF Air Cooled Condensers.
- Three hundred VRF fan coil units.
- Ten Energy Recovery Systems, each at 3,500 CFM.

ELECTRICAL CODE ANALYSIS

2017 National Electric Code (NFPA 70)

2018 FGI Guidelines for Design and Construction of Residential Health Care, and Support Facilities.

2015 Health Care Facilities Code (NFPA 99)

2012 Life Safety Code (NFPA 101)

EXISTING ELECTRICAL CONDITIONS

General

Rainier School is an 88 acre campus with over 60 buildings serving approximately 300 developmentally challenged persons and approximately 1000 staff.

Electrical Service

Electrical Service is provided by Puget Sound Energy entering the campus on Levesque Road East terminating into a voltage transformer adjacent to the street.

Service voltage to the Campus is provided at 12,470 volts and distributed underground to all buildings on campus. Most buildings have indoor dry type subtstations transforming power to a building distribution voltage of 120/208 or 277/480. There are a few outdoor oil filled pad mount transformers serving mainly support buildings. Campus feeders are reported to have been mostly replaced in 2010. Dry type indoor sub-stations appear to be original equipment. When a building undergoes major renovation the sub-station should be invetigated for replacement.

Standby Power

The Campus is served by two (2) 1000 kW Caterpillar standby generators with paralleling gear. Two (2) 6000 gallon Convault fuel tanks provide fuel to the generators and includes a fuel polishing system.

The generators supply standby power to the 12,470 volt feeder system in a power outage and also feed a separate 2400 volt standby power loop feeding partial power to the houses across the Campus.

The existing system for Standby Power does not meet NEC 700 requirements for emergency power, therefore new egress lighting, exit lighting, some communications systems and fire alarm systems will require a new emergency power system.

The existing system for Standby power meets NEC 702 requirements for Optional Standby Power but it does not meet 2017 NEC 517 requirements for Essential Electrical Systems for Nursing Homes and Limited Care Facilites.

Assuming a new Nursing Home facility will have clients that may need to be sustained by electrical life support, NEC 517 will require (3) three branches of emergency power with power served by a generator or fuel cells. A generator specific to the facility will be required.

Lighting

Existing lighting on the campus consists primarily of older lighting fixtures either incandescent style ceiling mounted fixture re-lamped to fluorescent or fluorescent linear fixtures. Though well maintained, most would not meet the standards or criteria

required by the 2015 Washington State Energy Code.

As fixtures require replacement, they are replaced with LED style light fixtures.

Egress and exit lighting fixtures are provided using unitary battery equipment.

Site lighting fixtures are using a combination of metal halide and high pressure sodium lamps. Site lighting fixtures appear old and aprroaching end of life.

Lighting control in the buildings is accomplished using local switching. It appears occupancy sensors are minimally used. Site lighting is switched using timeclocks???.

Power Distribution

Individual building power panels serve lighting, receptacles, HVAC connections, kitchen equipment connections and miscellaneous equipment connections. Most panels appear to be older equipment, some by manufacturers no longer in business making replacement parts difficult to obtain. It is unlikely these panels will meet current code requirements for wire bending space and separation. It is also likely many of the circuit breakers have not undergone periodic testing and will likely no longer function to the manufacturers listed specifications.

Telecommunications

Campus telecommunications main distribution facility (MDF) is located mid campus in the Meyer building. Fiber distribution is accomplished using a star topology with hubs in the Meyer, Hemlock, Powerhouse, Administration, Oakley, Olsen and Instructional Services buildings. This configuration covers most but not all of the campus. Buildings such as Holly, Kerr, Staff Dorm and the Guest Residence do not have fiber serving them.

Telephone and data is distributed out to all buildings through the fiber network as well as fire alarm. Most data cabling appears to be using Cat 5e cables.

Fire Alarm

The Fire alarm system consists of local fire alarm panels in each separate building reporting back to a central campus panel located in the Administration building. Panels are reported to be Simplex fire alarm panels installed in the late 1990's.

Typical building systems include area smoke detection in portions but not all of the buildings and fire alarm pull stations at selected exit doors. Fire alarm horn/strobes provide notification of alarms throughout the buildings.

Security

Security is reported to be limited to keypads at the Telecommunications Server Room in the Meyers building, the Pharmacy and the Human Resources office in the Adminstration building.

Intrusion alarms, Access security and Security camera's were not reported or seen to be used on the campus.

Nurse Call

Nurse Call was not reported or seen to be used on the campus.

Pine/Fir Building

Normal power electric service to the building is served from a indoor dry-type transformer substation feeding switchgear located in the basement of the Pine building. Normal power is distributed to a series of panels on the first floor of Pine and Fir. Each building has an Attic/Penthouse area that has panels to serve mechanical loads.

Standby power is served to the building by a 2400 volt feeder serving a smaller transformer and panel located in the basement. Standby loads are then served through panels in the buildings.

Emergency lighting is provided by batteries.

Lighting throughout the building uses a mixture of florescent, metal halide and high-pressure sodium sources.

The Pine building has a small telecom closet in it. Services are fed from Hemlock Building. Telephone and data connections are distributed throughout the building from this closet.

Fire alarm is installed throughout the building. Devices consist of smoke detectors, pull stations and horn/strobe notification appliances.

Security systems for intrusion detection, access control and security video have not been installed in the building.

Nurse call systems have not been installed in the building.

In general the electrical systems installed in this building will not be reusable for a Nursing Home conversion. The change of use to the building will require all systems to meet current codes. The electrical service will likely be too small, the emergency power systems are not code compliant for a Nursing Home use. Telecommunications devices will not be located convenient for the new use and they are not able to accept todays technology. The fire alarm system will need to be upgraded. Security access control and security video will likely be wanted. Nurse call will be required.

ELECTRICAL CODE ANALYSIS

2017 National Electric Code (NFPA 70)

2018 FGI Guidelines for Design and Construction of Residential Health Care, and Support Facilities.

2015 Health Care Facilities Code (NFPA 99)

2015 Washington State Energy Code

2012 Life Safety Code (NFPA 101)

EXISTING ELECTRICAL CONDITIONS

General

Rainier School is an 88-acre campus with over 60 buildings serving approximately 300 developmentally challenged persons and approximately 1000 staff.

Electrical Service

Electrical Service is provided by Puget Sound Energy entering the campus on Levesque Road East terminating into a voltage transformer adjacent to the street.

Service voltage to the campus is provided at 12,470 volts and distributed underground to all buildings on campus. Campus feeders are reported to have been mostly replaced in 2010.

Standby Power

The Campus is served by two (2) 1000 kW Caterpillar standby generators with paralleling gear. Two (2) 6000-gallon Convault fuel tanks provide fuel to the generators and includes a fuel polishing system.

The generators supply standby power to the 12,470-volt feeder system in a power outage and also feed a separate 2,400-volt standby power loop feeding partial power to the houses across the campus.

Telecommunications

Campus telecommunications main distribution facility (MDF) is located mid-campus in the Meyer building. Fiber distribution is accomplished using a star topology with hubs in the Meyer, Hemlock, Powerhouse, Administration, Oakley, Olsen and Instructional Services buildings. This configuration covers most but not all the campus. Buildings such as Holly, Kerr, Staff Dorm and the Guest Residence do not have fiber serving them.

Telephone and data is distributed out to all buildings through the fiber network as well as fire alarm.

Fire Alarm

The fire alarm system consists of local fire alarm panels in each separate building reporting back to a central campus panel located in the Administration building. Panels are reported to be Simplex fire alarm panels installed in the late 1990's.

Typical building systems include area smoke detection in portions but not all of the buildings and fire alarm pull stations at selected exit doors. Fire alarm horn/strobes provide notification of alarms throughout the buildings.

Security

Security is reported to be limited to keypads at the Telecommunications Server Room in the Meyers building, the Pharmacy and the Human Resources office, in the Administration building.

100 BED RYAN ROAD SITE LEED SILVER

Electrical Service

Normal power electric service to the building will be served from (5) 200 kVA indoor unit substations located one per neighborhood. Each substation will receive campus medium voltage power and convert to 120/208-volt, three-phase power to serve the neighborhood. An outdoor main service entrance rated disconnect switch will be provided for the building. Existing electrical service to the Staff Dorm building will be demolished.

The existing electrical infrastructure to the Staff Dorm building will be demolished and new electrical distribution will be provided.

Normal power will be distributed to electric rooms in each neighborhood and branch circuits will supply power to all electrical fixtures and devices from these electric rooms.

Essential Power

The Nursing Home will be served by an essential service power generator locally positioned to serve power directly and exclusively to this building. Two branches of essential power will be delivered, Life Safety Power and Equipment power. Each branch will be served by a dedicated automatic transfer switch to switch between the Normal Power service and the essential power branch served from the Nurse Home generator. This generator will have a 96-hour fuel supply local to the generator.

The campus generator system will indirectly serve the building by taking over the normal power service feed in a power outage.

From each essential branch transfer switch, Life Safety and Equipment Power will be distributed through the building by a series of transformers and panels dedicated to the essential branch of service they provide power for.

The Life Safety Branch will serve power for the illumination of Means of Egress, Exit Signs, the Fire Alarm system, Non-flammable medical gas alarm systems, Communications systems used for issuing instructions during emergency conditions, Dining and Recreation Areas (for illumination to exit ways), Generator set locations lights and receptacles and (if equipped) Elevator lights and controls.

The equipment power branch will provide for delayed automatic connection and will serve:

- Task illumination and select receptacles for patient care areas, medication preparation spaces, pharmacy dispensing areas and nurse stations.
- Supply, return, and exhaust ventilating systems for airborne infectious isolation rooms
- Sump pumps and other equipment for major apparatus.
- Smoke control and stair pressurization if required.
- Kitchen hood supply and exhaust.
- Nurse call system.
- Heating equipment for patient rooms.
- Elevator service (if equipped).

Power Distribution

Individual building power panels will be provided to serve lighting, receptacles, HVAC connections, kitchen equipment connections and miscellaneous equipment connections and loads on the floor the loads occur. All distribution panels will be of door-in-door construction.

Lighting

Lighting will be accomplished using LED lighting fixtures with features that allow dimming and tunability for light color. Fixtures will be a mixture of recessed and surface mounting, wall and ceiling located, linear and round sources as best selected for the purpose and location.

Exterior lighting fixtures will be a mix of pedestrian oriented poles, bollards and wall sconces. Parking site lighting will be provided by pole mounted lighting fixtures.

Lighting controls will vary from fully automatic lighting in public spaces using occupancy sensors and daylighting controls to manual lighting control in patient rooms. All controls will be localized to the area of use.

Site lighting controls will be based on photocells and lighting intensity variation based on occupant sensing controls. Some controls will likely include time of day control.

Telecommunications

Campus telecommunication services will be brought into a Building main distribution facility (MDF) located in one of the neighborhoods. Fiber for telephone, data, internet, security, and fire alarm will be distributed from the MDF to Intermediate Distribution Facilities (IDF) located in each neighborhood. Distributed telecommunications throughout the facility will be from the MDF and IDF's.

Fiber optic cable will be used for distribution. Copper cable will be based on CAT6A cabling.

Telecommunications will consist of a telephone outlet, data outlet and television outlet per patient bed. Additional data outlets will be provided at all telephone, computer, printer, monitor and elevator locations as well as all equipment reporting locations such as medical refrigerator alarms.

Fire Alarm

A new Fire Alarm system will consist of a local main fire alarm panel in the building reporting back to the central campus fire alarm monitoring location over fiber optic cable. The main panel will be located in the MDF room.

Initiation devices will consist of smoke detectors in corridors, electric rooms, data rooms, and other sensitive areas where smoke detection warnings would be beneficial to the resident and staff population. Manual pull stations will be provided at each Nursing Station. Duct smoke detectors will be provided if required. Heat detectors will be provided in specific areas where having a high heat alarm signal before the sprinkler heads activate is advantageous, such as cooking and laundry areas. The sprinkler system will be fully monitored.

Notification appliances will consist of voice alarm speakers and visual alerting devices (speaker/strobes). Voice alarm is not required but considering the patient population, voice will be more calming. Visual devices will need to be carefully coordinated to not be disruptive in the environment.

It is likely the fire alarm system will need to be closely coordinated with the local Fire Marshall's office to provide a system that provides for a safe environment and is the least disruptive to the residents and staff.

Security

Security will include intrusion detection, access control, security video, panic alarms and wander control. Security features for lockdown may also be anticipated.

Intrusion detection will be provided at all exterior doors and will likely be used to monitor door activity during non-peak hours such as late at night allowing reporting at nurse stations of door activity. This type of system could be (but is not planned for) used in monitoring window activity of operable windows. Additional monitoring could be accomplished with motion sensors to monitor traffic in specific hallways.

Access control using card or badge readers will be used at specific staff entry points to the building during non-peak hours such as late at night. Readers will also be provided in high security areas such as medication preparation rooms, pharmacy and data rooms. Additional readers will be provided in areas that need restricted access.

Security video will be provided in select public areas such as parking lots and outside staff entrances.

Security Staff Assistance (panic) alarms will be provided in Nurse Station and Reception areas. Portable, on staff alerting and alarming systems can be provided as part of the nurse call system.

Wander control will be provided at select doors to keep residents from leaving the premises without staff knowledge. Some systems will alert staff when a door is opened, some systems will sound an alarm and hold the door closed for a short period of time to allow for staff response. Portable on resident reporting systems can be provided as part of the nurse call system.

Nurse Call

A nurse call system will be provided to allow for two-way voice communications between each patient bed and the nurse station serving the bed. The system will be interactive between all nursing stations, so the system can allow transfer of calls to additional locations. Each patient bed will have a nurse call station and a staff assist pushbutton. Bath, shower and toilet rooms will have assistance call cords that will need to be coordinated with staff for type and location. Medication preparation, clean and soil rooms, break rooms and other heavily trafficked staff rooms will have staff duty stations.

The nurse call system can provide (but is not budgeted for) portable staff monitoring devices that allow the staff to receive Nurse calls while away from the nurse stations.

Other possible features (not budgeted for) include staff locaters, equipment locaters, and resident wandering devices.

Solar Power – Net Zero Alternate

Solar power that would allow for 100% of the calculated demand load for the building to be served will be planned as an alternate for the nursing home. Lighting will be made 20% more efficient than the base. Connection to the building electrical system for distribution back to the electric utility will be provided. Controls to shut down the photovoltaic array when the local or campus generators are running will be provided.

To assist in accomplishing the net zero goal, an electrical functional program outlining what types of cord and plug connected equipment will be allowed for use will be created during the project design phase. This program will outline the need for devices such as energy star rated equipment, devices that are to be connected to controlled outlets, cord and plug connected equipment allowed for staff and patients.

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100 BED RYAN ROAD SITE LEED SILVER

Electrical Service

Normal power electric service to the building will be served from (8) 200 kVA indoor unit substations located one per neighborhood. Each substation will receive campus medium voltage power and convert to 120/208-volt, three-phase power to serve the neighborhood. An outdoor main service entrance rated disconnect switch will be provided for the building. Existing electrical service to the Staff Dorm building will be demolished.

The existing electrical infrastructure to the Staff Dorm building will be demolished and new electrical distribution will be provided.

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- Elevator service (if equipped).

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Individual building power panels will be provided to serve lighting, receptacles, HVAC connections, kitchen equipment connections and miscellaneous equipment connections and loads on the floor the loads occur. All distribution panels will be of door-in-door construction.

Lighting

Lighting will be accomplished using LED lighting fixtures with features that allow dimming and tunability for light color. Fixtures will be a mixture of recessed and surface mounting, wall and ceiling located, linear and round sources as best selected for the purpose and location.

Exterior lighting fixtures will be a mix of pedestrian oriented poles, bollards and wall sconces. Parking site lighting will be provided by pole mounted lighting fixtures.

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Notification appliances will consist of voice alarm speakers and visual alerting devices (speaker/strobes). Voice alarm is not required but considering the patient population, voice will be more calming. Visual devices will need to be carefully coordinated to not be disruptive in the environment.

It is likely the fire alarm system will need to be closely coordinated with the local Fire Marshall's office to provide a system that provides for a safe environment and is the least disruptive to the residents and staff.

Security

Security will include intrusion detection, access control, security video, panic alarms and wander control. Security features for lockdown may also be anticipated.

Intrusion detection will be provided at all exterior doors and will likely be used to monitor door activity during non-peak hours such as late at night allowing reporting at nurse stations of door activity. This type of system could be (but is not planned for) used in monitoring window activity of operable windows. Additional monitoring could be accomplished with motion sensors to monitor traffic in specific hallways.

Access control using card or badge readers will be used at specific staff entry points to the building during non-peak hours such as late at night. Readers will also be provided in high security areas such as medication preparation rooms, pharmacy and data rooms. Additional readers will be provided in areas that need restricted access.

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Wander control will be provided at select doors to keep residents from leaving the premises without staff knowledge. Some systems will alert staff when a door is opened, some systems will sound an alarm and hold the door closed for a short period of time to allow for staff response. Portable on resident reporting systems can be provided as part of the nurse call system.

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The nurse call system can provide (but is not budgeted for) portable staff monitoring devices that allow the staff to receive Nurse calls while away from the nurse stations.

Other possible features (not budgeted for) include staff locaters, equipment locaters, and resident wandering devices.

Solar Power – Net Zero Alternate

Solar power that would allow for 100% of the calculated demand load for the building to be served will be planned as an alternate for the nursing home. Lighting will be made 20% more efficient than the base. Connection to the building electrical system for distribution back to the electric utility will be provided. Controls to shut down the photovoltaic array when the local or campus generators are running will be provided.

To assist in accomplishing the net zero goal, an electrical functional program outlining what types of cord and plug connected equipment will be allowed for use will be created during the project design phase. This program will outline the need for devices such as energy star rated equipment, devices that are to be connected to controlled outlets, cord and plug connected equipment allowed for staff and patients.

BUILDING ENVELOPE

For both renovation and new construction options, the LEED Silver building envelope can be assumed to be an envelope that minimally complies with the 2015 Washington State Energy Code (WSEC). The proposed building envelope information described in this report is anticipated to meet this threshold. It should be anticipated the component performance method for will be used to show compliance; for reference, the component target building requirements are defined in WSEC Table C402.1.4, 'All Other' column. The 2018 WSEC, which is currently in development, is expected to become effective July 1, 2020. Therefore, if the project is permitted after this date, the building envelope requirements will likely become more stringent.

New Construction Alternates

The general envelope requirements for LEED Silver and LEED Silver + Net-zero renovations are described in Table 1. The LEED Silver air leakage target complies with the 2015 WSEC Section C406.9 reduced air infiltration requirement. This C406 option, combined with the C406.3 Reduced lighting power density described in the electrical requirements, fulfill the two C406 options required for the LEED Silver building to meet this portion of the code.

Renovation Alternates

Table 2 describes the requirements for the renovation of the Pine-Fir buildings (Alternates 1 and 2). For existing buildings, WSEC Section C505 allows for the proposed building envelope to be up to 110% of the target UA and still comply. Like new construction, C406.9 reduced air leakage is assumed. If these requirements can't ultimately be met, the performance (energy modeling) approach for WSEC compliance, described in Section C407, may be utilized. Similar to the component method, the annual modeled energy used of the proposed building may be up to 110% of the C407 threshold.

Table 1. Building Envelope Requirments for New Construction Alternates

Component	LEED Silver	LEED Silver + Net-Zero
Roof	Vented wood truss, R-49 loose-fill	Vented wood truss, R-60, loose-fill
Walls	2x6 wood, intermediate framing with R-21 fiberglass insulation Sheet WRB on exterior sheathing, vented (rainscreen) cladding attachment	2x6 wood, intermediate framing with R-21 fiberglass insulation + 2" mineral wool continuous exterior insulation attached with fiberglass clips or Z-girts Fluid-applied WRB on exterior sheathing, vented (rainscreen) cladding attachment
Slab-On-Grade Floor	R-10 rigid insulation, vertical down to top of footing on either interior or exterior. If interior, R-5 minimum thermal break at slab perimeter (chamfer OK)	R-10 rigid insulation continuous under the slab and R-10 on exterior down to top of footing.
Windows	Fiberglass frame with double-pane LowE glass and argon fill NFRC rated U-0.26-0.28	Fiberglass frame with triple-pane LowE glass and argon fill NFRC rated U-0.18-0.20
Glazed Entrance Doors	Aluminum frame with double-pane LowE glass and argon fill NFRC rated U-0.65	Aluminum frame with double-pane LowE glass and argon fill NFRC rated U-0.45
Opaque Doors	Steel, NFRC rated U-0.37	Steel, NFRC rated U-0.37
Building Air Leakage	0.25 cfm/ft2 @ 75 Pa or better	0.15 cfm/ft2 @ 75 Pa or better

Table 2. Building Envelope Requirments for Renovation Alternates

Component	LEED Silver	LEED Silver + Net-Zero
Roof	Vented wood truss, R-49 loose-fill on top of concrete ceiling. Concrete soffit encased in 2" 2lb closed-cell (R-14) sprayfoam	Vented wood truss, R-60 loose-fill on top of concrete ceiling. Concrete soffit encased in 3" 2lb closed-cell (R-21) sprayfoam
Walls	EIFS with 3"(R-15) EPS insulation over drainage plane Fluid-applied WRB on exterior of concrete wall Wood stud furring @ 24" O.C. on interior with no insulation in cavity	EIFS with 3"(R-15) EPS insulation over drainage plane Fluid-applied WRB on exterior of concrete wall Wood stud furring @ 24" O.C. on interior with R-13 fiberglass insulation in cavity
Below-grade Walls	1" rigid insulation with wood stud furring @ 24" O.C. on interior with R-13 insulation in cavity	2" rigid insulation with wood stud furring @ 24" O.C. on interior with R-13 insulation in cavity
Slab-On-Grade Floor	No insulation added to under the floor or on the exterior of the foundation.	Excavate exterior and install R-15 rigid insulation down to top of footing or for 2' minimum.
Windows	Fiberglass frame with double-pane LowE glass and argon fill NFRC rated U-0.26-0.28	Fiberglass frame with triple-pane LowE glass and argon fill NFRC rated U-0.18-0.20
Glazed Entrance Doors	Aluminum frame with double-pane LowE glass and argon fill. NFRC rated U-0.65	Aluminum frame with double-pane LowE glass and argon fill. NFRC rated U-0.45
Opaque Doors	Steel, NFRC rated U-0.37	Steel, NFRC rated U-0.37
Building Air Leakage	0.25 cfm/ft2 @ 75 Pa or better	0.15 cfm/ft2 @ 75 Pa or better

July 25, 2018

SOLAR ASSSESSMENT FOR DEPARTMENT OF SOCIAL & HEALTH SERVICES

Assessment methodology

The following report is an initial assessment of the solar potential for a net zero energy property for Department of Social & Health Services, to be located in either Shoreline or Buckley, Washington.

Initial solar assessments were informed by available satellite imagery, draft architectural designs, and references to other solar projects installed by A&R Solar. Annual energy production estimates were modeled using PV Watts, an industry-standard web-based program that references local weather data and system-specific information including system size in kilowatts, module type, azimuth/tilt, shade loss, and other typical system losses.

Throughout this report, "cost per watt" is referenced as a comparison metric of cost between systems. Cost per watt is calculated by taking the overall system cost and dividing it by the total nameplate (DC) wattage of the system. This is a standard industry metric for comparing the cost of different projects.

Summary of findings

The below table summarizes the solar potential for each site based on density of kilowatts that can be installed, annual kilowatt-hour production based on geographic location, and cost per watt based on module efficiency.

Cost estimates below are informed by known installation costs of similar projects. These costs assume streamlined design and permitting stages and minimal interconnection costs with local utilities. The main explanation in the price range is from the cost impact of higher-efficiency solar modules. Inefficient designs due to multiple roofs or rooftop obstructions that break up solar arrays will also push the cost estimate closer to the top end of the range.

	Shoreline	Buckley
Available square footage for solar	93,157 – 164,534	
Watts per square foot of clear roof space	9.75-16.75 watts per square foot	
System size potential based on roof space	908 – 2,756 kW	
System size required for ZEB	696 – 1,508 kW	
Installation cost/watt	$1.80 – $2.00	
Total installation cost	$1,253,000 – $3,016,000	
kWh production per kW	966 – 1,024 kWh	962 – 1,013 kWh
Year 1 energy production	672,000 – 1,544,000 kWh	670,000 – 1,528,000 kWh

Basis of design

Rooftop projects on flat roofs can achieve efficient installation costs by using an unattached, ballasted system (weighed down) instead of an attached system which generally requires extra roofing work. Ballasted systems are not appropriate when a building lacks sufficient structural support for the weight of a ballasted system (generally 3-7 psf), or when other considerations like high winds or local building codes prohibit their installation.

The watts per square foot range above assume little-to-no obstructions (like HVAC equipment or vents) on a roof. Rooftop equipment would decrease watts per square foot. In addition to rooftop obstructions, a solar design must also consider required setbacks from the edge of a roof. A 4-foot setback is a standard distance to consider. This

will decrease available square footage but does not necessary affect the watts per square foot rule of thumb. The above system size estimates assume “available roof space for PV” square footage figures accounts for setbacks.

Also affecting wattage density is the spacing between rows of solar panels, which is impacted by the tilt at which modules are placed. For example, a 5-degree tilted system facing due south with 7.25 inches between rows can reach the upper end of the watts/sqft range of 16.75 watts/sqft. A 10-degree tilt results in a taller module which casts a longer shadow and requires 19 inches between rows. This wider spacing results in less watts per square foot which affects the maximum system size on limited roof space. However, modules with 10-degree tilts will generally produce more kilowatt-hours over the course of a year than modules tilted at 5 degrees or lower, so an exact examination of available square footage and energy targets should be evaluated once designs are final.

It’s also worth noting that some awkwardly shaped roofs may result in dead space where solar panels cannot fit. This will affect the wattage density per square foot as partial solar panels cannot be installed.

In addition to module tilt and spacing, the other major factor affecting system size is the efficiency of the solar modules. Higher efficiency modules can generate more wattage per square footage than typical modules. Though high-efficiency modules are more expensive up-front, the increased energy production can still achieve stronger financial benefits over time depending on the utility savings and incentive programs.

String inverters are included in all the above cost estimates. String inverters, as opposed to micro-inverters, enable an array to have inverters centralized on a roof or in an electrical room. This will generally result in a less expensive installation as there is less equipment to procure and install.

Opportunity for a ground mount system

Solar arrays placed in a large field or open plot of land have distinct benefits and drawbacks. A key benefit is the flexibility to install a solar array independent of a building’s available roof space or structural limitations. A general rule of thumb is to estimate 6-8 acres per megawatt of solar. A key drawback is the limitation of land directly next to the property it intends to power. Finally, depending on the location of a ground mount system, environmental permits or other land use issues can also impact the feasibility of a project.

Many ground mount systems use tracking equipment where solar panels move with the sun throughout the course of the day. This can significantly boost energy production over the course of a year. In an area like Buckley, a tracking system can produce up to 1,220 kWh/kW/year, a 20% increase over a stationary rooftop system.

A key cost benefit of a large project is from the economies of scale of a large ground mount project, which large (10+ megawatt) projects around the country routinely reaching $1.00/watt for equipment and construction costs. This price point does not include the soft costs of developing a project, nor does it include ongoing costs from leasing land or maintaining an array. For a smaller project around one megawatt in size, the all-in installation cost could range from $1.25-$1.75/watt. Much of this range depends on permitting, engineering costs, any additional transmission requirements for connecting the system to the building load.

Electrical or structural engineering requirements

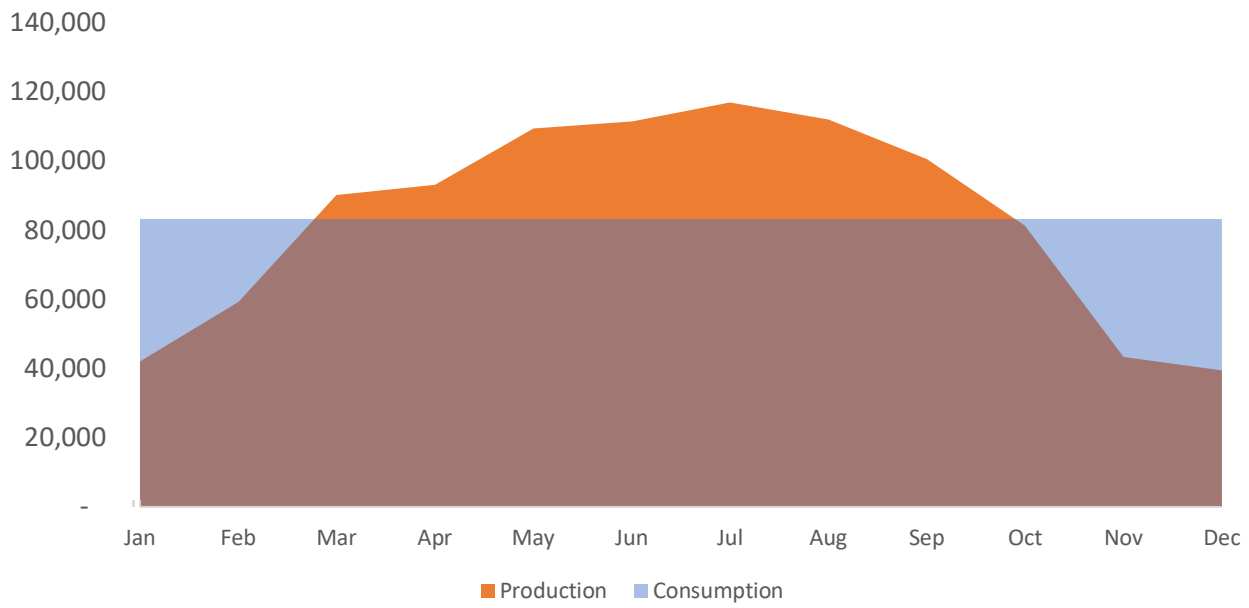
For rooftop solar arrays, an official structural review of building plans and the proposed system's weight per square foot is recommended before installation can begin. Ballasted systems can have a range of weight per square foot of three to seven pounds per square foot, so adequate structural support is sometimes not available, especially for older roofs.

While electrical engineering requirements are certainly more onerous for larger systems, the engineering process is fairly streamlined at this point. Multi-megawatt solar projects have become commonplace projects, so no insurmountable engineering requirements are anticipated for a project of this size.

Impact of solar energy production on overall energy consumption

The below graph visualizes monthly energy production based on seasonal weather and solar exposure. The net zero energy impact is achieved on an annual basis, which means there are several months in the year when the properties are consuming energy from the grid but will export power in the summer.

The below chart shows the shape of solar production versus energy consumption for a building with a 1,000kW solar array located in the Pacific Northwest. The chart demonstrates a building where all 1,000,000kWh of demand is being matched by 1,000,000kWh of solar over the course of a year (chart assumes uniform monthly energy use).



Net metering and required interconnection agreements for large projects

To balance the variation in consumption and production, most utilities (including Puget Sound Energy and Seattle City Light) offer a billing framework called Net Metering which allows customers to export excess energy to the grid at times when production is more than consumption. Exported energy generates cumulative bill credits which can be used during evening hours, during low-production days, and of course throughout the winter.

Current Washington law requires utilities to net meter projects up to 100 kilowatts. Projects over 100kW in size will require negotiations with the electric utility on a rate for exported energy. As of 2018, Seattle City Light has no standard rate for exporting projects over 100kW. Two known projects have received custom PPAs with Seattle City Light. Puget Sound Energy's export rate follows the much friendlier PURPA framework, explained below.

The Public Utility Regulatory Policies Act of 1978 (PURPA) allows renewable energy from "qualifying facilities" (QFs) to sell their electric generation to local utilities. Terms of the contract include an agreed-upon monthly or annual payment rate for the power, and an agreed-upon term, typically up to 20 years but sometimes as short as five years. For utilities to entertain a power purchase agreement under PURPA with these independent power producers, the projects must be developed at or below the utility's avoided cost -- in other words what the utility would have to pay for another source of generation.

PSE negotiates PURPA-driven renewable-energy PPAs under its Schedule 91 tariff. Those parameters require that the Qualifying Facility be located within PSE's service territory and be no larger than 5MW. For 2018, PSE's Schedule 91 proscribes a "rate for purchase of energy" at $37.05/MWh which escalates by 2.5% every year for the following 15 years. The $37.05/MWh ($0.03705/kWh) starting rate reflects PSE's projected avoided cost of buying power from other sources at the time the contract is negotiated. Notably, PPA's starting rate can change

substantially over time, subject to a utility's projections of future avoided costs of acquiring electricity. As recently as 2016, the going rate for PURPA projects in PSE's territory was projected to be $64.29 for projects contracted in 2018. The current 2018 starting PPA rate of $37.05 represents a 40% decrease from 2016 projections.

The Washington Utilities & Transportation Commission has a proceeding open to revamp the PURPA process for PSE and the other investor-owned Washington utilities. The results of Docket UE-161024 are due expected around Q3 of 2018.

Interconnection studies for large projects

In addition to negotiating an export rate with the utility, the shoreline project would also be subject to Bonneville Power Administration's "Small Generator Interconnection" process applies for a single or aggregate set of generators whose single or combined nameplate generating capacity is 0.2-20MW (575 to 50,000 solar panels). We do not believe a project in PSE's territory would trigger BPA's interconnection study.

Application for interconnection must include a $2,500 deposit and demonstration of site control. Upon application, the BPA convenes a group of internal as well as Seattle City Light experts for a Scoping Meeting to determine which studies, if any, are needed for a given project. Each study has its own deposit and timeline, typically 15-45 business days, and most of the studies are bookended by the time it takes to schedule check-in meetings with key stakeholders. For any deposits made for any stage in the process, a balance left on the work order is refunded back to the project's owner - the BPA does not keep any unspent deposits.

Notably, should the utility need to upgrade its interconnection facilities, distribution, and/or transmission infrastructure to accommodate the new generation asset, these costs, which could reach as much as $100,000 for a megawatt project, are typically borne by the project's owner and billed by the utility on a bi-monthly basis as construction progresses. The customer must also demonstrate proof of insurance and long-term financial viability for the project's final approval.

Incentives, tax credits, or third-party owners

A 30% federal tax credit is available to solar project owners if a project is installed before December 2019. This rate decreases to 28% in 2020 and 26% in 2021. Since DSHS is not a tax-paying entity, it would not benefit from this tax credit. However, a third-party entity that finances and owns the solar array could benefit from these tax credits and pass on the relative savings to DSHS through a power purchase agreement.

Several public projects have benefitted from grants from the Washington state Department of Commerce. This grant program annually pays out a few million dollars per year in grants to public entities including schools, local municipalities, ports, and other eligible public entities. This project should be a good candidate for these grants.

This project would be eligible for production incentives as part of the newest Washington State solar incentive program. Incentives are paid according to the kilowatt-hours produced by a system in a given year up to a maximum annual payment of $25,000. Incentives are paid once annually for eight years following a complete installation. Made in Washington solar panels are eligible for an additional per kilowatt hour bonus. Unlike the prior incentive program, no additional incentive is paid for Made in Washington inverters. The below table shows the per kilowatt hour rate for projects based on installation date, since incentive payments step down each year until June 30, 2021 when the program closes to new participants.

Installed by	Incentive rate	Washington made bonus	Incentive for 1MW
June 30, 2019	$0.04/kWh	$0.04/kWh	Maxes at $25,000
June 30, 2020	$0.02/kWh	$0.03/kWh	$20,000-$25,000
June 30, 2021	$0.02/kWh	$0.02/kWh	$20,000-$25,000

Even at the lowest rate in 2021 of $0.02/kWh for out of state solar panels, a one-megawatt system will still nearly max out at $25,000 per year in incentives or $200,000 over 8 years. As such, the declining per-kilowatt-hour rate would not really affect a system of this size since the payments will almost always max out at $25,000 per year.

It's worth noting that this incentive program operates on a limited budget and funds are expected to be exhausted before June 2021. As such, there's a chance that no incentive funds will be available for this project by the time a solar installation is completed. The statewide budget established for the incentive program is $110,000,000. Each participating utility also has a budget equal to 1.5% of its gross electricity sales revenue. Several small utilities have already reached their program budget. We anticipate that the statewide budget will be reached before Seattle City Light or Puget Sound Energy reach their individual budgets.

Overall recommendation

The Buckley site is likely a better overall option for solar based solely on the premise that Puget Sound Energy has a better framework for accommodating projects larger than 100kW. While Shoreline has a slightly higher solar production per year, the overall difference is relatively negligible. At this time, we see no reason why installation cost would differ substantially between the two locations. An exact solar design and estimate comparison can be provided once final building designs are available.

About the company performing this assessment

This assessment was prepared by A&R Solar, a seasoned solar installer operating in Oregon and Washington. Since 2007, A&R Solar has installed nearly 17,000 kilowatts of solar around the Pacific Northwest, including half of the community solar in Washington and many of the region's largest rooftop systems.

A&R Solar is an employee-owned Social Purpose Corporation and a Certified B Corp. A&R Solar is certified as a Small Business Enterprise by the Washington State Office of Minority & Women's Business Enterprises.

Our team has more NABCEP (North American Board of Certified Energy Practitioners) certified solar professionals than any other solar installer in the Pacific Northwest.

Learn more about A&R Solar at www.a-rsolar.com.

ADL	Activities of Daily Living
ANSI	American National Standards Institute
CMS	Centers for Medicare & Medicaid Services
CNA	Certified Nursing Assistant
CNS	Clinical Nurse Specialist
DDA	Developmental Disabilities Administration
DoN	Director of Nursing
DSHS	Department of Social and Health Services
HHS	U.S. Department of Health and Human Services
ICF	Intermediate Care Facility
IT	Information Technology
LTC	Long-Term Care
MDS	Minimum Data Set
NA	Nurse Aide or Nursing Assistant
NF	Nursing Facility
NP	Nurse Practitioner
OFM	Washington State Office of Financial Management
PA	Physician Assistant
PAT	Program Area Team
QAPI	Quality Assurance and Performance Improvement standards for compliance, ethics, and infection control
RoP	Medicare and Medicaid Requirements of Participation
RN	Registered Nurse
SNF	Skilled Nursing Facility
SOLA	State Operated Living Alternatives (contracted community residential services)
USGS	U.S. Geological Survey

LIND INDUSTRIES INC. dba
LIND
LAUNDRY SYSTEMS

EXHIBIT L - LAUNDRY COST ANALYSIS FOR A NEW LAUNDRY FACILITY OF 7000 SF SERVING RAINIER.

(206) 517-5463
FAX (206) 517-5493

April 9, 2018

Washington State DSHS
Larry Covey - Capital Project Manager
Operations Support and Services Division
PO BOX 45848
MS: 45848
OLYMPIA, WA 98597 Email: Larry.Covey@dshs.wa.gov

Conceptual Laundry Fircrest School Shoreline, WA

Task – 70,000 pounds a month to be processed in a 40-hour work week.

70,000 lbs./month ÷ 4.33 weeks= 16,167 lbs. per week
16,167 lbs. ÷ 40 hour per week = 404 lbs. per hour to be produced.

Laundry equipment

QTY	Equipment/Description (See Attachments for Additional Detail)	Unit Price	Total Price
2	Braun Medicare Top-Side Loading Washer/Extractor	$108,840.00	$217,680.00
1	Braun Natural Gas Fired Dryer	$119,140.00	$119,140.00
1	Braun Precision Series® 2-Roll, 32in. Ø Steam-Heated Ironer	$181,965.00	$181,965.00
1	Braun Precision Series® 4 Lane 2 Fold Primary/1 Lane 3 Fold Cross Folder	$77,978.40	$77,978.40
1	Braun Precision Series® Small Piece Folder	$45,775.00	$45,775.00
1	125 lbs. Unimac Washer	$36,953.00	$36,953.00
1	170 lbs Unimac Dryer	$16,234.00	$16,234.00
2	Platform Scales with Printers		$7,494.00
2	Electric Hoists		$4,800.00
1	5 hp Air Compressor System		$4,650.00
40	Landry Carts & Slings (about 40 each)		$25,000.00

New and Used Equipment For The Laundry Industry
9615 STONE AVE N • SEATTLE WA 98103-3337

LIND INDUSTRIES INC. dba
LIND
LAUNDRY SYSTEMS

April 9, 2018

Water System

QTY	Equipment/Description (See Attachments for Additional Detail)	Unit Price	Total Price
1	TEA TR-2 Wastewater Heat Recovery System	$63,495.00	$63,495.00
1	TEA 800 GAL Stainless Steel Hot Water Storage Tank	$8,570.00	$8,570.00
1	TEA Steam Immersion Water Heating System	$9,025.00	$9,025.00
1	TEA Steam Steel Tempered Water Storage Tank	$8,199.00	$8,199.00
1	TEA Triple Pumping Package - 5 HP	$18,895.00	$18,895.00

100 HP Steam Boiler System

QTY	Equipment/Description (See Attachments for Additional Detail)	Unit Price	Total Price
1	90 to 100 hp Steam Boiler System	$95,950.00	$95,950.00

Estimated figures do not include allowances for freight or installation.

Thank You,

Neil Lind
Lind Industries, Inc d.b.a.
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October 1, 2018

Sage Architectural Alliance
Valerie Thiel
Tel: 206-694-3441
Email: Val@SageArchAlliance.com

Conceptual Laundry Fircrest School Shoreline, WA

Task – 70,000 pounds a month to be processed in a 40-hour work week.

70,000 lbs./month ÷ 4.33 weeks= 16,167 lbs. per week
16,167 lbs. ÷ 40 hour per week = 404 lbs. per hour to be produced.

Hours each piece of equipment will operate per shift to accomplish the task.

Laundry equipment

1	Braun Precision Series® 2-Roll, 32in. Ø Steam-Heated Ironer	6 hours
1	Braun Precision Series® 4 Lane 2 Fold Primary/1 Lane 3 Fold Cross Folder	6 hours
1	Braun Precision Series® Small Piece Folder	4 hours
1	125 lbs. Unimac Washer	4 hours
1	170 lbs Unimac Dryer	4 hours
2	Platform Scales with Printers	1 hour each
2	Electric Hoists	2 hours each
1	5 hp Air Compressor System	4 hours
40	Landry Carts & Slings (about 40 each)	
1	Soil Sorting System - 1 hp	6 hours

New and Used Equipment For The Laundry Industry
9615 STONE AVE N • SEATTLE WA 98103-3337

LIND INDUSTRIES INC. dba
LIND
LAUNDRY SYSTEMS

September 17, 2018

Water System

QTY	Equipment/Description (See Attachments for Additional Detail)	
1	TEA TR-2 Wastewater Heat Recovery System	7 hours
1	TEA 800 GAL Stainless Steel Hot Water Storage Tank	no req
1	TEA Steam Immersion Water Heating System	no req
1	TEA Steam Steel Tempered Water Storage Tank	no req
1	TEA Triple Pumping Package - 5 HP	4 hours
1	TEA DC-2 Direct Contac Stack Economizer	no req

100 HP Steam Boiler System

QTY	Equipment/Description (See Attachments for Additional Detail)	
1	90 to 100 hp Steam Boiler System	8 hours

Thank You,

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ASSUMPTIONS

The following narratives for each mechanical system are described by the following headings as follow:

- Mechanical Code Analysis
- Net Zero Energy Mechanical Systems
- New Construction Madrona Site
  - Net Zero Energy Equipment Sizes
- Laundry Building Mechanical Systems

MECHANICAL CODE ANALYSIS

Applicable codes and standards shall include, but not necessarily be limited to:

- 2018 FGI Guidelines for Design and Construction of Residential Health Care, and Support Facilities.
- 2015 Health Care Facilities Code (NFPA 99)
- 2015 Washington State Energy Code
- Uniform Plumbing Code, by International Association of Plumbing and Mechanical Officials.
- International Mechanical Code, by International Code Council.
- International Building Code, by International Code Council.
- Requirements of OSHA, EPA and WISHA.
- National Fire Protection Association Codes.
- ASME codes for boiler and pressure vessels.
- SMACNA HVAC Duct Construction Standards, latest edition.
- All local and state amendments.
- Requirements of all agencies have jurisdictional authority over installation of mechanical systems.

NET ZERO ENERGY MECHANICAL SYSTEMS

Fire Protection

Fire protection system will be a wet sprinkler system and will provide coverage to all spaces. The fire protection system will include the following, but not necessarily be limited to:

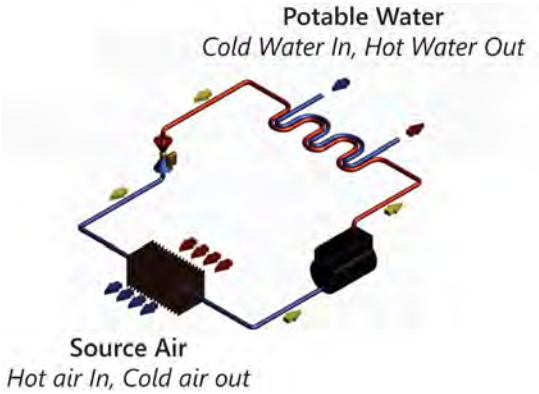
- Belowground fire service to building
- Backflow preventer (double check valve assembly)
- Wet sprinkler piping
- Wet pipe alarm check valve
- Fire Department inlet connection
- Supervisory (tamper) switches
- Water flow switches
- Zone control valves
- Isolation and check valves
- Inspector's test connection
- Sprinkler heads
- Seismic restraints
- In new construction, crawl space will not be sprinkled.

Plumbing System

Domestic cold water service to the building will be connected to the campus water distribution loop with water meter and backflow preventer at the building service connection. The backflow preventer will be installed in the mechanical room with floor drain.

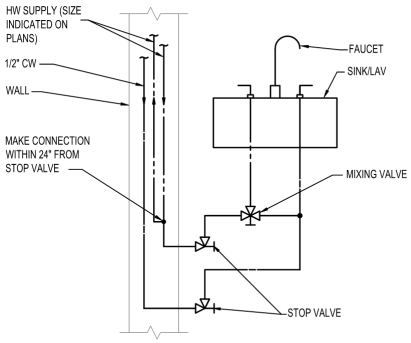
Domestic hot water system will be based on an air source heat pump water heater. The hot water heater will be similar to Colmac Waterheat model HPA7 Propeller Fan with hot water storage tank. The hot water will be circulated through the system by circulated pump to maintain constant temperature in the piping. The hot water heater will maintain minimum of 145 deg F to minimize the potential growth of

legionella and 125 deg F water will be distributed through the building through thermostatic mixing valve. 125 deg F hot water will be further reduced to 110 deg F at the sink by the local thermostatic mixing valve. The plumbing system will be designed to include the consideration of Legionella response per 2018 FGI Guideline Section A2.5-2.2.3. The hot water system will be connected to the adjacent hot water system to provide back up in the event of the hot water heater failure or the maintenance service shut down. The inter connecting piping will be normally closed and opened during backup.



Air Source Heat Pump Water Heater

Cold & Hot Water design will include consideration to minimize piping dead legs to prevent any growth within the piping system. In addition, hot water piping loop will be routed in the wall from the ceiling to plumbing fixture stop valve within 12 inches, so that each fixture will receive hot water immediately to minimize water waste. Each faucet will have laminar flow type low flow discharge tips (non-aerated). All hand washing sink including wall mounted lavatory will be selected without an over flow outlet.



1 SINK/LAVATORY TYPICAL PIPING CONNECTION DIAGRAM
SCALE: NONE

Hot water temperature to laundry washing machine will be raised to 165 deg F for proper sanitization of the soiled materials.

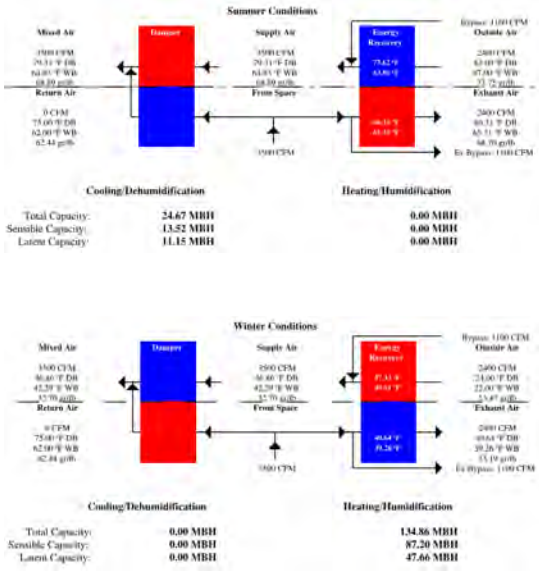
The plumbing system will include the following, but not necessarily be limited to:

- Domestic Water Service Meter
- Belowground domestic water service to the building
- Backflow Preventers
- Air Source Heat Pump Hot Water Heater
- Hot Water Storage Tank
- Electric Booster Hot Water Heater for laundry washing machine
- Roof Drainage, Waste and Vent Piping
- Indirect Waste Piping
- Hot and Cold Water Piping
- Hot Water Recirculation Piping and Circulating Pump
- Seismic Restraints
- Isolation Valves
- Hose Bibbs/Wall Hydrants
- Plumbing Fixtures and Trim
- Sewer Connection to Street
- Storm Connection to Street

HVAC

HVAC system will be based on a Variable Flow Refrigeration (VRF) system with Dedicated Outside Air System (DOAS).

DOAS system will be 100% outside air (OA) with energy recovery wheel and sized to provide required airflow and air changes per hour requirement per 2018 FGI Guidelines for Design and Construction of Residential Health Care, and Support Facilities. DOAS unit will be a heat pump type packaged roof top unit similar to AAON RN Roof Top Unit with Energy Recovery System. DOAS OA air intake will be minimum of 36 inches above finished roof elevation as required by FGI Guidelines.



Typical DOAS RTU with Energy Recover System Diagram

100% conditioned outside air will be distributed to each space through insulated ductwork.

Each space will be heated and cooled by VRF fan coil unit (FCU). Wall mounted type will be used for bedrooms and ceiling cassette type will be used for Living Rooms, Activity Rooms, TV Rooms, and other support rooms. Wall or ceiling mounted units will be used and will not require closet or floor space for installation and minimizes the total building square foot requirements. Air cooled outdoor unit will be located on the roof within the sloped roof well. The installation of the roof top equipment will include the review of the noise and the vibration to minimize any transmission to the occupied space below.

Wall Mounted Unit

Ceiling Cassette Unit

Exhaust will be provided to shower rooms, toilet rooms, and soiled rooms and collected through the ductwork. Exhaust fan will be located on the roof and will

discharge air minimum of 25 feet away from DOAS air intake.

The building Direct Digital Control (DDC) system will be connected to the campus control system and all major equipment will be monitored through the DDC system operator's work station in the maintenance building.

The HVAC system will include the following, but not necessarily be limited to:

- VRF Air Cooled Condenser
- VRF Room Air Conditioner
- Refrigeration Piping
- Condensate drain piping
- DOAS Roof Top Unit
- Energy Recovery System
- Self-Contained Unitary Air Conditioner/Heat Pump
- Heat Recovery Equipment
- Ductwork
- Diffusers, Registers and Grilles
- Electric Infrared Unit Heaters for covered court yard
- HVAC Control Systems
- Seismic Restraints

LAUNDRY BUILDING MECHANICAL SYSTEMS

Fire Protection

Fire protection system will be a wet sprinkler system and will provide coverage to all spaces. The fire protection system will include the following, but not necessarily be limited to:

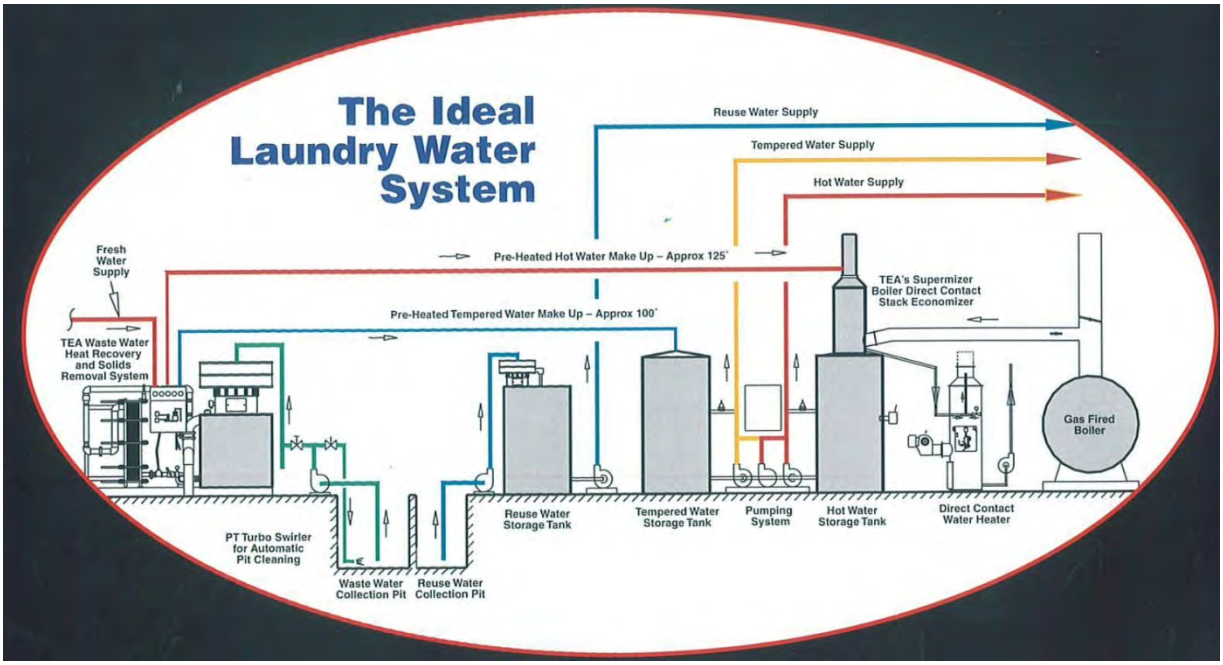
- Belowground fire service to building
- Backflow preventer (double check valve assembly)
- Wet sprinkler piping
- Wet pipe alarm check valve
- Fire Department inlet connection
- Supervisory (tamper) switches
- Water flow switches
- Zone control valves
- Isolation and check valves
- Inspector's test connection
- Sprinkler heads
- High temperature rated sprinkler head in the laundry equipment area.
- Seismic restraints
- In new construction, crawl space will not be sprinkled.

Plumbing System

4" Domestic cold water service to the building will be connected to the campus water distribution loop with water meter and backflow preventer at the building service connection. The backflow preventer will be installed in the mechanical room with floor drain. Additional backflow preventers will be provided for laundry equipment cold water & hot water systems and steam boiler makeup water system.

Domestic hot water system for toilet rooms will be based on the single point of use tankless electric water heater similar to Rheem RTEX-04. Laundry equipment hot water heater will be generated from the steam immersion water heating system. The hot water will be stored in stainless steel storage tank. The hot water will be circulated through the system by circulated pump to maintain constant temperature in the piping. The hot water temperature will be based on the laundry equipment requirements. The plumbing system will be designed to include the consideration of Legionella response per 2018 FGI Guideline Section A2.5-2.2.3.

Cold & Hot Water design will include consideration to minimize piping dead legs to prevent any growth within the piping system. In addition, hot water piping loop will be routed in the wall from the ceiling to plumbing fixture stop valve and the laundry equipment within 12 inches, so that each fixture and equipment will receive hot water immediately to minimize water waste.



The waste water heat recovery system will recover heat from the waste water and the system will temper cold water that will be used for the laundry process. Tempered water will be stored in the tempered water storage tank. It is estimated to recover approximately 30% to 40% of heat (energy) from the waste water. The waste water heat recovery will consist of plate heat exchanger, shaker screen to remove suspended solids, and associated control system to optimize the energy recovery.

The plumbing system will include the following, but no necessarily be limited to:

- Domestic Water Service Meter
- Belowground domestic water service to the building
- Backflow Preventers for building service entrance and additional backflow preventers for laundry equipment water supply connections.
- Single point of use tankless electric water heater for toilets.
- Steam boiler vent.
- 90 to 100 hp Steam Boiler System*
- Direct Contact Stack Economizer*
- Steam immersion water heater*
- Steel Tempered Water Storage Tank*
- S.S. Hot Water Storage Tank*
- Pumping package*
- Gas Fired Dryer*
- Steam heated ironer*
- Washer*
- Dryer*
- Air compressor*
- Waste water heat recovery system*
- Roof Drainage, Waste and Vent Piping
- Indirect Waste Piping
- Hot and Cold Water Piping

- Hot Water Recirculation Piping and Circulating Pump
- Seismic Restraints
- Isolation Valves
- Hose Bibbs/Wall Hydrants
- Plumbing Fixtures and Trim
- Sewer Connection to Street
- Storm Connection to Street

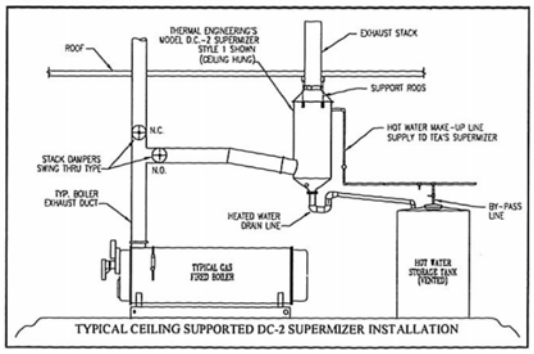
"*" indicates the equipment/system that are part of the laundry equipment which are not furnished by the plumbing/mechanical contractor. The required piping connections will be provided by the plumbing/mechanical contractor.

HVAC

HVAC system will be based on a split DX heat pump, wall mounted indoor unit and outdoor unit for office room and a support room. Each unit will be sized for 6,000 btuh (200 cfm each). Outside air will be provided from the Dedicated Outside Air System (DOAS) unit with plate heat exchanger with supply fan & exhaust fan (100 cfm system).

The laundry area will be conditioned by three (3) packaged DX heat pump roof top units, each sized for 20 ton or 240 mbh. The supply air will be distributed through the exposed ductwork in the space. The return and exhaust air openings will be located to capture the heat from the equipment and will be exhausted to outdoor and/or returned to the units.

Gas fired steam boiler serving the laundry equipment will be equipped with Direct Contact Stack Economizer to re-claim energy from the flue gas and will temper the cold and hot water used for laundry equipment. It is estimated to recover approximately 30% to 40% of heat (energy) from the flue gas. The flue gas energy recovery system will consist of heat exchanger, dampers, actuators, and associated control system to optimize the energy recovery.



Direct Contact Stack Economizer Diagram

The building Direct Digital Control (DDC) system will be connected to the campus control system and all major equipment will be monitored through the DDC system operator's work station in the maintenance building.

The HVAC system will include the following, but not necessarily be limited to:

- Split DX heat pump wall mounted indoor and outdoor unit for Office and support rooms
- Refrigeration Piping
- Condensate drain piping
- DOAS plate heat exchanger energy recovery ceiling mounted unit.
- Packaged DX Unitary Air Conditioner/Heat Pump Roof Top Unit for laundry area conditioning
- Ductwork
- Diffusers, Registers and Grilles
- HVAC Control Systems
- Seismic Restraints
- Miscellaneous exhaust system and fans for laundry equipment
- Steam boiler vent.

- 90 to 100 hp Steam Boiler System*
- Direct Contact Stack Economizer*
- Steam immersion water heater*
- Steel Tempered Water Storage Tank*
- S.S. Hot Water Storage Tank*
- Pumping package*
- Gas Fired Dryer*
- Steam heated ironer*
- Washer*
- Dryer*
- Air compressor*
- Waste water heat recovery system*

"*" indicates the equipment/system that are part of the laundry equipment which are not furnished by the plumbing/mechanical contractor. The required piping, venting, and duct connections will be provided by the plumbing/mechanical contractor.

Energy Cost Budget / PRM Summary

By WOOD HARBINGER INC.

Project Name: Fircrest and Rainier School Nursing Fac	Date: October 09, 2018
City: Buckley WA	Weather Data: Seattle, Washington

Note: The percentage displayed for the "Proposed/ Base %" column of the base case is actually the percentage of the total energy consumption.

* Denotes the base alternative for the ECB study.

		* Alt-1 Utility Bldg Costs		
		Energy 10^6 Btu/yr	**Proposed / Base %**	**Peak kBtuh**
Lighting - Conditioned	Electricity	99.4	4	21
Space Heating	Electricity	12.2	0	4
	Gas	1,301.3	51	533
Space Cooling	Electricity	83.6	3	146
Pumps	Electricity	56.3	2	17
Heat Rejection	Electricity	7.0	0	12
Fans - Conditioned	Electricity	365.8	14	149
Receptacles - Conditioned	Electricity	375.6	15	292
	Gas	236.2	9	200
Total Building Consumption		**2,537.4**		

		* Alt-1 Utility Bldg Costs
Total	**Number of hours heating load not met**	0
	Number of hours cooling load not met	0

	* Alt-1 Utility Bldg Costs	
	Energy 10^6 Btu/yr	**Cost/yr $/yr**
Electricity	999.8	33,877
Gas	1,537.6	41,045
Total	**2,537**	**74,922**

ALTERNATIVE L3 - NEW CONSTRUCTION COST BREAKDOWN

THE ROBINSON COMPANY

PROJECT: NURSING FACILITY AT FIRCREST SCHOOL - LAUNDRY
LOCATION: SHORELINE, WA
BLDG SF: 7,000
ESTIMATE: 2018096
EST TYPE: COST MODEL

DIVISION	DESCRIPTION		TOTAL	$/SF
A10	FOUNDATIONS		140,000	20.00
B10	SUPERSTRUCTURE		126,000	18.00
B20	EXTERIOR CLOSURE		583,645	83.38
B30	ROOFING		160,050	22.86
C10	INTERIOR CONSTRUCTION		216,584	30.94
C30	INTERIOR FINISHES		158,705	22.67
D20	PLUMBING		491,000	70.14
D30	HVAC		556,000	79.43
D40	FIRE PROTECTION		64,500	9.21
D50	ELECTRICAL		744,100	106.30
E10	EQUIPMENT		1,290,079	184.30
E20	FURNISHINGS		7,500	1.07
G10	SITE PREPARATION		89,556	12.79
G20	SITE IMPROVEMENTS		42,000	6.00
G30	SITE CIVIL / MECHANICAL UTILITIES		159,800	22.83
G40	SITE ELECTRICAL UTILITIES		25,000	3.57
Z10	GENERAL REQUIREMENTS		250,000	35.71
	ESTIMATE SUBTOTAL		**5,104,519**	**729.22**
	DESIGN CONTINGENCY @	10.00%	510,452	
	SUBTOTAL		5,614,970	
	GENERAL CONTRACTOR'S OH & P @	8.00%	449,198	
	TOTAL		**6,064,168**	**866.31**

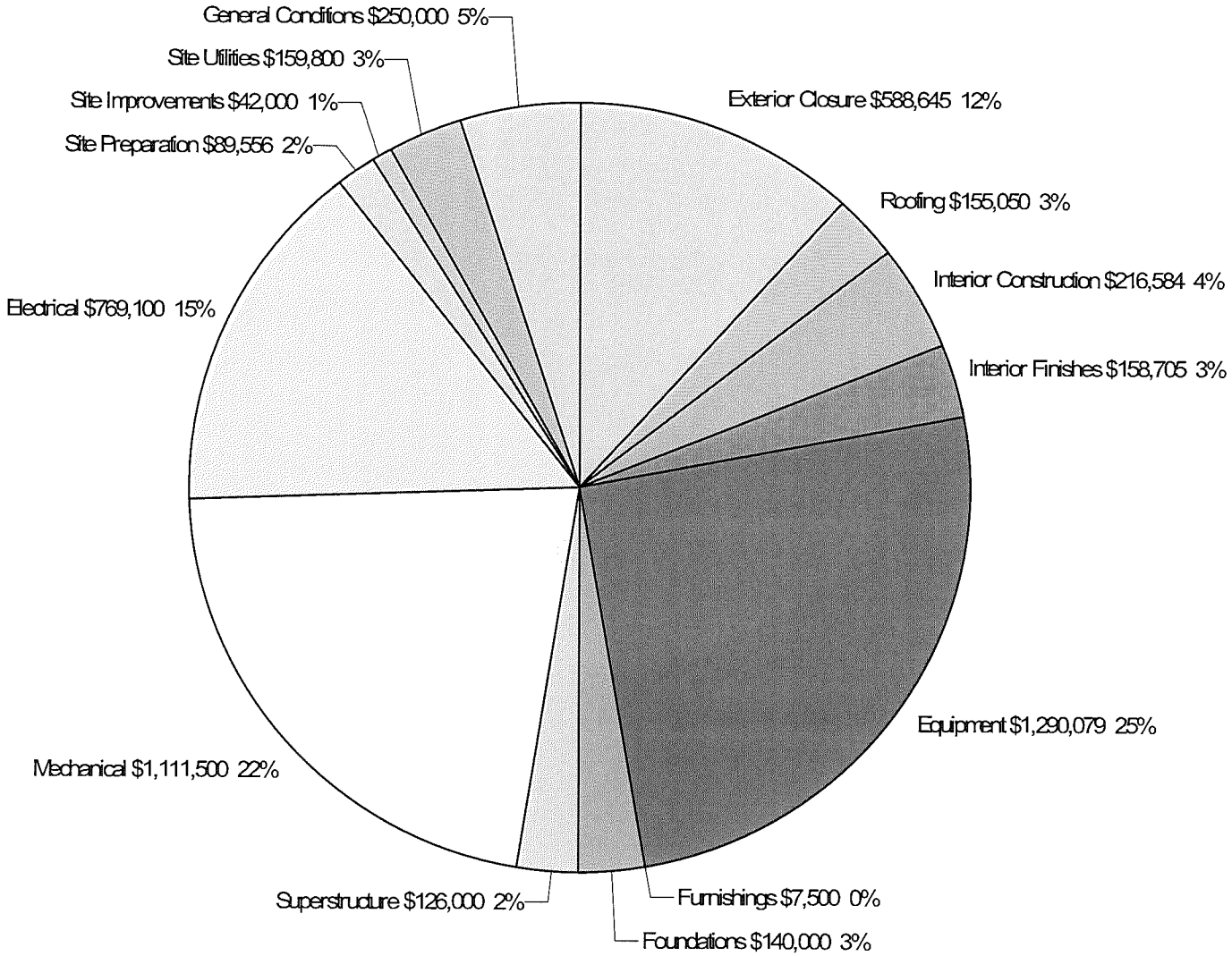
EXCLUSIONS:
SEE ESTIMATE SUMMARY

PROJECT: NURSING FACILITY AT FIRCREST SCHOOL - LAUNDRY
LOCATION: SHORELINE, WA
BLDG SF: 7,000
ESTIMATE: 2018096
EST TYPE: COST MODEL

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	$/SF
A10	**FOUNDATIONS**					
03300	SLAB ON GRADE	7,000	SF	8.00	56,000	
03310	FOUNDATIONS	7,000	SFA	12.00	84,000	
A10	**FOUNDATIONS**			**DIVISION TOTAL**	**140,000**	**20.00**
06110	WOOD ROOF FRAMING	7,000	SFA	18.00	126,000	
6110	EXTERIOR WALL W/O INT FACE	6970	SF	$19.00		
6110	MISC FRAMING @ GLAZING	1530	SF	$10.00		
7450	HARDI REVEAL	6970	SF	$24.00		
7450	MISC FLASHING/TRIM	8500	SFA	$2.00		
8110	EXT DOORS/FRM/HRDWRE	3	EA	$2,500.00		
8110	OVERHEAD DOORS	3	EA	$4,000.00		
8500	EXT GLAZING-ALLOW 18% DOUBLE GLAZED	1530	SF	$72.00		
9260	WATER RESISTANT BOARD/EPOXY PAINT	6970	SF	$15.00		
9910	EXTERIOR PAINTING/SEALING	6970	SFA	$2.50		
7210	R-60 BLOWN-IN INSULATION	7000	SF	$3.65		
7500	MEMBRANE ROOF SYSTEM	7000	SF	$15.00		
7620	MISC FLASHING/SHEET METAL	7000	SF	$2.50		
7710	FALL PROTECTION ALLOWANCE	7000	SFA	$1.00		
7720	ROOF HATCH W/LADDER	1	EA	$5,000.00		
8200	INT. DR/FRM/HRDWRE	14	EA	$1,750.00		
8500	INTERIOR RELITES/SIDE LITES ALLOWANCE	120	SF	$50.00		
9260	INTERIOR WALLS	5782	SF	$12.00		
9260	PREMIUM FOR WR BOARD AND EPOXY PAINT	5780	SF	$15.00		
10000	MISC SPECIALTIES/SIGNAGE	7000	SFA	$3.00		
10000	TOILET PARTITIONS/ACCESSORIES	1	LS	$9,000.00		
6250	FINISH/ROUGH CARPENTRY ALLOWANCE	7000	SFA	$3.00		
9300	TILE AT RESTROOMS	910	SF	$18.00		
9500	WASHABLE CEILING TILES/GWB MIX	7000	SF	$6.50		
9600	POLISHED/STAINED CONCRETE FLOOR	6000	SF	$8.50		
9600	TILE AT RESTROOM FLOORS	300	SF	$18.00		
9680	CARPET AT OFFICE	700	SF	$5.25		
9700	INTERIOR PAINTING	7000	SFA	$2.25		
15410	PLUMBING	1	LS	$491,000.00		
	PER A/E					
15700	HEATING/VENTILATION	1	LS	$556,000.00		
	PER A/E					
15300	SPRINKLERS	1	LS	$64,500.00		
	PER A/E					
16000	ELECTRICAL	7000	SFA	$83.00		
	PER A/E					
16400	LOW VOLTAGE WORK	7000	SFA	$8.60		
	PER A/E					
16700	LIFE SAFETY	7000	SFA	$14.70		
	PER A/E					
11000	MISC EQUIPMENT/APPLIANCES	1	LS	$7,500.00		
11440	COMMERCIAL LAUNDRY EQUIPEMT	1	LS	###########		
	PER LIND					

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	$/SF
11440	DELIVERY AND INSTALLATION-ALLOWANCE	1	LS	$150,000.00		
12000	CABINETS @ MEETING ROOM	1	LS	$7,500.00		
2220	DEMO/FILL STEAM TUNNELS-ALLOWANCE	1	LS	$25,000.00		
2220	FINE GRADING	12250	SF	$0.35		
2220	SITE DEMO/STRIPPING	12500	SFA	$1.00		
2220	UTILITY DEMO/ABANDON/RELOCATE	1	LS	$5,000.00		
2315	EXCAVATE AND PLACE ONSITE-ALLOW	486	CY	$18.00		
2315	EXCAVATE/HAUL/IMPORT-TRUCK YARDS	486	CY	$70.00		
2740	NEW PARKING AREA	5000	SF	$4.00		
2900	LANDSCAPING/LAWN/FURNISHINGS-ALLOWANCE	1	LS	$2,000.00		
3300	SIDEWALK ALLOWANCE	2500	SF	$8.00		
2510	BACKFLOW PREVENTORS/OTHER	1	LS	$25,000.00		
2510	FIRE HYDRANTS-ALLOW	1	EA	$5,000.00		
2510	WATER LINE-12"	200	LF	$85.00		
2530	GREASE INTERCEPTOR	1	LS	$35,000.00		
2530	SEWER LINE	200	LF	$45.00		
2550	GAS LINE	100	LF	$120.00		
2630	FOOTING DRAINS	340	LF	$20.00		
2630	STORM COLLECTION ALLOWANCE	1	LS	$50,000.00		
16520	SITE LIGHTING	1	LS	25,000	25,000	
01000	GENERAL CONDITIONS	1	LS	250,000	250,000	
				ESTIMATE SUBTOTAL	**478,000**	**68.29**

THE ROBINSON COMPANY



STATE OF WASHINGTON
AGENCY / INSTITUTION PROJECT COST SUMMARY

Agency	Department of Social and Health Services
Project Name	New Laundry Building
OFM Project Number	

Contact Information	
Name	Sage Architectural Alliance/The Robinson Company
Phone Number	206 556-4181/206 441-8872
Email	

Statistics			
Gross Square Feet	7,000	MACC per Square Foot	$866
Usable Square Feet	6,850	Escalated MACC per Square Foot	$966
Space Efficiency	97.9%	A/E Fee Class	B
Construction Type	Nursing homes	A/E Fee Percentage	8.53%
Remodel	No	Projected Life of Asset (Years)	
Additional Project Details			
Alternative Public Works Project	No	Art Requirement Applies	
Inflation Rate	3.12%	Higher Ed Institution	
Sales Tax Rate %	10.10%	Location Used for Tax Rate	
Contingency Rate	5%		
Base Month	June-18		
Project Administered By	Agency		

Schedule			
Predesign Start	June-18	Predesign End	October-18
Design Start	November-19	Design End	February-21
Construction Start	April-21	Construction End	October-22
Construction Duration	18 Months		

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Project Cost Estimate

Total Project	**$8,705,785**	Total Project Escalated	**$9,660,761**
		Rounded Escalated Total	**$9,661,000**

STATE OF WASHINGTON
AGENCY / INSTITUTION PROJECT COST SUMMARY

Agency	Department of Social and Health Services	
Project Name	New Laundry Building	
OFM Project Number		

Cost Estimate Summary

Acquisition			
Acquisition Subtotal	**$0**	**Acquisition Subtotal Escalated**	**$0**

Consultant Services			
Predesign Services	$0		
A/E Basic Design Services	$374,761		
Extra Services	$473,000		
Other Services	$228,371		
Design Services Contingency	$53,807		
Consultant Services Subtotal	**$1,129,939**	**Consultant Services Subtotal Escalated**	**$1,217,835**

Construction			
Construction Contingencies	$303,205	Construction Contingencies Escalated	$338,529
Maximum Allowable Construction Cost (MACC)	$6,064,109	Maximum Allowable Construction Cost (MACC) Escalated	$6,760,995
Sales Tax	$643,099	Sales Tax Escalated	$717,052
Construction Subtotal	**$7,010,413**	**Construction Subtotal Escalated**	**$7,816,576**

Equipment			
Equipment	$91,000		
Sales Tax	$9,191		
Non-Taxable Items	$0		
Equipment Subtotal	**$100,191**	**Equipment Subtotal Escalated**	**$111,864**

Artwork			
Artwork Subtotal	**$33,805**	**Artwork Subtotal Escalated**	**$33,805**

Agency Project Administration			
Agency Project Administration Subtotal	$341,438		
DES Additional Services Subtotal	$0		
Other Project Admin Costs	$0		
Project Administration Subtotal	**$391,438**	**Project Administation Subtotal Escalated**	**$437,041**

Other Costs			
Other Costs Subtotal	**$40,000**	**Other Costs Subtotal Escalated**	**$43,640**

Project Cost Estimate

Total Project	**$8,705,785**	Total Project Escalated	**$9,660,761**
		Rounded Escalated Total	**$9,661,000**

Cost Estimate Details

Acquisition Costs					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
Purchase/Lease					
Appraisal and Closing					
Right of Way					
Demolition					
Pre-Site Development					
Other					
Insert Row Here					
ACQUISITION TOTAL	**$0**		**NA**	**$0**	

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Cost Estimate Details

Consultant Services					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
1) Pre-Schematic Design Services					
Programming/Site Analysis					
Environmental Analysis					
Predesign Study					
Other					
Insert Row Here					
Sub TOTAL	**$0**		**1.0446**	**$0**	Escalated to Design Start
2) Construction Documents					
A/E Basic Design Services	$374,761				69% of A/E Basic Services
Other					
Insert Row Here					
Sub TOTAL	**$374,761**		**1.0649**	**$399,084**	Escalated to Mid-Design
3) Extra Services					
Civil Design (Above Basic Svcs)	$25,000				
Geotechnical Investigation	$15,000				
Commissioning	$20,000				
Site Survey	$15,000				
Testing	$40,000				
LEED Services	$25,000				
Voice/Data Consultant	$15,000				
Value Engineering	$25,000				
Constructability Review	$15,000				
Environmental Mitigation (EIS)	$30,000				
Landscape Consultant	$25,000				
ELCCA	$15,000				
LCCT	$15,000				
Reimburseables incl Reprographics prior to bid	$20,000				
Advertising	$3,000				
Traffic analysis	$7,500				
Envelope Consultant	$15,000				
Interior Design	$2,500				
Acoustic Design	$5,000				
Security Consultant	$10,000				
Audio Visual Consultant	$5,000				
Cost and Scheduling	$25,000				
Value Engineering Participation	$25,000				
Constructability Review Participation	$25,000				
Environmental Graphics/Signage	$10,000				
Lighting Consultant	$10,000				
Heatlhcare Services Consultant	$5,000				
Door Hardware Consultant	$5,000				
SEPA/Land Use	$20,000				
Sub TOTAL	**$473,000**		**1.0649**	**$503,698**	Escalated to Mid-Design

4) Other Services				
Bid/Construction/Closeout	$168,371			31% of A/E Basic Services
HVAC Balancing				
Staffing				
Commissioning and Training	$25,000			
Reimburseables/Reprographics for bid and construction	$15,000			
Construction Materials Testing	$20,000			
Insert Row Here				
Sub TOTAL	**$228,371**	**1.1165**	**$254,977**	Escalated to Mid-Const.
5) Design Services Contingency				
Design Services Contingency	$53,807			
Other				
Insert Row Here				
Sub TOTAL	**$53,807**	**1.1165**	**$60,076**	Escalated to Mid-Const.
CONSULTANT SERVICES TOTAL	**$1,129,939**		**$1,217,835**	

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Cost Estimate Details

Construction Contracts				
Item	**Base Amount**	**Escalation Factor**	**Escalated Cost**	**Notes**
1) Site Work				
G10 - Site Preparation	$106,393			
G20 - Site Improvements	$49,896			
G30 - Site Mechanical Utilities	$189,842			
G40 - Site Electrical Utilities	$29,700			
G60 - Other Site Construction				
Other				
Insert Row Here				
Sub TOTAL	**$375,831**	**1.0910**	**$410,032**	
2) Related Project Costs				
Offsite Improvements				
City Utilities Relocation				
Parking Mitigation				
Stormwater Retention/Detention				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.0910**	**$0**	
3) Facility Construction				
A10 - Foundations	$166,320			
A20 - Basement Construction				
B10 - Superstructure	$149,688			
B20 - Exterior Closure	$693,370			
B30 - Roofing	$190,080			
C10 - Interior Construction	$1,798,826			
C20 - Stairs				
C30 - Interior Finishes	$188,542			
D10 - Conveying				
D20 - Plumbing Systems	$583,308			
D30 - HVAC Systems	$660,528			
D40 - Fire Protection Systems	$76,626			
D50 - Electrical Systems	$883,991			
F10 - Special Construction				
F20 - Selective Demolition				
General Conditions	$297,000			
Other				
Insert Row Here				
Sub TOTAL	**$5,688,278**	**1.1165**	**$6,350,963**	
4) Maximum Allowable Construction Cost				
MACC Sub TOTAL	**$6,064,109**		**$6,760,995**	

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7) Construction Contingency				
Allowance for Change Orders	$303,205			
Other				
Insert Row Here				
Sub TOTAL	**$303,205**	**1.1165**	**$338,529**	
8) Non-Taxable Items				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.1165**	**$0**	
Sales Tax				
Sub TOTAL	**$643,099**		**$717,052**	
CONSTRUCTION CONTRACTS TOTAL	**$7,010,413**		**$7,816,576**	

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Cost Estimate Details

Equipment					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
E10 - Equipment	$35,000				
E20 - Furnishings	$35,000				
F10 - Special Construction					
IT Equip/computers/printers	$21,000				
Insert Row Here					
Sub TOTAL	**$91,000**		**1.1165**	**$101,602**	
1) Non Taxable Items					
Other					
Insert Row Here					
Sub TOTAL	**$0**		**1.1165**	**$0**	
Sales Tax					
Sub TOTAL	**$9,191**			**$10,262**	
EQUIPMENT TOTAL	**$100,191**			**$111,864**	

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Cost Estimate Details

Artwork					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
Project Artwork	$33,805				0.5% of Escalated MACC for new construction
Higher Ed Artwork	$0				0.5% of Escalated MACC for new and renewal construction
Other					
Insert Row Here					
ARTWORK TOTAL	**$33,805**		**NA**	**$33,805**	

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Cost Estimate Details

Project Management					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
Agency Project Management	$341,438				
Additional Services					
Additional Management/Administration	$50,000				
Insert Row Here					
PROJECT MANAGEMENT TOTAL	**$391,438**		**1.1165**	**$437,041**	

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Cost Estimate Details

Other Costs					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
Mitigation Costs					
Hazardous Material Remediation/Removal	$15,000				
Historic and Archeological Mitigation					
Permit and Plan Review Fees	$25,000				
Insert Row Here					
OTHER COSTS TOTAL	**$40,000**		**1.0910**	**$43,640**	

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LAUNDRY LIFE CYCLE MODEL

Life Cycle Cost Analysis - Project Summary

Agency	
Project Title	

Existing Description	

Lease Option 1 Description	

Lease Option 2 Description	

Ownership Option 1 Description	Fircrest Laundry

Ownership Option 2 Description	

Ownership Option 3 Description	

Lease Options Information	**Existing Lease**	**Lease Option 1**	**Lease Option 2**
Total Rentable Square Feet	-	-	-
Annual Lease Cost (Initial Term of Lease)	$ -	$ -	$ -
Full Service Cost/SF (Initial Term of Lease)	$ -	1/15/2023	$ -
Occupancy Date	n/a		
Project Initial Costs	n/a	$ -	$ -
Persons Relocating	-	-	-
RSF/Person Calculated			

Ownership Information	**Ownership 1**	**Ownership 2**	**Ownership 3**
Total Gross Square Feet	7,000	-	-
Total Rentable Square Feet	6,850	-	-
Occupancy Date	1/15/2023	3/15/2022	3/15/2022
Initial Project Costs	$ -	$ -	$ -
Est Construction TPC ($/GSF)	$ 1,406	$ -	$ -
RSF/Person Calculated	-	-	-

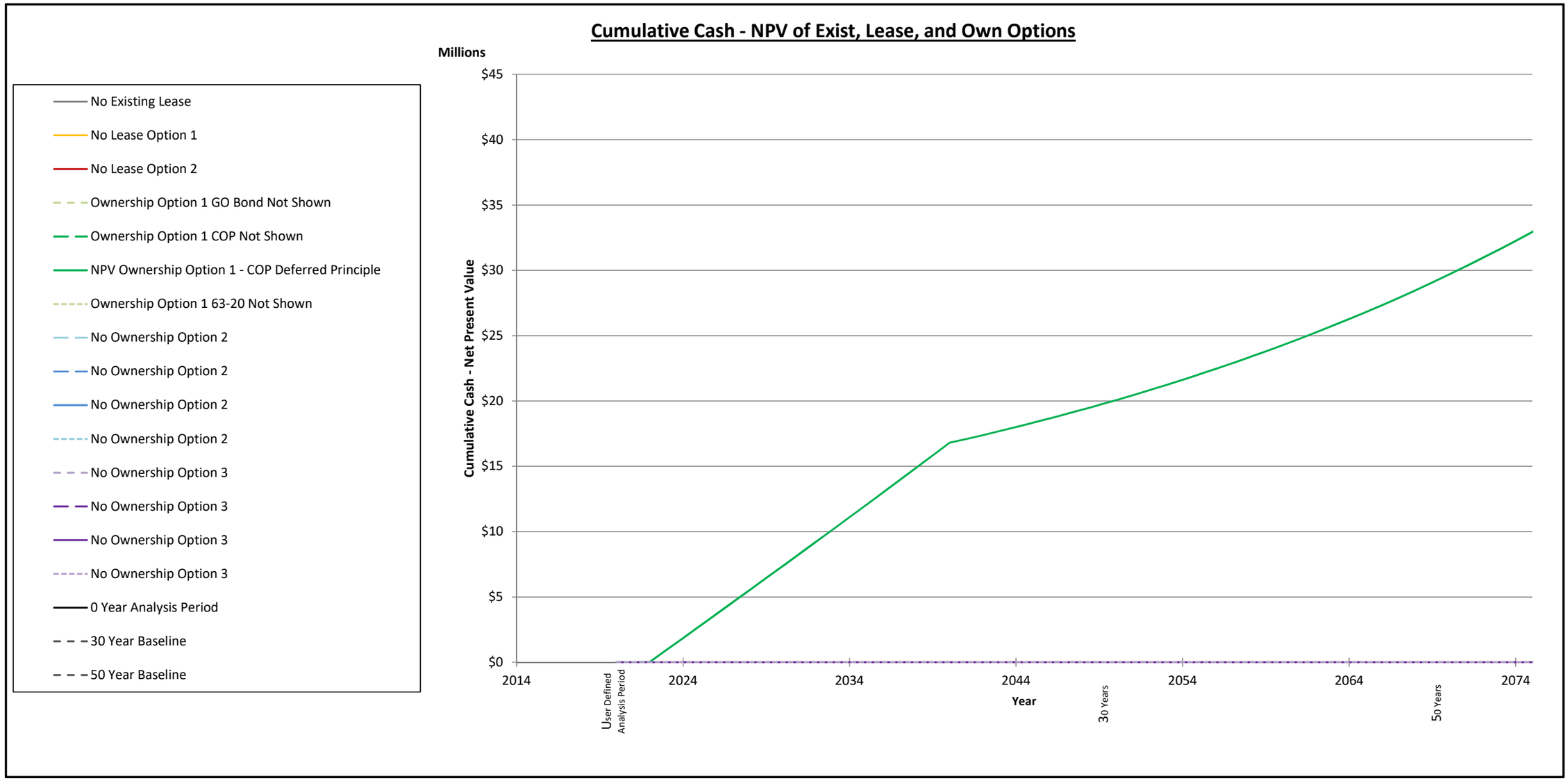
Financial Analysis of Options

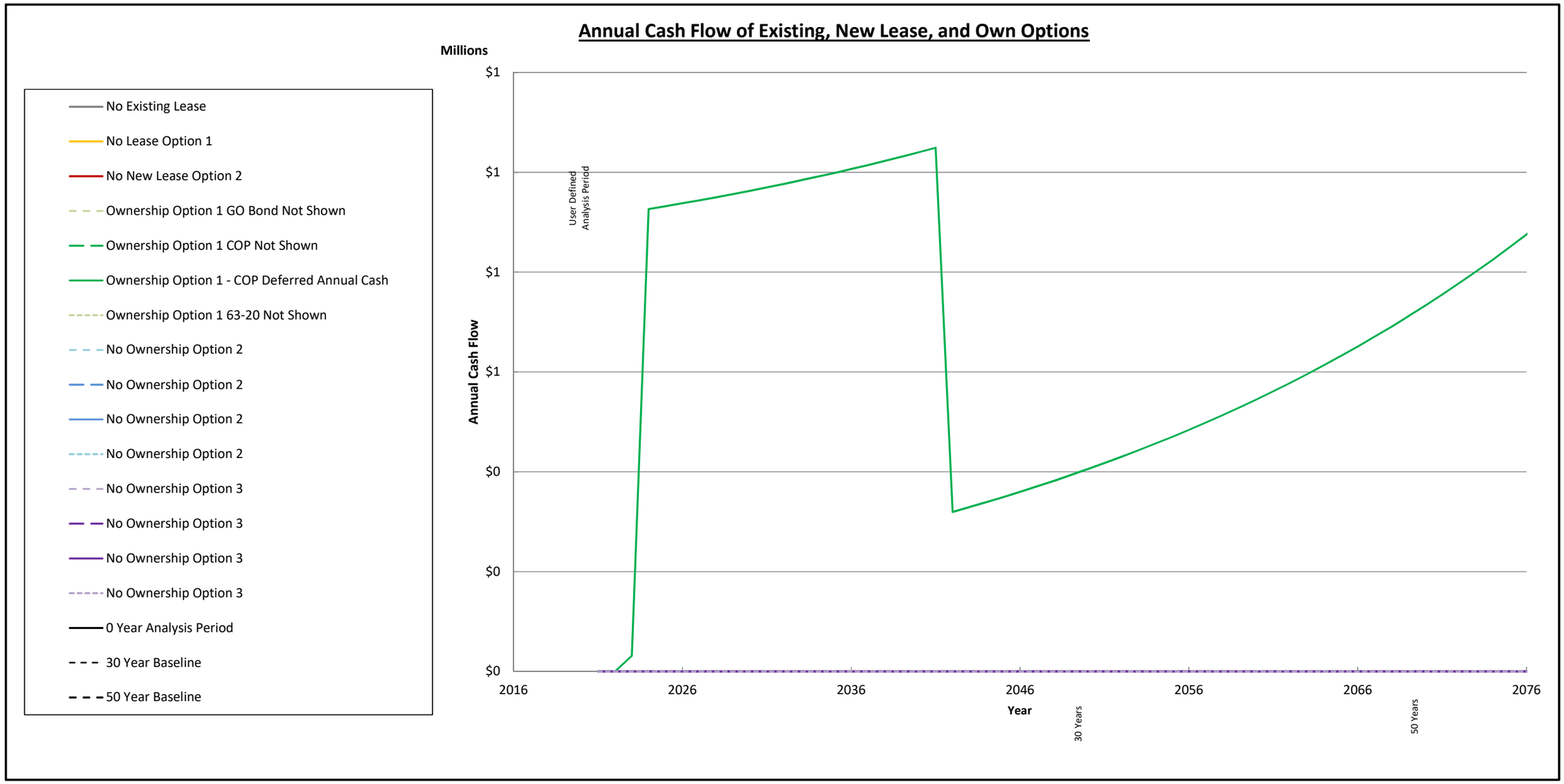
	Display Option?	Yes	Yes	Yes	No	No	Yes	No	No	No	Yes	No	No	No	Yes	No
	Financial Comparisons	**Existing Lease**	**Lease 1**	**Lease 2**	**Ownership 1**				**Ownership 2**				**Ownership 3**			
Years	**Financing Means**	**Current**	**Current**	**Current**	**GO Bond**	**COP**	**COP Deferred ***	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**
0	0 Year Cumulative Cash	$ -	$ -	$ -			$ -				$ -				$ -	
	0 Year Net Present Value	$ -	$ -	$ -			$ -				$ -				$ -	
	Lowest Cost Option (Analysis Period)															

	Financial Comparisons	**Existing Lease**	**Lease 1**	**Lease 2**	**Ownership 1**				**Ownership 2**				**Ownership 3**			
Years	**Financing Means**	**Current**	**Current**	**Current**	**GO Bond**	**COP**	**COP Deferred ***	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**
30	30 Year Cumulative Cash	$ -	$ -	$ -			$ 20,973,563				$ -				$ -	
	30 Year Net Present Value	$ -	#VALUE!	#VALUE!			$ 19,704,984				$ -				$ -	
	Lowest Cost Option (30 Years)															

	Financial Comparisons	**Existing Lease**	**Lease 1**	**Lease 2**	**Ownership 1**				**Ownership 2**				**Ownership 3**			
Years	**Financing Means**	**Current**	**Current**	**Current**	**GO Bond**	**COP**	**COP Deferred ***	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**
50	50 Year Cumulative Cash	$ -	$ -	$ -			$ 32,197,946				$ -				$ -	
	50 Year Net Present Value	$ -	#VALUE!	#VALUE!			$ 29,079,387				$ -				$ -	
	Lowest Cost Option (50 Years)															

** - Defers payment on principle for 2 years while the building is being constructed. See instructions on Capitalized Interest.*


Cumulative Cash - NPV of Exist, Lease, and Own Options
Millions
Cumulative Cash - Net Present Value
$45
$40
$35
$30
$25
$20
$15
$10
$5
$0
2014
2024
2034
2044
2054
2064
2074
Year
User Defined Analysis Period
30 Years
50 Years
No Existing Lease
No Lease Option 1
No Lease Option 2
Ownership Option 1 GO Bond Not Shown
Ownership Option 1 COP Not Shown
NPV Ownership Option 1 - COP Deferred Principle
Ownership Option 1 63-20 Not Shown
No Ownership Option 2
No Ownership Option 2
No Ownership Option 2
No Ownership Option 2
No Ownership Option 3
No Ownership Option 3
No Ownership Option 3
No Ownership Option 3
0 Year Analysis Period
30 Year Baseline
50 Year Baseline


Annual Cash Flow of Existing, New Lease, and Own Options
Millions
Annual Cash Flow
$1
$1
$1
$1
$0
$0
$0
2016
2026
2036
2046
2056
2066
2076
Year
User Defined Analysis Period
30 Years
50 Years
No Existing Lease
No Lease Option 1
No New Lease Option 2
Ownership Option 1 GO Bond Not Shown
Ownership Option 1 COP Not Shown
Ownership Option 1 - COP Deferred Annual Cash
Ownership Option 1 63-20 Not Shown
No Ownership Option 2
No Ownership Option 2
No Ownership Option 2
No Ownership Option 2
No Ownership Option 3
No Ownership Option 3
No Ownership Option 3
No Ownership Option 3
0 Year Analysis Period
30 Year Baseline
50 Year Baseline

Financial Assumptions

Date of Life Cycle Cost Analysis:	
Analysis Period Start Date	3/15/2020
User Input Years of Analysis	0

All assumptions subject to change to reflect updated costs and conditions.

	Lease Options			Ownership Option 1			Ownership Option 2			Ownership Option 3		
	Existing Lease	**Lease Option 1**	**Lease Option 2**	**GO Bond**	**COP**	**63-20**	**GO Bond**	**COP**	**63-20**	**GO Bond**	**COP**	**63-20**
Inflation / Interest Rate	3.006%	3.006%	3.006%	3.160%	3.510%	3.710%	3.160%	3.510%	3.710%	3.160%	3.510%	3.710%
Discount Rate	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%	0.441%
Length of Financing	N/A	N/A	N/A	20	20	20	20	20	20	20	20	20

See Financial Assumptions tab for more detailed information

COP Deferred and 63-20 Financing defer the payment on principle until construction completion.

New Lease Assumptions

Real Estate Transaction fees are 2.5% of the lease for the first 5 years and 1.25% for each year thereafter in the initial term of the lease.

Tenant Improvements are typically estimated at $15 per rentable square foot.

IT infrastructure is typically estimated at $350 per person.

Furniture costs are typically estimated at $500 per person and do not include new workstations.

Moving Vendor and Supplies are typically estimated at $205 per person.

Default Ownership Options Assumptions

Assumes a 2 month lease to move-in overlap period for outfitting building and relocation.

Assumes surface parking.

The floor plate of the construction option office building is 25,000 gross square feet.

The estimated total project cost for construction is $420.00 per square foot.

See the Capital Construction Defaults tab for more construction assumptions.

Ownership Option 1 Information Sheet

*	***Requires a user input***	*Green Cell*	*= Value can be entered by user.*	*Yellow Cell*	*= Calculated value.*

*	**Project Description**	Fircrest Laundry	
*	**Construction or Purchase/Remodel**	Construction	
*	**Project Location**	Shoreline	Market Area = King-North

	Statistics	
*	Gross Sq Ft	7,000
*	Usable Sq Ft	6,850
	Space Efficiency	98%
	Estimated Acres Needed	1.00
	MACC Cost per Sq Ft	$866.30
	Estimated Total Project Costs per Sq Ft	$1,212.82
	Escalated MACC Cost per Sq Ft	$1,004.57
	Escalated Total Project Costs per Sq Ft	$1,406.40

*	**Move In Date**	1/15/2023

Interim Lease Information	**Start Date**
Lease Start Date	
Length of Lease (in months)	
Square Feet (holdover/temp lease)	
Lease Rate- Full Serviced ($/SF/Year)	
One Time Costs (if double move)	

	Construction Cost Estimates (See Capital Budget System For Detail)			
		Known Costs	Estimated Costs	Cost to Use
	Acquisition Costs Total		$ 250,000	$ 250,000
A & E	**Consultant Services**			
	A & E Fee Percentage (if services not specified)		8.4% Std	8.40%
	Pre-Schematic Design services			
	Construction Documents	$ 374,761		
	Extra Services	$ 473,000		
	Other Services	$ 228,371		
	Design Services Contingency	$ 53,807		
	Consultant Services Total	$ 1,129,939	$ 758,014	$ 1,129,939
MACC	**Construction Contracts**			
	Site Work	$ 375,831		
	Related Project Costs			
	Facility Construction	$ 5,688,278		
	MACC SubTotal	$ 6,064,109	$ 2,100,000	$ 6,064,109
	Construction Contingency (5% default)	$ 303,205	$ 303,205	$ 303,205
	Non Taxable Items			$ -
	Sales Tax	$ 643,099		$ 643,099
	Construction Additional Items Total	$ 946,304	$ 303,205	$ 946,304
	Equipment			
	Equipment	$ 91,000		
	Non Taxable Items			
	Sales Tax	$ 9,191		
	Equipment Total	$ 100,191		$ 100,191
	Art Work Total	$ 33,076	$ 30,321	$ 33,076
	Other Costs			
	Hazardous Material Removal	$ 15,000		
	Permit/Plan Review/Misc.	$ 25,000		
	Other Costs Total	$ 40,000		$ 40,000
	Project Management Total	$ 391,438		$ 391,438
	Grand Total Project Cost	**$ 8,705,057**	**$ 3,441,540**	**$ 8,955,057**

Construction One Time Project Costs			
One Time Costs	Estimate	Calculated	
Moving Vendor and Supplies		$ -	*$205 / Person in FY09*
Other (not covered in construction)			
Total	$ -	$ -	

	Ongoing Building Costs				
Added Services	New Building Operating Costs	Known Cost /GSF/ 2023	Estimated Cost /GSF/ 2023	Total Cost / Year	Cost / Month
☑	Energy (Electricity. Natural Gas)	$ 15.37	$ 1.25	$ 107,590	$ 8,966
☑	Janitorial Services	$ -	$ 1.56	$ 10,912	$ 909
☑	Utilities (Water, Sewer, & Garbage)	$ -	$ 1.66	$ 11,622	$ 968
☑	Grounds	$ -	$ 0.16	$ 1,153	$ 96
☐	Pest Control	$ -	$0.00	$ -	$ -
☑	Security	$ -	$ 0.13	$ 887	$ 74
☑	Maintenance and Repair	$ -	$ 6.60	$ 46,221	$ 3,852
☑	Management	$ -	$ 0.77	$ 5,412	$ 451
☐	Road Clearance	$ -	$0.00	$ -	$ -
☑	Telecom	$ 0.35	$ -	$ 2,450	$ 204
	Additional Parking	$ -	$ -	$ -	$ -
	Other	$ -	$ -	$ -	$ -
	Total Operating Costs	**$ 15.72**	**$ 12.14**	**$ 186,246**	**$ 15,521**