**Project 2018-254**
**Clark College, Advanced Manufacturing Center**

# Attachment 6:

# PreDesign Report



CLARK COLLEGE
EST. 1933

# North County Satellite

## Advanced Manufacturing Center

**Clark College at Boschma Farms**

**Project # 2018-254**
**OFM # 30000135**

# PREDESIGN

MARCH 15, 2019

SSW ARCHITECTS

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STARLING
WHITEHEAD

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# SECTION 1 – EXECUTIVE SUMMARY

## A. PROBLEM STATEMENT

### 1. Unaccommodated Growth

The Clark College service district has seen unprecedented growth. In the twenty-year period between 1990 and 2010, the general population in Clark's service district increased by 75%. The service district continues to grow by about 1% a year and has added over 10,000 residents in the past three years. During that same interval the key college demographic group of 15-44 year-olds increased by 45%.

To meet this growth demand, Clark will need 125,070 more GSF – which translates into 1.8 new buildings. To serve the actual number of state and Running Start FTES projected for 2030, the College will need 207,680 additional GSF, or three new buildings at the 70,000 square foot limit. However, even these new buildings wouldn't address overcrowding at existing facilities.

### 2. Lack of Building Sites

With the completion of the STEM project in 2017, the main campus in Vancouver has reached its maximum density with no viable building sites available to accommodate 210,000-sf of building expansion without removing existing buildings. The condition, density, and age of the existing campus buildings makes removal and replacement a non-viable way to accommodate growth by expanding building area on the main campus.

### 3. Underserved area with large growth

One of the fastest-growing yet most underserved areas within Clark College's service district is the north area of the County. According to OFM statistics, Clark County with an estimated population of 479,500, gained 8,500 people and grew 1.8 percent between April 2017 and April 2018, making it the eighth fastest-growing county in Washington. U.S. Census Bureau data showed that the City of Ridgefield's population grew 13 percent between 2016 and 2017, the highest rate of any city in Washington state. Based on these numbers, the College has identified the north central region of Clark County as the appropriate location for a new satellite facility. Currently, the College is serving 1,766 students who live is this area and face a long commute to the Main Campus, the Columbia Tech. Center, or the existing WSU site.

### 4. Need for expansion in manufacturing program

The manufacturing industry in Clark County has begun a rapid expansion fueled by the general economy, but also by the business conditions that make SW Washington very supportive of industry. A large possible road-block to this expansion is the fact that there aren't enough workers in the area right now to fill the needs of the growing industry. Clark County had about 13,600 manufacturing workers in 2016, or 8.8 percent of the overall county workforce. That number stayed about the same in 2017. A 2016 report from Workforce Southwest Washington and its partners in the Columbia-Willamette Workforce Collaborative says that half of the region's advanced manufacturing workforce is 45 years or older. Over the next decade, employers will need to fill more than 30,000 vacancies due just to retirements

The need for applied technological education is critical to meeting the workforce needs in advanced manufacturing trades in the region. Advanced manufacturing offers some of the highest paying and most satisfying career opportunities available today, such as manufacturing operators, maintenance technicians, quality control specialists, scientists, process control engineers, welding professionals, and many more. The

Advanced Manufacturing (AM) program at Clark College provides the breadth and depth of technical skills students need to excel in technical support roles. Modernizing and expanding the capability of the facilities supporting these programs will bring industrial realism to the classroom to teach job-relevant skills needed to meet the growing demand.

## B. OPPORTUNITY

Recognizing the evident need for addressing growth north Clark County, the Clark College Foundation has acquired a site totaling nearly 70 acres within the city limits of Ridgefield. The site is currently used for agriculture but is located immediately east of the Pioneer Street junction off I-5 in an area that is slated for extensive residential and commercial development. As the commitment letter in Appendix 6.4 indicates, the Clark College Foundation has committed to donate approximately 50-acres of this site to the State for the development of a new Clark College North Campus, 10-acres of which will be for a new Advanced Manufacturing Center.

## C. ALTERNATIVES CONSIDERED

### 1. Do Nothing

This option has been the default for several years, and programs have strained to provide instruction and training to keep pace with industry standards.

Advantages

The option to do nothing does have the lowest first cost and it does maintain the proximity of manufacturing programs to main campus

Disadvantages

- Doing nothing will inhibit the College's ability to provide optimal industry-based training in high-demand manufacturing industry.
- Leaving the programs "as-is" will further negatively impact the ability of students, faculty and staff to operate in an effective active-learning environment.
- Existing inadequate and inefficient conditions would continue
- Clark College will be unable to meet the increasingly technology-driven learning demands of their current and future applied technology students.

### 2. Lease Off-Campus Space

Clark College has considered leasing off-campus facilities to provide space for expanding the Advanced Manufacturing program. Some of the sites explored included light industrial spaces at the Port of Vancouver and other areas in the Vancouver area.

Advantages

This option does offer some advantages over the status quo in that it would provide for the needed space that is not currently in the building and leasing a building would have lower maintenance and operation costs as these would likely be provided under the lease by the landlord. It also has the shortest project duration provided a suitable building can be located.

Disadvantages

- The building would not have a campus presence
- The renovations would require significant alterations
- Insufficient student parking
- Limited and sporadic public transportation
- Increased student travel time
- Highest life-cycle costs

**3. Acquire land and construct a new AMC adjacent to main campus**

This alternative considers acquiring land adjacent to the existing main campus and constructing a new 70,000-sf AMC.

Advantages

Similar to the lease option, this alternative does offer advantages over the status quo in that it would provide for the needed space that is not currently in the building

A new building would have the ability to provide more flexibility and will meet sustainability goals.

Disadvantages

- There is little available land adjacent to the main Clark College campus. The main campus is surrounded by a substantial, established residential area, a City park and well fields, the VA, and Hudson's Bay HS.
- High cost of land adjacent to the main campus. In this alternative, the Foundation would not be purchasing the land and donating it to the college. Any land large enough to support even one building with site development and parking would be more expensive than acquiring land remote to the campus.
- Longer duration
- Greater maintenance and operation costs due to total added building area.

**4. Relocate the Manufacturing Programs into a new Building on a new North County Campus (NCC)**

This alternative uses donated land in the City of Ridgefield. It includes development of access road, street improvements, utility extension, parking for 150-cars and constructs a new 70,000-sf AMC.

Advantages

- Donated land requires no expenditure to acquire site
- Regular major transportation connections between the site and the main campus
- proximity to nearby utilities
- The site has ample room to accommodate parking needs for the College.
- Accommodation of new, up-to-date equipment
- Integration of new, cutting edge networking systems and technology

- Co-location of associated programs allows full through-process techniques
- No impact to existing AM programs on the main campus
- Provides new campus in area of greatest population growth

Disadvantages

- Higher initial costs for civil/site development and connection to adjacent ROW.
- The building would not have a main campus presence

## D. PREFERRED ALTERNATIVE

The proposed solution is Alternative #4 to construct a new 70,000-gsf Advanced Manufacturing Center on the Boschma Farms property in Ridgefield as the initial building in a new Clark College North County Campus. The alternatives comparison chart in Section 3 indicates it is the highest scoring against desired criteria.

## E. PROJECT COST

The C-100 (Attachment 6.1) identifies the Total Project Costs for the AMC at North Campus at **$54,923,000** (escalated to mid-point of construction) broken down as follows:

| | | |
|---|---|---|
| Acquisition | $0.00 | |
| Consultant Services | $ 1,577,638 | |
| Construction Costs | $ 50,839,581 | (MADCC $44,657,741) |
| FF & E | $ 1,664,168 | |
| Artwork | $ 223,289 | |
| Agency Project Management: | $ 360,660 | |
| Other Costs | $ 257,916 | |
| **TOTAL PROJECT** | **$ 54,923,000** | *(rounded)* |

# SECTION 2 - PROBLEM STATEMENT

## A. GENERAL

### 1. Problem Statement

The primary driving factor behind this project is growth. Clark College must develop and expand its instructional capacity to meet the demands of the district's rapidly growing population. This is a critical need even at the College's current minimal level of service of 4.0%. Once Clark's actual level of service is factored in, the need becomes even more apparent.

The State of Washington Office of Financial Management provides population projections based on both intermediate projections and high projections. Based on the intermediate projections, Clark College's service district is expected to increase in population by 25% between 2010 and 2030, reaching a total number of residents of 559,879. Clark County is one of the fastest growing areas in Washington with a projected growth rate of 25% between 2010 and 2030 compared with the state projection of 20%. The service district's key population age group of 15 to 44-years old is projected to increase by 17% - or 5% more than the state average. Population growth in Clark County will continue for decades to come. Pressure from the Portland metropolitan area is increasing as Clark's neighbor to the south has fewer growth opportunities due to higher taxes, stricter land use regulations, and increasing traffic congestion.

The manufacturing industry in Clark County has begun a rapid expansion fueled by the general economy but also by the business conditions that make SW Washington very supportive of industry. A large possible road-block to this expansion is the fact that there aren't enough workers in the area right now to fill the needs of the growing industry. Clark County had about 13,600 manufacturing workers in 2016, or 8.8 percent of the overall county workforce. That number stayed about the same in 2017. A 2016 report from Workforce Southwest Washington and its partners in the Columbia-Willamette Workforce Collaborative says that half of the region's advanced manufacturing workforce is 45 years or older. Over the next decade, employers will need to fill more than 30,000 vacancies due just to retirements.

Clark College needs to grow to accommodate increased demand as its population increases, particularly in the North County. It also must expand access to its regionally-leading manufacturing programs to provide a pathway to high-wage jobs in industry and manufacturing. Impacting the ability to meet these needs are the limited area on the main campus available to develop new buildings and the age/inflexibility of the existing buildings housing manufacturing to modernize and expand.

Parts of the buildings housing the programs were built as far back as 1950, seriously hampering options and efforts to upgrade them to meet current standards. Even the most recent spaces are a decade old and are already outdated and too small to expand program offerings. Existing inadequate and inefficient conditions significantly hamper the College's ability to meet the increasingly technology-driven learning demands of their current and future applied technology students.

### 2. Project Opportunity

*Serving the North County*

There are large areas of developable land in Clark County that provide more opportunities for growth. The recent major expansion of urban growth boundaries in Clark County illustrate the trend for continued population growth in the years to come. The Regional Transportation Council is planning for a population exceeding 1,000,000 residents by 2044.

According to OFM statistics, Clark County with an estimated population of 479,500, gained an estimated 8,500 people and grew 1.8 percent between April 2017 and April 2018, making it the eighth fastest-growing county in Washington, people live in Clark County. U.S. Census Bureau data showed that the City of Ridgefield's population grew 13 percent between 2016 and 2017, the highest rate of any city in Washington state. Since 2010, Ridgefield's population has grown 65 percent. This grown has been driven the need for a skilled workforce in the county. Preliminary state employment data shows that Clark County added 7,500 jobs in 2018, a 4.8 percent increase over the previous year. That rate outpaces the average growth rates of the nation, the states of Washington and Oregon and the rest of the Vancouver-Portland metropolitan area.

Recognizing the need to expand in the North County, The Clark College Foundation has acquired approximately 70 acres of property in Ridgefield, immediately east of the Pioneer Street junction off I-5. They have committed to donate a large portion of this site to accommodate the development of a comprehensive North County Campus for Clark College.

*Serving Industry*

The manufacturing programs at Clark have developed to offer combined hands-on training, with modern equipment, focused on real-world, practical projects. Their focus on replicating current industry practices in their curriculum is reinforced by maintaining connections with regional employers, ensuring the relevance of their program offerings with current industry trends and providing opportunities for internships and apprenticeships to their students.

The flexible and state-of-the-art space in this proposed building will increase opportunities to partner with local business, industries, and associations to provide custom training – a potential source of revenue for the college and future employment for students.

Co-location of Clark College's manufacturing programs will provide opportunities for developing courses that cross traditional disciplinary boundaries and anticipate the future needs of manufacturing businesses.

*Meeting Demand*

The current capacity and enrollment in manufacturing is 72-FTE per quarter and there has generally been a wait-list for new students. Driving this need is the impact from the current aging manufacturing workforce. The share of the population 60 and older increased from 16.8 percent in 1990 to 18.5 percent in 2011; by 2025, demographers predict that nearly one-quarter of the United States will be in this cohort. The current program facilities are at the end of their expected service life and have little ability to increase instructional area through renovation alone due to inflexibility of spaces, poor infrastructure, and lack of support space which is critical to vocational instruction.

There is clear future demand for more space in manufacturing programs based on Clark College's projected growth in FTE's, the expected population growth in North Clark County, and the retirement of thousands of baby-boomers currently employed in local manufacturing businesses. Clark cannot currently respond to these demands due to a lack of space to expand their manufacturing programs.

*Increase Student Success and Educational Access*

This building will increase capacity in high-demand areas thus increasing the number of students served and decreasing program waiting lists. Students will have opportunities to work on equipment that is

reflective of the current industry technology in a building designed to reflect industrial best-practices and therefore be better prepared for employment.

*Providing living-wage jobs*

The proposed development of a new Advanced Manufacturing Center will provide a direct pathway for Clark students into well-paying employment in growth fields. According to the U.S. Department of Labor, employment projections forecast Mechatronics Technician jobs growing at a rate of 4%, with a median wage in the Portland-Vancouver area estimated at $29.82 per hour. Employment projections forecast machining technology jobs growing at a rate of 9 percent, with a median wage in the Portland-Vancouver metro area estimated at $22.74 per hour. The U.S. Department of Labor employment projections forecast welding jobs growing at a rate of 8 percent, with a median wage in the Portland-Vancouver area of $20.62 per hour. Experienced welders and fabricators can earn $45,000 to $60,000 per year.

*Accommodating new pedagogy in applied technical education*

Methods of teaching and learning have changed drastically since the construction of the existing manufacturing facilities on the Vancouver campus. At that time, computerized systems were irrelevant in the manufacturing industry but are now the basis for nearly every manufacturing process. From data entry into CNC machines, to inputting code to robotic welders, technology is an integral part of manufacturing today. The current lack of technology in these older shops is already impacting the learning experience of those in the current programs and if not remedied, will increasingly erode the long-term relevance of the programs.

The existing facilities suffer from inadequate instructional area, inherently poor relationships between shops/classrooms, having the related programs in separate wings of the building or at remote sites, and the inflexibility of the basic design. Without significant renovation/expansion or relocation, the existing Applied Arts (AA) Buildings will be unable to support the program's evolved instructional methodologies.

To increase access to these programs, some of the core classes in advanced manufacturing are taught at the Columbia Tech Center, which is located 14 miles from the main campus.

### 3. Program Response

The proposed North Campus Advanced Manufacturing Center (AMC) project will correct space and facility deficiencies impacting the manufacturing programs offered by Clark College. No other programs will be affected by this project.

## B. PROJECT DRIVERS

### 1. Program Needs

The existing manufacturing facilities suffer from inadequate instructional area, inherently poor relationships between shops/classrooms, aged infrastructure, and the inflexibility of the existing older buildings. Specific programmatic needs include:

*Change in Career Technical Education*

The new pedagogy in Career Technical Education (CTE) is centered on effectively integrating academics with skills-learning. The focus is on occupational mindsets and ethics as well as practical skills resulting in strengthening both career and academic preparation; increasing comprehension and retention of academic learning by applying academics to real-world, hands-on processes and work Innovation; and intentional connections between the student's educational pursuits and career aspirations.

*Insufficient Space*

Due to the lack of needed support spaces and close-proximity classrooms, valuable shop/lab space has been re-purposed to serve these essential functions. Areas of the lab/shop have been turned into class and storage spaces,

Instruction in applied technical education also requires more space to integrate use of technology and to support effective CTE. The 1950's era AA Building was designed for traditional "shop" learning which focuses pretty much entirely on the hands-on activities in the shop. This pedagogy has shifted to a more effective active learning focus which requires access to instructional and learning needs and challenges directly in or adjacent to the shop floor. The space needed for active student learning/contextual teaching where students discover meaningful relationships between abstract ideas and practical applications cannot be provided in the existing shops.

The space in a CTE shop must also be adequate to enable students to safely operate the equipment. In many conditions in the existing AA shops, there is insufficient minimum space around equipment.

*Lack of technology and inability to support adding it in shops*
The existing infrastructure does not provide adequate access to data/computers at all shops.

*Insufficient Material Storage*
There is inadequate space for secure equipment, parts, and tool storage. Tools are stored in shop/lab bays in the absence of secure rooms, further compromising instructional space.

*Lack of Student Study Spaces:* The only informal study areas are outdoors and inhospitable for much of the year. More commonly, students gather outside the entries to their shops or classrooms. This severely impacts the ability for collegial student interaction that fosters opportunities for peer-to-peer learning.

*Lack of Student Work Display:* The existing AA and CTC buildings have no means of publicly displaying students' work, inhibiting the college's community outreach, promotion, and educational efforts.

*Insufficient Faculty Offices*
There is little or no space in the existing buildings for faculty offices, thus faculty use classroom space for offices. Space for private counseling and conferences is nonexistent.

*Equipment Inadequate*
Much of the equipment is at the end of its useful life, is not in adequate number, or is not the appropriate type for modern manufacturing.

*Poor Student Supervision in Shops*
The scattered location of related shop space results in classes operating in areas of the shop that are not able to be visually supervised by the instructor. This has led to inefficient lab time and potentially unsafe conditions.

## 2. Facility Needs

The existing manufacturing facilities have many facility deficiencies that impact the effectiveness of the program, the opportunity to increase student success, facility access, and to the health and safety of instructors and students. These include:

*Student/Instructor Health*

The existing shops have a negative impact on the health and safety of all students and faculty which can best be corrected by renovation/replacement:

- In the event of improper equipment use injuring a student, there is no central power shut-off.
- The poor ventilation and exhaust system. The welding shops in particular have significant dust and particulate issues.

*Accessibility/Code Deficiencies*

The existing AA building does not fully comply with ADA accessibility. There are inadequate sized toilets, lockers, and shower facilities for disabled students in the program.

*Building Age and Design*

The AA Building complex was designed and built in the 1950s. Much of this space has not been upgraded. The configuration of this building, with V shaped wings, is inherently inflexible, and is in poor condition.

*Inadequate Toilet Facilities*

The toilet and shower facilities are undersized and do not provide equal services or access for female students or staff.

*Inadequate and Obsolete Mechanical Systems*

Mechanical systems are at the end of their useful lives, consume excessive energy, and require frequent maintenance. Infrared heaters in the shop/labs are unreliable and unit heaters in other shops are so noisy that they must be manually disabled during instruction hours. The exhaust system in the welding lab is so inadequate that heavy dust covers the upper parts of the structure and must frequently be cleaned off equipment and worktables.

*Excessive Energy Use*

The existing AA Building was constructed when the requirement for insulation in the exterior envelope was not significant. This results in very poor occupant comfort and extremely high energy use.

*Inadequate Lighting*

In shop/labs the light fixtures are poorly located, resulting in insufficient and inconsistent illumination.

*Inadequate Safety Devices*

There are no central power shut-offs for emergency use and only plug-in carbon monoxide sensors are available. These are prone to misuse by students, and compromise safety.

*Poor Hazardous Materials Control*

Shop design does not accommodate new hazardous materials requirements or allow for a centralized collection area for disposal of hazardous materials.

*Poor Controls*

Various rooms in the building suffer from chronic erratic temperature control.

*General Wear and Tear*

While well-maintained, the years of intensive use by industrial trades has caused building finishes to suffer considerable wear and tear.

## 3. Facility Goals

The building committee has identified the following program goals for any project addressing the needs of the manufacturing programs:

*Student Satisfaction and Safety*
Insuring students have a positive experience as well as protecting their health and safety are high priorities. Insuring adequate safe operational space around all shop equipment is paramount.

*Efficient Operations*
The facility must support the smooth flow of work through well planned adjacencies.

*Quality*
A pleasant and conducive learning environment should be provided as one means of contributing to student success and faculty effectiveness. This implies access to daylight, quality finishes, appropriate environmental and air quality control, and appropriate acoustics.

*Flexibility*
The facility should provide a high degree of flexibility to accommodate inevitable advancements in programs, equipment, processes, and technology. One desire is to create a single large open manufacturing floor where all programs can be co-located, developing a synergy and potential for cross-pollination between programs. Having a large combined shop floor will closely mimic industry and provide inherent flexibility to grow or shrink areas as enrollment demand shifts between programs or over time.

*Energy and Environment*
The project is expected to be a high-performance building attaining a minimum certification of LEED Silver by the US Green Building Institute. Energy saving measures with reasonable life-cycle paybacks will be used. Attention will be paid to internal air quality, especially in the shops through material selection and mechanical system design.

*Active Design*
To encourage student and faculty health and wellbeing, the project will encourage movement and healthy activities through strategies such as visible and attractive stairs, wayfinding signage that promotes stair use, and attractive open space between functional areas.

## 4. Program Impacts

Clark College's manufacturing programs is at capacity in terms of shop and classroom space. They are unable to offer more sections in their current space due to physical limitations and constraints.

## 5. FTE Projections

Clark College is exploring expansion of the certificate and degree options in AM in response to industry needs. The existing space in AAB cannot provide for new programs, degrees, certificates in the following areas currently under consideration:

- Supply Chain Management
- Certified Robotic Operator
- CNC Cutting & Forming Operator
- Tool & Die making
- Additive Manufacturing

- Control Systems Programmer
- Manufacturing Management

This project will provide the ability to accommodate a 44% increase in program capacity from 72 to 108 FTE's.

## C. MISSION SUPPORT

### 1. SBCTC Goals

The State Board endorsed six goals as their strategic priorities at their August 2018 meeting. The goals are designed to raise educational attainment, open more doors to college education — particularly for our fast-growing adult population — and build upon our tradition of excellence.

The proposed new NCC Advanced Manufacturing Center directly addresses a two of these goals:

- Enrollment: The board notes that SBCTC System is not sufficiently meeting the state's need for a skilled labor force.
- Career Connect: The community and technical colleges are partnering with the Governor's Task Force focused on identifying actionable and effective steps to drive awareness of a wide range of educational pathways that lead to rewarding careers for Washington's young adults. By providing a purpose-built facility for technical training in advanced manufacturing skills, this project will clearly support achieving the challenge of narrowing the skills gap and providing a pathway to rewarding carriers for Clark students.

### 2. SBCTC Mission

In May 2010, SBCTC published the results of its Mission Study in which it described a 20-year plan based on the three goals defined in the System Direction Report. Ten (10) challenges were identified:

1. Serve more people, including groups which have been underserved in the past.
2. Close the statewide skills gap for technically trained workers.
3. Increase funding for adult basic skills programs.
4. Contribute more to the production of baccalaureate degrees.
5. Work with our partners in the P-20 education system to create seamless, easy-to-navigate pathways for all students.
6. Use performance measures and funding as incentives to improve student retention and achievement.
7. Invest in sustaining faculty and staff excellence.
8. Build a 21st century learning infrastructure.
9. Promote the adoption of web-based and mobile technology tools for eLearning and online student services.
10. Devote a larger share of system resources to teaching and learning by making smarter use of technology and promoting efficiencies in college district governance.

The proposed new NCC Advanced Manufacturing Center addresses a number of these challenges:

- It will expand capacity and enable Clark College to serve more students (36 new FTE) (Challenge 1).
- It focuses on technical training in manufacturing skills which will help to narrow the skills gap (Challenge 2).
- Curriculum expansion and improved instructional options based on cutting edge technology and systems would allow for developing longer term degree options, including offering baccalaureate degrees (Challenge 4).
- By providing a new the building with a single large open shop area, integration of the trade programs with a closer relationship between the shop and the classroom can be provided. This new configuration will ensure that state-of-the art equipment can be used more efficiently, and the effectiveness of the learning environment can be maximized. (Challenge 10).

## D. PROJECT NEED

### 1. Demand/Utilization

The current capacity and enrollment in manufacturing programs is 72 FTE per quarter. The current location of these programs in a several older buildings provides no ability to increase instructional area through renovation alone due to inflexibility of spaces, poor infrastructure, and lack of support space which is critical to vocational instruction. The limits of expansion on campus also impacts the ability to expand on the Vancouver campus.

It is anticipated that creation of a new AMC in the North County will increase student capacity by up to 108 additional FTEs per quarter.

### 2. Consolidation

The existing welding and machining programs are housed in separate wings of the Applied Arts building on the main Vancouver campus while the mechatronics program is housed in the Columbia Tech Center, 14 miles to the east of the main campus. Having these closely-related programs located remote from each other impacts the ability to cross-pollinate related programs and leads to inefficiencies in having to provide program and lab support at two locations.

Co-location of Clark College's manufacturing programs will provide opportunities for developing courses across traditional disciplinary boundaries and anticipate the future needs of manufacturing businesses.

### 3. Inability to Locate in Existing Campus Buildings

The Applied Arts Building as well as the Columbia Tech Center would be extremely difficult to expand either horizontally or vertically to accommodate the total space needs for the Advanced Manufacturing programs. There is no adjacent space in the Applied Arts Building that can be reconfigured or repurposed to provide space expansion or reconfiguring to co-locate programs without displacing other program functions.

## E. PROJECT HISTORY

### 1. History

The NCC AMC has been part of the College's facility master planning since 1986, when the need for satellite campuses in the service area was first identified. Subsequently, the north central campus concept was approved by the State Board when it was presented by Clark College as part of the College's

2003-04 Facility Master Plan review. In response to continued growth in population and need for services, the AMC project was affirmed as a top priority in both the 2007 Facilities Master Plan and the 2014 update.

Facility expansion has also been addressed in the last two iterations of the College's Strategic Plan. In the 2004-09 Strategic Plan, an NCC growth project was specifically referenced under the Strategic Priorities for 2007-09. In the 2009-14 Strategic Plan, the Core Theme of "Expand Access" commits the College to expanding learning options by "offering courses and services in various modalities, timeframe and locations". This has already been achieved in part by constructing the Columbia Tech Center to serve east Clark County, and by leasing classroom space in various locations in our service district.

A new NCC growth facility is the obvious next step in realizing the College's Core Theme of "Expand Access". In September 2013, the College began development of its 2015-20 Strategic Plan. In conversations across the college community, it is clear that expanding access through growth projects and supporting student learning through innovative facilities will remain critical to the institution's vision moving forward.

The NCC AMC growth project also supports both the Washington Student Achievement Council Roadmap and the SBCTC System Direction goals of Economic Demand, Student Success and Innovation by improving access to higher education for the fastest growing population area of Clark County.

### 2. Project Request to SBCTC and Funding

In 2015, the college prepared a Project Request Report which was successful in obtaining legislative funding for the project. Initial funding for Predesign and Design was included in the 17-19 Capital Budget. Construction Funding is anticipated in the 19-21 Capital Budget.

# SECTION 3 - ANALYSIS OF THE ALTERNATIVES

## A. ALTERNATIVES CONSIDERED

### 1. Do Nothing

This option has been the default for several years, and programs have strained to provide instruction and training to keep pace with industry standards.

Advantages

The option to do nothing does have the lowest first cost and it does maintain the proximity of manufacturing programs to main campus

Disadvantages

Doing nothing will inhibit the College's ability to provide optimal industry-based training in high-demand manufacturing industry. Leaving the programs "as-is" in aged buildings with outdated infrastructure, technology, and network systems, and no available space to expand building footprints will further negatively impact the ability of students, faculty and staff to operate in an effective active-learning environment.

Parts of the buildings housing the programs were built as far back as 1950 and 1988, seriously hampering options and efforts to upgrade them to meet current standards. Even the most recent spaces are a decade old and are already outdated and too small to expand program offerings.

Existing inadequate and inefficient conditions would continue, and Clark College will be unable to meet the increasingly technology-driven learning demands of their current and future applied technology students.

### 2. Lease Off-Campus Space

Clark College has considered leasing off-campus facilities to provide space for expanding the Advanced Manufacturing program. Some of the sites explored included light industrial spaces at the Port of Vancouver and other areas in the Vancouver area.

Advantages

This option does offer some advantages over the status quo in that it would provide for the needed space that is not currently in the building.

Other advantages of pursuing this option include:

- First Cost. This option has the advantage of having the lowest first cost other than the option of doing nothing.
- Real-World replication: Most of the facilities that students will work in are in industrial areas and this option would likely replicate that condition most closely.
- Maintenance and Repair: The costs for maintenance and repair of a leased facility will be borne by the landlord (however is will factor into the rental rate).

Disadvantages

There are, however, very significant downsides to leasing off-campus space: Light industrial spaces would require significant renovations to include administrative, classroom, office, study and support space, as well as restrooms, locker rooms, and ADA accommodations. Even with these additional areas, students

would be a good distance from the main campus and student services such as financial aid, counseling, bookstore, and library access.

In addition to the exhaust/ventilation needs in the larger open workspaces, each of these new spaces would require separate controlled environmental HVAC equipment, along with control systems to monitor and maintain comfortable instructional spaces. Separate systems would also be required to address fire sprinkler and fire alarm systems, as well security and monitoring systems. The building itself would not have a campus security presence and would have to rely on the industrial park security to cover the building.

The renovations would also need to include significant alterations to the physical building to accommodate installation of shop equipment, including under-slab or overhead utilities, data/technology connectivity, HVAC and ventilation, as well as framing walls for classrooms, offices, labs, etc.

Light industrial parks also do not provide enough parking for the numbers of students who would be attending classes. Public transportation to industrial areas is limited and sporadic and would not allow for efficient and effective timing for meeting class schedules. Students needing to attend elective classes toward their certificate or degree not offered in the leased space would need to travel back and forth between the leased space and the main campus, generally limiting access to the programs to students with their own transportation.

Longer timeframe needed to locate property, execute lease, and develop TI's.

Need for more "rentable" area to provide equivalent assigned area.

Accessibility would be limited for students who are reliant on bus transportation.

Access to other campus support (counseling, library, tutoring, financial aid, etc.) would be difficult.

These factors would mean significant upfront funding and investments in renovations that would not be recoverable in the long term.

Highest life-cycle costs while providing a less optimal teaching environment for students.

**3. Acquire land and construct a new AMC adjacent to main campus**

This alternative considers acquiring land adjacent to the existing main campus and constructing a new AMC. This alternative was studied in lieu of renovation and expansion of the existing AA Building as there is insufficient site area adjacent to the AAB to accommodate the large shops spaces needed.

Advantages

Similar to the lease option, this alternative does offer advantages over the status quo in that it would provide for the needed space that is not currently in the building and a fully new building would have lower maintenance and operation costs.

A new building would have the ability to provide more flexibility and will meet sustainability goals.

Disadvantages

The Clark College campus is part of the Ft. Vancouver National Historic Site, and therefore bound by compliance with City of Vancouver regulations for expansion, including the prohibited use of open lawn areas for new or expanded buildings. The campus is currently at building capacity and therefore has no

space for expanding the physical size of the program space. To continue to house the expanded Advanced Manufacturing programs on main campus, additional land would need to be acquired.

Including land acquisition, this alternative would have the greatest initial cost.

The need to acquire land will greatly extend the planned duration of this alternative. The longer time needed would increase costs due to extended cost escalation. It would also extend the time that the needs for the projects could not be met.

This alternative would not address the need for providing local access to the fast-growing north county area.

**4. Relocate the Manufacturing Programs into a new Building on a new North County Campus**

One of the fastest growing areas of the state is in North Clark Country in the area of the town of Ridgefield. Clark College has not been able to provide effective access to higher education to this area of their community. This option seeks to meet the demand of this growing population creating a new North-County campus.

Advantages

The Clark College Foundation has acquired 60 acres of undeveloped agricultural land and has committed a large portion of the site to be donated at no cost to the State as the site for a North County Campus, This will enable the college to take the first step in their long-term plan for future buildout as the College expands services north along the I-5 corridor. The location provides regular major transportation connections between the site and the main campus, as well as proximity to nearby utilities such as gas, fiber optics, wastewater, and stormwater. The site has ample room to accommodate parking needs for the College.

As the initial building on the new campus, the proposed Advanced Manufacturing Center will incorporate administrative spaces, computer labs, study spaces, conference rooms, and several classrooms that will support both the manufacturing programs as well as general education and electives for completion of certificate and degree programs.

The proposed AMC will achieve a minimum of LEED Silver certification will have an anticipated life span of 50+ years.

A new AMC will allow for the addition of new, up-to-date equipment that could not be purchased and installed in the existing campus facilities due to lack of space and inadequate serving utilities.

The new design would allow for integration of new, cutting edge networking systems and technology to meet industry standards, better preparing students to meet the demands of the marketplace.

The department locations on the main campus are scattered in available spaces and remote sites as far as 14 miles apart. The new building would allow for the proximity of associated programs and efficient manufacturing/operational sequences that would mimic industry practices. Students and staff could develop full through-process techniques and methods along a full manufacturing continuum, working with up-to-date integrated and efficient programming and networking models.

The AM programs on the main campus can remain in full operation while the new AMC is constructed. Coordinated relocation of the programs from the old to the new site can be accomplished efficiently, resulting in minimum downtime in program offerings.

Disadvantages

With a site that has previously been undeveloped, the initial costs for civil/site development and connection to local infrastructure will be proportionally greater than if a new facility was constructed on existing developed property.

## B. PREFERRED ALTERNATIVE

The proposed solution is to construct a new Advanced Manufacturing Center on the Boschma Farms property in Ridgefield as the initial building in a new Clark College North County Campus. The following chart indicates it is the highest scoring against desired criteria.

| Alternative | Adequacy of program space | Quality of learning environment | Flexibility for program change | Flexibility for future growth | Proximity to other academic program | Proximity to campus services | Ease of Student Access | Ease of service access | Maintenance/operations cost | Sustainability | Duration | First Cost | life-Cycle Cost | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Do Nothing | 2 | 2 | 1 | 1 | 5 | 4 | 3 | 3 | 1 | 1 | 5 | 5 | 2 | **35** |
| Lease Off Campus Space | 4 | 3 | 3 | 2 | 1 | 1 | 2 | 3 | 5 | 3 | 4 | 4 | 1 | **36** |
| Relocate Manufacturing Programs to a new building adjacent to main campus | 5 | 4 | 4 | 4 | 3 | 3 | 4 | 3 | 5 | 4 | 1 | 1 | 3 | **44** |
| Relocate Manufacturing Programs into a new north county building | 5 | 5 | 4 | 4 | 3 | 3 | 4 | 4 | 5 | 4 | 3 | 4 | 4 | **52** |
| | *Scoring is 1-5 with 5 = highest value* | | | | | | | | | | | | | |

## C. COST ESTIMATES FOR EACH ALTERNATIVE

The following table provides a summary comparison of the studied alternatives:

| | Alternative/Description | Initial Cost | Life Cycle Cost - NPV (30-year) |
|---|---|---|---|
| 1 | Do nothing | $ 0 | $ 0 |
| 2 | Lease off-campus – 30 years | $ 16,642,676 | $ 127,120,702 |
| 3 | Construct new AMC adjacent to Main Campus | $ 59,210,000 | $ 107,009,224 |
| 4 | Construct new AMC at Boschma Farms Campus | $ 54,923,000 | $ 106,516,198 |

### 1. Do Nothing

The direct capital cost to do nothing is $0, however the lost opportunity costs from the impacts from unrealized FTE increase and the impact on the workforce and local manufacturing economy would be considerable.

### 2. Lease Space Off Campus

As the LCCA analysis in Appendix B illustrates, the cost of leasing equivalent space in the Vancouver downtown area would be $16, 482,676 in the first biennium of the lease and approximately $6.8M per

biennium thereafter. Tenant improvement costs may vary greatly based upon lease terms and the specific existing building(s) chosen for the lease. Most available spaces are in the Port or other industrial areas. See LCCM for the lease option in Appendix B.3

3. **Construct new AMC on new site adjacent to Main Campus**
   Total Project Costs of $61,072,312. See C-100 provided in Appendix B.2.

4. **Construct new AMC at Boschma Farms Campus**
   Total Project Costs of $54,923,000. See C-100 provided in Appendix B. 1

## D. SCHEDULE ESTIMATES FOR EACH ALTERNATIVE

1. **Do Nothing**
   This alternative assumes no action thus no schedule applies.

2. **Lease Space Off Campus**
   Given the current market for warehouse and industrial space in Vancouver, it is estimated that identifying a suitable property would require 3-6 months. Following successful negotiation of terms, it is anticipated that design/build the final TI/Site improvements would require an additional 20-months assuming the start of the lease process cannot begin before July 2019.
   - Search and Lease: 07-19 – 01/20
   - Design/Tenant Improvements: 01/20 – 07/21
   - Completion and Occupancy: 07/21 – 09/21

3. **Construct new AMC adjacent to main Campus**
   Given the current market for land adjacent to the existing main campus, it is estimated that identifying and acquiring property would take a minimum of 12 months. Following successful acquisition, it is anticipated that design phase would require a minimum of 12-months and construction would take 24 months.

   - Land Acquisition 07-19 – 07/20
   - Design/Preconstruction: 07-20 – 07/21
   - Construction: 07-21 – 07/23
   - Substantial Completion: 08/23
   - Completion and Occupancy: 08/23 – 09/23

4. **Construct new AMC at Boschma Farms Campus**
   Using design-build acquisition, we anticipate that detailed design would start in May 2019 following successful selection of a D-B Team. Design and permitting will require 10 months and can overlap with construction having a 24-month duration
   - Award D-B Contract 08/19
   - Design 08/19 – 03/20
   - Permitting Site and ROW extension 08/19 – 10/19
   - Site Prep and Improvements 02/20 -04/20
   - Permitting Building 02/20 – 04/20
   - Building Construction 04/20 – 04/21
   - Equipment Relocation/Move-in 05/21 – 07/21
   - Completion and Occupancy 07/21 – 09/21

# SECTION 4 - ANALYSIS OF PREFERRED ALTERNATIVE

## 1. General Description Nature of the Space/Project

The project originated with the desire to meet the demands of high population growth in north Clark County, while at the same time ensuring that Clark College students had access to learning in real-world environment that replicated best industrial practices to provide students with a fully immersive learning experience. The co-location of Clark College's manufacturing programs into a new Advanced Manufacturing Center will allow the college to develop new capabilities that overlap existing programs (for example, additive manufacturing, advanced composites, metrology and calibration, and engineering technology) and will also allow for the efficient shared use of learning resources such as equipment, classrooms, and computer labs across multiple programs.

The building is programmed to total 70,000 Gross Square Feet (gsf)

## 2. Occupancy

The primary occupancy for the building will be faculty and students engaged in the academic pursuit of Applied Technical Education. Applied technical education marries the general academic and specific vocational preparation of students for jobs involving applied science and modern technology. It emphasizes the understanding and practical application of basic principles of science and mathematics, rather than the attainment of proficiency in manual skills that is properly the concern of vocational education.

The new facility will co-locate the college's manufacturing-related programs in a signature, state-of-the-art facility that will be the first building on a new North County campus. It will be a magnet for students, faculty, and industry partners.

The project is planned to support the following occupancy groups and numbers:

| | |
|---|---|
| Faculty (FT) | 12 |
| Faculty (Adjunct) | 10 |
| Students (Headcount) | 400 |
| TOTAL | 422 |

## 3. Configuration

It is desired that the AMC be configured in three zones: a public zone, an academic/ service zone and industrial/materials zone. Building layout must provide floors that are of a large enough size to allow for open/flexible lab/shop without sacrificing access to daylight and external views. Shared facilities, such as the conference rooms, general academic classrooms, student study and lounge areas should be in a location that is most convenient to all building users. Similarly, shared spaces on each floor should be centrally located and easily accessible.

The configuration of the zones should be based upon level of common use/access; interior volume/height of space; and need for acoustic separation. The preferred configuration is a 2-story building with a minimum of 10-ft ceiling height (greater in shops) with the shop spaces on the ground floor and academic/administrative spaces on an upper floor.

## 4. Space Needs

The following tables show a summary of the functional area required for each program and the building as a whole:

| | |
|---|---|
| **Manufacturing Area** | **36,010** |
| Open Shop | *27,650* |
| Tool Room | *1,700* |
| Tool Crib | *800* |
| Secure Storage | *2,100* |
| QA Inspection | *800* |
| Grinding Room | *800* |
| Classroom/Lab (3) | *2,160* |
| **Materials Lab** | **1,880** |
| Clean | *1,020* |
| Hot | *430* |
| Dirty | *430* |
| **General Academic** | **8,290** |
| Classrooms (4) | *3,320* |
| Computer Lab (2) | *2,800* |
| Informal Student Study | *670* |
| Student Study Lounge | *1,500* |
| **Administrative** | **4,070** |
| Security Office | *100* |
| Faculty Offices (10) | *1,200* |
| Adjunct Faculty Suite | *430* |
| Reception | *120* |
| Workroom | *120* |
| Faculty Breakroom/Conference | *900* |
| Conference | *1,200* |
| **Assignable** | **50,250** |
| Structure | 4,850 |
| Circulation | 8,500 |
| MEP | 3,600 |
| IT & Telecom | 800 |
| Toilets & Janitorial | 2,000 |
| **Non-Assignable** | **19,750** |
| **TOTAL GROSS** | **70,000** |

The above space requirements were developed over many detailed space needs workshops with each program to evaluate the process that each program was teaching, the type and configuration of equipment needed to support the identified process, and the amount of classroom, planning, and post-class space each student needs to be an effective learner in an active-learning modality.

Specific Industrial Education space allowances were based on *"Trade and Industrial Facility Guidelines"* published by the Instructional Materials Service of Texas A&M University. Space requirements around specific pieces of equipment identified by the Program Faculty were prepared by Certified Industrial Engineers based on industry standards and OSHA/WISHA requirements. Non-program specific needs were identified based on the DES Space Allocation Guidelines.

# Site Analysis

## 1. Current Studies

The following site studies have been completed as part of this Predesign:

a. Geotechnical Investigation
b. Topographical Survey
c. Historical and Archaeological Assessment

The following study is currently being undertaken by the Foundation. its results will be included in the RFP: .

a. Detailed study of the adjacent wetlands.

## 2. Site Data

### a. Location

The new building will be sited on property located at 264 N 65th Avenue Ridgefield, Washington 98642. The overall site is comprised of four parcels (see Appendix 6.3) totaling about 70 acres, with 10 acres of that being donated for the AMC building. As the campus expands, more land will be donated as indicated on the Boschma Farms Master Plan. (see Appendix 6.6) The site is conveniently located immediately off I-5, providing ease of access not only for students living in the rapidly growing north and central part of the county, but for those commuting from all points in the region as well.

### b. Ownership or Acquisition

The project is on land currently owned by the Clark College Foundation. The portion of the site where the AMC will be located will be deeded by the Foundation to the State at no cost. No other acquisition will be necessary for the project as proposed. See land commitment letter from the Clark College Foundation in Appendix 6.4)

### c. Site Description

The overall subject site is bounded on the west by N 65th Avenue and to the north, south and east by private undeveloped parcels zoned for commercial regional business (CRB). Existing access to the site is off of North 65th Avenue via a dirt road to the existing grass seed and strawberry farm on the project site. The overall campus site consists of five parcels for a total of 69.52 acres; the parcels include: 214199000, 214195000, 214247000, 214196000, and 214197000. Parcel 214197000 is developed with several buildings including a home and office trailer as well as a farm building and two septic fields. Phase 1 of the overall site development will only include construction on parcels 214195000, 214247000, 214196000, and 214197000 to the east from N 65th Avenue totaling 8.47 acres of the overall site.

Longitudinally, the existing site topography has several low spots and ridges that also generally slope from the south to north. The site is mostly cleared of trees and currently used as farmland. Along the western edge of property, there is an existing stormwater drainage ditch that flows south to north to serve existing improvements within N 65th Avenue.

### d. Soils

The soil information made available by the National Resources Conservation Service (NRCS) web soil survey shows that the site consists of silt loam soils; these include Odne, Gee, and Hillsboro silt loam. Approximately 99% of the site is Odne and Gee loams which are rated as a group C and D soil group with moderate to poorly draining soils. Groundwater is also indicated at a depth between 0 and 48-inches

below ground. The infiltration capacity of the soil is poor with an infiltration rate between 0 and 0.57 inches/hour. A Geotechnical study has been completed and included in Appendix 6.7

**e. Building Location**

The preliminary vision plans for the North County campus identified a central location of the planned initial building (see Site Analysis and Boschma Farms Master Plan in Appendix 6.6). After review of building siting options, it was decided that locating the AMC building along the south border of the site with a main vehicular entrance from the extension of Pioneer Way was the preferred location. The primary reason for this was to have a new building directly accessible from the main campus entrance. This location also significantly reduces the cost for utility connections. Subsequent development for the campus will occur in the area of the existing farm north and east of the new campus entrance.

1. Primary public access will come from a planned round-about off an extension to Pioneer Way. This will be the front door to the future campus. Parking for students and public will be to the east of this entrance with the service yard located west of the new building. This allows 2-story portion of the building to visually screen the service functions and also places the second-floor administrative spaces oriented to the views of Mt. St. Helens to the northeast.
2. When the vision plan was developed, the planned building function was expected to be primarily administrative and general academic. With the function of the AMC being primarily industrial and the desire to keep delivery traffic at the perimeter of the future campus, a location away from the planned center is operationally superior.
3. Locating the initial building closer to the Pioneer extension places it closer to the serving utilities, reducing the costs of utility extension and the quantity of on-site roads and drives.
4. Locating the building in a north-south orientation also make the site grading less costly as the general slope is in an east-west direction.

**f. Stormwater Flow Control and Water Quality**

Stormwater for the area drains to two basins. Drainage for the site is regulated by the City of Ridgefield Engineering Standards for Public Works.

Construction which follows the Department of Ecology Stormwater Management Manual for Western Washington (SWMMWW) 2005 dated February 2005. The manual states that projects that create more than 5,000 square feet (SF) of impervious surface area must meet all ten minimum requirements. This development will exceed this threshold.

The SWMMWW 2005 requires that quantity control be provided for new impervious surfaces. Detaining all runoff will meet this requirement. Since the soils likely will provide poor infiltration, detention ponds, or tanks in conjunction with control structures, will be used to meet this criterion. An approximate 3 acre-feet of storage is necessary to mitigate for the new impervious surfaces. The SWMMWW requires that runoff from pollution-generating surfaces, including all surfaces subject to vehicular traffic, be treated before being discharged from the project site. Due to the infiltration rate of native soils, multiple options for water quality pre-treatment will be analyzed for feasibility. A potential option for pre-treatment is to discharge detained water through a bioswale and into onsite wetlands.

The overall site improvements will occur in two threshold discharge areas (TDA) and require storm drainage facilities for both the east and west portions of the finished developed site. Phase-1 will be in the western TDA; however, due to the change in elevation over the site, the storm system will need to be

designed for three basins. During Phase-1, a storm detention facility will be designed for the onsite building improvements with the eastern portion of Pioneer Street. The western portion of Pioneer Street will require a second pond due to the existing topography sloping into a valley approximately 590 feet from the existing roundabout. The sidewalk improvements along N 65th Avenue will also require a detention pond. The Phase-1 onsite improvements along with the eastern half of the Pioneer Street improvements basin captures approximately 6.31 acres and will require a detention capacity of approximately 2 acre-feet. The west Pioneer Street improvements basin captures approximately 1.644 acres and will require detention capacity of approximately 0.5 acre-feet. The N 65th Avenue improvements basin captures approximately 0.5 acres and will require detention capacity of approximately 0.20 acre-feet. The building site elevations range from 272 to 286 and earthwork operations as part of the site development.

**g. Sensitive Areas**

The site is located within a Category-2 critical aquifer recharge area meaning areas within the site recharge aquifers within the ten-year time of travel for Group 'A' wells within the City of Ridgefield, or an unconsolidated sedimentary aquifer of the Troutdale aquifer may exist within this area. Both Allen Canyon Creek and McCormick Creek run through the northeastern and northwestern portion of the site. A total of 5.92 acres of creek and wetland area exists within the site parcels. McCormick Creek has been classified as a Type-F creek and Allen Canyon Creek has been classified as a Type-N creek by the State of Washington. A Type-F creek requires a 200-foot buffer while a Type-N creek requires 100-feet buffer per Clark County Code based on stream classification.

The City of Ridgefield will require detailed location of the creek boundaries and buffers as part of any development.

**h. Easements**

The City of Ridgefield and the serving utilities will require a ROW easement for the extension of Pioneer Street and any primary utility routes as a condition of this development. The proposed site will include an extension of Pioneer Street along the south border of the site for approximately 1,300 feet. This will necessitate dedicating Right of Way from each affected parcel to Clark County. An ingress easement already exists on the site to the north between parcel 214199000 and the parcels to the south (214195000, 214196000, and 214197000).

**i. Potential Neighborhood Issue**

The project location is currently undeveloped. Near-term development plans for the adjacent properties indicate a mix of commercial and residential is planned. These uses are very compatible with higher education uses and no adverse reaction is anticipated from the neighboring properties.

**j. Utilities**

1. Water

   The site has access to a 12-inch water main on the east side of N 65th Avenue. The water main extends from the intersection at Pioneer Street to the north and terminating before reaching parcel 214199000. The City of Ridgefield requires that all portions of a building be within 150 feet of a fire hydrant. A water main loop will be constructed around the new building, and additional fire hydrants will need to be added to the site, to provide adequate fire protection. The new water line will have "T" intersections and valves to make subsequent extension for later campus buildings possible.

2. Power

   Primary power is provided by Clark Public utilities and is available for connection at the southwest corner of the site along the north side of the new extension of Pioneer Way. Connection wil;l be in a vault at this location and will route along the new campus entrance to a new vault which will "T" to the north to facilitate connection for subsequent campus buildings.

3. Natural Gas

   Northwest Natural provides gas within the City of Ridgefield. A 6-5/8" and 4-½" gas pipe runs through N 65th Avenue and a new gas line will be located on the north side of the Pioneer Extension. The project will include extending gas services from the Pioneer location parallel to the new campus entrance. A valve and "T" will be provided to facilitate extension to the north for future campus buildings.

4. Sewer

   Sanitary sewer service is provided by Clark Regional Wastewater District. Sewer mains are available within the North 65thAvenue right-of-way at the intersection with Pioneer Street to the north. An 8-inch gravity sewer line is proposed, the North Junction Trunk Line, at the northern end of the parcel 214199000 will be installed by the end of 2019. The invert of the proposed sewer connection is 249.76 ft.

5. Telecommunications

   Multiple options exist for telecommunications within the City of Ridgefield. Qwest typically provides telecommunication services to the site area. A new vault at the connection point at the southwest corner of the site is planned. A bank of four 4" conduit will be provided running parallel to the new campus drive ending in a junction vault northeast of the new building. This vault will provide connectivity to future campus buildings to the north.

**k. Environmental**

1. Green Space

   With the site's strong presence from the new Pioneer Street entrance the design approach shall establish a basis for the aesthetic character of the new campus while at the same time expressing the site's role as a between the planned campus core and the future development to the south. The many elements that define a campus should be studied during the design process including view axes, edges, buffers, transitional zones and, open space.

2. Potential Mitigation/Contamination

   The College conducted an initial Phase-I assessment for the portion of the Boschma site where the existing farm buildings and supporting operations are located. There is a limited quantity of hazardous materials in this location and the boundary of the proposed project has been planned to avoid this area.

3. Wetlands

   Initial assessment and field survey have identified two wetland areas within the site. Each associated wetland has been classified as a Category-IV wetland requiring a 50-foot buffer. Construction is not proposed within the wetland or stream buffer zone and these preliminary identification will have no impact on the proposed development. The Foundation is undertaking further investigation of the wetlands on site.

4. Shoreline

   The project is not located on or near any regulated shorelines.

5. SEPA/NEPS Requirements

   The project will require SEPA review with the City of Ridgefield as the determining authority. It is expected to receive a Determination of Non-Significance (DNS)with mitigation required after the SEPA review process. The mitigation conditions are assumed to include requiring all site development to comply with the Washington Department of Ecology Stormwater Management Manual for Western Washington as adopted by the City of Ridgefield. Depending on the final design of site elements, the planned development may require a permit for wetland mitigation through the US Army Corps of Engineers.

**i. Parking, Access, Roads**

1. Parking

   The City of Ridgefield does not have a code-specified quantity of parking for a Vocational School. Based on the closest use-type listed (light manufacturing), one space per 500/sf would be required. Based on a 70,000-sf building, a minimum of 140 parking spaces would be required. The specific quantity will be confirmed in the initial design phase.

2. Fire Access

   The site is adjacent to roadways that are adequate for emergency vehicle access. The property is currently accessed through a private gravel road over 0.278 miles to the existing onsite structures. The site plans will provide additional emergency vehicle access to points around the building perimeter. Clark County Fire is the fire district for this site.

3. Traffic Study

   The site is within the Commercial Regional Business Zone. The site is situated in an agricultural area and would likely experience an increase in both noise and traffic during construction and while the campus is operational. A traffic impact analysis (TIA) was conducted by Kittelson & Associates, Inc. and is provided in Appendix 6.5. It identifies no off-site improvements will be made necessary by the AMC.

4. Frontage and Roadway Improvements

   The site will require frontage improvements along a small section of N 65$^{th}$ Avenue frontage and the Pioneer Street frontage along the south boundaty of the 10-acre site. All improvements shall be in accordance with the City of Ridgefield Engineering Standard for Public Works Construction. The N 65thAvenue right-of-way exists along both the 214195000 and 214199000 parcels. The Pioneer Street right-of-way will exist along the 214195000, 214247000, 214196000, and 214197000. Pioneer Street is considered a Major Arterial and will require in its construction 6-foot wide sidewalk, 7-foot wide planter strips, 1-foot curb and gutter, 7-foot shoulder, 6-foot bike lane, a 12-foot drive lane, a 12-foot median, a 13-foot drive lane with a second 1-foot curb and gutter, 12.5-feet of planter strips buffering a 10-foot wide multimodal trail. Pioneer Street will require 100-feet of Right-of-Way designation. N 65$^{th}$ Avenue is classified as a Minor Arterial and will require two 6-feet wide sidewalks, two 5-feet wide bike lanes, two 11-feet wide planter buffers, two 12-foot drive lanes with a 12-foot

turn lane or median between and 1-foot curb and gutter. N 65th Street will require 80-foot wide Right-of-Way development.

j. **Impact during Construction**

As the site is currently undeveloped and is remote from other development, there is minimal potential for adverse impacts during construction. The contractor will be required to fully secure the site and to implement Stormwater Pollution Prevention Plan and Temporary Erosion and Sediment Control plan for managing stormwater during construction phase.

## C. Consistency with Long-Range Plans

A North County Campus has been part of the College's facility master planning since 1986, when the need for satellite campuses in the service area was first identified. Subsequently, the north central campus concept was approved by the State Board when it was presented by Clark College as part of the College's 2003-04 Facility Master Plan review.

Development of a new North County Campus and construction of the new Advanced Manufacturing Center is the highest priority identified in the Clark College Facilities Master Plan. Existing facilities do not have the technology and infrastructure requirements for these programs. A new facility to improve instructional space and program delivery for the manufacturing programs is critical to meet the needs of the College.

## D. Consistency with Other Laws and Regulations

Design and construction shall also adhere to the latest applicable codes, unless stated otherwise. The current applicable codes include:

- 2015 International Building Code as adopted by the City of Ridgefield
- 2015 International Fire Code as adopted by the City of Ridgefield
- 2015 International Mechanical Code as adopted by the City of Ridgefield
- 2015 Uniform Plumbing Code as adopted by the City of Ridgefield
- 2015 National Electrical Code
- 2015 International Fuel Gas Code
- ANSI A17.1 - Safety Code for Elevators and Escalators
- ICC/ANSI A117.1-2009 Accessible and Usable Buildings and Facilities
- 2015 Washington State Energy Code (WSEC)
- Washington State Ventilation and Indoor Air Quality Code
- City of Ridgefield Public Works, Land Use and Development Codes and Standards
  (note: Design Review will be required)
- Clark County Public Works Stormwater Regulations
- Clark County PUD Utility Standards/Regulations

1. **High-Performance Public Buildings**

Clark College committed to creating high performance facilities that will ensure the optimal health and productivity of occupants and buildings users. The College will require the building to achieve certification to LEED Silver by the United States Green Building Council (USGBC) in accordance with Chapter 39.35d RCW

"High Performance Public Buildings". At a minimum, the project will be designed to achieve a required minimum energy savings of 20% energy use (kBTU) over Washington State Energy Codes in effect at the time of project permitting, in addition to the LEED Silver Certification, the design will be required to achieve a minimum 5pts for EA Credit 1 for a 20% energy cost savings. Additionally, whole building simulation will be required. Resultant savings will be analyzed for proposed design as compared to ASHRAE standard 90.1-2007, which establishes minimum requirements for Energy Efficient Design of Buildings for LEED EA Credit 1.

2. **Greenhouse Gas Emissions Reduction**
   Clark College campus has an ambitious Greenhouse Gas (GHG) reduction goal of realizing a 15% reduction in GHG emissions below 2005 levels by 2020. To assist this goal, the AMC project will be required to meet at least 8 of the Best Practices to reduce greenhouse gas emissions, including:
   - Above-code HVAC system efficiency
   - Utilize natural gas instead of electricity for heating
   - Post occupancy commissioning
   - Time-of-day and occupancy-programmed lighting
   - Energy-efficient lighting
   - Roofing materials with high solar reflectance and reliability
   - The building will be oriented for natural light and reduced heating and cooling loads
   - increase transportation choices and promoting commute trip reduction
3. **Archeological and Cultural Resources**
   A historic inventory survey was completed in compliance with Executive Order 05-05 (see Appendix 6.2). The survey included 47 probes in the area proposed for the AMC. All of the probes were negative for archaeology. The College has filed the EZ-1 form with the Department of Archeology and Historic Preservation (DAHP) which has determined that the existing fam buildings are not eligible for the National Historic Register.

   Local tribes have been given notice of the project to assure they have awareness of the planned scope and an opportunity to comment.
4. **ADA**
   The design will be required to comply with Chapter 11 of the IBC – Accessibility and will meet all the requirements of ICC/ANSI A117.1-2009 Accessible and Usable Buildings and Facilities. To the maximum extent possible the tenants of Universal Design will be applied.
5. **Compliance with Regional Planning**
   In obtaining Land Use Permit from the City of Ridgefield, the project will demonstrate GMA Compliance as required under RCW 36.70A.
6. **Additional Information per RCW 43.88.0301 (1):**
   a. Is the proposed project identified in City of Ridgefield comprehensive plan? **Yes, it is identified as General Commercial under the City of the Ridgefield Comprehensive Plan.**
   b. Is the proposed project is located within an adopted urban growth area? **NO**
   c. If located within an Urban Growth Area, does the project facilitate, accommodate, or attract planned population and employment growth? **Not Applicable.**

d. Was there regional coordination during project development? **YES. Coordination with City of Ridgefield Community Development.**

e. Is the project leveraged with local and or additional funds? **Yes. The land was provided as a grant from the Clark College Foundation. It has an assumed value of approximately $7M.**

f. Have environmental outcomes and the reduction of adverse environmental impacts examined? **YES. They will be further developed through the SEPA Process.**

## E. Deferred Issues Study

There are no known issues deferred at this time.

## F. Components Exceeding Code

This project will not require any components that exceed current code-minimums other than as may be pursued to achieve LEED Silver Certification per Executive Order 05-01.

## G. IT Systems

This project is a teaching facility. It will have a robust IT and telecommunications network internal to the building and interconnected to and capable of interfacing with the main campus. To insure effective connectivity, it will have a robust Wi-Fi connectivity. Costs for the proposed systems are identified in the budget documents included herein and will be further reported in detail per RCW 43.88.030 as the project progresses. The proposed project is not classified as a major information technology projects per RCW 43.88.092. None of the proposed IT systems apply to business and administrative applications nor are they enterprise-wide, thus are not subject to RCW 43.105.205.

## H. Building Commissioning

Commissioning services will be required per the Washington State Energy Code and as necessary to achieve both fundamental and enhanced commissioning LEED Credits. An Independent Commissioning Authority will be required to direct the enhanced commissioning requirements for LEED. The Commissioning Authority will review design documents and make recommendations during the program phase, design phase, construction phase, acceptance phase, and post acceptance phase. Installation verification will be performed, functional testing, and performance period of measurement and verification. Commissioning documents will be provided during design, process, verification, and operation and maintenance documents.

## I. Impact of Future Planning/Phasing

The masterplan vision for the Boschma Farms Campus (see Appendix 6.6) features a center campus green at the higher elevations of the larger site. The proposed building location is closely aligned with one of the building locations in the vision plan initially developed for the site. In planning for this initial phase, the future extension of the main campus access road has been considered. The proposed plan allows for future extension of the access road with minimal impact to the on-going use of the AMC building or its associated parking.

All site utilities extended for the AMC will be sized and designed to facilitate later connection to the future campus buildings.

Within the building the design will seek to maximize flexibility to accommodate future change without requiring major system or structural redesign.

## J. Project Delivery Methodology

1. Alternatives Considered

   The college evaluated three methods of project delivery:

   *GCCM (General Contractor/Construction Manager)*

   - GCCM may be utilized on projects with construction costs of $10 million or more where early involvement of the contractor is a benefit in terms of scheduling, phasing, or coordination, construction at an occupied facility; a complex or technical work environment; or specialized work on a building that has historic significance.
   - GCCM may involve increased costs for design fees related to working with the contractor and preparing multiple bid packages; and for the GCCM risk contingency.

   *Design-Build*

   - Design-Build may be utilized on projects with construction costs of $2 million or more where construction activities are highly specialized; there is an opportunity for greater innovation or efficiencies between the designer and the builder; or significant savings in project delivery time would be realized.
   - Design-Build delivery, as it consolidates design and construction under a single entity reduces risk of added costs due to discipline coordination.
   - Design-Build delivery typically can be accomplished in a more compressed timeframe.
   - Design-Build may involve increased costs due to the effort to prepare the RFQ/RFP, stipends for competitors in the RFP phase and the ongoing participation of programming consultants.
   - Design-Build may not provide the depth of design/programming interface needed in a building where multiple program needs may be competing for fixed area or assets.
   - Design-Build with a guaranteed maximum price (GMP) places much of the decision making on the Design-Builder where cost may be the primary consideration and may not provide the anticipated level of quality.

   *Design-Bid-Build*

   - Design Bid Build is used to procure most public works in Washington State and almost all projects for the State Board of Community and Technical College.
   - The process encourages price competition.
   - Responsibility criteria may be utilized to ensure that a qualified contractor is awarded the project.
   - The college is experienced with this delivery type.

2. Recommended Procurement

   After careful consideration, Clark College proposes to use traditional Design-Build (D-B) project delivery. The project has significant complexity stemming from its new site and the integration of existing equipment in new shop spaces. significant benefits include:

- Greater opportunity for innovative design and construction procedures. Integration of the builder and designer at the start of the planning and design phase effectively allows the owner to leverage the experience and know-how of the entire team to benefit the project and produce a more successful result.
- Cost certainty: The College will have a firm understanding of project costs much earlier in the process than design-bid-build. Having a guaranteed maximum price (GMP), typically at the 30- to 60-percent design stage allows the team to tailor the project scope to meet the budget and schedule expectations. This also provides upfront information for the College to make confident and informed decisions regarding budgeting
- Single point of responsibility and accountability for design and construction. This delivery strategy shifts the risk for design, construction, schedule performance and cost performance from the owner to the design-build team.
- Greater collaboration and value: Trust and transparency is built through "open book" price development, where the entire team has access to competitive pricing from subcontractors and suppliers. The entire delivery team — in a collaborative effort — then selects and "buys out" the project after considering cost, quality, experience, past performance and other factors that the team deems important. This process places value front and center to achieve not only lower capital cost but also lower life cycle cost.

3. **Agency Management**

It is anticipated that DES will provide direct management of the D-B Procurement and subsequent project delivery from inception to the end of the one-year performance guarantee/warranty period. The College will be represented in the process by their Facilities Director.

The roles and responsibilities are anticipated to be:

| *Phase* | *Responsible Party Primary Responsibility* |
|---|---|
| Predesign RFQ/RFP: | Clark College:<br>Assists in consultant selection<br>Coordinates stakeholder participation<br>Participates in detailed programming<br>Reviews and approves detailed programming and budget<br>DES Project Manager:<br>Directs consultant selection<br>Manages consultant contract<br>Assists agency in review and approval of programming and budgets<br>Predesign Consultant:<br>Provides programming services per agreement<br>Prepares and participates in RFQ/RFP Selection Process |
| Post RFP/Design & Construction: | Clark College:<br>Participates in periodic design and construction meetings<br>Provides design decisions including program adjustments to achieve budget<br>Approves design and estimates at 20%, 45% and Final<br>Participates in system commissioning<br>Attends operating instruction |

DES Project Manager:
- Manages Design-Build Contract
- Assists agency in review and approval of programming and budgets
- Monitors quality and schedule
- Advises Clark College in all matters related to the construction

Design-Builder
- Provides Design and Construction services per agreement

Performance Guaranty Warranty:

Clark College:
- Insures operations per performance guaranty agreement
- Identifies warranty issues
- Notifies D-B of needed warranty repairs

DES Project Manager:
- Assists in obtaining warranty repairs

Design-Builder
- Provides warranty repairs
- Monitors performance guaranty parameters
- Modifies/adjusts systems/design parameters to achieve guarantee standards.

## K. Schedule

### 1. Milestones

| | | |
|---|---|---|
| a. | Award D-B Contract | 08/19 |
| b. | Design | 08/19 – 03/20 |
| c. | Permitting Site and ROW extension | 08/19 – 10/19 |
| d. | Site Prep and Improvements | 02/20 -04/20 |
| e. | Permitting Building | 02/20 – 04/20 |
| f. | Building Construction | 04/20 – 04/21 |
| g. | Equipment Relocation/Move-in | 05/21 – 07/21 |
| h. | Completion and Occupancy | 07/21 – 09/21 |

### 2. VE and Constructability

As the delivery method is Design-Build, the Design-Builder will be required in compliance with RCW 43.88.110 (5) (c), to provide a status of value engineering and constructability issues at each design review session noted in paragraph K.5 below.

### 3. Potential for Delay

The project could have significant delay potential if it is not funded by the legislature in the 19/21 Capital Budget. It has already experienced delay from lack of passage of the Capital Budget in 07/17.

### 4. Permitting or other ordnances potential impact schedule

The City of Ridgefield was contacted during the RFQ/RFP Phase and indicated that permitting would be straightforward for this project as its use is permitted outright in the underlying zone. They would also support fast-track permitting issuing an early site and foundation permit prior to the general building permit. No extraordinary permit or ordinance compliance issues are anticipated.

**5. Jurisdictional and Stakeholder Involvement Plan**

The Design-Builder will be required to hold follow-on programming and design sessions with the User-Groups at the Detailed design conferences and project reviews will be held at 40%, and 70% of the design phase. Regular (every-other week) progress meetings will be held by the Design-Builder and the College as the design and construction progresses.

The Design-Builder will have the responsibility to establish regular on-site inspections with the Ridgefield Building Inspector and all other authorities having jurisdiction over the project.

# SECTION 5 - PROJECT BUDGET ANALYSIS

## A. Cost Estimate

### 1. Major Assumptions

Following are the major assumptions reflect the design program and existing site conditions. They form the basis of the estimates/MDACC.

#### a. Site

The site topography is generally sloping from east to west, toward a designated wetland area that is outside the current work limits. Along the southern boundary is a new planned extension of Pioneer Street that will connect to the project. North and west of the site is existing farm fields and farmstead that will remain during the first phase.

Estimates for the civil and site components are based on the following:

#### b. Landscape

In general, the landscape architecture portion of the Advanced Manufacturing Center includes: planting and irrigation around the site, site furnishings, and pedestrian paving, which includes entry plazas at building entrance.

The goals of the landscape design are:

- Create interest through the use of a varied palette of building and plant materials.
- Activate pedestrian building entrances to create both a sense of entry and nodes of social space, and to aid wayfinding.
- Foster a sense of place that speaks to the particular character of the building, the campus and the local environment, while confirming connections to the main campus through use of planting and materials that evoke the Clark College character.
- Create outdoor spaces immediately adjacent to the new building that enhances its aesthetic and functional qualities.
- Respond to major site circulation for current and future conditions.
- Use plant materials to visually screen agricultural spaces between phases of campus additions, while maintaining and enhancing regional views of Mt. St. Helens and the Cascade foothills.
- Provide a low-maintenance landscape that reduces water use.

The major components of the of the landscape design/estimate include:

Main Building Entries:

Plazas will mark the main entrances to the building. Site furnishings, specialty paving, and planting will set the spaces apart. Plazas will also provide opportunities for large and small group gathering space. The plaza paving will use scoring patterns and textures to define the building entries and reinforce wayfinding around the site. Planting areas will provide multi-season interest and a sense of separation from the parking area. Lawn, canopy trees, and ornamental plantings will provide a buffer between the parking area and building, while highlighting views of Mt. St. Helens to the north.

Parking Lots:

The parking lot will include low-maintenance shade trees, low shrubs, and groundcovers in islands, and longer planter strips with opportunities for stormwater management.

Buffer Plantings:

Buffer plantings (trees, shrubs and groundcovers) along the south property line, as required by the City of Ridgefield. These plantings provide separation while preserving sight lines through from street to site. Along the north and east sides of the parking area will have 20 foot wide temporary planting buffer (native shrubs and groundcovers) that will be replaced as the campus expands. At the northeast corner, a screening hedge will shield an existing farmstead while preserving mountain views. A low screening hedge and row of shade trees will enclose the work yard. Fencing enclosing the work yard will be black vinyl coated chain link along the north and west sides, and ornamental iron fence along the south toward the street.

Landscape Elements:

Landscape elements that may be found in one or all of these areas are as follows:

*Concrete Paving:* 4-inch thick CIP concrete with a light broom finish and tooled joints. Sidewalks along east side of the building will be fire truck rated strength to allow emergency vehicle access immediately adjacent to the building, as well as boom truck access for window cleaning.

*Textured CIP Concrete*: At entry plazas, 4-inch thick sandblast-finished, CIP concrete paving with saw cut score joint patterns.

*Concrete Seat Walls:* Constructed of 18- to 24-inch thick CIP freestanding concrete, architectural finish, and typical footing and reinforcement details.

*CIP Concrete Stairs:* CIP concrete with light broom finish.

*Site Amenities:* Benches, tables, chairs, planting containers, bicycle racks, and trash receptacles will be selected from off-the-shelf sources to complement building architecture and reflect furnishings from the main Clark College campus.

*Handrails:* Custom handrails on all exterior stairs meeting ADA and district standards.

*Plantings:* All planting areas will be excavated to a minimum of 12 inches below finish grade and will be filled with three-way topsoil. Planting areas in this portion of the project will be provided with full coverage by a permanent, automatic irrigation system. Plantings will consist of 1- and 5-gallon containerized or 2- to 4-inch caliper balled-and-burlapped nursery stock. All planting areas will be covered with a 3-inch layer of course bark or other approved mulch product.

*Parking Lot Plantings:*

Planting in the parking lot will include trees, shrubs, and groundcovers that will be installed in the new parking islands, along with special water-tolerant plantings for inclusion in any planted bioretention areas. Plantings will consist of 1- and 5-gallon containerized or 2- to 4-inch caliper balled-and-burlapped nursery stock. Also, all parking lot planting areas will receive permanent, full coverage, automatic irrigation system and a 3-inch layer of course bark or other approved mulch product.

### c. Architectural

- Exterior Walls: Exterior wall materials for the building will be appropriate for an institution of higher-learning. While the programs are industrial, it is not anticipated that the building will be purely industrial in its exterior aesthetic. Materials shall be durable, long-lasting, and suitable to be a visually connected part of an expanded college campus.
- Exterior Openings: Windows, storefront, curtain wall and/or skylights will use thermally broken aluminum frames with anodized or Kynar finish. Glazing will consist of clear or lightly tinted insulating glazing units with hard coat low emissivity (Low-E) coating. Sectional overhead doors with insulated vision lites will be provided in the shops.
- Roofing: The majority of the roof area will be low-slope with single-ply membrane installed over rigid insulation attached to a non-combustible deck. In order to insure positive slope to drains, the low-slope roofing structure will be pitched at 1/2 inch-per-foot and insulation drainage crickets provided at all penetrations and between drains. The color of the roofing will be white to reflect heat gain to achieve LEED credit. Within the limits of available funds and LEED criteria portions of the roof may have higher slopes and metal standing-seam-style roof panels. Walking paths to any roof equipment will be protected with slip-resistant material.
- Interior Walls: Interior non-bearing walls will typically be metal stud with gypsum wallboard. Impact-resistance will be provided on the lower portions of the wall (to 10-ft a.f.f.) in the industrial and shop spaces.
- Interior Openings: Frames for doors and relights will be hollow metal. Doors will be either hollow metal or solid core wood depending on location.
- Interior Finishes: All interior finishes will generally follow existing campus standards. Finishes in industrial/shop spaces will be durable, damage resistance and easy to clean.
- Acoustics:
    - Classrooms, labs, conference rooms, offices, and toilet rooms will be sound-insulated to a minimum STC = 45.
    - Primary acoustical attenuation in the building will be provided by acoustical ceilings and carpeting. Noise transmission in open areas will be mitigated through wall-mounted or overhead acoustical panels or sound baffles.
    - An acoustical consultant will be engaged to complete a sound and vibration isolation analysis of key architectural spaces and the mechanical system. This consultant will review design documents and provide recommendations for the project to meet Owner needs and possible LEED credits.
- Energy Conservation: The project will make use of available energy through passive design features, conservation, and low-use fixtures and equipment. Passive energy features include the use of entry vestibules at primary entrances, and orientation of the building to maximize daylight and minimize exposure to prevailing winds.

**d. Structural**

Design Codes and Standards

Structural design and construction shall be in accordance with the applicable sections of the following codes and standards as adopted and amended by the local building authority: International Building Code, 2015 Edition.

Structural Design Criteria

Live Load Criteria:

Roof (Min Blanket Snow): 25 psf

Classroom Floors: 40 psf

Office: 50 psf + 15 psf partition

Stairs and Exits: 100 psf

2nd Floor Corridors: 80 psf

Mechanical: 50 psf

Slab on Grade: 125 psf

Wind Load Criteria:

Ultimate Wind Speed: 135 mph

Risk Category: II

Wind Exposure: C

Topographic Factor: 1.0

Seismic Criteria:

Risk Category: II

Seismic Importance Factor: 1.0

Ss = 0.896 S1 = 0.399

Sds = 0.682 Sd1 = 0.426

Site Class: D (assumed)

Seismic Design Category: D

Response Modification Coeff. (R): 5.0 (SCSW), 5.0 (SMSW), 6.0 (SCBF)

Seismic Response Coeff. (Cs): 0.136 (SCSW), 0.136 (SMSW), 0.114W (SCBF)

Soil Criteria:

Soil Bearing Capacity: 1,500 psf (assumed). Allow 33% increase for short term (wind / seismic) loads.

General Structural

The AMC will be used for educational opportunities for students above the 12th grade, with an occupant load less than 500. Based upon this occupancy, a Risk Category II is appropriate. The main building structure will consist of a two story wing housing both classroom and office / admin spaces, with an adjacent one-story wing housing labs and manufacturing spaces. The main building will likely need to be constructed with a non-combustible building system. In addition to the main building, a smaller storage canopy will be provided adjacent to the main structure.

Two Story Classroom / Admin Area

It is anticipated that the two-story classroom / administration area will be constructed with conventional structural steel framing. The structural system for the building will consist of the following:

- Roof Framing – light gage steel roof deck spanning between open web steel joists. The joists will span between wide flange roof beams, which will span between conventional steel columns as well as load-bearing tilt-up concrete or CMU walls at areas adjacent to the lab / manufacturing spaces.
- Floor framing – concrete topped light gage composite floor deck spanning between wide flange steel floor joists (or open web steel floor joists). The joists will span between wide flange floor beams as well as load-bearing tilt-up concrete or CMU walls at areas adjacent to the lab / manufacturing spaces. Wide flange beams will be supported on conventional steel columns at the building interior as well as the exterior of the two-story classroom wing.
- Lateral loads – Roof and floor decking will act as a horizontal diaphragm to transfer lateral loads to the vertical elements of the lateral force resisting system. It is likely that the lateral force resisting system will use a combination of different elements. The lateral force resisting system will likely use tilt-up concrete or CMU shearwalls at areas adjacent to the lab / manufacturing spaces, along with a handful of steel braced frames at the exterior walls of the two-story classroom wing.
- Wall framing – the exterior walls and interior walls will consist of non-loadbearing light gage studs, which will span vertically between the floor structure and roof framing. The exterior walls may include masonry veneer (either brick or CMU). At locations supporting veneer, the light gage stud walls will be minimum 16 gage construction.
- Foundation – conventional concrete foundation system of spread and strip footings. Based upon the initial geotechnical investigation, some over-excavation will likely be required at building slabs and foundations.
- Slab on Grade – 4" thick, reinforced with conventional welded wire fabric reinforcing at typical slabs. At polished concrete slabs, provide 5" thick slabs with #4 reinforcing at 18" oc each way.

One Story Lab / Manufacturing Area

This wing will involve a one-story laboratory / manufacturing building constructed with a conventional pre-engineered steel building system or equivalent to provide a high-bay industrial environment.

One Story Canopy/Storage Building

This building will consist of an open pre-engineered material storage canopy. This building is currently identified as a storage canopy for low hazard materials, with an occupancy / risk category factor of II.

The structural system for this section of the building will consist of the following:

- Roof Framing – light gage steel roof purlins spanning between built-up steel frames, which will span the width of the building. The primary building frames will be used to resist vertical and lateral loads (they will be designed as ordinary steel moment resisting frames or cantilevered steel columns).
- Lateral loads – horizontal "X" bracing in the plane of the roof will deliver lateral loads to the primary building frames. The primary building frames will be designed as ordinary steel moment resisting frames to resist lateral loads in the transverse direction. In the longitudinal direction, vertical rod bracing (designed as ordinary steel braced frames) or steel portal frames (designed as ordinary steel moment resisting frames) will be added along each side of the building within a single column bay. In the transverse direction, the endwall frames will be designed as "full frames" from a loading standpoint. An alternate lateral load resisting system may use all of the building columns as "cantilevered" steel columns, which will resist lateral loads in both the transverse and longitudinal direction. If a cantilevered column system is used, the longitudinal "X" bracing and portal frames may be eliminated.
- Wall framing – along three sides of the canopy, walls may be framed with metal siding spanning between pre-engineered light gage girts, which span horizontally between building columns. A CMU wainscot may be provided at the base of these walls for durability.
- Foundation – conventional concrete foundation system of spread and strip footings. If a cantilevered steel column system is used, large spread footings (roughly 4ft square by 5ft deep) will be provided at each building column. Based upon the initial geotechnical investigation, some over-excavation will likely be required at building slabs and foundations.
- Slab on Grade – 6" thick, reinforced with #4 reinforcing at 18" oc each way. Additional slab thickening or equipment maintenance pads may be required in some locations for heavy equipment installation. Slab setup will include preparation for radiant floor heating system where called for.
- An alternate construction type that could be considered for the storage canopy is a conventional wood framed "pole building". This system will be a lower cost solution for the structure when compared with a pre-engineered steel canopy, but will be less durable and have a shorter life span.

**e. Mechanical:**

Design Criteria

It is assumed that the new AMC will comply with all applicable Codes and Ordinances, including the latest version of the following:

1. International Building Code (including Washington State Amendments).
2. International Mechanical Code (including Washington State Amendments).
3. International Fire Code (including Washington State Amendments).
4. International Fuel Gas Code (including Washington State Amendments).
5. Americans with Disabilities Act (ADA).
6. NFPA 13, Sprinkler Systems.
7. NFPA 30, Flammable and Combustion Liquids Code
8. NFPA 72 National Fire Alarm Code.
9. NFPA 90A, Installation of Air Conditioning and Ventilating Systems.
10. NFPA 101 Life Safety Code.
11. Underwriter's Laboratory Requirements.
12. Uniform Plumbing Code (including Washington State Amendments).
13. Washington State Energy Code.
14. Washington State WAC 296-24.
15. Miscellaneous:

    a) American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).
    b) American Society of Mechanical Engineers (ASME).
    c) American Society for Testing and Materials (ASTM).
    d) American National Standards Institute (ANSI).
    e) Sheet Metal and Air Conditioning Contractors National Association (SMACNA).

Design Conditions

The AMC will be designed to meet the following:

Environmental Air Conditioning:

| **Design Temperatures** | **Heating** | **Cooling** |
|---|---|---|
| Outdoor Conditions DB/WB (Vancouver, Washington) | 22 F/15 MPH Wind | 82F DB/65 F WB |
| Office, Conference, Lounge | 70 F DB | 75 F DB/50% RH |
| Computer Server Rooms | 72 F DB | 72 F DB |
| IDF & MDF Rooms | 85 F DB | 85 F DB |
| Mechanical Spaces | 45 F DB | Ventilate to 97 F DB |
| Electrical Spaces | 65 F DB | Ventilate to 10 degrees above ambient. |
| Multi-Purpose Area | 70 F DB | 75 F DB |
| Atrium Area | 65 F DB | 85 F DB |
| Classrooms | 70 F DB | 75 F DB |
| Computer Labs | 70 F DB | 75 F DB |
| Lecture Spaces | 70 F DB | 75 F DB |

| **Design Temperatures** | **Heating** | **Cooling** |
|---|---|---|
| Retail Spaces | 70 F DB | 75 F DB |
| Lecture Hall | 68 F DB | 75 F DB |

- Air Filtration: Pre-filters will be pleated media filters with a Minimum Efficiency Reporting Value of MERV 8 when evaluated under the guidelines of ASHRAE Standard 52.2. They will have an average dust spot efficiency of 25-30 percent when evaluated under ASHRAE Standard 52.1. Final filters will be high efficiency pleated media filter MERV 13 when evaluated under the guidelines of ASHRAE Standard 52.2. They will have an average dust spot efficiency of 80-85 percent when evaluated under ASHRAE Standard 52.1.

- Ventilation: Outdoor air requirements will be in accordance with International Mechanical Code (including Washington State Amendments) and as indicated in the following Table:

| Application | Estimated Maximum Occupancy (P/1000 ft²) | Outdoor Air Requirements (cfm/person or %) | Outdoor Airflow Rate in Breathing Zone (R CFM/ ft²) |
|---|---|---|---|
| Classrooms | 35 | 10 | 0.12 |
| Computer Labs | 25 | 10 | 0.12 |
| Lecture Hall (Fixed Seating) | 150 | 7.5 | 0.06 |
| Retail Spaces | 15 | 7.5 | 0.12 |
| Commons | 100 | 7.5 | 0.06 |
| Corridors | -- | -- | 0.06 |
| Multi-Use Assembly | 100 | 7.5 | 0.06 |
| Offices | 5 | 5 | 0.06 |
| Conference | 50 | 5 | 0.06 |
| Lounges | 100 | 7.5 | 0.18 |

On variable air volume systems, controls will be set up to assure that the minimum outside air quantity is always delivered to the system.

- Equipment Heat Rejection to Environment: Following are the miscellaneous heat gains that will be assumed for use in calculating space cooling loads:

| Application | Equipment Heat Rejection (watts/ft²) |
|---|---|
| Computer Labs | 4 |
| Classroom | 2 |
| MDF Rooms | Calculated Value |
| IDF Rooms | Calculated Value |

Mechanical Systems

- Noise, vibration and seismic control will be provided for the appropriate mechanical systems.
- Identification of ductwork, piping, valves and equipment shall be provided.
- Insulation of mechanical systems will include domestic hot water/cold water/hot water circulation piping, chilled water piping, heating water piping, and supply ductwork.
- Fiberglass duct liner will be used for thermal insulation. The air handling unit casing will be fiberglass lined with an acoustical perforated metal liner. Sound lining will be used on toilet exhaust ductwork and on short, low velocity transfer ducts to control cross talk between rooms.
- Testing and balancing of the air and water systems will be accomplished by an agency certified by the Associated Air Balance Council (AABC) or the National Environmental Balancing Bureau (NEBB) specializing in air and water system balancing. The A-E drawings will state the final design system capacities for reference by the contractor and use by the maintenance personnel.

Heating Systems

- Heating water system will include the following:
    - The building heating demand will be met from a heating water system with boilers located in the mechanical room.
    - Two high-efficiency, condensing, natural gas fired, hot water boilers, each sized for 80 percent of the combined heating load, will be provided. The heating water system will consist of two variable volume pumps circulating water through the boilers and throughout the building. Each pump will be sized for 60 percent of the peak system flow rate. Hot water coils in the dedicated outdoor air system (DOAS) units will be used to offset the incoming ventilation air temperature. A decoupled heating water loop off the central heating water system shall be provided for the radiant floor system.
    - The radiant floor system shall consist of a decoupled loop from the central heating water system to provide the lower operating water temperature. Localized heating water circulating pumps and zone controls will be provided to serve the radiant floor zones.

HVAC

- Shops: Hydronic radiant floor heating will serve the entire first floor. DOAS units will provide tempered ventilation air to the occupied zones in the entire building. High velocity, low speed fans will provide air circulation in the shop spaces. This air movement will create effective cooling in the summer and will assist the radiant floor heating in the winter.
- Classrooms and Offices: A water source VRF system will serve the office and classroom areas. Dedicated outdoor air systems will provide tempered ventilation air to the occupied zones in the entire building. Water source VRF outdoor units will be located on the roof with a fluid cooler to provide the heat source/sink. Indoor units will consist of fan coils in corridors serving the various spaces.

HVAC Controls

- The VRF system internal controls shall operate the roof mounted heat pumps and refrigeration controllers. Siemens Desigo DDC system will control the DOAS ventilation air volume and temperature to all the VRF zones and the VRF system will control itself to maintain temperature setpoint in the zones.
- All other controls will be microprocessor based Direct Digital Controls (DDC). The DDC shall be by Siemens Desigo.

Plumbing

Plumbing design will include the following:

- Connection to the new sanitary sewer at 5 feet outside the building.
- Connection to the new water service and fire water service at 5 feet outside the building.
- Connection to the new storm sewer at 5 feet outside the building.
- Connection to the new natural gas service at 5 feet outside the building.
- A condensate drain system shall be connected to all VRF indoor units to remove all coil condensate.
- Electric water coolers with bottle fillers will be provided outside each restroom.
- Gas fired, commercial grade water heaters will be utilized for providing domestic hot water. Separate heaters will be provided for each system.
- Floor drains will be provided in all toilet rooms and in the mechanical rooms and other locations as indicated on the drawings.
- Hot water re-circulation will be provided on the domestic hot water systems to assure hot water at all fixtures.
- A tempered water system will be provided to supply water to the electronic faucets to be utilized on each of the lavatories within the restrooms. A thermostatic mixing valve will be located on each floor in the adjacent Janitor Room.
- Emergency eyewash and emergency shower units will be set up where necessary as identified by Campus EHS safety requirements.

Compressed air system design will include the following:

- Air compressor
- Storage tank
- Air dryers
- Air filters
- Compressed air piping will be routed via hard pipe to each piece of stationary equipment and will also serve each welding booth and drops should be provided at each column throughout the shop spaces.

Fire Protection

- Connection to the new fire service will be at 5 feet outside the building.
- An automatic, wet pipe sprinkler system will serve the building.
- A dry pipe sprinkler system may be required for exterior canopies if code requires fire protection. Air compressor will be located adjacent to the first-floor mechanical space in the fire sprinkler riser room.
- A Class 1 manual wet standpipe system with 2-1/2-inch connections, where required, will be installed in each of the egress stairwells.

**f. Electrical:**

Design Criteria

It is assumed that the new AMC will comply with all applicable Codes and Ordinances, including the latest version of the following:

1. NFPA 70 National Electrical Code.
2. Washington State WAC 296-46B.
3. International Building Code (including Washington State Amendments).
4. International Fire Code (including Washington State Amendments).
5. NFPA 72 National Fire Alarm Code.
6. NFPA 101 Life Safety Code.
7. Washington State Energy Code.
8. Underwriter's Laboratory Requirements.
9. Washington State Building Code, WAC 51-30-1100, Chapter 11, Accessibility.
10. IES Lighting Handbook (latest edition).
11. Miscellaneous:
    - United States of America Standards Institute (USASI).
    - Institute of Electrical and Electronic Engineers (IEEE).
    - American Society for Testing and Materials (ASTM).
    - National Electrical Manufacturer's Association (NEMA).
    - American National Standards Institute (ANSI).

Electrical Power Systems

- Electric primary power service to the new campus will be fed underground from the existing Clark Public Utility manhole located at the intersection of Pioneer Street and North 65th Avenue. The underground service will be extended to a new Clark Public Utility pad mounted transformer adjacent to the new building. The transformer secondary will be 480Y/277 Volt, 3 phase, 4 wire. The new service feeders to the facility will be routed underground to the new Main Distribution

Switchboard (MSB) in the new main electrical room. The Main Distribution Switchboard will be sized for 20 percent spare capacity and space.

- The new main electrical room will be located on the first floor. The Main Distribution Switchboard in the new electrical room will feed mechanical, lighting and shop panelboards. Two step down transformers will be provided to feed a 208 Volt shop distribution panel and a 208 Volt receptacle distribution panel. The two 208 Volt distribution panels will feed branch circuit 208Y/120 Volt, 3 phase, 4 wire panelboards. 480 Volt and 208 Volt branch circuit panelboards will be located in the shop spaces. Lighting, receptacle and mechanical panelboards will be located in electrical rooms and mechanical rooms.

Building Power

- Building power will be as follows:
    - 480 Volt, 3 phase Motors 1/2 hp and larger
    - 480 Volt, 3 phase Equipment 10 kW and larger
    - 277 Volt, 1 phase LED lighting
    - 120 Volt, 1 phase Convenience receptacles and equipment
- Panelboards will be door-in-door type with molded case bolt-on circuit breakers and copper bussing. Panelboards will be sized for the demand load per the National Electric Code. All panelboards will have, as a minimum, 20 percent spare capacity and space. Surge Protection Devices (SPD) will be provided on the Main Distribution Switchboard, distribution panelboards, receptacle panelboards and shop panelboards. Shop spaces will be provided with emergency power off buttons to shut off power to all shop equipment. Panelboards will be manufactured by Square D. Panelboards will be located in electrical rooms, mechanical rooms and shop areas.
- Metering will be provided at the Main Switchboard and panelboards to meter mechanical, lighting, receptacle and shop loads. Metering will be tied into the DDC system to record and monitor the energy consumption of the building. Meters shall be Square D Powerlogic.
- Transformers for 480:208Y/120 Volt systems will be dry type, 115 degrees C rise, 220 degrees C rated insulation, suitable for indoor use and will be provided with copper windings. Transformers will meet the 2016 Department of Energy (DOE) energy efficiency requirements. Transformers will be located adjacent to the 208Y/120 Volt distribution panelboard they serve.
- Overhead 480Y/277V, 3 Phase, 4 Wire and 208Y/120V, 3 Phase, 4 Wire busway will be provided on the long two edges and down the middle of each shop. Equipment will be fed from busway fused switches with cord and plug down to the equipment.
- Electrical metallic tubing (EMT) will be utilized for interior above ground feeders and branch circuit wiring. Rigid Steel Conduit shall be used for exposed exterior locations. Underground conduits shall be PVC Schedule 40. Minimum conduit size shall be 3/4 inch. EMT fittings shall be compression type for 3/4 inch through 2-1/2 inch. Fittings for 2-1/2 inch and larger shall be set screw type.
- Conductors for interior wiring will be copper with 600V type THHN/THWN insulation up to #4 AWG. Conductors larger than #4 shall be copper with 600V type XHHW-2 insulation.

Aluminum conductors are prohibited. Conductors shall be #12 AWG minimum; homeruns greater than 75 feet shall use #10 AWG conductors. Exterior and underground wiring will be copper with 600V type XHHW-2 insulation. All 120 Volt and 277 Volt branch circuits will be provided with dedicated neutral conductors. Branch circuits and feeders will be sized to limit voltage drop to a maximum of 3 percent for branch circuits and 2 percent for feeders.

- General purpose specification grade 20 Amp, 120 Volt duplex receptacles will be provided throughout the facility. Dedicated circuits and receptacles shall be provided for equipment (copiers, paper shredders, printers, shop equipment, etc.), food service equipment and support equipment. All outlets located outdoors, in toilet rooms, kitchen and in wet areas will be provided with ground fault circuit interrupters. Weatherproof covers will be provided for receptacles located outdoors. Switched receptacles will be provided in offices, classrooms and conference rooms per the requirements of the Washington State Energy Code. Switched receptacles shall be a different color. Cover plates shall be stainless steel. Areas where students will hang out will be provided with duplex receptacles with built in USB chargers.
- Grounding will be in compliance with the National Electrical Code. All electrical power components will be bonded to this grounding system for both safety and also to help reduce the presence of electrical noise due to ground potential differences. All branch circuit conduits will contain a separate equipment ground conductor from the panelboard ground bus to the devices or equipment served.

Emergency Power

Emergency power will be provided by an exterior diesel generator provided with a sound attenuating weatherproof enclosure and a belly fuel tank providing 48 hours of run time. The generator will provide power for:

- Egress lighting and exit signs.
- Fire Alarm Panel.
- Telecom rooms.
- Telecom mechanical equipment.
- Sprinkler fire pump (if required).
- Radiant heating system.
- Eight strategically located receptacles throughout the facility.

Photovoltaics

Photovoltaic (PV) panels will be provided on the roof. The PV panels will be connected in series to rapid shut off combiner boxes on the roof. DC power from the rapid shut off combiner boxes will be routed to DC:AC inverters. The output of the PV inverters will be connected to a PV combiner panel that is connected to the Main Distribution Switchboard. The system will provide 99 kW.

Lighting

- Lighting luminaires will be installed in compliance with the Washington State Energy Code. The Washington State Energy Code has an Interior Lighting Power Allowance that is utilized for lighting and requires specialized switching and lighting controls.
- Lighting illumination levels will be in accordance with recommendations of the Illuminating Engineering Society (IES). The lighting levels shall be:
    - Classrooms 40 footcandles
    - Corridors 20 footcandles
    - Offices 40 footcandles
    - Storage 15 footcandles
    - Mechanical/Electrical 20 footcandles
    - Shops 70 footcandles
    - Bathrooms 30 footcandles
    - Locker Rooms 30 footcandles
    - Shared Spaces 40 footcandles
- Luminaires will utilize energy efficient LED technology. Emergency egress lighting and LED exit signs will conform to NFPA-101.
- Lighting luminaires will be as follows:
    - Classrooms: Pendant linear direct/indirect LED.
    - Corridors: Recessed linear direct LED.
    - Individual Offices: Pendant linear direct LED.
    - Utility Areas: Pendant mounted industrial direct lensed LED.
    - Shops: Pendant mounted industrial direct enclosed and gasketed LED.
    - Locker Room/Bathroom: Recessed mounted direct lensed LED.
- Lighting in common areas (hallways, bathrooms, commons, etc.) and shop areas will be controlled by a low-voltage lighting control system. The lighting control system will automatically turn off/on all lighting luminaires at designated times. Individual switches will be provided in all spaces for local control of lighting luminaires. Occupancy sensors will be provided where required by the Washington State Energy Code. Interior lighting luminaires located in the two daylighting zones will be automatically dimmed. The luminaires in the daylighting zone will be controlled by a local daylight control system with photocell input to reduce lighting levels when enough ambient daylight is present.
- Lighting in classrooms will be controlled by a local room controller. The room controller will take inputs from vacancy sensors and wall mounted dimmer switches. The classrooms will typically have three zones of dimming (whiteboard, front of classroom, back of classroom).

- Individual offices will be provided with occupancy sensors and dimming switches.
- Outdoor lighting will be provided with LED wall packs above doors and pole mounted luminaires for roadway and parking areas. Outdoor light luminaires will be controlled by the low voltage lighting control system which will have clock and photocell inputs.

Fire Alarm

- An Analog Addressable Fire Alarm (FA) system will be provided. With this system, each device has a unique address and is polled every few seconds. The devices will include smoke and heat detectors, strobes and combination speaker/strobes, manual pull stations, door holders/closers, tamper and water flow switches, and control relays. Detection devices will only be installed where required by Code.
- The FA System will monitor and control such systems as elevator recall, elevator shunt-trip, HVAC fan shutdown, and sprinkler system water flow and tamper.
- All fire alarm wiring will be provided in conduit.
- The fire alarm system shall be a Siemens system.

IT and Communications/Systems

- Codes and Standards: Applicable portions of the codes, standards, regulations and recommendations of the following entities shall be observed in the design of the telecommunications cabling system and supporting facilities:
    - National Electrical Code (NEC).
    - American National Standards Institute (ANSI).
    - National Electrical Manufacturers Association (NEMA).
    - Telecommunications Industry Association (TIA)
        - TIA-568 - Commercial Building Telecommunications Cabling Standard.
        - TIA-569 - Telecommunications Pathways and Spaces.
        - TIA-606 - Administrative Standard for Commercial Telecommunications Infrastructure.
        - TIA-607 – Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises.
        - TIA-4966 the Telecommunication Infrastructure Standard for Education Facilities.
    - Building Industry Consulting Service International (BICSI).
    - Institute of Electrical & Electronics Engineers (IEEE).
    - Underwriters Laboratories (UL).
    - National Fire Protection Association (NFPA).
    - American Standards Association (ASA).
    - Federal Communications Commission (FCC).

- American Society of Testing Materials (ASTM).

- A telecommunications service entrance room (TSER) shall be provided in the building. The room shall be sized at a minimum 9-feet by 10-feet. The room shall be near where the point communication service entrance conduits penetrate the building, adjacent to the main communication room. The rooms shall be located to provide easy access to TSP service technicians. Space within the rooms shall be allocated as required to facilitate the placement of two equipment racks to support telecommunications equipment from more multiple telecommunication service providers.
- A main communication (MDF) room/server room shall be provided in the building. The room shall be sized at a minimum 12-feet by 16-feet.
- Communication (IDF) rooms shall be provided in the building. The room shall be sized at a minimum 10-feet by 12-feet.
- Systems will be designed and provided for:
  - WiFi
  - Electronic/Access
    - The Siemens SiPass platform credentialed access control system (PACS) currently in use on the main campus shall be expanded to cover the building.
  - Video Surveillance: The exaqVision video management system (VMS) currently in use on the campus shall be expanded to cover the building. Rough in consisting of conduits, back boxes and network cables shall be provided for cameras at the following locations:
    - Approach road (license plate capture).
    - Parking areas.
    - Exterior side of building entrances and exits.
    - Interior side of building on all sides.
    - Corridors.
    - Shop.
  - Overhead paging
  - Area of Rescue Assistance
  - Blue Phones
  - Audiovisual/Instructional Media
  - Synchronized clock
  - A distributed antenna system (DAS)

## 2. Summary of Costs

Following are the major Uniformat Costs estimated, based on traditional Design-Build Delivery

| **Uniformat System (level 2)** | | **Total** |
|---|---|---|
| **A. Substructure** | | |
| | A10 Foundations | $1,718.564 |
| | A20 Basement Construction | $ - |
| **B. Shell** | | |
| | B10 Superstructure | $3,577,040 |
| | B20 Exterior Enclosure | $2,968,520 |
| | B30 Roofing | $907,577 |
| **C. Interiors** | | |
| | C10 Interior Construction | $20,005,177 |
| | C20 Stairs | $103,149 |
| | C30 Interior Finishes | $535,390 |
| **D. Services** | | |
| | D10 Conveying Systems | $185,139 |
| | D20 Plumbing | $1,401,107 |
| | D30 HVAC | $4,142,250 |
| | D40 Fire Protection | $378,748 |
| | D50 Electrical/Data/Telecom. Systems | $5,250,045 |
| **F. Special Construction & Demolition** | | |
| | F10 Special Construction | $1,937,997 |
| **G. Building Sitework** | | |
| | G10 Site Preparation | $4,144,287 |
| | G20 Site Improvements | $3,104,163 |
| | G30 Site Civil/Mechanical Utilities | $2,454,485 |
| | G40 Site Electrical Utilities | $275,394 |
| **H. Design-Build Administrative & Design** | | |
| | Design Engineering | $3,450.314 |
| | D-B General Conditions | $1,573,680 |
| | D-B Overhead & Profit | $1,596,320 |
| | D-B Contingency per RCW | $2,135,468 |
| **Total (escalated)** | | **$44,657,741** |

### 3. C-100

The C-100 provided in Appendix B identifies the Total Project Costs for the AMC of $54,923,000 broken down as follows:

| | | |
|---|---|---|
| Acquisition | $0.00 | |
| Consultant Services | $ 1,577,638 | |
| Construction Costs | $ 50,839,581 | (MADCC $44,657,741) |
| FF & E | $ 1,664,168 | |
| Artwork | $ 223,289 | |
| Agency Project Management: | $ 360,660 | |
| Other Costs | $ 253,752 | |
| **TOTAL PROJECT** | **$ 54,923,000** | *(rounded)* |

## B. Proposed Funding

### 1. Source

The proposed AMC is proposed to be 100% funded from State Appropriation over two biennia. Initial funding of $5,688,000 was included in the 2017-19 Biennium. The balance of the projected Total Project Cost, $49,235,000 is planned in the 2017-19 Capital Budget.

## C. Facility Operations and Maintenance

### 1. Operating Budget Impact

Annual cost impacts include custodial, utilities, technology, capital maintenance, general repair and furniture/equipment replacement, walkways, landscaping & grounds maintenance, security and administration costs for the new space added through the project.

The operation and maintenance budget impacts for the added new space is estimated to total $707,000 annually or $10.10 per square foot of new area. Project impact on the college's annual operating budget is as follows:

| O&M Category | FTE's | Annual Cost/Unit | Quantity | / Unit | Est. Annual O&M Cost |
|---|---|---|---|---|---|
| Janitorial | 0.5 | $1.77 | 70,000 | / GSF | $123,900 |
| Utilities | 0 | $1.83 | 70,000 | / GSF | $128,100 |
| Techology - Infra. &Tech. Support | 0.13 | $2.37 | 70,000 | /GSF | $165,900 |
| Capital Maint./Repair | 0.25 | $2.43 | 70,000 | / GSF | $170,100 |
| Roads and Grounds | 0 | $0.62 | 70,000 | / GSF | $43,400 |
| Security | 0 | $0.40 | 70,000 | / GSF | $28,000 |
| Administration | 0 | $0.68 | 70,000 | / GSF | $47,600 |
| | | | **TOTAL ANNUAL M & O COSTS** | | **$707,000** |
| **TOTAL M & O** | **0.88** | | | **$10.10** | **Per GSF** |

### 2. 10-year Capital and Operating Costs

The 10-year forecast of Maintenance and Operations costs for the CAMT is as follows:

| | Bianneum | | | | |
|---|---|---|---|---|---|
| ***O & M Category*** | ***2023-25*** | ***2025-27*** | ***2027-29*** | ***2029-31*** | ***2031-33*** |
| Janitorial | $ 247,800 | $ 261,677 | $ 276,331 | $ 291,805 | $ 308,146 |
| Utilities | $ 256,200 | $ 270,547 | $ 285,698 | $ 301,697 | $ 318,592 |
| IT/Tech. Support | $ 331,800 | $ 350,381 | $ 370,002 | $ 390,722 | $ 412,603 |
| Repair/Maint/Replace | $ 340,200 | $ 359,251 | $ 379,369 | $ 400,614 | $ 423,048 |
| Roads & Grounds | $ 86,800 | $ 91,661 | $ 96,794 | $ 102,214 | $ 107,938 |
| Security | $ 56,000 | $ 59,136 | $ 62,448 | $ 65,945 | $ 69,638 |
| Administration | $ 95,200 | $ 100,531 | $ 106,161 | $ 112,106 | $ 118,384 |
| **TOTAL** | **$ 1,414,000** | **$ 1,493,184** | **$ 1,576,802** | **$ 1,665,103** | **$ 1,758,349** |

*The forecast is based on the annual estimates noted above escalated at 2.8% per year*

## D. FF&E Costs

1. Equipment

The existing labs and shops supporting the AMC Programs contain much of the equipment and tools needed for instruction. Much of the existing equipment will be relocated from the existing spaces into the new building by the Design-Builder, and some new equipment is included in the MADCC, however not all the existing equipment is suitable for continued use/relocation due to condition or obsolesce. To ensure that the AMC Students have real-world training and experience, the C-100 budget includes $1,160,123 for purchasing new equipment. This total also includes and new computers and telecommunication devices.

2. Furnishings

The furniture in the existing classrooms and offices is not suitable for continued use/relocation due to condition. Accordingly, the C-100 budget includes $375,000 for classroom, office, and shared study/support space furnishings.

CLARK COLLEGE
EST. 1933

# ATTACHMENT 6.1

## Budget Estimates

CLARK COLLEGE
EST. 1933

# C-100 for Preferred Alternative

# STATE OF WASHINGTON
# AGENCY / INSTITUTION PROJECT COST SUMMARY

| | |
|---|---|
| Agency | Clark College |
| Project Name | New Advanced Manufacturing Center |
| OFM Project Number | 30000135 |

| Contact Information | |
|---|---|
| Name | Tim Petta |
| Phone Number | (360) 992-2408 |
| Email | TPetta@clark.edu |

| Statistics | | | |
|---|---|---|---|
| Gross Square Feet | 70,000 | MACC per Square Foot | $533 |
| Usable Square Feet | 50,250 | Escalated MACC per Square Foot | $638 |
| Space Efficiency | 71.8% | A/E Fee Class | B |
| Construction Type | Vocational schools | A/E Fee Percentage | 6.47% |
| Remodel | No | Projected Life of Asset (Years) | 50 |
| **Additional Project Details** | | | |
| Alternative Public Works Project | No | Art Requirement Applies | Yes |
| Inflation Rate | 2.80% | Higher Ed Institution | Yes |
| Sales Tax Rate % | 8.40% | Location Used for Tax Rate | 266 N. 65TH Ave. Ridgefield, WA 98642 |
| Contingency Rate | 5% | | |
| Base Month | January-14 | | |
| Project Administered By | DES | | |

| Schedule | | | |
|---|---|---|---|
| Predesign Start | July-18 | Predesign End | December-18 |
| Design Start | August-19 | Design End | March-20 |
| Construction Start | February-20 | Construction End | April-21 |
| Construction Duration | 14 Months | | |

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## Project Cost Estimate

| | | | |
|---|---|---|---|
| Total Project | **$45,923,024** | Total Project Escalated | **$54,923,252** |
| | | Rounded Escalated Total | **$54,923,000** |

## STATE OF WASHINGTON
## AGENCY / INSTITUTION PROJECT COST SUMMARY

| | |
|---|---|
| Agency | Clark College |
| Project Name | New Advanced Manufacturing Center |
| OFM Project Number | 30000135 |

# Cost Estimate Summary

| Acquisition | | | |
|---|---|---|---|
| **Acquisition Subtotal** | **$0** | **Acquisition Subtotal Escalated** | **$0** |

| Consultant Services | | | |
|---|---|---|---|
| Predesign Services | $660,000 | | |
| A/E Basic Design Services | $0 | | |
| Extra Services | $380,000 | | |
| Other Services | $300,000 | | |
| Design Services Contingency | $0 | | |
| **Consultant Services Subtotal** | **$1,340,000** | **Consultant Services Subtotal Escalated** | **$1,577,638** |

| Construction | | | |
|---|---|---|---|
| Construction Contingencies | $1,865,115 | Construction Contingencies Escalated | $2,242,241 |
| Maximum Allowable Construction Cost (MACC) | $37,302,291 | Maximum Allowable Construction Cost (MACC) Escalated | $44,657,741 |
| Sales Tax | $3,290,062 | Sales Tax Escalated | $3,939,599 |
| **Construction Subtotal** | **$42,457,468** | **Construction Subtotal Escalated** | **$50,839,581** |

| Equipment | | | |
|---|---|---|---|
| Equipment | $1,277,000 | | |
| Sales Tax | $107,268 | | |
| Non-Taxable Items | $0 | | |
| **Equipment Subtotal** | **$1,384,268** | **Equipment Subtotal Escalated** | **$1,664,168** |

| Artwork | | | |
|---|---|---|---|
| **Artwork Subtotal** | **$223,289** | **Artwork Subtotal Escalated** | **$223,289** |

| Agency Project Administration | | | |
|---|---|---|---|
| Agency Project Administration Subtotal | $0 | | |
| DES Additional Services Subtotal | $0 | | |
| Other Project Admin Costs | $0 | | |
| **Project Administration Subtotal** | **$300,000** | **Project Administation Subtotal Escalated** | **$360,660** |

| Other Costs | | | |
|---|---|---|---|
| **Other Costs Subtotal** | **$218,000** | **Other Costs Subtotal Escalated** | **$257,916** |

## Project Cost Estimate

| | | | |
|---|---|---|---|
| Total Project | **$45,923,024** | Total Project Escalated | **$54,923,252** |
| | | Rounded Escalated Total | **$54,923,000** |

# Cost Estimate Details

| Consultant Services | | | | |
|---|---|---|---|---|
| **Item** | **Base Amount** | **Escalation Factor** | **Escalated Cost** | **Notes** |
| **1) Pre-Schematic Design Services** | | | | |
| Programming/Site Analysis | $200,000 | | | |
| Environmental Analysis | $40,000 | | | |
| Predesign Study | $120,000 | | | |
| Design-Build Honoriarum | $300,000 | | | |
| | | | | |
| Insert Row Here | | | | |
| **Sub TOTAL** | **$660,000** | **1.1667** | **$770,022** | Escalated to Design Start |
| | | | | |
| **2) Construction Documents** | | | | |
| A/E Basic Design Services | $1,748,550 | | | 69% of A/E Basic Services |
| Adjust A/E to Design-Build | -$1,748,550 | | | |
| | | | | |
| Insert Row Here | | | | |
| **Sub TOTAL** | **$0** | **1.1762** | **$0** | Escalated to Mid-Design |
| | | | | |
| **3) Extra Services** | | | | |
| Civil Design (Above Basic Svcs) | In D-B Costs | | | |
| Geotechnical Investigation | Done in Predesign | | | |
| Commissioning | In D-B Costs | | | |
| Site Survey | Done in Predesign | | | |
| Testing | | | | |
| LEED Services | In D-B Costs | | | |
| Voice/Data Consultant | In D-B Costs | | | |
| Value Engineering | In D-B Costs | | | |
| Constructability Review | In D-B Costs | | | |
| Environmental Mitigation (EIS) | In D-B Costs | | | |
| Landscape Consultant | In D-B Costs | | | |
| Post-Selection Validation | $380,000 | | | |
| | | | | |
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| | | | | |
| **Sub TOTAL** | **$380,000** | **1.1762** | **$446,956** | Escalated to Mid-Design |
| | | | | |
| **4) Other Services** | | | | |
| Bid/Construction/Closeout | $785,581 | | | 31% of A/E Basic Services |
| HVAC Balancing | | | | |
| Staffing | | | | |
| Adjust A/E to Design-Build | -$785,581 | | | |
| Owner's Materials Testing | $150,000 | | | |
| Owner's Commissioning and Training | $150,000 | | | |

| | | | | |
|---|---|---|---|---|
| | $0 | | | |
| | $0 | | | |
| | $0 | | | |
| Insert Row Here | | | | |
| **Sub TOTAL** | **$300,000** | **1.2022** | **$360,660** | Escalated to Mid-Const. |
| | | | | |
| **5) Design Services Contingency** | | | | |
| Design Services Contingency | $67,000 | | | |
| Carried in D-B Contract | -$67,000 | | | |
| | | | | |
| Insert Row Here | | | | |
| **Sub TOTAL** | **$0** | **1.2022** | **$0** | Escalated to Mid-Const. |
| | | | | |
| **CONSULTANT SERVICES TOTAL** | **$1,340,000** | | **$1,577,638** | |

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# Cost Estimate Details

| Construction Contracts | | | | |
|---|---|---|---|---|
| **Item** | **Base Amount** | **Escalation Factor** | **Escalated Cost** | **Notes** |
| **1) Site Work** | | | | |
| G10 - Site Preparation | $3,447,253 | | | |
| G20 - Site Improvements | $2,582,069 | | | |
| G30 - Site Mechanical Utilities | $2,041,661 | | | |
| G40 - Site Electrical Utilities | $229,075 | | | |
| G60 - Other Site Construction | | | | |
| Site General Conditions | $308,000 | | | |
| D-B Site Design/Engineering | $720,000 | | | |
| | | | | |
| D-B Contingency | $466,403 | | | |
| **Sub TOTAL** | **$9,794,459** | **1.1831** | **$11,587,825** | |
| **2) Related Project Costs** | | | | |
| Offsite Improvements | | | | |
| City Utilities Relocation | | | | |
| Parking Mitigation | | | | |
| Stormwater Retention/Detention | | | | |
| Other | | | | |
| Insert Row Here | | | | |
| **Sub TOTAL** | **$0** | **1.1831** | **$0** | |
| **3) Facility Construction** | | | | |
| A10 - Foundations | $1,429,516 | | | |
| A20 - Basement Construction | $0 | | | |
| B10 - Superstructure | $2,975,412 | | | |
| B20 - Exterior Closure | $2,469,240 | | | |
| B30 - Roofing | $754,930 | | | |
| C10 - Interior Construction | $1,667,923 | | | |
| C20 - Stairs | $85,800 | | | |
| C30 - Interior Finishes | $1,277,151 | | | |
| D10 - Conveying | $154,000 | | | |
| D20 - Plumbing Systems | $1,165,453 | | | |
| D30 - HVAC Systems | $3,445,558 | | | |
| D40 - Fire Protection Systems | $315,046 | | | |
| D50 - Electrical Systems | $4,367,031 | | | |
| F10 - Special Construction | $1,612,042 | | | |
| F20 - Selective Demolition | $0 | | | |
| General Conditions | $1,001,000 | | | |
| Design/Builder OH&P | $1,327,833 | | | |
| Design Engineering | $2,150,000 | | | |
| | | | | |
| Design-Builders Contingency | $1,309,897 | | | |
| **Sub TOTAL** | **$27,507,832** | **1.2022** | **$33,069,916** | |
| **4) Maximum Allowable Construction Cost** | | | | |
| **MACC Sub TOTAL** | **$37,302,291** | | **$44,657,741** | |

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| | | | | |
|---|---|---|---|---|
| **7) Construction Contingency** | | | | |
| Allowance for Change Orders | $1,865,115 | | | |
| Other | | | | |
| Insert Row Here | | | | |
| **Sub TOTAL** | **$1,865,115** | **1.2022** | **$2,242,241** | |
| | | | | |
| **8) Non-Taxable Items** | | | | |
| Other | | | | |
| Insert Row Here | | | | |
| **Sub TOTAL** | **$0** | **1.2022** | **$0** | |
| | | | | |
| **Sales Tax** | | | | |
| **Sub TOTAL** | **$3,290,062** | | **$3,939,599** | |
| | | | | |
| **CONSTRUCTION CONTRACTS TOTAL** | **$42,457,468** | | **$50,839,581** | |

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# Cost Estimate Details

| Equipment | | | | |
|---|---|---|---|---|
| **Item** | **Base Amount** | **Escalation Factor** | **Escalated Cost** | **Notes** |
| E10 - Equipment | $965,000 | | | |
| E20 - Furnishings | $312,000 | | | |
| F10 - Special Construction | | | | |
| A/V Systems | $0 | | | |
| Telecom/Data Cabling/Equipment | $0 | | | |
| Insert Row Here | | | | |
| **Sub TOTAL** | **$1,277,000** | **1.2022** | **$1,535,210** | |
| | | | | |
| **1) Non Taxable Items** | | | | |
| Other | | | | |
| Insert Row Here | | | | |
| **Sub TOTAL** | **$0** | **1.2022** | **$0** | |
| | | | | |
| **Sales Tax** | | | | |
| **Sub TOTAL** | **$107,268** | | **$128,958** | |
| | | | | |
| **EQUIPMENT TOTAL** | **$1,384,268** | | **$1,664,168** | |

Green cells must be filled in by user

# Cost Estimate Details

| Artwork | | | | | |
|---|---|---|---|---|---|
| **Item** | **Base Amount** | | **Escalation Factor** | **Escalated Cost** | **Notes** |
| Project Artwork | $0 | | | | 0.5% of Escalated MACC for new construction |
| Higher Ed Artwork | $223,289 | | | | 0.5% of Escalated MACC for new and renewal construction |
| Other | | | | | |
| Insert Row Here | | | | | |
| **ARTWORK TOTAL** | **$223,289** | | **NA** | **$223,289** | |

Green cells must be filled in by user

# Cost Estimate Details

| Project Management | | | | | |
|---|---|---|---|---|---|
| **Item** | **Base Amount** | | **Escalation Factor** | **Escalated Cost** | **Notes** |
| Agency Project Management | $0 | | | | |
| Additional Services | | | | | |
| College Project Management | $300,000 | | | | |
| Insert Row Here | | | | | |
| **PROJECT MANAGEMENT TOTAL** | **$300,000** | | **1.2022** | **$360,660** | |

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 | | | | |
| Historic and Archeological Mitigation | | | | |
| Direct Owner Utility Charges | $218,000 | | | |
| | | | | |
| | | | | |
| Insert Row Here | | | | |
| **OTHER COSTS TOTAL** | **$218,000** | **1.1831** | **$257,916** | |

Green cells must be filled in by user

CLARK COLLEGE
EST. 1933

# C-100 for Alternative #3

## STATE OF WASHINGTON
# AGENCY / INSTITUTION PROJECT COST SUMMARY

| | |
|---|---|
| Agency | Clark College |
| Project Name | New Advanced Manufacturing Building |
| OFM Project Number | 30000135 |

| Contact Information | |
|---|---|
| Name | Tim Petta |
| Phone Number | (360) 992-2408 |
| Email | TPetta@clark.edu |

| Statistics | | | |
|---|---|---|---|
| Gross Square Feet | 70,000 | MACC per Square Foot | $447 |
| Usable Square Feet | 50,250 | Escalated MACC per Square Foot | $562 |
| Space Efficiency | 71.8% | A/E Fee Class | B |
| Construction Type | Vocational schools | A/E Fee Percentage | 6.68% |
| Remodel | No | Projected Life of Asset (Years) | 50 |
| **Additional Project Details** | | | |
| Alternative Public Works Project | No | Art Requirement Applies | Yes |
| Inflation Rate | 2.80% | Higher Ed Institution | Yes |
| Sales Tax Rate % | 8.40% | Location Used for Tax Rate | Vancouver, WA 98663 |
| Contingency Rate | 5% | | |
| Base Month | January-14 | | |
| Project Administered By | DES | | |

| Schedule | | | |
|---|---|---|---|
| Predesign Start | July-19 | Predesign End | December-19 |
| Design Start | December-20 | Design End | July-21 |
| Construction Start | July-21 | Construction End | July-23 |
| Construction Duration | 24 Months | | |

Green cells must be filled in by user

## Project Cost Estimate

| | | | |
|---|---|---|---|
| Total Project | **$49,823,201** | Total Project Escalated | **$61,072,312** |
| | | Rounded Escalated Total | **$61,072,000** |

## STATE OF WASHINGTON
## AGENCY / INSTITUTION PROJECT COST SUMMARY

| | |
|---|---|
| Agency | Clark College |
| Project Name | New Advanced Manufacturing Building |
| OFM Project Number | 30000135 |

# Cost Estimate Summary

| Acquisition | | | |
|---|---|---|---|
| **Acquisition Subtotal** | **$5,500,000** | **Acquisition Subtotal Escalated** | **$5,500,000** |

| Consultant Services | | | |
|---|---|---|---|
| Predesign Services | $590,000 | | |
| A/E Basic Design Services | $1,515,181 | | |
| Extra Services | $1,405,000 | | |
| Other Services | $1,715,734 | | |
| Design Services Contingency | $261,296 | | |
| **Consultant Services Subtotal** | **$5,487,211** | **Consultant Services Subtotal Escalated** | **$6,777,904** |

| Construction | | | |
|---|---|---|---|
| Construction Contingencies | $1,565,380 | Construction Contingencies Escalated | $1,979,580 |
| Maximum Allowable Construction Cost (MACC) | $31,307,602 | Maximum Allowable Construction Cost (MACC) Escalated | $39,355,472 |
| Sales Tax | $2,761,330 | Sales Tax Escalated | $3,472,145 |
| **Construction Subtotal** | **$35,634,312** | **Construction Subtotal Escalated** | **$44,807,197** |

| Equipment | | | |
|---|---|---|---|
| Equipment | $2,225,000 | | |
| Sales Tax | $186,900 | | |
| Non-Taxable Items | $0 | | |
| **Equipment Subtotal** | **$2,411,900** | **Equipment Subtotal Escalated** | **$3,050,089** |

| Artwork | | | |
|---|---|---|---|
| **Artwork Subtotal** | **$196,777** | **Artwork Subtotal Escalated** | **$196,777** |

| Agency Project Administration | | | |
|---|---|---|---|
| Agency Project Administration Subtotal | $0 | | |
| DES Additional Services Subtotal | $0 | | |
| Other Project Admin Costs | $0 | | |
| **Project Administration Subtotal** | **$315,000** | **Project Administation Subtotal Escalated** | **$398,349** |

| Other Costs | | | |
|---|---|---|---|
| **Other Costs Subtotal** | **$278,000** | **Other Costs Subtotal Escalated** | **$341,996** |

## Project Cost Estimate

| | | | |
|---|---|---|---|
| Total Project | **$49,823,201** | Total Project Escalated | **$61,072,312** |
| | | Rounded Escalated Total | **$61,072,000** |

# Cost Estimate Details

| Acquisition Costs | | | | | |
|---|---|---|---|---|---|
| **Item** | **Base Amount** | | **Escalation Factor** | **Escalated Cost** | **Notes** |
| Purchase/Lease | $4,000,000 | | | | |
| Appraisal and Closing | $400,000 | | | | |
| Right of Way | | | | | |
| Demolition | $800,000 | | | | |
| Pre-Site Development | $300,000 | | | | |
| | | | | | |
| Insert Row Here | | | | | |
| **ACQUISITION TOTAL** | **$5,500,000** | | **NA** | **$5,500,000** | |

Green cells must be filled in by user

# Cost Estimate Details

| Consultant Services | | | | |
|---|---|---|---|---|
| **Item** | **Base Amount** | **Escalation Factor** | **Escalated Cost** | **Notes** |
| **1) Pre-Schematic Design Services** | | | | |
| Programming/Site Analysis | $120,000 | | | |
| Environmental Analysis | $120,000 | | | |
| Predesign Study | $350,000 | | | |
| | | | | |
| | | | | |
| Insert Row Here | | | | |
| **Sub TOTAL** | **$590,000** | **1.2106** | **$714,254** | Escalated to Design Start |
| | | | | |
| **2) Construction Documents** | | | | |
| A/E Basic Design Services | $1,515,181 | | | 69% of A/E Basic Services |
| | | | | |
| | | | | |
| Insert Row Here | | | | |
| **Sub TOTAL** | **$1,515,181** | **1.2203** | **$1,848,976** | Escalated to Mid-Design |
| | | | | |
| **3) Extra Services** | | | | |
| Civil Design (Above Basic Svcs) | $180,000 | | | |
| Geotechnical Investigation | $40,000 | | | |
| Commissioning | $145,000 | | | |
| Site Survey | $40,000 | | | |
| Testing | $75,000 | | | |
| LEED Services | $80,000 | | | |
| Voice/Data Consultant | $35,000 | | | |
| Value Engineering | $40,000 | | | |
| Constructability Review | $40,000 | | | |
| Environmental Mitigation (EIS) | $60,000 | | | |
| Landscape Consultant | $95,000 | | | |
| Other Predesign Studies | $0 | | | |
| LCCA (per EO# 13-03) | $120,000 | | | |
| Reimbursables including reprographics prior to bid | $45,000 | | | |
| Interior Design (FF&E) | $60,000 | | | |
| Audio/Visual Consultant | $45,000 | | | |
| Cost & Scheduling Independent | $45,000 | | | |
| LEED Design | $60,000 | | | |
| Renderings-Models | $40,000 | | | |
| Industrial Engineer | $160,000 | | | |
| Insert Row Here | | | | |
| | | | | |
| **Sub TOTAL** | **$1,405,000** | **1.2203** | **$1,714,522** | Escalated to Mid-Design |
| | | | | |
| **4) Other Services** | | | | |
| Bid/Construction/Closeout | $680,734 | | | 31% of A/E Basic Services |
| HVAC Balancing | $250,000 | | | |
| Staffing | | | | |
| Additional CA Representation | $400,000 | | | |
| Materials Testing | $160,000 | | | |
| Commissioning and Training | $160,000 | | | |

| | | | | |
|---|---|---|---|---|
| LEED fees | $30,000 | | | |
| CA Reimbrsements | $35,000 | | | |
| | $0 | | | |
| Insert Row Here | | | | |
| **Sub TOTAL** | **$1,715,734** | **1.2646** | **$2,169,717** | Escalated to Mid-Const. |
| | | | | |
| **5) Design Services Contingency** | | | | |
| Design Services Contingency | $261,296 | | | |
| | | | | |
| | | | | |
| Insert Row Here | | | | |
| **Sub TOTAL** | **$261,296** | **1.2646** | **$330,435** | Escalated to Mid-Const. |
| | | | | |
| **CONSULTANT SERVICES TOTAL** | **$5,487,211** | | **$6,777,904** | |

Green cells must be filled in by user

# Cost Estimate Details

| Construction Contracts | | | | |
|---|---|---|---|---|
| **Item** | **Base Amount** | **Escalation Factor** | **Escalated Cost** | **Notes** |
| **1) Site Work** | | | | |
| G10 - Site Preparation | $1,200,000 | | | |
| G20 - Site Improvements | $2,300,000 | | | |
| G30 - Site Mechanical Utilities | $800,000 | | | |
| G40 - Site Electrical Utilities | $600,000 | | | |
| G60 - Other Site Construction | $500,000 | | | |
| Site General Conditions | $864,000 | | | |
| | | | | |
| **Sub TOTAL** | **$6,264,000** | **1.2302** | **$7,705,973** | |
| **2) Related Project Costs** | | | | |
| Offsite Improvements | | | | |
| City Utilities Relocation | | | | |
| Parking Mitigation | | | | |
| Stormwater Retention/Detention | $600,000 | | | |
| Other | | | | |
| Insert Row Here | | | | |
| **Sub TOTAL** | **$600,000** | **1.2302** | **$738,120** | |
| **3) Facility Construction** | | | | |
| A10 - Foundations | $1,429,516 | | | |
| A20 - Basement Construction | $0 | | | |
| B10 - Superstructure | $2,975,412 | | | |
| B20 - Exterior Closure | $2,469,240 | | | |
| B30 - Roofing | $754,930 | | | |
| C10 - Interior Construction | $1,667,923 | | | |
| C20 - Stairs | $85,800 | | | |
| C30 - Interior Finishes | $177,151 | | | |
| D10 - Conveying | $154,000 | | | |
| D20 - Plumbing Systems | $1,165,453 | | | |
| D30 - HVAC Systems | $3,445,558 | | | |
| D40 - Fire Protection Systems | $315,046 | | | |
| D50 - Electrical Systems | $4,367,031 | | | |
| F10 - Special Construction | $528,000 | | | |
| F20 - Selective Demolition | $0 | | | |
| General Conditions | $1,046,500 | | | |
| General Contractor OH&P | $2,250,000 | | | |
| Built-in Furnishings & Equipment | $1,612,042 | | | |
| | | | | |
| | | | | |
| **Sub TOTAL** | **$24,443,602** | **1.2646** | **$30,911,379** | |
| **4) Maximum Allowable Construction Cost** | | | | |
| **MACC Sub TOTAL** | **$31,307,602** | | **$39,355,472** | |

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| | | | | |
|---|---|---|---|---|
| **7) Construction Contingency** | | | | |
| Allowance for Change Orders | $1,565,380 | | | |
| Other | | | | |
| Insert Row Here | | | | |
| **Sub TOTAL** | **$1,565,380** | **1.2646** | **$1,979,580** | |
| | | | | |
| **8) Non-Taxable Items** | | | | |
| Other | | | | |
| Insert Row Here | | | | |
| **Sub TOTAL** | **$0** | **1.2646** | **$0** | |
| | | | | |
| **Sales Tax** | | | | |
| **Sub TOTAL** | **$2,761,330** | | **$3,472,145** | |
| | | | | |
| **CONSTRUCTION CONTRACTS TOTAL** | **$35,634,312** | | **$44,807,197** | |

Green cells must be filled in by user

# Cost Estimate Details

| Equipment | | | | |
|---|---|---|---|---|
| **Item** | **Base Amount** | **Escalation Factor** | **Escalated Cost** | **Notes** |
| E10 - Equipment | $1,100,000 | | | |
| E20 - Furnishings | $410,000 | | | |
| F10 - Special Construction | | | | |
| A/V Systems | $315,000 | | | |
| Telecom/Data Cabling/Equipment | $400,000 | | | |
| Insert Row Here | | | | |
| **Sub TOTAL** | **$2,225,000** | **1.2646** | **$2,813,735** | |
| | | | | |
| **1) Non Taxable Items** | | | | |
| Other | | | | |
| Insert Row Here | | | | |
| **Sub TOTAL** | **$0** | **1.2646** | **$0** | |
| | | | | |
| **Sales Tax** | | | | |
| **Sub TOTAL** | **$186,900** | | **$236,354** | |
| | | | | |
| **EQUIPMENT TOTAL** | **$2,411,900** | | **$3,050,089** | |

Green cells must be filled in by user

# Cost Estimate Details

| Artwork | | | | | |
|---|---|---|---|---|---|
| **Item** | **Base Amount** | | **Escalation Factor** | **Escalated Cost** | **Notes** |
| Project Artwork | $0 | | | | 0.5% of Escalated MACC for new construction |
| Higher Ed Artwork | $196,777 | | | | 0.5% of Escalated MACC for new and renewal construction |
| Other | | | | | |
| Insert Row Here | | | | | |
| **ARTWORK TOTAL** | **$196,777** | | **NA** | **$196,777** | |

Green cells must be filled in by user

# Cost Estimate Details

| Project Management | | | | | |
|---|---|---|---|---|---|
| **Item** | **Base Amount** | | **Escalation Factor** | **Escalated Cost** | **Notes** |
| Agency Project Management | $0 | | | | |
| Additional Services | | | | | |
| College Project Management | $315,000 | | | | |
| Insert Row Here | | | | | |
| **PROJECT MANAGEMENT TOTAL** | **$315,000** | | **1.2646** | **$398,349** | |

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 | | | | |
| Historic and Archeological Mitigation | $60,000 | | | |
| Direct Owner Utility Charges | $218,000 | | | |
| | | | | |
| | | | | |
| Insert Row Here | | | | |
| **OTHER COSTS TOTAL** | **$278,000** | **1.2302** | **$341,996** | |

Green cells must be filled in by user

CLARK COLLEGE
EST. 1933

# LCCA for Alternative #2

## Lease Option 1 Information Sheet

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

| | |
|---|---|
| **New Lease Option 1 Description** | Indistrial/warehouse space in Port of Vancouver area. Note: Area larger is greater than Owned option due to rentable/useable load factor |

| **New Lease Information** | | |
|---|---|---|
| Lease Location | Vancouver | Market Area: Clark County |
| Lease Square Feet Type | Rentable | |
| New Facility Square Feet | 75,000 | |
| New Lease Start Date | 8/1/2020 | |
| SF per Person Calculated | | |

| **New Lease Costs** | **Years of Term** | **Rate / SF / Year** | **Rate / Month** | **Adjusted to FS Rate** | **Total FS Rate / Month** | **Estimated FSG Market Rate** | **Estimated FSG Rate / Month** | **Real Estate Transaction Fees for Term** |
|---|---|---|---|---|---|---|---|---|
| Year 1 | 1 | $ 15.00 | $ 93,750 | $ 25.78 | $ 161,152 | $ 43.75 | $ 273,431 | $ 28,125 |
| Years 2 - 8 | 7 | | | | $ 281,650 | $ 45.06 | $ 281,650 | $ 428,833 |
| Years 9 - 15 | 7 | | | | $ 346,535 | $ 55.45 | $ 346,535 | $ 341,023 |
| Years 16 - 22 | 7 | | | | $ 426,367 | $ 68.22 | $ 426,367 | $ 424,847 |
| Years 23 - 30 | 8 | | | | $ 524,591 | $ 83.93 | $ 524,591 | $ 603,408 |
| Total Length of Lease | 30 | | | | | | | $ 1,826,236 |
| Transaction Fee for first 5 Years | 2.50% | *of total rent for first 5 years of term* | | | | | | |
| Transaction Fee for Additional Years | 1.25% | *of total rent for term beyond 5 years* | | | | | | |

*Note: Real estate transaction fees calculated on base lease - not full service rate including added services and utilities.*

| Added Services | New Lease Operating Costs (Starting in current year) | Known Cost / SF / Year | Estimated Cost / SF / Year in 2020 - Rentable | Total Cost / Year | Cost / Month |
|---|---|---|---|---|---|
| ☑ | Energy (Electricity, Natural Gas) | $ - | $ 1.29 | $ 96,538 | $ 8,045 |
| ☑ | Janitorial Services | $ - | $ 1.45 | $ 108,713 | $ 9,059 |
| ☑ | Utilities (Water, Sewer, & Garbage) | $ - | $ 1.07 | $ 80,013 | $ 6,668 |
| ☑ | Grounds | $ - | $ 0.14 | $ 10,436 | $ 870 |
| ☑ | Pest Control | $ - | $ 0.06 | $ 4,349 | $ 362 |
| ☑ | Security | $ - | $ 0.12 | $ 8,697 | $ 725 |
| ☑ | Maintenance and Repair | $ - | $ 6.00 | $ 449,639 | $ 37,470 |
| ☑ | Management | $ - | $ 0.67 | $ 50,443 | $ 4,204 |
| ☐ | Road Clearance | $ - | $0.00 | $ - | $ - |
| ☑ | Telecom | | $ - | $ - | $ - |
| | Additional Parking | $ - | $ - | $ - | $ - |
| | Other | $ - | $ - | $ - | $ - |
| | **Total Operating Costs** | **$ -** | **$ 10.78** | **$ 808,828** | **$ 67,402** |

***Escalated to lease start date***

| | New Lease One Time Costs | Current Estimate | Calculated (for reference) | |
|---|---|---|---|---|
| * | Real Estate Transaction Fees | | $ 1,826,236 | *Per Std %* |
| * | Tenant Improvements | $ 13,500,000 | $ 1,125,000 | *$180 per SF* |
| * | IT Infrastructure | $ 375,000 | $ - | |
| * | Furniture Costs | $ 275,000 | $ - | |
| * | Building Security and Access Systems | $ 160,000 | | |
| * | Moving Vendor and Supplies | $ 400,000 | $ - | |
| | Other / Incentive | | | |
| | **Total** | $ 14,710,000 | $ 2,951,236 | |

| Biennium Budget Impacts for New Lease | Biennium Time Period Start | Finish | Existing Lease Option | New Lease Option 1 | Biennium Impact: |
|---|---|---|---|---|---|
| 17-19 Biennium Lease Expenditure | 7/1/2017 | 6/30/2019 | $ - | $ - | $ - |
| 19-21 Biennium Lease Expenditure | 7/1/2019 | 6/30/2021 | $ - | $ 16,482,676 | $ 16,482,676 |
| 21-23 Biennium Lease Expenditure | 7/1/2021 | 6/30/2023 | $ - | $ 6,639,102 | $ 6,639,102 |
| 23-25 Biennium Lease Expenditure | 7/1/2023 | 6/30/2025 | $ - | $ 6,759,599 | $ 6,759,599 |
| 25-27 Biennium Lease Expenditure | 7/1/2025 | 6/30/2027 | $ - | $ 6,759,599 | $ 6,759,599 |

## Ownership Option 1 Information Sheet

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

| | | |
|---|---|---|
| * | **Project Description** | Construct new 70,000-gsf building on new land in Ridgefield, WA |
| * | **Construction or Purchase/Remodel** | Construction |
| * | **Project Location** | Vancouver — Market Area = Clark County |

| | **Statistics** | |
|---|---|---|
| * | Gross Sq Ft | 70,000 |
| * | Usable Sq Ft | 50,000 |
| | Space Efficiency | 71% |
| | Estimated Acres Needed | 3.00 |
| | MACC Cost per Sq Ft | $640.29 |
| | Estimated Total Project Costs per Sq Ft | $896.40 |
| | Escalated MACC Cost per Sq Ft | $699.78 |
| | Escalated Total Project Costs per Sq Ft | $979.69 |

| | | |
|---|---|---|
| * | **Move In Date** | 8/1/2021 |

| **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** | $ 300,000 | $ 750,000 | $ 300,000 |
| A & E | **Consultant Services** | | | |
| | A & E Fee Percentage (if services not specified) | 0.00% | 6.11% Std | 6.11% |
| | Pre-Schematic Design services | $ 419,000 | | |
| | Construction Documents | $ - | | |
| | Extra Services | $ 58,200 | | |
| | Other Services | $ 379,400 | | |
| | Design Services Contingency | $ - | | |
| | **Consultant Services Total** | $ 856,600 | $ 2,804,760 | $ 856,600 |
| MACC | **Construction Contracts** | | | |
| | Site Work | $ 11,250,000 | | |
| | Related Project Costs | $ - | | |
| | Facility Construction | $ 33,570,000 | | |
| | **MACC SubTotal** | $ 44,820,000 | $ 21,000,000 | $ 44,820,000 |
| | Construction Contingency (5% default) | $ 2,250,000 | $ 2,241,000 | $ 2,250,000 |
| | Non Taxable Items | | | $ - |
| | Sales Tax | $ 3,948,400 | $ 3,764,880 | $ 3,948,400 |
| | **Construction Additional Items Total** | $ 6,198,400 | $ 6,005,880 | $ 6,198,400 |
| | **Equipment** | | | |
| | Equipment | $ 1,806,500 | | |
| | Non Taxable Items | | | |
| | Sales Tax | $ 152,000 | | |
| | **Equipment Total** | $ 1,958,500 | | $ 1,958,500 |
| | **Art Work Total** | $ 224,800 | $ 224,100 | $ 224,800 |
| | **Other Costs** | | | |
| | Direct Utility | $ 250,000 | | |
| | | | | |
| | | | | |
| | **Other Costs Total** | $ 250,000 | | $ 250,000 |
| | **Project Management Total** | $ 315,000 | | $ 315,000 |
| | **Grand Total Project Cost** | **$ 54,923,300** | **$ 30,784,740** | **$ 54,923,300** |

| 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/ 2021 | Estimated Cost /GSF/ 2021 | Total Cost / Year | Cost / Month |
| ☑ | Energy (Electricity. Natural Gas) | $ - | $ 1.33 | $ 92,810 | $ 7,734 |
| ☑ | Janitorial Services | $ - | $ 1.49 | $ 104,516 | $ 8,710 |
| ☑ | Utilities (Water, Sewer, & Garbage) | $ - | $ 1.10 | $ 76,924 | $ 6,410 |
| ☑ | Grounds | $ - | $ 0.14 | $ 10,034 | $ 836 |
| ☑ | Pest Control | $ - | $ 0.06 | $ 4,181 | $ 348 |
| ☑ | Security | $ - | $ 0.12 | $ 8,361 | $ 697 |
| ☑ | Maintenance and Repair | $ - | $ 6.18 | $ 432,278 | $ 36,023 |
| ☑ | Management | $ - | $ 0.69 | $ 48,495 | $ 4,041 |
| ☐ | Road Clearance | $ - | $0.00 | $ - | $ - |
| ☑ | Telecom | $ - | $ - | $ - | $ - |
| | Additional Parking | $ - | $ - | $ - | $ - |
| | Other | $ - | $ - | $ - | $ - |
| | **Total Operating Costs** | **$ -** | **$ 11.11** | **$ 777,599** | **$ 64,800** |

## Ownership Option 2 Information Sheet

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

| | | |
|---|---|---|
| * | **Project Description** | Construct new 70,000-gsf building on acquired land adjacnet to the main campus |

| | | |
|---|---|---|
| * | **Construction or Purchase/Remodel** | Construction |

| | | | |
|---|---|---|---|
| * | **Project Location** | Vancouver | Market Area = Clark County |

| | **Statistics** | |
|---|---|---|
| * | Gross Sq Ft | 70,000 |
| * | Usable Sq Ft | 50,000 |
| | Space Efficiency | 71% |
| | Estimated Acres Needed | 3.00 |
| | MACC Cost per Sq Ft | $562.22 |
| | Estimated Total Project Costs per Sq Ft | $865.68 |
| | Escalated MACC Cost per Sq Ft | $651.96 |
| | Escalated Total Project Costs per Sq Ft | $1,003.85 |

| | | |
|---|---|---|
| * | **Move In Date** | 8/1/2023 |

| **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** | $ 5,500,000 | $ 750,000 | $ 5,500,000 |
| A & E | **Consultant Services** | | | |
| | A & E Fee Percentage (if services not specified) | | 6.26% Std | 6.26% |
| | Pre-Schematic Design services | $ 714,254 | | |
| | Construction Documents | $ 1,848,976 | | |
| | Extra Services | $ 1,714,522 | | |
| | Other Services | $ 2,169,717 | | |
| | Design Services Contingency | $ 330,435 | | |
| | **Consultant Services Total** | $ 6,777,904 | $ 2,462,799 | $ 6,777,904 |
| MACC | **Construction Contracts** | | | |
| | Site Work | $ 7,705,973 | | |
| | Related Project Costs | $ 738,120 | | |
| | Facility Construction | $ 30,911,379 | | |
| | **MACC SubTotal** | $ 39,355,472 | $ 21,000,000 | $ 39,355,472 |
| | Construction Contingency (5% default) | $ 1,979,580 | $ 1,979,580 | $ 1,979,580 |
| | Non Taxable Items | | | $ - |
| | Sales Tax | $ 3,472,145 | $ 3,305,860 | $ 3,472,145 |
| | **Construction Additional Items Total** | $ 5,451,725 | $ 5,451,725 | $ 5,451,725 |
| | **Equipment** | | | |
| | Equipment | $ 2,813,735 | | |
| | Non Taxable Items | | | |
| | Sales Tax | $ 236,354 | | |
| | **Equipment Total** | $ 3,050,089 | | $ 3,050,089 |
| | **Art Work Total** | | $ 196,777 | $ 196,777 |
| | **Other Costs** | | | |
| | **Direct Utility Charges** | $ 341,996 | | |
| | | | | |
| | | | | |
| | **Other Costs Total** | $ 341,996 | | $ 341,996 |
| | **Project Management Total** | $ 398,349 | | $ 398,349 |
| | **Grand Total Project Cost** | | **$ -** | **$ 61,072,312** |

| 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)** | $ - | $ 1.41 | $ 98,474 | $ 8,206 |
| ☑ | **Janitorial Services** | $ - | $ 1.58 | $ 110,894 | $ 9,241 |
| ☑ | **Utilities (Water, Sewer, & Garbage)** | $ - | $ 1.17 | $ 81,618 | $ 6,801 |
| ☑ | **Grounds** | $ - | $ 0.15 | $ 10,646 | $ 887 |
| ☑ | **Pest Control** | $ - | $ 0.06 | $ 4,436 | $ 370 |
| ☑ | **Security** | $ - | $ 0.13 | $ 8,872 | $ 739 |
| ☑ | **Maintenance and Repair** | $ - | $ 6.55 | $ 458,657 | $ 38,221 |
| ☑ | **Management** | $ - | $ 0.74 | $ 51,455 | $ 4,288 |
| ☑ | **Road Clearance** | $ - | $ 0.08 | $ 5,323 | $ 444 |
| ☑ | **Telecom** | $ - | $ - | $ - | $ - |
| | **Additional Parking** | $ - | $ - | $ - | $ - |
| | **Other** | $ - | $ - | $ - | $ - |
| | **Total Operating Costs** | **$ -** | **$ 11.86** | **$ 830,373** | **$ 69,198** |

## Life Cycle Cost Analysis - Project Summary

| | |
|---|---|
| **Agency** | Clark College |
| **Project Title** | Advanced Manufacturing Center |

| | |
|---|---|
| **Existing Description** | Programs for Manufacturing trades are currently located in the AAB on the main Vancouver campus and in the Columbia Tech. Center 14 miles to the east. |

| | |
|---|---|
| **Lease Option 1 Description** | Indistrial/warehouse space in Port of Vancouver area. Note: Area larger is greater than Owned option due to rentable/useable load factor |

| | |
|---|---|
| **Lease Option 2 Description** | |

| | |
|---|---|
| **Ownership Option 1 Description** | Construct new 70,000-gsf building on new land in Ridgefield, WA |

| | |
|---|---|
| **Ownership Option 2 Description** | Construct new 70,000-gsf building on acquired land adjacnet to the main campus |

| | |
|---|---|
| **Ownership Option 3 Description** | |

| Lease Options Information | Existing Lease | Lease Option 1 | Lease Option 2 |
|---|---|---|---|
| Total Rentable Square Feet | - | 75,000 | - |
| Annual Lease Cost (Initial Term of Lease) | $ - | $ 1,125,000 | $ - |
| Full Service Cost/SF (Initial Term of Lease) | $ - | $ 15.00 | $ - |
| Occupancy Date | n/a | 8/1/2020 | |
| Project Initial Costs | n/a | $ 14,710,000 | $ - |
| Persons Relocating | - | - | - |
| RSF/Person Calculated | | | |

| Ownership Information | Ownership 1 | Ownership 2 | Ownership 3 |
|---|---|---|---|
| Total Gross Square Feet | 70,000 | 70,000 | - |
| Total Rentable Square Feet | 50,000 | 50,000 | - |
| Occupancy Date | 8/1/2021 | 8/1/2023 | |
| Initial Project Costs | $ - | $ - | $ - |
| Est Construction TPC ($/GSF) | $ 980 | $ 1,004 | $ - |

## 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** |
| **50** | 50 Year Cumulative Cash | $ - | $ 332,697,593 | $ - | | | $ 160,266,105 | | | | $ 162,096,880 | | | | $ - | |
| | 50 Year Net Present Value | $ - | $ 291,642,575 | $ - | | | $ 145,860,039 | | | | $ 146,807,107 | | | | $ - | |
| | Lowest Cost Option (Analysis Period) | | **3** | | | | **1** | | | | **2** | | | | | |

*The best NPV result for the 50 year analysis period is the Ownership 1 option using COP Deferred * financing. This option becomes the best financial alternative in 2021.*

| | **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 | $ - | $ 142,996,722 | $ - | | | $ 112,936,999 | | | | $ 114,462,425 | | | | $ - | |
| | 30 Year Net Present Value | $ - | $ 133,211,149 | $ - | | | $ 106,317,270 | | | | $ 107,009,224 | | | | $ - | |
| | Lowest Cost Option (30 Years) | | **3** | | | | **1** | | | | **2** | | | | | |

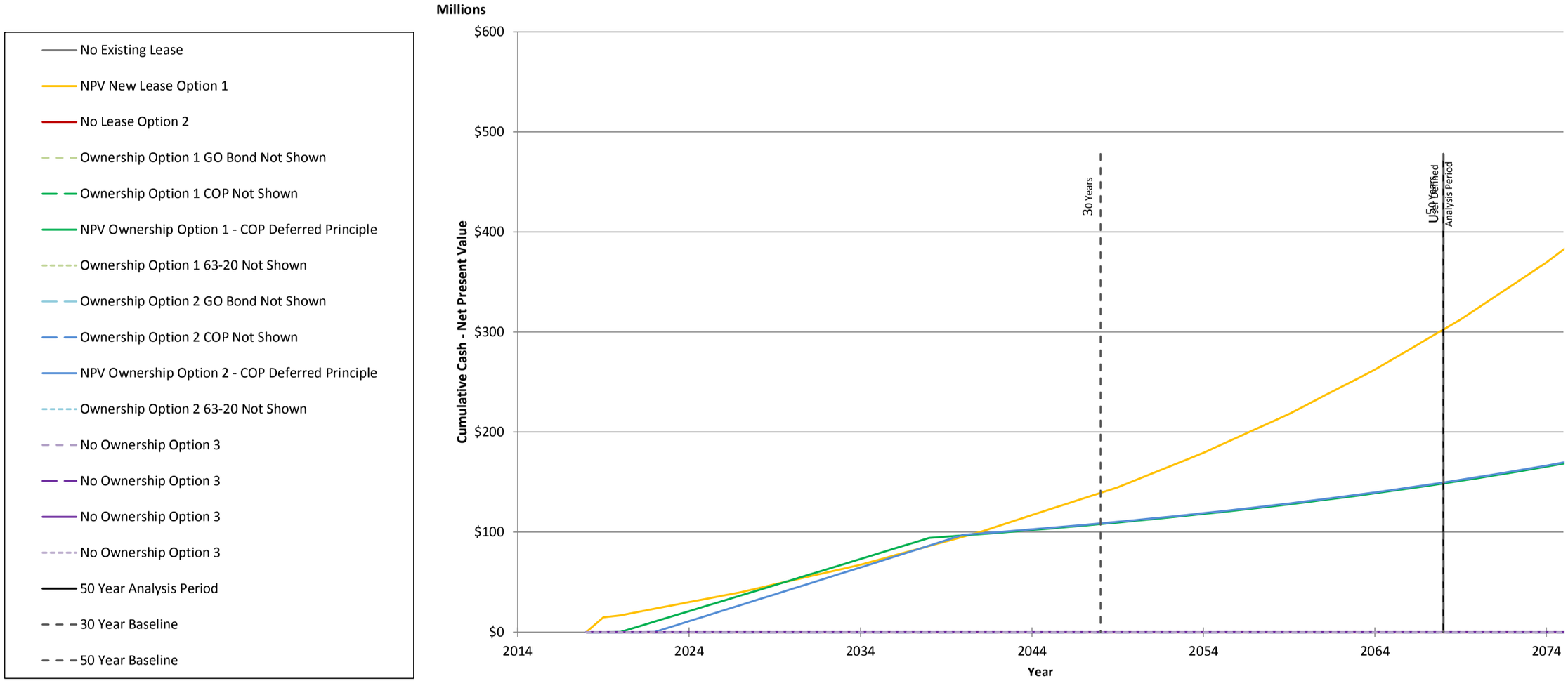
*The best NPV result for the 30 year analysis period is the Ownership 1 option using COP Deferred * financing. This option becomes the best financial alternative in 2021.*

| | **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 | $ - | $ 332,697,593 | $ - | | | $ 160,266,105 | | | | $ 162,096,880 | | | | $ - | |
| | 50 Year Net Present Value | $ - | $ 291,642,575 | $ - | | | $ 145,860,039 | | | | $ 146,807,107 | | | | $ - | |
| | Lowest Cost Option (50 Years) | | **3** | | | | **1** | | | | **2** | | | | | |

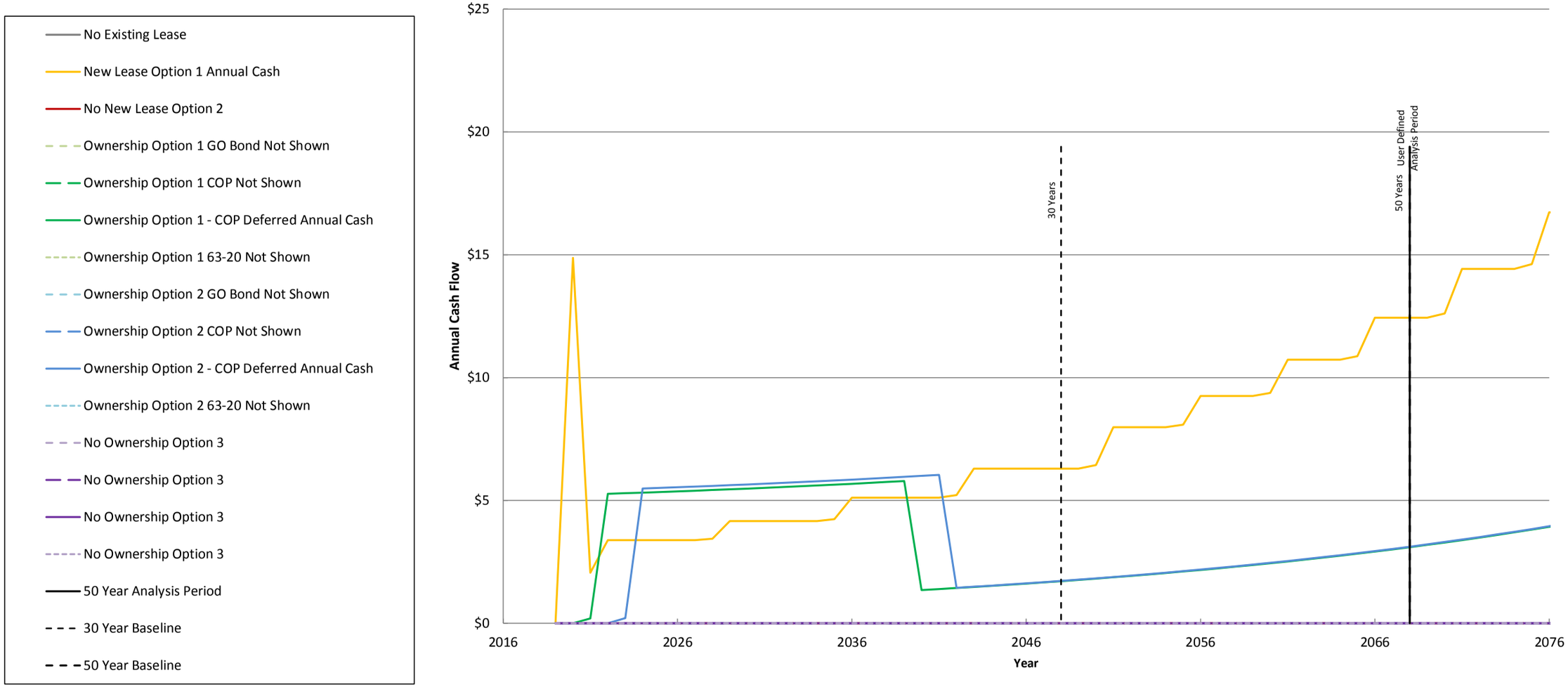
*The best NPV result for the 50 year analysis period is the Ownership 1 option using COP Deferred * financing. This option becomes the best financial alternative in 2021.*

** - 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



## Annual Cash Flow of Existing, New Lease, and Own Options



## Financial Assumptions

| | |
|---|---|
| **Date of Life Cycle Cost Analysis:** | 11/15/2018 |
| **Analysis Period Start Date** | 8/2/2018 |
| **User Input Years of Analysis** | 50 |

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% | 3.510% | 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 estimated at $180 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.

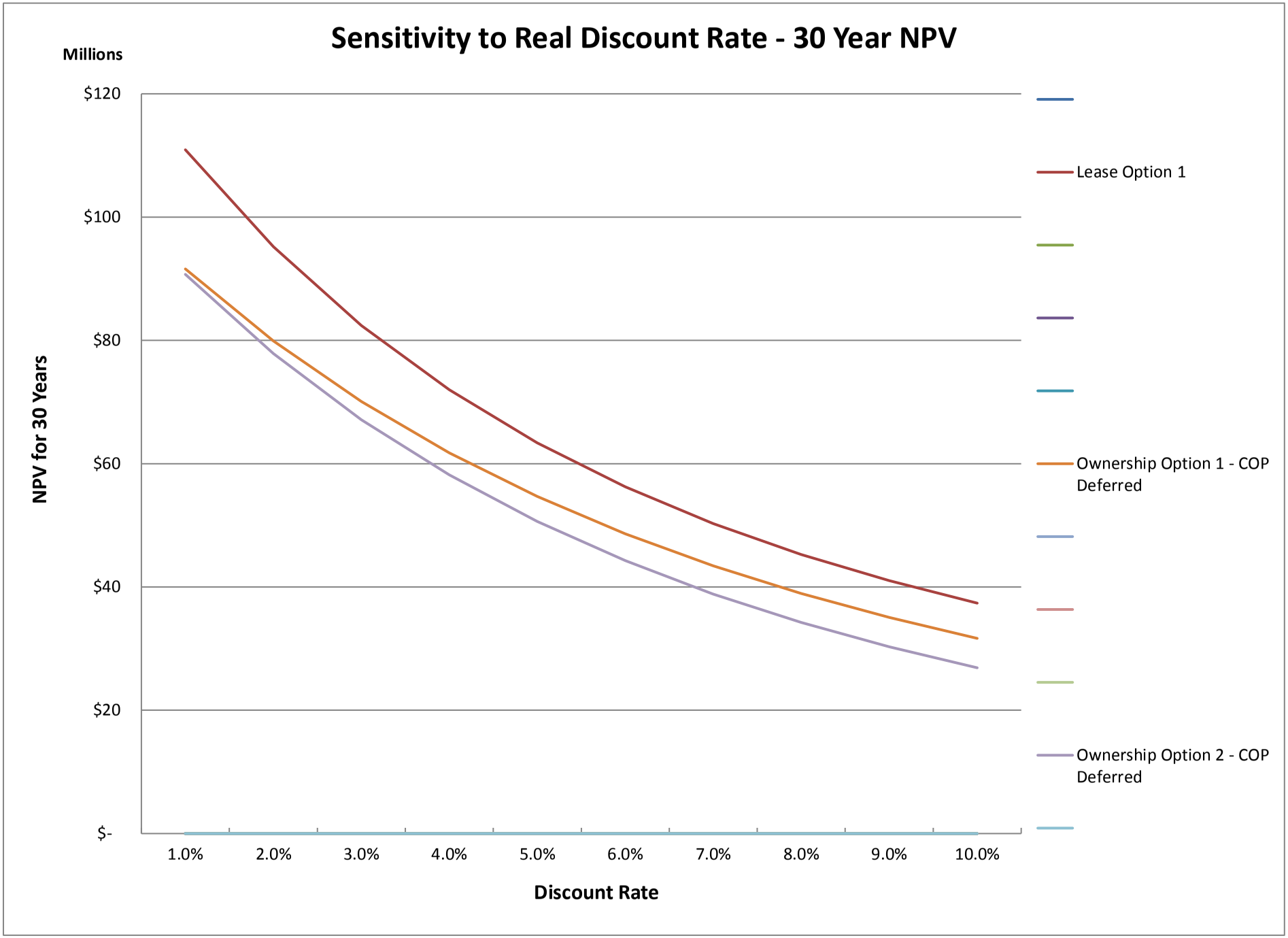
Assumes surface parking.

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

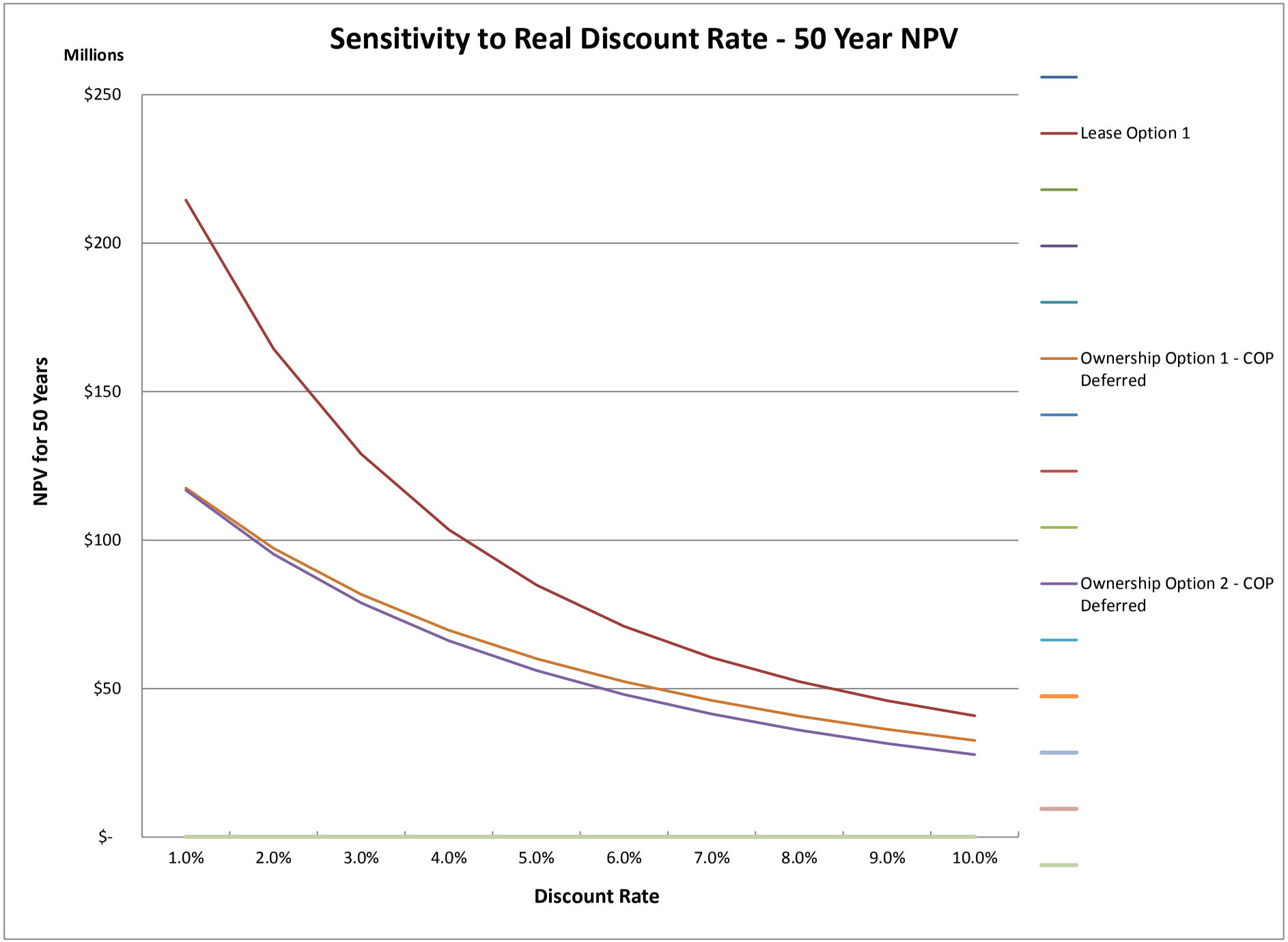
The estimated total project cost for construction is $420.00 per square foot.

See the Capital Construction Defaults tab for more construction assumptions.

**Discount Rate Sensitivity**



**Discount Rate Sensitivity**



CLARK COLLEGE
EST. 1933

# Estimate Detail of Concept

THE ROBINSON COMPANY

# CLARK COLLEGE ADVANCED MUNFACTURING
# PRE-DESIGN ESTIMATE
# November 13, 2018

| | | |
|---|---|---|
| Building | $ | 23,882,139 |
| Site | $ | 8,999,332 |
| **Total Anticipated Bid** | $ | 32,881,471 |
| Market Conditions Premium-10% | $ | 3,288,147 |
| **Total w/Market Premium** | $ | 36,169,619 |

**Exclusions:**

Furnishings/Equipment Not Listed
State Sales Tax
Testing and Inspection
Owners Construction Contingency
Owners Management Fees
Moving/Relocation Costs
Permits
Utility Company Charges
Phasing Premium
A/E Fees

THE ROBINSON COMPANY

**PROJECT:** CLARK COLLEGE ADVANCED MANUFACTURING BLDG. - BUILDING
**LOCATION:** RIDGEFIELD, WA
**BLDG SF:** 70,000
**ESTIMATE:** 2018169
**EST TYPE:** FUNDING REQUEST

| DIVISION | DESCRIPTION | | TOTAL | $/SF |
|---|---|---|---|---|
| A10 | FOUNDATIONS | | 1,299,560 | 18.57 |
| B10 | SUPERSTRUCTURE | | 2,704,920 | 38.64 |
| B20 | EXTERIOR CLOSURE | | 2,244,764 | 32.07 |
| B30 | ROOFING | | 686,300 | 9.80 |
| C10 | INTERIOR CONSTRUCTION | | 1,516,294 | 21.66 |
| C20 | STAIRS | | 78,000 | 1.11 |
| C30 | INTERIOR FINISHES | | 1,161,046 | 16.59 |
| D10 | CONVEYING SYSTEMS | | 140,000 | 2.00 |
| D20 | PLUMBING | | 1,059,503 | 15.14 |
| D30 | HVAC | | 3,132,325 | 44.75 |
| D40 | FIRE PROTECTION | | 286,405 | 4.09 |
| D50 | ELECTRICAL | | 3,970,028 | 56.71 |
| E10 | EQUIPMENT | | 922,500 | 13.18 |
| E20 | FURNISHINGS | | 542,993 | 7.76 |
| F10 | SPECIAL CONSTRUCTION | | 480,000 | 6.86 |
| Z10 | GENERAL REQUIREMENTS | | 910,000 | 13.00 |
| | **ESTIMATE SUBTOTAL** | | **21,134,637** | **301.92** |
| | DESIGN CONTINGENCY @ | 13.00% | 2,747,503 | |
| | **TOTAL** | | **23,882,139** | **341.17** |

**EXCLUSIONS:**
SEE ESTIMATE SUMMARY

**PROJECT:** CLARK COLLEGE ADVANCED MANUFACTURING BLDG. - BUILDING
**LOCATION:** RIDGEFIELD, WA
**BLDG SF:** 70,000
**ESTIMATE:** 2018169
**EST TYPE:** FUNDING REQUEST

| ITEM | DESCRIPTION | QUANTITY | UNIT | UNIT COST | TOTAL | $/SF |
|---|---|---|---|---|---|---|
| **A10** | **FOUNDATIONS** | | | | | |
| 03000 | 4" SLAB COMPLETE | 12,000 | SF | 8.00 | 96,000 | |
| 03000 | 6" SLAB COMPLETE @ SHOPS | 30,000 | SF | 9.75 | 292,500 | |
| 03000 | STANDARD FOUNDATIONS | 52,000 | SFA | 17.28 | 898,560 | |
| 03300 | ELEVATOR PIT | 1 | LS | 12,500 | 12,500 | |
| **A10** | **FOUNDATIONS** | | | **DIVISION TOTAL** | **1,299,560** | **18.57** |
| **B10** | **SUPERSTRUCTURE** | | | | | |
| 05000 | STEEL FLOOR STRUCTURE/DECK/TOPPING | 18,000 | SF | 45.52 | 819,360 | |
| 05120 | BRACE FRAME ALLOWANCE | 8 | EA | 15,000 | 120,000 | |
| 05120 | OVERHANGS/COVERED AREA/CANOPIES | 5,974 | SFA | 60.00 | 358,440 | |
| 05120 | STEEL ROOF STRUCTURE/BEAMS/OW JOISTS/DECK | 52,000 | SFA | 27.06 | 1,407,120 | |
| **B10** | **SUPERSTRUCTURE** | | | **DIVISION TOTAL** | **2,704,920** | **38.64** |
| **B20** | **EXTERIOR CLOSURE** | | | | | |
| 03000 | EXTERIOR WALLS GROSS AREA | 40,006 | SF | | | |
| 03100 | EXT.WALLS SYSTEM WITH METAL SIDING | 29,165 | SF | 48.00 | 1,399,920 | |
| 08000 | 14' X 16' GLAZED OVERHEAD DOORS | 5 | EA | 9,500 | 47,500 | |
| 08000 | EXT DOORS/FRAME/HARDWARE | 14 | SFA | 2,500 | 35,000 | |
| 08000 | PREMIUM FOR PREMIUM HARDWAR | 1 | LS | 8,000 | 8,000 | |
| 08500 | CURTAIN WALL-5% | 1,944 | SF | 100 | 194,400 | |
| 08500 | EXT. WINDOWS/STOREFRONT-20% | 7,777 | SF | 72.00 | 559,944 | |
| **B20** | **EXTERIOR CLOSURE** | | | **DIVISION TOTAL** | **2,244,764** | **32.07** |
| **B30** | **ROOFING** | | | | | |
| 07410 | MEMBRANE ROOFING/INSUL/SHEETMETAL | 30,622 | SF | 17.60 | 538,947 | |
| 07410 | MEMBRANE/FINISH INSIDE PARAPET | 3,412 | SF | 6.50 | 22,178 | |
| 08600 | SKYLIGHTS | 1,669 | EA | 75.00 | 125,175 | |
| **B30** | **ROOFING** | | | **DIVISION TOTAL** | **686,300** | **9.80** |
| **C10** | **INTERIOR CONSTRUCTION** | | | | | |
| 03100 | 2HR RATED WALL | 17,793 | SF | 18.50 | 329,171 | |
| 03100 | INT. STANDARD PARTITION WALLS | 24,515 | SF | 15.00 | 367,725 | |
| 04210 | INT CMU ALLOWANCE | 7,291 | SF | 28.00 | 204,148 | |
| 08000 | 90 MINUTE DOORS | 7 | EA | 2,500 | 17,500 | |
| 08000 | FIRE RATED RELITES-ALLOW | 250 | SF | 165 | 41,250 | |
| 08000 | INTERIOR DOORS/FRAME/HARDWARE | 66 | EA | 2,000 | 132,000 | |
| 08000 | RELITE ALLOWANCE | 250 | SF | 68.00 | 17,000 | |
| 08510 | INTERIOR RELITES/GLAZING-ALLOW | 2,000 | SF | 60.00 | 120,000 | |
| 10000 | FITTINGS/MISC SPECIALTIES-BASIC | 70,000 | SFA | 3.25 | 227,500 | |
| 10000 | FULL HEIGHT LOCKERS | 1 | LS | 60,000 | 60,000 | |
| **C10** | **INTERIOR CONSTRUCTION** | | | **DIVISION TOTAL** | **1,516,294** | **21.66** |

| ITEM | DESCRIPTION | QUANTITY | UNIT | UNIT COST | TOTAL | $/SF |
|---|---|---|---|---|---|---|
| **C20** | **STAIRS** | | | | | |
| 05000 | GUARD RAIL AT OPEN TO BELOW | 112 | LF | 250 | 28,000 | |
| 05000 | STAIRS W/RAILS | 2 | FLT | 25,000 | 50,000 | |
| **C20** | **STAIRS** | | | **DIVISION TOTAL** | **78,000** | **1.11** |
| **C30** | **INTERIOR FINISHES** | | | | | |
| 09260 | MISC CEILINGS/ACOUSTICS/PAINT | 70,000 | SFA | 4.00 | 280,000 | |
| 09300 | TILE @ RESTROOMS-4' HIGH | 1,624 | SF | 18.00 | 29,232 | |
| 09300 | TILE AT RESTROOM FLOOR | 2,222 | SF | 18.00 | 39,996 | |
| 09305 | BASIC WALL FINISHES | 70,000 | SFA | 2.00 | 140,000 | |
| 09305 | CMU WAINSCOT @ SHOP AREAS | 2,160 | SF | 26.00 | 56,160 | |
| 09305 | PREM. IMPACT RESIST GWB | 1 | LS | 50,000 | 50,000 | |
| 09330 | MISC. WALL FINISHES/ACOUSTICS | 70,000 | SFA | 1.25 | 87,500 | |
| 09610 | FLOORING - CLASS/OFFICES/OTHER | 16,240 | SF | 5.25 | 85,260 | |
| 09610 | WALK OFF MAT | 300 | SF | 20.00 | 6,000 | |
| 09620 | EPOXY SAFETY PAINTING | 1 | LS | 10,000 | 10,000 | |
| 09620 | RETROPLATE CONCRETE | 8,976 | SF | 8.00 | 71,808 | |
| 09900 | INT. PAINT/SEAL-TOUCH UP | 70,000 | SFA | 3.00 | 210,000 | |
| 09900 | SEAL/HARDENER AT CONC FLOOR | 42,262 | SF | 2.25 | 95,090 | |
| **C30** | **INTERIOR FINISHES** | | | **DIVISION TOTAL** | **1,161,046** | **16.59** |
| **D10** | **CONVEYING SYSTEMS** | | | | | |
| 14000 | ELEVATOR 2-STOP | 1 | LS | 140,000 | 140,000 | |
| **D10** | **CONVEYING SYSTEMS** | | | **DIVISION TOTAL** | **140,000** | **2.00** |
| **D20** | **PLUMBING** | | | | | |
| 15000 | INDUSTRIAL GASES/AIR | 1 | LS | 168,438 | 168,438 | |
| | PER W/H M | | | | | |
| 15000 | PLUMBING | 1 | LS | 891,065 | 891,065 | |
| | PER W/H M | | | | | |
| **D20** | **PLUMBING** | | | **DIVISION TOTAL** | **1,059,503** | **15.14** |
| **D30** | **HVAC** | | | | | |
| 15500 | HVAC SYSTEM | 1 | LS | 3,132,325 | 3,132,325 | |
| | PER W/H M | | | | | |
| **D30** | **HVAC** | | | **DIVISION TOTAL** | **3,132,325** | **44.75** |
| **D40** | **FIRE PROTECTION** | | | | | |
| 15000 | FIRE PROTECTION SYSTEM | 1 | LS | 286,405 | 286,405 | |
| | PER W/H M | | | | | |
| **D40** | **FIRE PROTECTION** | | | **DIVISION TOTAL** | **286,405** | **4.09** |
| **D50** | **ELECTRICAL** | | | | | |
| 16000 | ELECTRICAL | 1 | LS | 2,271,076 | 2,271,076 | |
| | PER W/H E | | | | | |
| 16000 | PV PANELS | 1 | LS | 367,500 | 367,500 | |

| ITEM | DESCRIPTION | | QUANTITY | UNIT | UNIT COST | TOTAL | $/SF |
|---|---|---|---|---|---|---|---|
| | | PER W/H E | | | | | |
| 16000 | SECURITY/ACCESS/CONTROLS | | 1 | LS | 629,466 | 629,466 | |
| | | PER W/H E | | | | | |
| 16880 | COMMUNICATIONS | | 1 | LS | 701,986 | 701,986 | |
| | | PER W/H E | | | | | |
| **D50** | **ELECTRICAL** | | | | **DIVISION TOTAL** | **3,970,028** | **56.71** |
| **E10** | **EQUIPMENT** | | | | | | |
| 05000 | BRIDGE CRANE | | 1 | LS | 50,000 | 50,000 | |
| 05000 | MISC.STRUCTURAL EQUIPMENT SUPPORT | | 70,000 | SFA | 1.25 | 87,500 | |
| 11000 | MFG TECH EQUIPMENT - ALLOWANCE ???? | | 1 | LS | 750,000 | 750,000 | |
| 11000 | MISC. EQUIPMENT (DIV. 11) | | 70,000 | SFA | 0.50 | 35,000 | |
| **E10** | **EQUIPMENT** | | | | **DIVISION TOTAL** | **922,500** | **13.18** |
| **E20** | **FURNISHINGS** | | | | | | |
| 12320 | BUILT- IN CASEWORK,DISPLAYS,COUNTERS | | 70,000 | SFA | 6.50 | 455,000 | |
| 12490 | WINDOW TREATMENT | | 9,777 | SF | 9.00 | 87,993 | |
| **E20** | **FURNISHINGS** | | | | **DIVISION TOTAL** | **542,993** | **7.76** |
| **F10** | **SPECIAL CONSTRUCTION** | | | | | | |
| 13120 | STORAGE BUILDING-ALLOWANCE | | 4,000 | SFA | 120 | 480,000 | |
| **F10** | **SPECIAL CONSTRUCTION** | | | | **DIVISION TOTAL** | **480,000** | **6.86** |
| **Z10** | **GENERAL REQUIREMENTS** | | | | | | |
| 01000 | GENERAL CONDITIONS-PRORATED | | 13 | MO | 70,000 | 910,000 | |
| **Z10** | **GENERAL REQUIREMENTS** | | | | **DIVISION TOTAL** | **910,000** | **13.00** |
| | | | | | **ESTIMATE SUBTOTAL** | **21,134,637** | **301.92** |

THE ROBINSON COMPANY

**PROJECT:** CLARK COLLEGE ADVANCED MANUFACTURING BLDG. - SITE
**LOCATION:** RIDGEFIELD, WA
**BLDG SF:**
**ESTIMATE:** 2018169
**EST TYPE:** FUNDING REQUEST

| DIVISION | DESCRIPTION | | TOTAL | $/SF |
|---|---|---|---|---|
| D50 | ELECTRICAL | | 208,250 | |
| G10 | SITE PREPARATION | | 3,133,866 | |
| G20 | SITE IMPROVEMENTS | | 2,347,335 | |
| G30 | SITE CIVIL / MECHANICAL UTILITIES | | 1,856,055 | |
| Z10 | GENERAL REQUIREMENTS | | 280,000 | |
| | **ESTIMATE SUBTOTAL** | | **7,825,506** | |
| | DESIGN CONTINGENCY @ | 15.00% | 1,173,826 | |
| | **TOTAL** | | **8,999,332** | |

**EXCLUSIONS:**
SEE ESTIMATE SUMMARY

**PROJECT:** CLARK COLLEGE ADVANCED MANUFACTURING BLDG. - SITE
**LOCATION:** RIDGEFIELD, WA
**BLDG SF:**
**ESTIMATE:** 2018169
**EST TYPE:** FUNDING REQUEST

| ITEM | DESCRIPTION | QUANTITY | UNIT | UNIT COST | TOTAL | $/SF |
|---|---|---|---|---|---|---|
| **D50** | **ELECTRICAL** | | | | | |
| 16000 | SITE LIGHTING | 1 | LS | 208,250 | 208,250 | |
| | PER W/H E | | | | | |
| **D50** | **ELECTRICAL** | | | **DIVISION TOTAL** | **208,250** | |
| **G10** | **SITE PREPARATION** | | | | | |
| 02300 | SITE DEMOLITION AND CLEARING-ALLOWANCE | 1 | LS | 150,000 | 150,000 | |
| 02310 | MOBILIZATION | 1 | LS | 180,415 | 180,415 | |
| | PER CIVIL | | | | | |
| 02310 | MOBILIZATION @ 65TH | 1 | LS | 19,596 | 19,596 | |
| | PER CIVIL | | | | | |
| 02310 | MOBILZATION @ PIONEER STREET | 1 | LS | 79,040 | 79,040 | |
| | PER CIVIL | | | | | |
| 02310 | SITE PREP @ 65TH | 1 | LS | 148,565 | 148,565 | |
| | PER CIVIL | | | | | |
| 02310 | SITE PREP @ PIONEER STREET | 1 | LS | 608,350 | 608,350 | |
| | PER CIVIL | | | | | |
| 02310 | SITE PREPARATION/EARTHWORK | 1 | LS | 1,573,775 | 1,573,775 | |
| | PER CIVIL | | | | | |
| 02315 | EROSION CONTROL | 1 | LS | 180,415 | 180,415 | |
| | PER CIVIL | | | | | |
| 02315 | EROSION CONTROL @ 65TH | 1 | LS | 35,629 | 35,629 | |
| | PER CIVIL | | | | | |
| 02315 | EROSION CONTROL @ PIONEER STREET | 1 | LS | 158,081 | 158,081 | |
| | PER CIVIL | | | | | |
| **G10** | **SITE PREPARATION** | | | **DIVISION TOTAL** | **3,133,866** | |
| **G20** | **SITE IMPROVEMENTS** | | | | | |
| 02740 | PARKING LOT PAVING/CURBS | 1 | LS | 559,205 | 559,205 | |
| | PER CIVIL | | | | | |
| 02740 | ROAD AND PARKING LOTS @ 65TH | 1 | LS | 59,710 | 59,710 | |
| | PER CIVIL | | | | | |
| 02740 | ROAD AND PARKING LOTS @ PIONEER STREET | 1 | LS | 363,105 | 363,105 | |
| | PER CIVIL | | | | | |
| 02775 | CONC PAVING-OFF SITE | 1 | LS | 52,085 | 52,085 | |
| | PER LANDSCAPE | | | | | |
| 02775 | CONCRETE PAVING | 1 | LS | 81,561 | 81,561 | |
| | PER LANDSCAPE | | | | | |
| 02775 | SIDE WALK/CONC SURFACING | 1 | LS | 218,555 | 218,555 | |
| | PER CIVIL | | | | | |
| 02775 | SIDEWALKS @ 65TH | 1 | LS | 28,015 | 28,015 | |
| | PER CIVIL | | | | | |
| 02775 | SIDEWALKS @ PIONEER STREET | 1 | LS | 135,085 | 135,085 | |
| | PER CIVIL | | | | | |
| 02810 | IRRIGATION | 1 | LS | 73,266 | 73,266 | |
| | PER LANDSCAPE | | | | | |

| ITEM | DESCRIPTION | | QUANTITY | UNIT | UNIT COST | TOTAL | $/SF |
|---|---|---|---|---|---|---|---|
| 02810 | IRRIGATION-OFF SITE | | 1 | LS | 32,838 | 32,838 | |
| | | PER LANDSCAPE | | | | | |
| 02820 | FENCING/GATES | | 1 | LS | 8,874 | 8,874 | |
| | | PER LANDSCAPE | | | | | |
| 02870 | MISC. SITE FURNISHINGS | | 1 | LS | 106,000 | 106,000 | |
| | | PER LANDSCAPE | | | | | |
| 02900 | PLANTS/MULCH/TREES | | 1 | LS | 240,375 | 240,375 | |
| | | PER LANDSCAPE | | | | | |
| 02900 | PLANTS/MULCH/TREES-OFF SITE | | 1 | LS | 145,550 | 145,550 | |
| | | PER LANDSCAPE | | | | | |
| 02900 | SOIL PREP | | 1 | LS | 55,110 | 55,110 | |
| | | PER LANDSCAPE | | | | | |
| 02900 | SOIL PREP-OFF SITE | | 1 | LS | 26,763 | 26,763 | |
| | | PER LANDSCAPE | | | | | |
| 02920 | LAWNS | | 1 | LS | 11,238 | 11,238 | |
| | | PER LANDSCAPE | | | | | |
| 03100 | RETAINING WALL/FTG | | 1 | LS | 150,000 | 150,000 | |
| **G20** | **SITE IMPROVEMENTS** | | | | **DIVISION TOTAL** | **2,347,335** | |
| **G30** | **SITE CIVIL / MECHANICAL UTILITIES** | | | | | | |
| 02510 | WATER SYSTEM @ PIONEER STREET | | 1 | LS | 144,175 | 144,175 | |
| | | PER CIVIL | | | | | |
| 02510 | WATER/FIRE WATER SYSTEMS | | 1 | LS | 219,225 | 219,225 | |
| | | PER CIVIL | | | | | |
| 02530 | SANITARY SYSTEMS | | 1 | LS | 113,000 | 113,000 | |
| | | PER CIVIL | | | | | |
| 02630 | GAS LINE WORK | | 1 | LS | 59,200 | 59,200 | |
| | | PER CIVIL | | | | | |
| 02630 | STORM DRAINAGE | | 1 | LS | 865,355 | 865,355 | |
| | | PER CIVIL | | | | | |
| 02630 | STORM DRAINAGE @ 65TH | | 1 | LS | 120,000 | 120,000 | |
| | | PER CIVIL | | | | | |
| 02630 | STORM DRAINAGE-PIONEER STREET | | 1 | LS | 335,100 | 335,100 | |
| | | PER CIVIL | | | | | |
| **G30** | **SITE CIVIL / MECHANICAL UTILITIES** | | | | **DIVISION TOTAL** | **1,856,055** | |
| **Z10** | **GENERAL REQUIREMENTS** | | | | | | |
| 01000 | GENERAL CONDITIONS-PRORATED | | 4 | MO | 70,000 | 280,000 | |
| **Z10** | **GENERAL REQUIREMENTS** | | | | **DIVISION TOTAL** | **280,000** | |
| | | | | | **ESTIMATE SUBTOTAL** | **7,825,506** | |

CLARK COLLEGE
EST. 1933

# ATTACHMENT 6.2

## Archeology Study,
## DAHP and Tribal Notification

**From:** Watkins, Jim <JWatkins@clark.edu>
**Sent:** Monday, January 07, 2019 12:23 PM
**To:** Arnold Cooper (acooper@squaxin.us); Benjamin Joseph (bjoseph@sauk-suiattle.com); Bernard Afterbuffalo (bernard.afterbuffalo@hohtribe-nsn.org); Bill Sterud (bill.sterud@puyalluptribe.com); Brian Cladoosby (bcladoosby@swinomish.nsn.us); Carol Evans (carole@spokanetribe.com); Carol Kriebs (ckriebs@kootenai.org); Cecile Hansen / Chair Duwamish Tribe (dts@qwestoffice.net); Charlene Nelson (cnelson@shoalwaterbay-nsn.gov); Charles 'Guy' Miller (gmiller@skokomish.org); Christian Nauer (christian.nauer@ctwsbnr.org); Danny K. Marshall / Chair Steilacoom Indian Tribe (fairviewwest@q.com); Dara Williams-Worden (NaturalResources@ctuir.org); Douglas Woodruff Jr. (doug.woodruff@quileutenation.org); Earngy Sandstrom / Chair Snoqualmoo Tribe of Indians (earngy@aol.com); Fawn Sharp (fsharp@quinault.org); Frances Charles (frances.charles@elwha.org); Glen Nenema (rpierre@kalispeltribe.com); Harry Pickernell Sr. (hpickernell@chehalistribe.org); Jennifer Washington (Jenniferw@upperskagit.com); Jeremiah 'Jay' Julius (JeremiahJ@lummi-nsn.gov); Jeromy Sullivan (jeromys@pgst.nsn.us); JoDe L. Goudy (JoDe@yakama.com); Josie Hoottanana (josie@kootenai.org); Ken Choke (choke.ken@nisqually-nsn.gov); Kurt Weinreich (kurtweinreich@gmail.com); Leonard Forsman (lforsman@suquamish.nsn.us); Marie Zackuse (mzackuse@tulaliptribes-nsn.gov); Michael didahalqid Evans / Chair Snohomish Tribe of Indians (info@snohomishtribe.com); Michele Volz (michele.volz@grandronde.org); Nakia Williamson-Cloud (nakiaw@nezperce.org); Nathan Tyler (nate.tyler@makah.com); Robert de los Angeles (bobde@snoqualmietribe.us); Rodney Cawston (rodney.cawston.cbc@colvilletribes.com); Ron Allen (rallen@jamestowntribe.org); Roswell 'Ross' Cline (rossc@nooksack-nsn.gov); Shawn Yanity (syanity@stillaguamish.com); Tom Wooten (tomwooten@samishtribe.nsn.us); Tony Johnson / Chair Chinook Indian Tribe (office@chinooknation.org); Virginia Cross (virginia.cross@muckleshoot.nsn.us); William Iyall (wiyall@cowlitz.org)
**Subject:** Clark College proposed building - archaeological survey Final Report

Good Afternoon,

My name is Jim Watkins, and I'm the project manager for Clark College in Vancouver, Washington. I sent out a letter in early December, 2018, notifying area tribes of the College's intent to construct a new building near Ridgefield, Washington. Pursuant to the Governor's Executive Order 05-05, the College conducted an archeological survey of the property, which did not identify any archaeological or cultural resources.

We've received the final survey report and have submitted it to the Washington State Department of Archaeology and Historic Preservation (DAHP).

The final report is a relatively large document, about 25 pages, and I'm sending this preliminary message to let you know that I'll soon be e-mailing the report to you. If you do not receive the final report in a reasonable amount of time, please let me know and we will re-send it, or mail a hard copy to you.

We respectfully request that you review the final survey report and provide comments or questions regarding the document and the findings as you deem suitable. We ask that you provide your comments by e-mail by January 28, 2019.

If you have any questions or concerns, please feel free to contact me.

Thank you for your time and consideration.

Sincerely,

Jim Watkins
Project Manager
360-992-2720 o
360-907-0654 c

## Keith Schreiber

**From:** Watkins, Jim <JWatkins@clark.edu>
**Sent:** Monday, January 07, 2019 12:27 PM
**To:** Arnold Cooper (acooper@squaxin.us); Benjamin Joseph (bjoseph@sauk-suiattle.com); Bernard Afterbuffalo (bernard.afterbuffalo@hohtribe-nsn.org); Bill Sterud (bill.sterud@puyalluptribe.com); Brian Cladoosby (bcladoosby@swinomish.nsn.us); Carol Evans (carole@spokanetribe.com); Carol Kriebs (ckriebs@kootenai.org); Cecile Hansen / Chair Duwamish Tribe (dts@qwestoffice.net); Charlene Nelson (cnelson@shoalwaterbay-nsn.gov); Charles 'Guy' Miller (gmiller@skokomish.org); Christian Nauer (christian.nauer@ctwsbnr.org); Danny K. Marshall / Chair Steilacoom Indian Tribe (fairviewwest@q.com); Dara Williams-Worden (NaturalResources@ctuir.org); Douglas Woodruff Jr. (doug.woodruff@quileutenation.org); Earngy Sandstrom / Chair Snoqualmoo Tribe of Indians (earngy@aol.com); Fawn Sharp (fsharp@quinault.org); Frances Charles (frances.charles@elwha.org); Glen Nenema (rpierre@kalispeltribe.com); Harry Pickernell Sr. (hpickernell@chehalistribe.org); Jennifer Washington (Jenniferw@upperskagit.com); Jeremiah 'Jay' Julius (JeremiahJ@lummi-nsn.gov); Jeromy Sullivan (jeromys@pgst.nsn.us); JoDe L. Goudy (JoDe@yakama.com); Josie Hoottanana (josie@kootenai.org); Ken Choke (choke.ken@nisqually-nsn.gov); Kurt Weinreich (kurtweinreich@gmail.com); Leonard Forsman (lforsman@suquamish.nsn.us); Marie Zackuse (mzackuse@tulaliptribes-nsn.gov); Michael didahalqid Evans / Chair Snohomish Tribe of Indians (info@snohomishtribe.com); Michele Volz (michele.volz@grandronde.org); Nakia Williamson-Cloud (nakiaw@nezperce.org); Nathan Tyler (nate.tyler@makah.com); Robert de los Angeles (bobde@snoqualmietribe.us); Rodney Cawston (rodney.cawston.cbc@colvilletribes.com); Ron Allen (rallen@jamestowntribe.org); Roswell 'Ross' Cline (rossc@nooksack-nsn.gov); Shawn Yanity (syanity@stillaguamish.com); Tom Wooten (tomwooten@samishtribe.nsn.us); Tony Johnson / Chair Chinook Indian Tribe (office@chinooknation.org); Virginia Cross (virginia.cross@muckleshoot.nsn.us); William Iyall (wiyall@cowlitz.org)
**Subject:** Clark College proposed building - archaeological survey Final Report
**Attachments:** ASCC 18753 - Clark College at Boschma Farms CR Survey - Final.pdf

Good Afternoon,

As mentioned in my recent e-mail, please find attached the final archaeological survey report on Clark College's proposed new building near Ridgefield, Washington.

We respectfully request that you review the final survey report and provide comments or questions regarding the document and the findings as you deem suitable. We ask that you provide your comments by e-mail by January 28, 2019.

If you have any questions or concerns, please feel free to contact me.

Thank you for your time and consideration.

Sincerely,

Jim Watkins
Project Manager
360-992-2720 o
360-907-0654 c

# CULTURAL RESOURCES SURVEY OF CLARK COLLEGE AT BOSCHMA FARMS, CLARK COUNTY, WASHINGTON

By
Justin B. Colón, M.A., RPA

Report Prepared for:
Jim Watkins
Clark College
1933 Fort Vancouver Way,
Vancouver, WA 98663

County: Clark
Legal Desc.: NW and SW ¼ of Section 22, T 4N, R 1E, W.M.
USGS Quad.: Ridgefield, WA 1990 (1995 ed.)
Project Acreage: ~40 acres
DAHP Project No.: 214247-000, 214199-000, 214196-000, and 214195-000

January 3rd, 2019

**Archaeological Services LLC Report No. 18753**

ARCHAEOLOGICAL SERVICES

601 Officers Row Vancouver, WA 98661 (360) 260-8614 archaeologicalservices.com

*Applicant's Name:* Clark Community College

*Property Owner's Name:* Clark Community College Dist. #14 Foundation

*File/Permit Number:* ASCC #18753

*Location:* 266 North 65th Avenue, Ridgefield, Washington

*Parcel Number:* 215247-000, 214196-000, 214199-000, and 214197-000

*Quadrangle:* USGS, Ridgefield, WA, 7.5-minute Series, 1990 (1995 ed.)

*Legal Description:* NW ¼ and SW ¼ of Section 22, T4N, R1E, W.M.

*Number of Acres:* Approximately 40 acres.

*Description of Proposed Activity:* The applicant proposes to construct a new campus branch of Clark College.

| FINDINGS | |
|---|---|
| POSITIVE | ☐ |
| **NEGATIVE** | **X** |

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## Introduction

Archaeological Services, LLC (ASCC) has carried out a cultural resources survey of the proposed Clark College at Boschma Farms project area, located in the eastern extent of the City of Ridgefield, Clark County, Washington. The project area occupies the NW ¼ and SW ¼ of Section 22 in Township 4 North, Range 1 East, Willamette Meridian (W.M.) (Figure 1).

The proposed project is a state-funded capital project which requires compliance with the Washington Governor's Executive Order 05-05 (EO 05-05), including consultation and review of project plans and details with the Washington State Department of Archaeology (DAHP), and the Governor's Office of Indian Affairs (GOIA).

This report is designed to satisfy standards outlined in the EO 05-05, and parallels the standards defined in the National Historic Preservation Act of 1966. The purpose of this study is to identify any historic properties, and prehistoric cultural resources, which may be adversely affected by the proposed project. The area of potential effect (APE) for this project, as defined by 36 CFR 800.16(d), consists of:

> the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking. (36 CFR 800.16)

This project's area of potential effect (APE), hereafter referred to as the project area, consists of the entirety of parcels nos. 214247-000, 214196-000, 214199-000, and a portion of parcel no. 214197-000, all of which collectively measures approximately 40 acres (Figure 2).

## Project Background

Although preliminary site plans are not yet available, the proposed project entails grading and construction of a new campus branch of Clark College. Because specific details of the project's proposed impacts are unavailable at this time, ASCC surveyed the entirety of the proposed impact area. The cultural resources survey of the Clark College at Boschma Farms project area was designed to satisfy cultural resource protection and preservation standards outlined in Chapter 27.53.020 of the Revised Code of Washington (RCW) and Washington Standards for Cultural Resource Reporting (DAHP 2018).

## Project Area Description

The Clark College at Boschma Farms project area is located roughly 3 miles (4.8 kilometers [km]) east of downtown Ridgefield, in an area primarily characterized by agricultural use to the north, south, and east. It is located at the address of 266 N 65th Avenue, in Ridgefield, Washington, east of Interstate-5. It is bordered by N 65th Avenue to the west, by continuations of agricultural fields to the north and east, and by fencing separating it from neighboring properties to the south (Figure 2). The surrounding area to the west (across N 65th Avenue) consists of several retail and commercial spaces that flank both sides of Interstate 5 (I-5), whose northbound lane lies roughly 1,200 feet (ft.) (365.7 m) to the west.

The project area is located on an upland terrace incised by several watercourses and drainages that overlook the East Fork Lewis River floodplain roughly 2 miles (3.2 km) to the northeast. It is located 1.88 miles (3.02 km) north of Gee Creek; 0.92 miles (1.48 km) northwest of the headwaters of McCormick Creek; and the channelized wetlands that form the headwaters of Allen Creek are located directly outside of the project area's northwest corner. Allen Creek eventually drains into Mud Lake approximately 3.2 miles (5.15 km) northwest of the project area. Terrain within the project area is mildly undulating and varies between 276 ft. (84.1 m) and 266 ft. (81.1 m) above mean sea level (amsl) on average, with a crest shown at roughly 280 ft. (85.3 m) amsl adjacent to the farmhouse. The topography of the surrounding landform trends to both the northeast and northwest, descending towards drainages in either direction.

The project area primarily sees use as agricultural fields. An unoccupied farmhouse and detached garage (as well as several other buildings clustered outside of the project area boundaries) occupy the eastern margins of the project area (Figure 3). According to records available with the Clark County Assessor's Office, the home and garage were constructed in 1915, qualifying them as historic properties. ASCC has documented and completed an Historic Property Inventory (HPI) form for the structures and submitted them to DAHP (Appendix A). South of the farmhouse complex, a livestock pen was observed to accommodate a few sheep, turkeys, and chickens. The project area is accessed via a dirt/gravel driveway on the east side of N 65th Avenue which bisects the project area on its east-west axis. The acreage north of the driveway exclusively consists of open rolling grassy agricultural fields; the acreage south of the driveway also consists of open grassy agricultural fields bordered by a few mature trees on neighboring properties to the west and south (Figures 4 and 5). Near the farmhouse complex the driveway forks, providing access to the northern fields and neighboring properties to the north, and providing access to the livestock pens and eastern-adjacent buildings to the east (refer to Figure 2).

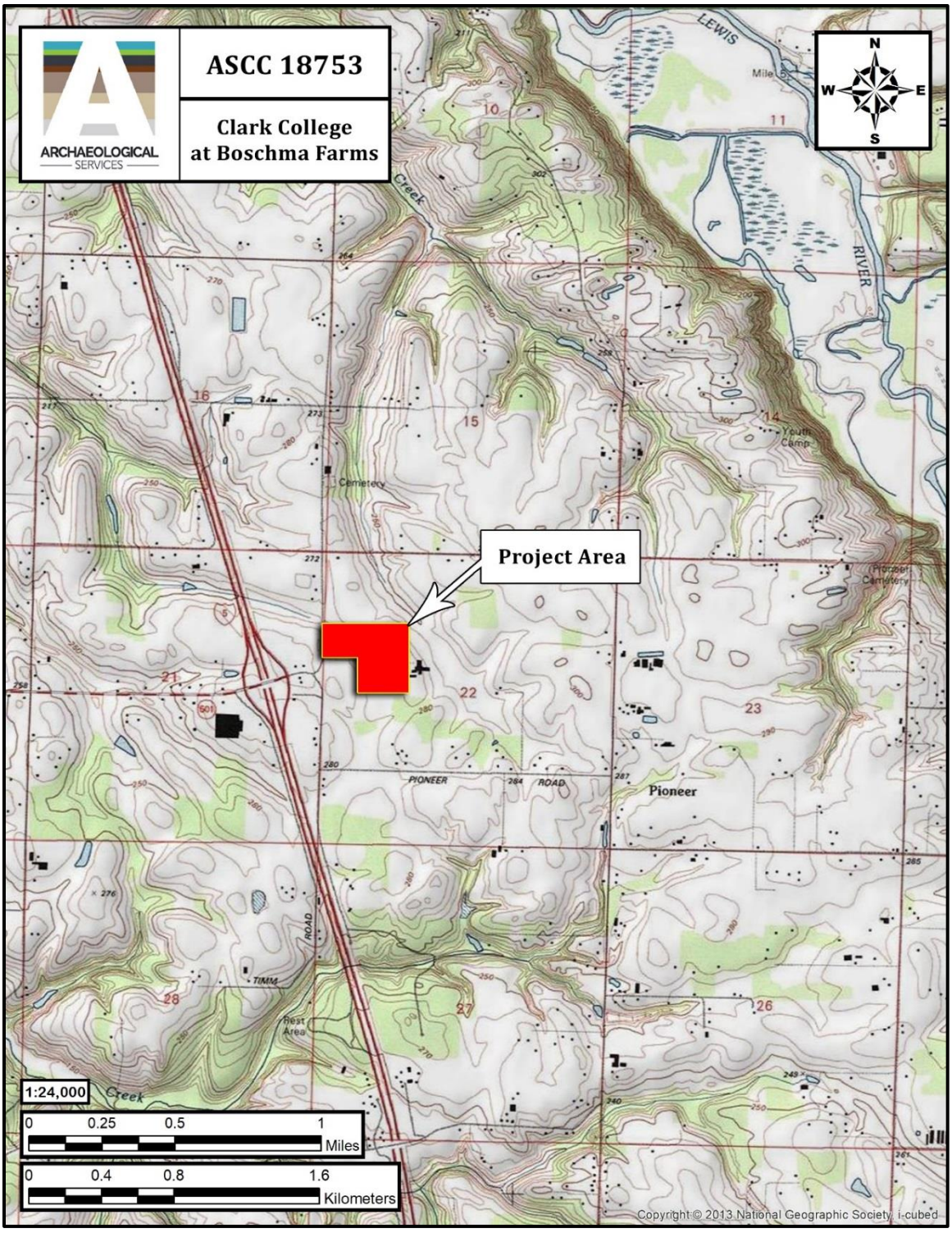


**Figure 1.** Portions of the USGS Ridgefield, WA Quadrangle 1990 (1995 ed.) overlaid with the location of the project area in the NW ¼ and SW ¼ of Section 22, in Township 4 North, Range 1 East, Willamette Meridian.

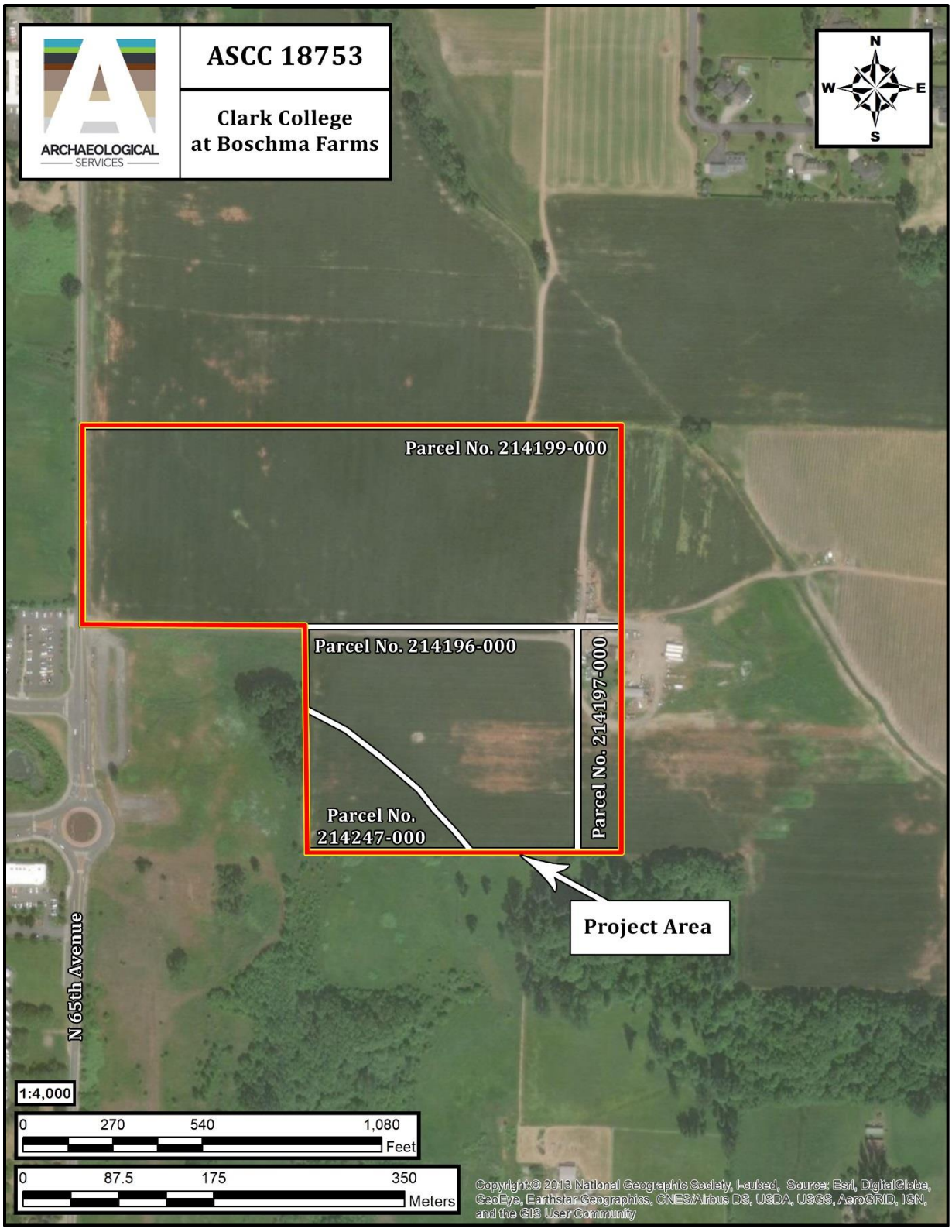


**Figure 2.** Aerial image showing existing conditions overlaid with current parcel boundaries (in white) and the Clark College at Boschma Farms project area boundaries (in red and yellow) (Clark County GIS 2018).

**Figure 3.** Photograph of the southern elevations of the farmhouse and its detached garage. View is to the north.

**Figure 4.** Overview photograph showing the open grassy acreage that characterizes most of the project area. View is to the east.

**Figure 5.** Overview photograph of the grassy acreage to the south of the access driveway. View is to the west.

***Soils & Geology***

The project area is located in the northern margin of the Portland Basin, a structural depression centered on the confluence of the Willamette and Columbia Rivers. The basin is part of the larger Puget-Willamette Lowland, which represents the southern end of a coastal trough that runs from southeastern Alaska to the south end of the Willamette Valley (Ames 1994:5). As the Columbia River exits the Columbia Gorge to the east and enters the Portland Basin, the river becomes marked by extensive alluvial bottom lands, sloughs, lakes, and islands composed of low-lying alluvium. Away from the river, Clark County exhibits similar climactic conditions as the Willamette Valley in Oregon—relatively mild throughout the year, with cool, wet winters and warm, dry summers (Franklin and Dyrness 1988). More specifically, the project area is located on the uplands southwest of the East Fork Lewis River floodplain. The surface geology in this area is characterized by unconsolidated clays, silts, and fine to medium-sized sand laid down by slack-water deposits related to the repeated failure of ice dams at glacial Lake Missoula during the late Pleistocene (Evarts 2004).

Soils across the project area are mapped by Clark County GIS (2018) and the Natural Resource Conservation Service (NRCS)'s Web Soil Survey (USDA 2018) and are described using Dale McGee's *Soil Survey of Clark County* (1972). Soils within the project area are mapped as belonging to the Gee and Odne series. Odne series soils are typically topographically level loamy soils underlain by compact subsoils at a depth of 16 to 24 inches (40.64 to 60.96 cm). These soils are formed in drainageways and depressions on terraces adjoining Gee soils in the northwestern park of Clark County. Gee series soils consists of deep, well-drained, rolling and hilly soils on eroded terraces. They are medium-

textured soils formed from old alluvium deposited by the Columbia River. The slopes are mostly nearly level to gently rolling (McGee 1972).

More specifically, soils within the project area are mapped as Odne silt loam (OdB) which occurs on 0 to 5% slopes. This soil is generally found in concave drainageways or depressions adjacent to Gee soils. In a typical profile the surface layer is about 10 inches (25.4 cm) thick. It is mottled, dark gray heavy silt loam in the upper part, and mottled, dark gray silty clay loam in the lower part. The subsurface layer is firm, mottled, gray silt loam about 9 inches (22.86 cm) thick.

Other portions of the project area are mapped as Gee silt loam (GeB) which occurs on 0 to 8% slopes. These soils are typically on moderate to short and undulating slopes. In a typical profile the surface layer is very dark grayish brown silt loam about 9 inches (22.86 cm) thick. The subsurface layer is dark grayish brown silt loam about 5 inches (12.7 cm) thick. Below this is mottled, dark grayish brown and dark brown silt loam about 8 inches (20.32 cm) thick (McGee 1972).

### *Vegetation*

The project area is mapped within the *Tsuga heterophylla* vegetation zone, an extensive zone widespread throughout western Washington and Oregon in wet maritime climates ranging between sea level and about 700 m (2296 ft.) in elevation (Franklin and Dyrness 1988). Typical vegetation dominants in this zone include Douglas fir (*Pseudotsuga menziesii*), western hemlock (*Tsuga heterophylla*), and western red cedar (*Thuja plicata*) with a few hardwood species. Currently there is no native vegetation within the project area as it has been in use for agricultural production since at least 1915. Vegetation across the project area is limited to short-cut grasses and forbs, and a few ornamental evergreen hedges that surround the farmhouse.

## Background and Literature Research

ASCC carried out ethnographic, historic, and archaeological background research using materials from the Washington Information System for Architectural and Archaeological Records Data (WISAARD), published by the Washington State Department of Archaeology and Historic Preservation (DAHP), as well as resources located at the ASCC library and online. Materials reviewed included Washington State Archaeological Site Inventory files, cultural resource survey reports, historical aerial imagery, General Land Offices (GLO) survey maps, and United States Geological Survey (USGS) topographic maps. This research was used to identify any previously recorded historic properties (including archaeological sites) which could be affected by the proposed project, to assess the probability of encountering archaeological resources in the field, and to establish an interpretive context for any materials encountered.

### *Ethnographic Overview*

The indigenous inhabitants of the Portland Basin area at the time of Euro-American contact were the Chinookan-speaking Multnomah people (Silverstein 1990). The term “Chinook” refers to both a linguistic classification as well as a cultural one (Ruby and Brown 1976). Early on, Euro-American traders used the term to refer to the indigenous people living on the Pacific shore from Willapa Bay to Tillamook Head, along the Columbia River from its

mouth to The Dalles, and a short distance up the Willamette to its falls (Silverstein 1990). Traits common to Chinookan-speaking groups include a reliance on aquatic resources (primarily anadromous fish), woodworking (exemplified by planked houses and dugout canoes), twined basketry, untailored clothing, a distinctive art style, and a social emphasis on rank (ibid.). Chinookan speakers can be divided into the Lower Chinook, who lived near the Pacific coast, and the Upper Chinook, who lived farther inland along the Columbia River and its tributaries. The Multnomah sub-group of the Upper Chinook occupied the Columbia River from near Deer Island to just east of the Washougal River (Silverstein 1990).

Multnomah villages were recorded on both sides of the Columbia River. The first recorded Multnomah villages include the settlements on Wapato Island, now Sauvie Island (recorded in William Broughton's trip log, 1792) (Jones 1972), and two settlements recorded by Lewis and Clark: Shoto, located along Vancouver Lake, and Cathlapottle, located near the mouths of Lake River and the Lewis River (Silverstein 1990). The names of the villages also refer to smaller ethnic and political subgroups within the Multnomah linguistic group. By the late 18th century, the Chinookan peoples of the lower Columbia had come into contact with Euro-American traders who plied the Northwest Coast trading with the natives, primarily in furs. Disease introduced to the native populations decimated the population within a single generation. Smallpox, dysentery, and malaria reduced the population by as much as 75% to 90% by some estimates, severely impacting the traditional lifeways of the Chinook prior to the arrival of the first permanent Euro-American settlers to the region (Hajda 1994).

While the Chinookan peoples were the most obvious indigenous inhabitants of Clark County, other Native American groups were present during late prehistoric times. Occupying the upper portions of the Lewis River and Cowlitz River drainages were speakers of Sahaptin, or *Ichishkíin Sínwit*, a language group primarily spoken to the east of the Cascades by plateau cultures such as the Yakama, Palouse, and Umatilla. Euro-American observers used the generic term "Klickitat" to describe Sahaptin-speaking peoples living west of the Cascades (Ray 1974 cited in Hajda 1990).

Along the upper Lewis and Cowlitz rivers, these peoples were generally referred to as the Taitnapam, or Western Klickitat. It is generally thought that the Klickitat began arriving in western Washington when the Chinook, devastated by Euro-American diseases, abandoned many of their traditional territories (Hajda 1990). The Klickitat subsistence pattern was oriented largely around open grasslands and prairies, which contained animal and plant resources and served as inland lines of communication and commerce (Norton et al. 1999).

Klickitat peoples maintained the open grasslands and prairies through periodic burning. The Klickitat wintered in the valleys of the Klickitat, White Salmon, Little White Salmon, Wind, and Lewis Rivers (Curtis 1911). With the ripening of the first roots and greens in spring, small groups would move to seasonal camps associated with a particular resource and stay, dependent on the availability of the resource. Like their Chinookan-speaking neighbors to the south and west, the Klickitat would converge in great numbers at fisheries during the heights of the spring and summer salmon runs. As the summer progressed into fall, the people would move higher into the uplands to take advantage of ripening berries and available game. With the end of the berry season, the people would reunite in social gathering locations before dispersing to their respective winter village sites. Movement

between resource concentrations was quite fluid depending on need and resource availability (Boyd and Hajda 1987).

Moving into former Chinookan territories such as the Lewis River Basin, Sahaptin-speaking newcomers such as the Taitnapam may have adopted many of the practices of neighboring riverine groups such as the Cowlitz, a Salish-speaking people who lived to the north along the Cowlitz River and its tributaries, but whose territory no doubt overlapped with Chinookan speakers, such as at the mouth of the Cowlitz River (Hajda 1990). The Cowlitz centered their tribal territories on major salmon streams, but they also harvested resources from the productive inland prairies (Hajda 1990). Salish-speaking groups practiced extensive trade with each other; Cowlitz and Upper Chehalis would trade surplus camas for sturgeon and other maritime staples with the Lower Chehalis, the Quinault, and groups along the Columbia River (Hajda 1990). Dentalium shells served as the primary medium of exchange when direct goods-for-goods trading was not an option. Intermarriage between the groups encouraged such productive relationships, though conflict sometimes disrupted these relationships (Hajda 1990).

Several authors have pointed out the difficulty in assigning "tribal" boundaries within the Portland Basin (Boyd and Hajda 1987). The difficulty arises from the political independence of villages, seasonal population movements, trading patterns, and village exogamy, whereby travel and marriage between villages was the rule rather than the exception.

***Historic Overview***

The earliest Euro-American presence in this area was during the early decades of the nineteenth century, following the first ascent of the Columbia River by Lieutenant William Broughton of the Royal Navy in 1792 and the passage of the Lewis and Clark Expedition in 1805-1806. These early explorations opened the area for fur-trapping, by the Pacific Fur Company, North West Company, and eventually, the Hudson's Bay Company (HBC), each establishing a presence along the Columbia River. After 1821, the HBC dominated trade in the Northwest, initially from their headquarters at Fort George (near present-day Astoria), and after 1824, from their headquarters at Fort Vancouver. Although settlement of the areas along the Columbia and Willamette rivers began soon after Fort Vancouver was established, most Euro-American settlers in the region were HBC retirees whom Chief Factor John McLoughlin had allowed to remain (Casey 1971).

Following the passage of the Organic Laws Act by the Oregon Provisional Legislature in 1843 was a dramatic increase in American immigration westward during the mid to late 1840s. This act included a provision for the claiming of up to 640 acres of land by anyone who would settle and improve it. The first lands to be claimed were those with ready access to water, as well as prairie lands that were largely free of timber and therefore more readily farmed. Lands that required more preparation, either through draining or clearing, were claimed later, mostly beginning in the 1850s, which meant they were claimed under the provisions of the Donation Land Act of 1850 (Robbins 1997).

The first Euro-American to settle in what would become the town of Ridgefield was an Irish immigrant names James Carty, who settled on Lake River in 1839. Following the Donation Land Claim act of 1850, several more settlers arrived in the area, including three bachelors,

Stillman Hendrick, B.O. Teal, and George Thing, who settled on an island across Lake River from Carty's land claim, named Bachelor's Island. Between 1852 and 1853, Arthur Quigley and Frederick Shobert arrived in the area and established mud landings on their properties adjacent to Lake River where river steamers could offload their goods and take on loads of farm products produced on the interior uplands east of the river. The area was called "Shobert's Landing" for several years until it was renamed "Union Ridge" during the Civil War, for all of the outspoken Union men (Jollota 2002). An 1886-1887 gazetteer described Union Ridge as a "post village on Lake River with a population of 65… that was settled in 1853 and shipped farm produce" (Topinka 2014). In 1890, more settlers began building homesteads below the large basalt ridge that defines this area of Clark County. At this time, postal officials changed the community name to "Ridgefield," at the behest of a new postmaster, S.P. Mackey, who travelled from Virginia and was not keen on the name Union Ridge. The City of Ridgefield was officially incorporated in 1909 (U.S. Fish and Wildlife Service 2010).

Among the earliest maps depicting the project area is the 1884-photolithographed copy of the 1854 General Land Office (GLO) Cadastral Survey map of Township 4 North, Range 1 East, Willamette Meridian (W.M.) (Figure 6). This map shows no man-made landmark features within or outside of the project area, it does, however, depict the headwaters of Allen Creek, though unlabeled, and a network of various drainages across the entirety of the map. A note across the entire map also reads, "Land level and gently rolling. Soil 2nd rate clay loam. Gravelly in places. Timber fir, cedar, maple, hemlock, & mostly burn and partly fallen with thick undergrowth" (GLO 1854). This map also labels the East Fork Lewis River as "South Fork of the Cattlepootle River" (GLO 1854). The subsequent 1863 GLO map does not depict any landscape features at all, and only shows land ownership in the western margin of the map.

The next available map depicting the project area is Alfred Downing's 1883 *Map of the Country in the Vicinity of Vancouver Barracks, Washington Territory*, which does not depict any land ownership or map features in the vicinity of the project area. This map does, however, depict the current name of the East Fork Lewis River, and shows Gee Creek labelled to the south (Downing 1883). The next available map is the 1888 *Map of Clarke* [sic] *County, Washington Territory*, which shows the project area vicinity overlaid with the name label, "T. Soden" (Habbersham 1888). The subsequent 1910 National Map and Publishing Company map of Clark County depicts no land ownership in the project area or its vicinity.

Thomas Soden, his wife Kate Rose Belden, and their eight children travelled to Clark County from Kansas in 1887 and settled in the Ridgefield area. Thomas was born in 1841 in Oswego, New York, and his wife, Kate, was born in 1845 in East Whately, Massachusetts. Kate was the third cousin of Captain Meriwether Lewis, of the Lewis and Clark fame (Clark County Genealogical Society 1989). The couple was married in 1866 in Stroughten, Wisconsin, after which point they moved to Kansas, and eventually travelled to the Portland area where they lived for a short while until moving into Clark County, Washington. Kate passed away in 1911, and Thomas passed away seven years later. They are both buried in the Pioneer Cemetery in Ridgefield (Clark County Genealogical Society 1989).

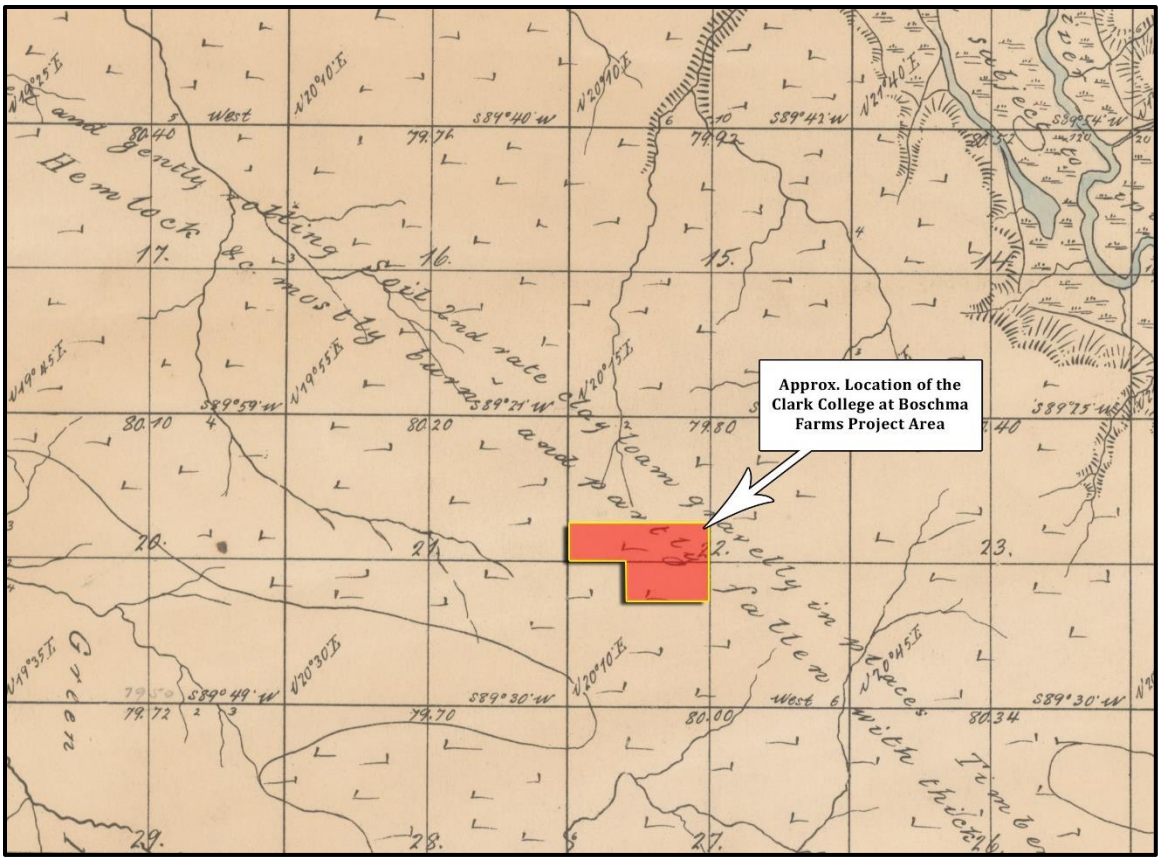


**Figure 6.** Portion of the1854 GLO cadastral map of T4N, R1E, W.M. overlaid with the project area, in red.

The 1937 Metsker's Atlas of Clark County (Metsker's Map) depicts the project area within several parcels under the ownership of several entities. The northern half of the project area is shown under the ownership of a "Jno. Timm, W.K. McMullen, and M.K. McMullen," while the southern half of the project area is shown under the ownership of the "Union Central Life Insurance Company" (Metsker 1937). "Jno. Timm" is an abbreviation for "John Timm," a relative of the Timm family, whom Timm Road is named after. An effort was made to locate any historical records associated with the Timm family, to no avail. Similarly, ASCC attempted to identify any historical details surrounding the "McMullen" family, to no avail. The property under the ownership of the "Union Central Life Insurance Company," was likely foreclosed upon for a reason unknown to the author. Its original land owner remains an unknown detail.

The subsequent Metsker's Map from 1943 shows very little change in property orientation, however the McMullen properties are now shown under the ownership of a "Chas. [Charles] Madsen," (Metsker 1943). The subsequent 1961 Metsker's Map depicts the entirety of the project area under the ownership of "Thelma Lund," whom eventually sold 110 acres of the property to Hank and Bernice Boschma in 1968 (Morin 2014). The Boschmas immigrated to the United Stated from the Netherlands in 1955, first settling in California. They relocated to Ridgefield in 1965, renting land northeast of the I-5 Junction at Pioneer Street. In 1968 they purchased land from Thelma Lund and farmed the land until 1979, at which point they moved to Ferndale, Washington where they currently reside

(Morin 2014). A cultural resources study carried out by Analytical Environmental Services (AES) in 2005 states that the Hank and Bernice Boschma purchased the land from the Shoalwater Bay Tribe in 1998, with the Deed recorded under Document Number 3014821 on Clark County Assessor Records (2018) (Heidecker 2005). While there is indeed a record for the granting of land from the Shoalwater Bay Tribe to the Boschmas, the narrative is slightly less straightforward. According to a Columbian article (Joner 2014), the Boshmas donated their entire tract of farmland to the Shoalwater Bay Tribe in 1998. The Tribe intended to construct 1,580 townhomes on the land despite objections by the neighboring community and government officials. The Boschmas ultimately sued the Shoalwater Bay Tribe, citing that Hank was promised a share of the profits from the development project, and the land was returned to Hank and Bernice (Joner 2014).

A review of historical aerial imagery available on Clark County GIS (2018) depicts the farmhouse complex in a few states over the past 60 years. In 1955, the original home, garage, and several other structures are shown closely clustered along the west boundary. Between 1968 and 1984, several structures were constructed or added onto. There are no apparent changes to the complex up until 2009, at which point nearly all structures (except the home, garage, a general-purpose building, and a shed) were demolished. The open acreage does not appear to have been used for anything other than agricultural practices between 1955 and 2016, however, 1955 aerial images do depict a drainage that juts across the western half of the project area and connects to the manmade drainage ditch observed along the western boundary of the southern parcels. The drainage feeds into the headwaters of Allen Creek to the northwest. Clark County GIS Online (2018) does map this same area as having a wetlands presence, however, no apparent wetlands were observed or mapped during ASCC's field visit. Aerial images depict this drainage up until 2016, at which point the field is shown in its current condition, sans drainage (Clark County GIS 2018).

### *Previous Archaeology*

ASCC searched records from the Washington State Department of Archaeology and Historic Preservation for archaeological studies that have been conducted in the project area's vicinity. The Washington Information System for Architectural and Archaeological Records Data (WISAARD) online database indicates that there have been at least eleven (11) cultural resources investigations carried out within a 0.5-mile (0.8-km) radius of the Clark College at Boschma Farms project area (DAHP 2018). These studies and their findings, described below, were reviewed to provide some archaeological context for the project area itself.

The nearest cultural resource investigation was a cultural resources study carried out by Analytical Environmental Services (AES) on the behalf of the Cowlitz Indian Tribe for the proposed Ridgefield Interchange Site (Heidecker 2005). The study area encompassed the entirety of the project area except for the southwestern most parcel (214247-000). While the study only consisted of a pedestrian survey, investigators at the time did take note of the historic farmhouse complex and recommended its documentation on the Historic Property Inventory. The properties, however, were recommended ineligible for inclusion on the National Register of Historic Places (NRHP), citing a failure to meet significance

criteria for listing on the NRHP (Heidecker 2005). Aside from the historic property, no other cultural resources were identified during the AES survey.

The next nearest cultural resource investigations were two archaeological predeterminations carried out directly to the south of the project area (Ogle 2004a; Gall 2017)—both of which were negative for cultural resources. Eight other cultural resource investigations were carried out within a 0.5-mile (0.8-km) radius of the Clark College at Boschma Farms project area, none of which returned results indicating the presence of cultural materials or features (DeLyria 1997; Musil 2000; Ogle 2004b; Ogle et al. 2004; NAA, Inc. 2007; Hotze and Reese 2016; Hotze and Fackler 2017; Colón 2018).

The WISAARD database does not indicate that any archaeological resources were identified within a 0.5-mile (0.8-km) of the project area. The nearest resource, site 45CL1177, is shown approximately 0.7 miles (1.13 km) to the northwest of the project area (DAHP 2018). Site 45CL1177 was identified during a cultural resource survey for a pump station/sewage line project for the Clark Regional Wastewater District (Hotze and Reese 2016). The site is described as a small lithic scatter consisting of four (4) debitage flakes of cryptocrystalline-silicate (CCS), and one (1) basalt flake (Hotze 2015). Investigators concluded that the site was identified in disturbed soils and was recommended as ineligible for inclusion on the NRHP (Hotze and Reese 2016).

**Survey Methods and Results**

The project area was inspected on November 13th, 2018 by ASCC staff members Brandon Shaw, B.A., Jordan Haddad, B.S., Daniel Martin, B.A., Alexander Gall, M.A., RPA, and Justin B. Colón, M.A., RPA. Justin B. Colón, M.A., RPA, oversaw and directed the field investigation. Fieldwork consisted of a pedestrian surface survey, a visual impacts assessment, and a subsurface investigation.

***Surface Survey***

The pedestrian survey was employed to identify and inspect all exposed ground surfaces for archaeological materials, to assess the archaeological potential of the landform within the project area parameters, and to inspect any other notable features observed on-site. ASCC used field notes, digital photography, and hand-held GPS units to document topography, soil exposure, vegetation and signs of disturbance (Figure 7).

The pedestrian survey consisted of walking parallel adjacent transects spaced 10 to 15 m (33 to 50 ft.) apart. Transects were evenly spaced, but their orientation was based on topographic features. For the most part, surface visibility was relatively poor (< 15%). The ground surface was obscured by existing vegetation, and soil exposures were limited to the ground surface adjacent to the access driveway and the farmhouse. Field investigators also observed a dried drainage ditch along the western boundary of the acreage south of the driveway (along parcel nos. 214196-000 and 214247-000) (Figure 8). All soil exposures were closely inspected for archaeological materials. No historic or pre-contact archaeological resources were identified during the surface survey phase of this investigation.

***Visual Impact Assessment***

In evaluating the project's potential visual impact on nearby cultural resources, ASCC considered 1) the line of sight to known resources, and 2) the nature of the proposed project. There are no archaeological sites located within sightline of the project area, and, with the exception of the farmhouse complex within the project area, there are no historic properties within sightline of the project area. Further, there are no NRHP listed, or eligible, properties within 1-mile (1.6-km) of the project area. The proposed project therefore should have no detrimental visual impact on any known significant cultural resources.

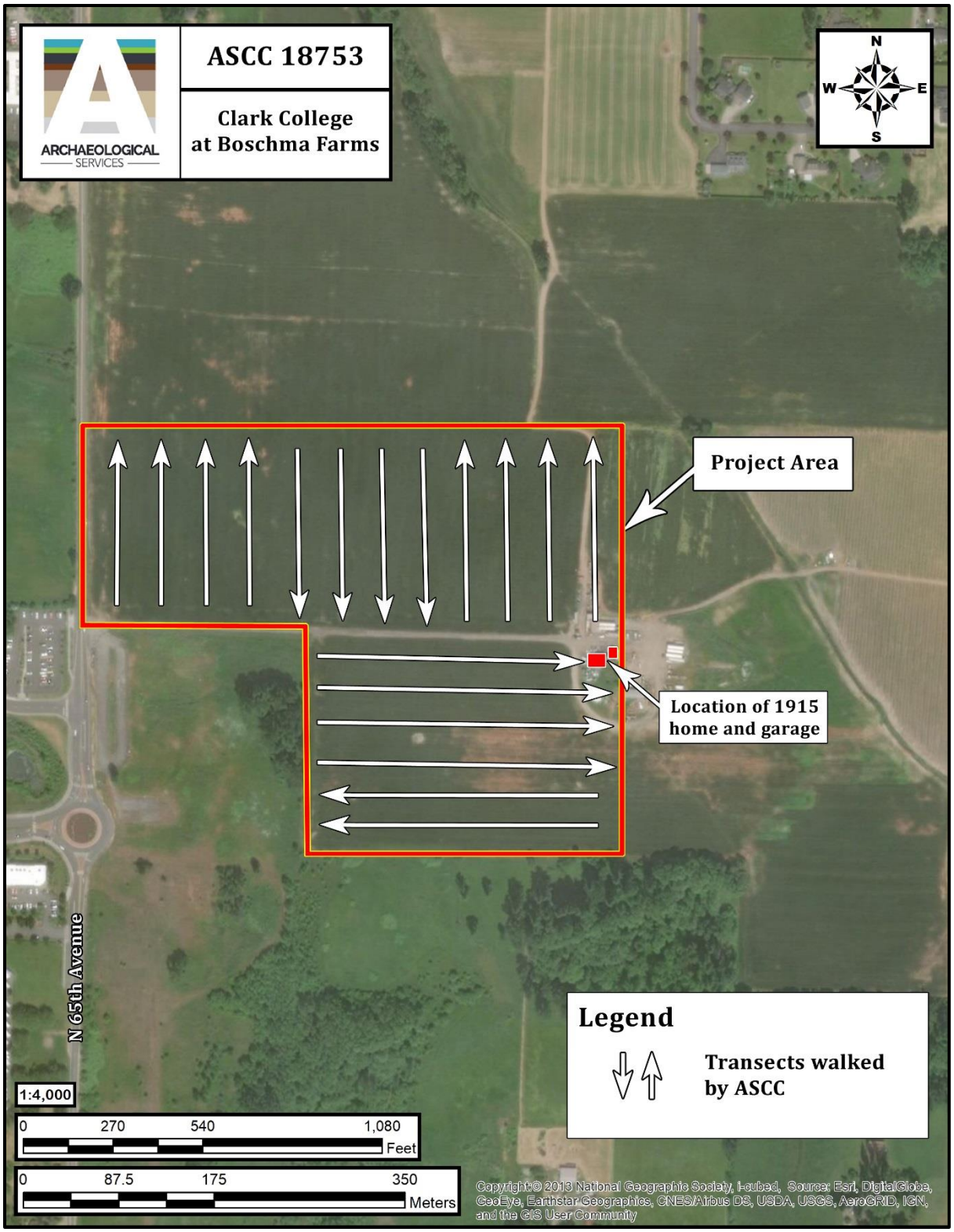


**Figure 7.** Aerial photomap overlaid with the extent and orientation of transects walked by ASCC during the pedestrian survey portion of this survey, as well as the location of the historic properties identified by ASCC.

**Figure 8.** Photograph of the drainage ditch observed along the western boundary of the southern half of the project area. View is to the south/southeast.

***Subsurface Survey***

During the subsurface investigation of the project area, ASCC excavated a total of forty-four (44) shovel test probes (STPs) (Figure 9). ASCC employed a grid sampling strategy, when possible, and STPs were spaced no greater than 60 m (196.9 ft.) and not less than 50 m (164 ft.) apart from one another. Only a few STPs deviated from the grid based on topographic highs and lows. All probes were excavated by shovel as cylindrical holes measuring approximately 50 cm in diameter, to depths between 50 and 60 cm below ground surface (bgs), and to a depth of 70 cmbgs in STP-42. All excavated soils were processed through nested 1/4-inch (6-mm) and 1/8-inch (3-mm) stainless steel mesh. Detailed notes on the subsurface investigation, including locational data, descriptions of soil types, texture, color, and the presence or absence of cultural materials, were recorded on field forms, which are on file at ASCC's offices in Vancouver, WA.

ASCC interprets soils observed across the project area as minimally disturbed though consistent with those mapped by the NRCS Web Soil Survey (USDA 2018), Clark County GIS (2018), and described by McGee (1972). An apparent plow zone was observed across the entirety of the site that descended between 25 and 35 cm below ground surface (bgs) in all STPs. A typical profile consisted of a mottled layer of dark brown silt loam, mixed with hydric subsoils in the upper 25-35 cmbgs (the plow zone), underlain by a layer of mottled orange-brown and gray-brown loam, interpreted as hydric soils (Figure 10). On several occasions, field investigators observed modern debris (namely PVC plastic

fragments and colorless glass) in the upper plow-zone layer (in STPs 8, 9, 13, 36, and 37), however, no historic of pre-contact archaeological materials were observed at any point.

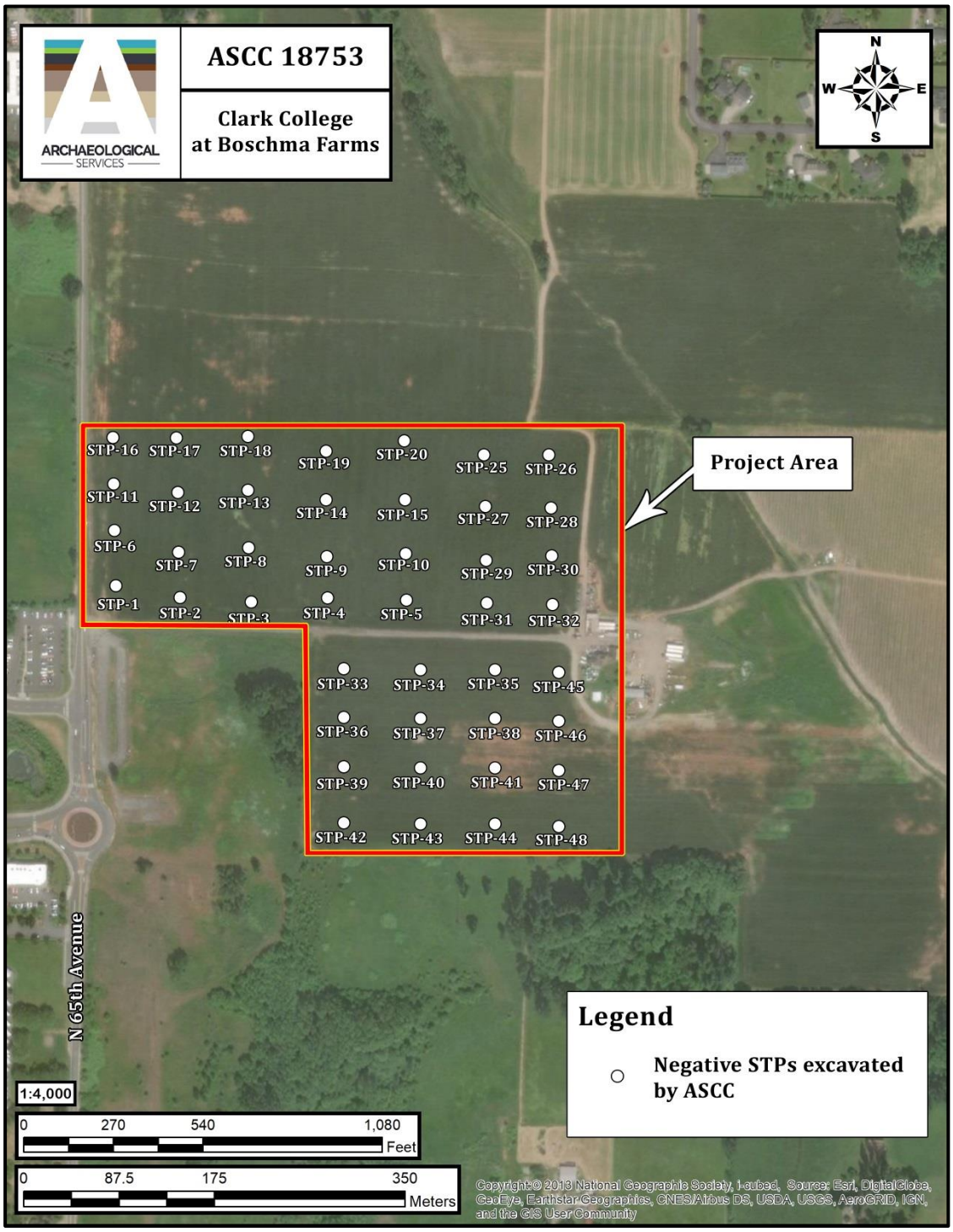


**Figure 9.** Aerial photomap overlaid with the project area boundaries and the locations of STPs excavated by ASCC.

**Figure10.** Photograph of a typical soil profile observed across the project area (STP-18).

**Summary of Results and Recommendations**

ASCC has conducted a cultural resources survey of the Clark College at Boshma Farms project area. No historic or pre-contact artifacts were observed during either phase of the survey, and the project is not within the sightline of any registered historic properties or significant archaeological sites. ASCC did identify two historic structures, a 1915 residence and its associated detached garage. The structures have been documented and recorded on the Historic Property Inventory (Appendix A) and are recommended as ineligible for inclusion on the National Register of Historic Places (NRHP). It is ASCC's opinion that the proposed project will have no adverse effect on historic properties listed on, or eligible for listing on the NRHP or any other local or state registers.

**It is ASCC's recommendation that no cultural resources will be impacted by the proposed project and that project proponents may proceed as planned.**

A survey is by definition a sampling process that leaves open the possibility that archaeological materials may yet be present on-site. To prepare for the possibility that archaeological materials are discovered during project activities, ASCC recommends that project coordinators develop and implement an inadvertent discovery plan.

***Sample Inadvertent Discovery Plan***

In the event of an inadvertent discovery of potentially significant archaeological materials (bones, shell, stone tools, hearths, etc.) and/or human remains during project activities, all work in the immediate vicinity should stop, the area must be secured, and the discovery

must be reported to the Department of Archaeology and Historic Preservation (DAHP) (360-586-3065) and all relevant Native American tribes. In the event human remains are identified, local law enforcement, the county medical examiner, State Physical Anthropologist at DAHP (360-586-3534), the Clark County planning office, and the affected Tribes should be contacted immediately. Compliance with all applicable laws pertaining to archaeological resources (RCW27.53, 27.44 and WAC 25-48) and human remains (RCW 68.50) is required

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Silverstein, Michael
1990 Chinookans of the Lower Columbia. In *Handbook of North American Indians: Volume 7. Northwest Coast.* Ed. By Wayne Suttles. Smithsonian Institution, Washington, D.C.

Topinka, Lynn
2014 *Columbia River Images: Lewis and Clark's Columbia River – '200 Years Later': Ridgefield Washington.* Accessed electronically on December 13th 2018. http://columbiariverimages.com/Regions/Places/ridgefield.html

U.S. Fish and Wildlife Service
2010 *Ridgefield National Wildlife Refuge: Comprehensive Conservation Plan.* Prepared by the Ridgefield National Wildlife Refuge Complex and the U.S. Fish and Wildlife Service. Accessed electronically on December 13th 2018. https://www.fws.gov/pacific/planning/main/docs/wa/Ridgefield/Ridgefield%20NWR%20Final%20CCP.pdf

Washington State Department of Archaeology and Historic Preservation (DAHP)
2018 *Washington Information System for Architectural and Archaeological Records Data (WISAARD).* Online web portal.

APPENDIX A.
HISTORIC PROPERTY INVENTORY FORM FOR THE FARMHOUSE AND DETACHED GARAGE LOCATED AT 266 N. 65TH AVENUE, RIDGEFIELD, WASHINGTON.
(PROPERTY ID#51557)

# Historic Property Report

Resource Name: Residence

Property ID: 51557

## Location

**Address:** 266 N 65th Ave, Ridgefield, WA, 98642, USA

**Tax No/Parcel No:** 214197-000

**Geographic Areas:** Clark Certified Local Government, Clark County, T04R01E22, RIDGEFIELD Quadrangle

## Information

**Number of stories:** 1.50

**Construction Dates:**

| Construction Type | Year | Circa |
|---|---|---|
| Built Date | 1915 | ☑ |

**Historic Use:**

| Category | Subcategory |
|---|---|
| Agriculture/Subsistence | Agriculture/Subsistence - Farmstead |
| Domestic | Domestic - Single Family House |
| Agriculture/Subsistence | Agriculture/Subsistence - Farmstead |
| Domestic | Domestic - Single Family House |

**Historic Context:**

| Category |
|---|
| Architecture |
| Agriculture |

**Architect/Engineer:**

| Category | Name or Company |
|---|---|

**Thematics:**

**Local Registers and Districts**

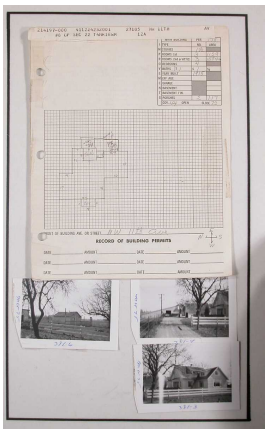
| Name | Date Listed | Notes |
|---|---|---|

## Project History

| Project Number, Organization, Project Name | Resource Inventory | SHPO Determination | SHPO Determined By, Determined Date |
|---|---|---|---|
| 032207-05-BIA, BIA, Ridgefield Interchange Site | 3/10/2005 | Determined Not Eligible | |
| 2018-11-08938, , Clark College at Boschma Farms Historic Property Record | 11/15/2018 | | |

## Photos

Residence and Garage, Viewing Northeast



Building Card

Garage, Viewing Southwest

Garage, Viewing South

Garage, Viewing Southeast

Residence East and South Elevations, Viewing Northwest

Garage, Viewing Northeast

Residence East Elevation, Viewing West

Residence North Facade, Viewing South

Residence North Facade, Viewing Southeast

Residence West Elevation, Viewing East

Residence West and South Elevations, Viewing Northeast

Primary residence looking south.

Barn #1 looking west.

Barn #2 looking west/southwest.

Barn #3 looking south.

Barn #1 looking east.

Automobile repair shed looking east.

Garage associated with primary residence.

Trash scatter associated with two of the outbuildings looking east.

# Historic Property Report

Resource Name: Residence

Property ID: 51557

## Inventory Details - 3/10/2005

**Common name:** APN #214197-000

**Date recorded:** 3/10/2005

**Field Recorder:** Kelly Heidecker, MA

**Field Site number:**

**SHPO Determination** 032207-05-BIA

## Detail Information

**Characteristics:**

| Category | Item |
|---|---|
| **Cladding** | Asbestos - Shingles |
| **Structural System** | Wood - Platform Frame |
| **Plan** | Irregular |
| **Roof Material** | Asphalt/Composition - Shingle |
| **Roof Type** | Gable - Cross |
| **Form Type** | Single Dwelling - Cross Gable |

**Styles:**

| Period | Style Details |
|---|---|
| Other | Vernacular |

### Surveyor Opinion

**Property appears to meet criteria for the National Register of Historic Places:** No

**Property is located in a potential historic district (National and/or local):** No

**Significance narrative:** Upon evaluating the structures to the NRHP significance criteria, pursuant to Section 106 of the NHPA, the residence and outbuildings that form the entirety of the farm complex appear ineligible for listing on the NRHP as historic properties. Information available at the time of this study did not indicate any association of the farm complex with events that have made a significant contribution to the broad patterns of our history or persons significant in our past (criteria a and b). The structures, individually and collectively, do not embody distinctive characteristics, represent the work of a master, or possess high artistic values (criterion c). The primary residence has undergone extensive modifications and updating, all of which have severely diminished the architectural integrity of the structure. The numerous outbuildings on the property are typical utilitarian structures that are ubiquitous features of the regional landscape. Furthermore, none of the structures are likely to yield information important to prehistory or history (criterion d).

**Physical description:**

This property consists of a single-family residence and numerous associated outbuildings. The property as a whole is in extreme disrepair, considering the dilapidated state of most of the outbuildings and the enormous amount of domestic and industrial refuse scattered throughout the parcel.

The primary dwelling is identified as having been originally constructed circa 1915 with upgrades circa 1950. The single-family residential structure is one and one-half stories with four bedrooms and no basement. The main floor is approximately 1,129 square feet and the second story is approximately 584 square feet. A visual inspection of the residence revealed that it is a vernacular-style farmhouse in fair to poor condition. The structure is cross-gabled with shed-roof dormers. The roof is covered in modern asphalt shingles. A one-story room was added to the east side at some time in the past. Windows on the house are sliding aluminum sash. The residence is clad in horizontal asbestos shingles of a type popular in the 1950s – 1960s.

Additional buildings on the property include multiple barns, sheds, and shacks of varying age, condition, and use. While one large barn and one small shed appear to date from the original construction of the farm complex, the majority of the structures are significantly more modern in appearance. All of the outbuildings are in extremely poor repair and no longer retain integrity of design, materials, workmanship, feeling, or association.

The Clark County Property Information database provided the following information regarding the parcel and structures at this location (Clark County, 2005a). Hank and Bernice Boschma purchased the parcel (APN 214197-000) from the Shoalwater Bay Tribe on November 8th, 1998. The Deed was recorded with Clark County as Document Number 3014821.

**Bibliography:**


Virginia and Lee McAlister
1997 A Fieldguide to American Houses. New York:Alfred A. Knopf.

# Historic Property Report

Resource Name: Residence Property ID: 51557

## Inventory Details - 11/15/2018

**Common name:**

**Date recorded:** 11/15/2018

**Field Recorder:** Brandon Grilc

**Field Site number:**

**SHPO Determination**

## Detail Information

**Characteristics:**

| Category | Item |
|---|---|
| **Foundation** | Concrete - Poured |
| **Roof Material** | Asphalt/Composition - Shingle |
| **Cladding** | Asbestos - Shingles |
| **Structural System** | Wood - Platform Frame |
| **Form Type** | Single Dwelling - Cross Gable |
| **Roof Type** | Gable - Cross |
| **Plan** | Irregular |

**Styles:**

| Period | Style Details |
|---|---|
| Late 19th and Early 20th Century American Movements | Craftsman |

### Surveyor Opinion

**Property appears to meet criteria for the National Register of Historic Places:** No

**Property is located in a potential historic district (National and/or local):** No

**Property potentially contributes to a historic district (National and/or local):** No

**Significance narrative:** The Clark College at Boschma Farms property is located at 266 N 65th Avenue on a 12-acre rectangular parcel in the Ridgefield Junction Neighborhood of Ridgefield, Clark County, Washington. The property consists of a circa 1915 one-and-one-half-story irregular-shaped Craftsman-style single-dwelling with a steeply-pitched cross-gable roof and a detached one-story L-shaped garage with a varied roofline. Two non-historic resources including a one-story rectangular general purpose building with a side-gabled roof (ca. 1984) and a one-story square-shaped shed with a front-gabled roof (ca. 2007) are located on the property south of the residence (Clark County 2018). The four resources are situated near the northwest corner of the parcel boundary surrounded by agricultural fields.

**Physical description:** The residence is built atop a poured-in-place concrete foundation with vent openings and is faced with wide raked asbestos shingles with corner boards. The residence consists of a front-gabled center block, a side-gabled wing to the east, and a side-gabled addition to the west. The cross-gabled roof displays shed-roof dormers and a wide-eave

overhang with a simple wood fascia board.

The primary façade (approximately 49’-0” in length) faces north and is comprised of a front-gabled block with main entrance and the north elevation of east wing (approximately 33’-0” in length), and recessed elevation of the addition (approximately 16’-0” in length) to the west. The main entrance consists of an off-centered single-door opening with a four-panel sunburst-light wood door under a shed-roof porch supported by wood post. The porch is built atop a roman brick L-shaped half wall. The porch wall is attached to the elevation west of the entrance. The roof of the porch is covered with asphalt shingles. The main entrance is framed by a fixed vertical single-light picture window with a simple wood surround to the west, a narrow metal sliding gable window, and a horizontal metal sliding window to the east. The recessed elevation to the west includes a center three-piece metal picture window.

The east elevation (approximately 34’-0” in length) includes the projecting east wing to the north (approximately 17’-0” in length) and the recessed elevation of the center block to the south (approximately 17’-0” in length). The east elevation of the wing consists of an infilled door opening flanked by a vertical metal sliding window to the south and a matching gable window. The recessed elevation includes a metal sliding window to the north near the wing.

The south elevation (approximately 49’-0” in length) is comprised of the recessed elevation of the east wing (approximately 9’-0” in length), the south elevation of center front-gabled block (approximately 16’-0” in length), and the projecting elevation of the addition to the west (approximately 24’-0” in length). The south elevation of the west wing is absent of fenestration. The south elevation of the center block includes a one-story projecting shed-roof ell under a vertical metal sliding gable window. The ell includes a secondary entrance flanked by a metal sliding window to the east and a two-over-one wood window to the west. The secondary entrance consists of a single-door opening. A covered concrete patio with a flat roof supported by metal pipe columns is attached to the ell. The patio roof is finished with asphalt shingles. A patio door is located on the on the south elevation of the center block between the projecting ell and projecting addition. The south elevation of the addition includes a center eave-wall brick chimney.

The west elevation (approximately 31’-0” in length) of the residence includes the projecting elevation of the west addition to the south (approximately 18’-0” in length) and the recessed elevation of the center block to the north (approximately 14’-0” in length). The west elevation of the addition consists of a center three-light metal picture window under a metal sliding gable window. An exposed exhaust vent projects from the elevation south of the window. The west elevation of the center block includes a large metal sliding window near the addition to the south.

The cross-gabled roof of the residence is covered with asphalt shingles and is finished with an aluminum gutter system. A shed-roof dormer is located on the west slope of the center block and on the north slope of the addition. The dormers are faced with asbestos shingles and covered with asphalt shingles. The west slope dormer includes a square-shaped metal sliding window and a narrow metal sliding window to the north. The remainder of the dormer face is obscured by the roof of the addition. The north slope dormer includes a center metal sliding window. A brick chimney propels from the east slope of the center block roof above the dormer.

The detached one-story garage is located east of the residence and faces north. The garage is clad in wood shingles. The north elevation includes the vehicle bay opening under a gable window opening. The east elevation consists of a center two-over-one wood window. The south elevation is comprised of a projecting one-story ell with a single-door opening and a metal sliding gable window. The west elevation of the garage includes a center one-over-two wood window and a single-door opening infilled with plywood near the south elevation. The roof of the garage has a slight eave overhang and is covered with asphalt shingles.

Access to the interior of the residence was not granted on the date of survey.

After analyzing historic and existing aerial photos, historic photos, as well as the resource during a field investigation on November 13, 2018, it is apparent that there have been multiple alterations made to the residence since the date of its construction circa 1915 (Clark County 2018). Changes made to the residence include the construction of the east addition before 1950 (Clark County 2018), new metal windows circa 1975 (Clark County 2018), a new roof circa 1998 (Clark County 2018), and the removal of a one-story shed-roof addition on the south elevation in 2013 (Google Earth 2018). Other alterations include new doors, the addition of asbestos shingles, aluminum gutters, the infill of original openings, and addition of the exhaust vent (dates unknown). The agricultural complex on the property consisting of multiple buildings was demolished circa 2009 (Google Earth 2018). Alterations made to the garage include the installation of the metal windows, the infill and removal of original doors and windows, and the removal of the original garage door (dates unknown).

The residence retains historic integrity of location due to its retention of its original location. However, due to the demolition of its associated agriculture complex and the removal of original building materials specific to its style and date of construction, the residence has lost its integrity of setting, design, materials, workmanship, feeling, and association.

Because a reconnaissance-level survey results in the recordation of only observable information, little to no historic background information or contextual histories were discovered during the survey. Therefore, the resource is recommended as unevaluated under NRHP Criterion A, B, and D.

Due to the level of alterations made to residence it is recommended as not eligible under NRHP Criterion C. Furthermore, it does not act as an exemplary example of Craftsman-style dwelling common during its date of construction.

According to the 2005 survey conducted on the property, the residences is recommended as ineligible for listing on the NRHP (Heidecker 2005).

**Bibliography:**


Clark County Department of Assessment and GIS (Clark County)
2018 "Clark County Property Information." Property Identification # 214197000. https://gis.clark.wa.gov/gishome/Property/?pid=findSN&account=214197000. Accessed 12/12/18.

Google Earth Pro (Google Earth)
2018 Google Earth Pro (Version 7.1.7) [Software]. Mountain View, CA: Google Inc.

Heidecker, Kelly
2005 Washington Information System for Architectural and Archaeological Records Data (WISAARD). "Property #51557." DAHP Project: 032207-05. Electronic document online at https://fortress.wa.gov/dahp/wisaardp3/. Accessed 12/13/18.

# PROJECT REVIEW SHEET – EZ1

HISTORIC & CULTURAL RESOURCES REVIEW

**PROPERTY / CLIENT NAME:** _____ **FUNDING AGENCY:** State Board of Commun

Project Applicant: Clark College

Contact Person: Bob Williamson

Address: 1933 Ft. Vancouver Way, Vancouver WA 98663 County: Clark

Phone: 360-992-2123

E-Mail: bwilliamson@clark.edu

**FUNDING AGENCY:** DAHP will *email* our response directly to the agency/organization contact listed here. The Project Applicant will be copied on the response.

Agency/Organization: State Board of Community and Technical Colleg

Phone: _____

Email: _____

## PLEASE DESCRIBE THE TYPE OF WORK TO BE COMPLETED

(Be as detailed as possible to avoid a request for additional information)

**PLEASE DESCRIBE THE PROPOSED WORK AND DETAIL ALL GROUND DISTURBING ACTIVITIES AND PROVIDE PHOTOS OF AREAS OF WORK.**

**Check if building(s) over 45 years old will be altered or demolished. If so please complete a DAHP EZ-2 form for each building affected before submitting this form. Please include the Project Number generated by Wisaard for the EZ-2 form here:** NA

**Provide a detailed description of the proposed project:**

70,000 sf advanced manufacturing building, 2-story, including industrial workspace, classrooms, student study areas, offices, locker rooms, etc. Exterior of building will include entry roads, parking lots, material storage spaces, stormwater retention area, landscaped area, etc.

**Describe the existing project site conditions (include building age, if applicable):**

No existing buildings will be disturbed by this project. Project is wholly contained on four parcels comprising approximately 60 acres of cultivated land in agricultural use since at least the mid-20th century, as have surrounding properties. The area of the project is relatively flat at an elevation of approximately 280 feet above mean sea level, with gentle sloping to the east and west. Wetlands have been identified running diagonally across the northeast corner, in a southeast to the northwest

**Describe the proposed ground disturbing activities *including the approximate depth*:**

The proposed building has not been specifically located on the site, so no geotech surveys have been completed in the building footprint. However, general soils analysis of the site in the last decade have identified subsurface conditions that may require excavations of as much 8'-15' to address structural needs for the building. In addition to the building, parking lots, roads, sidewalks, stormwater retention areas, utilities and infrastructure (gas, water, sewer, stormwater, electrical, fiber, etc.), and landscaping will take place across the site. Locations and depths for these services will be determined

## PLEASE ATTACH A MAP of the PROJECT AREA

(Use Wisaard with USA Topo Basemap background. Click HERE for Snipping Tool Tutorial)

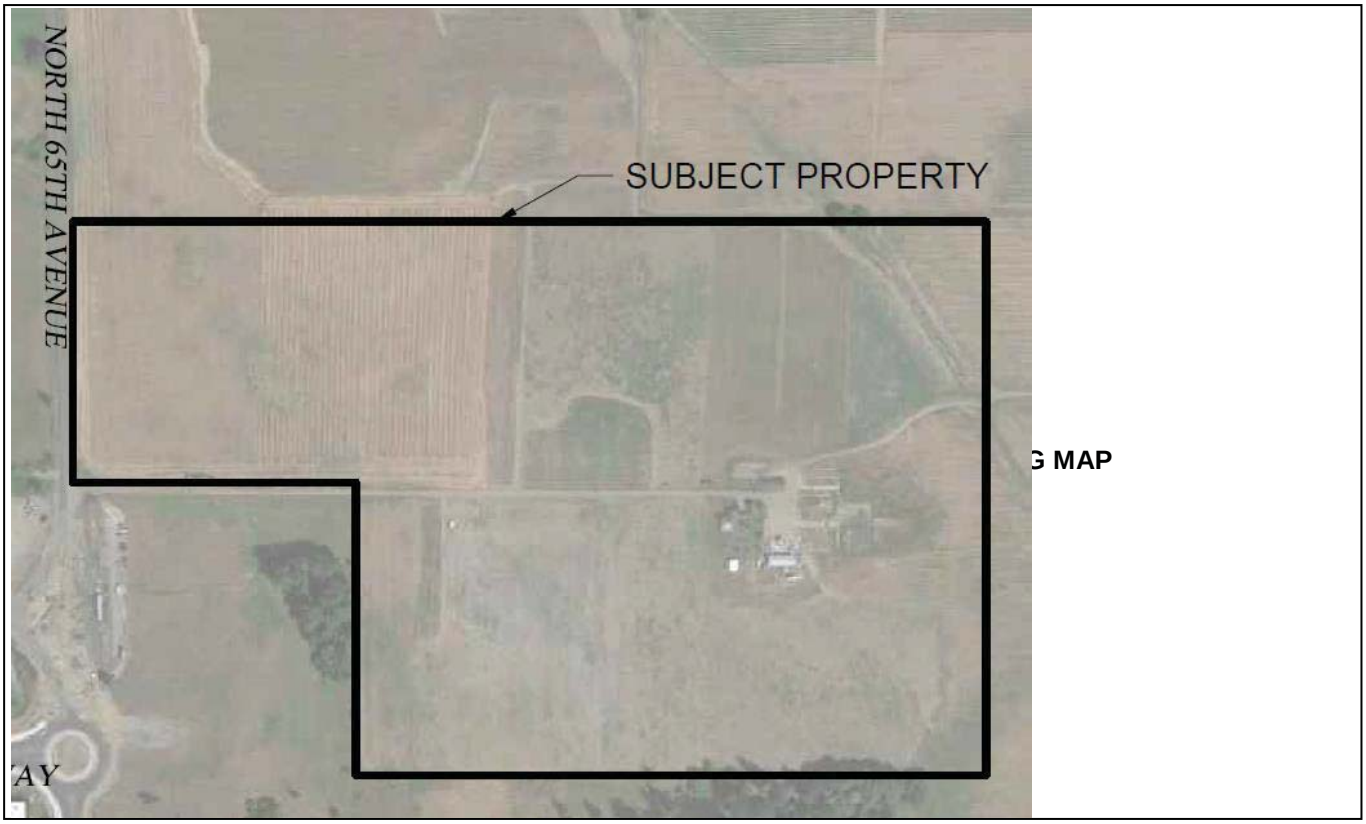
**PROJECT LOCATION:**

**Township:** 4N **Range:** 1E **Section:** 22, W

(*Please include TRS if the project is in a rural area where an address is not available or may not help us locate the property.)

*Please draw a line around the Project area.*

**Project Address:** 264 N. 65th Ave. **City:** Ridgefield **County:** Clark




G MAP

**eMail this form to:**

Robert Whitlam, Ph.D.
*State Archaeologist, DAHP*
(360) 586-3080
rob.whitlam@dahp.wa.gov

NOTE: To save this fillable form you must fill it out in Adobe Acrobat or use the PRINT to PDF function in Acrobat Reader. In Reader choose File>Print and choose Adobe PDF as the printer. The file will save to your computer.

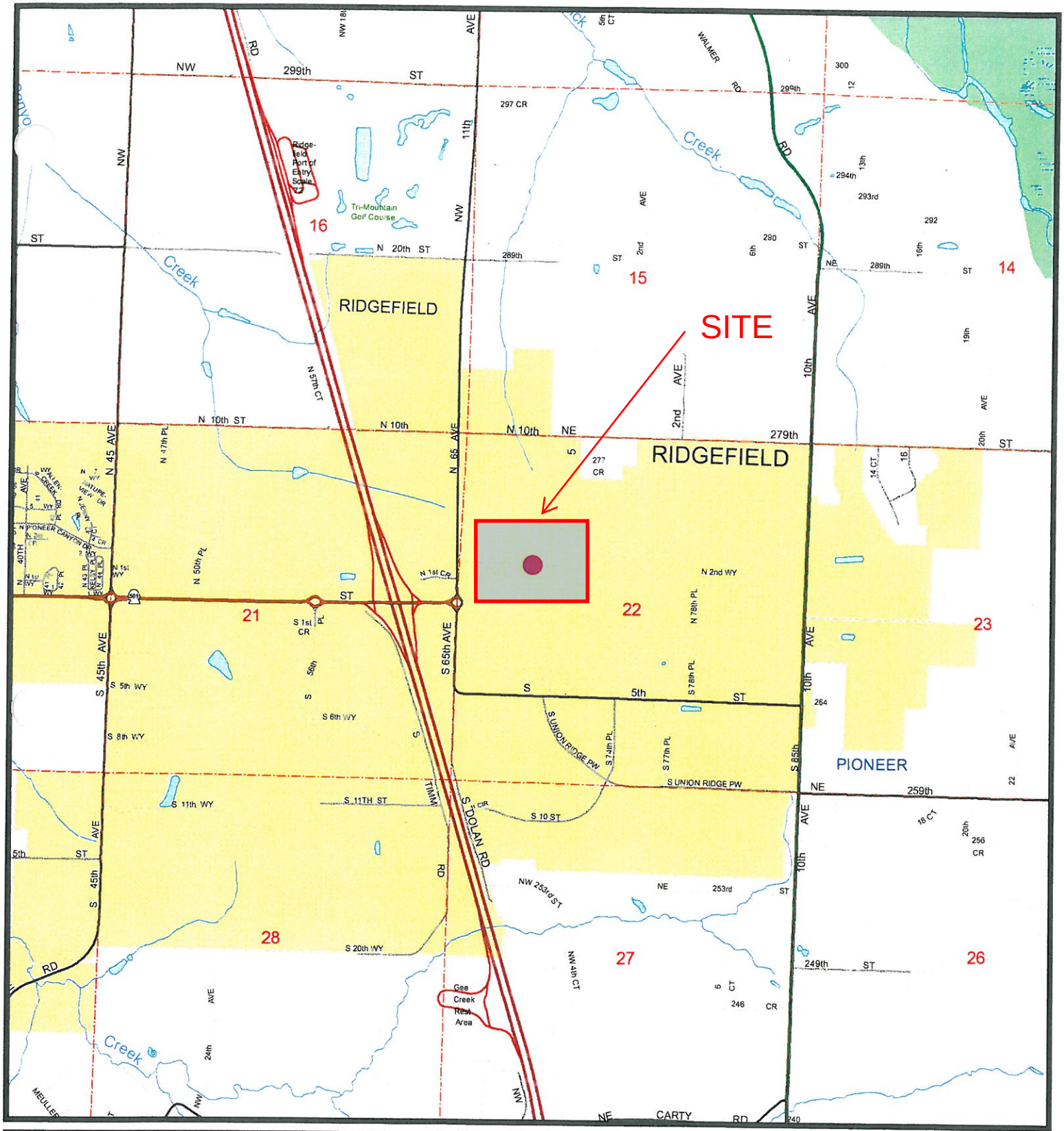
Please be aware that this form may only initiate consultation. For some projects, DAHP may require additional information to complete our review such as plans, specifications, and photographs. An historic property inventory form may need to be completed by a qualified cultural resource professional.

DEPT OF ARCHAEOLOGY + HISTORIC PRESERVATION

CLARK COLLEGE
EST. 1933

# ATTACHMENT 6.3

## Preliminary Diagrams and Sketches




# General Location Map

Account No: 214199000, 214195000, 214247000, 214196000
Owner: BOSCHMA FAMILY LLC 90%
Address: 2056 HAMPTON RD
C/S/Z: EVERSON, WA 98247

Subject Property Location

CLARK COUNTY, WASHINGTON
Geographic Information System

1:24,000

0 0.1 0.2 0.3 0.4 0.5 Miles

Printed on: November 13, 2012

Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.

# CLARK COLLEGE NORTH CAMPUS SITE ANALYSIS

## LEGEND

**SITE BOUNDARY LINE**

**OPEN DITCH/CREEK**

**PROPOSED SEWER TRUNK LINE**

**PROPOSED ROADS**

**Principal Arterial**

**Industrial/ Commerial Collector**

**PROPOSED BIKE PATH**

**MAINTAIN VIEWS TO MOUNTAINS**

**MAINTAIN MCCORMICK CREEK WETLAND BUFFER**

**DAYLIGHT ALLEN CREEK AND MAINTAIN WETLAND BUFFER**

**BUFFER FREEWAY NOISE**


MacKay Sposito
ENERGY PUBLIC WORKS LAND DEVELOPMENT
www.mackaysposito.com

PRELIMINARY NOT FOR CONSTRUCTION

CLARK COLLEGE PHASE 1
CLARK COUNTY, WASHINGTON

CONCEPTUAL SITE ANALYSIS

REVISIONS:

| | |
|---|---|
| JOB NO.: | 16976 |
| DATE: | 4/6/2018 |
| SCALE: | N.T.S. |
| DESIGNED BY: | TS |
| DRAWN BY: | RB |
| CHECKED BY: | TS |

PRELIMINARY

EXH-6

NO. 6 OF 8

FILE: W:\16976\CIVIL\DWG\EXHIBITS\16976_SITE ANALYSIS.DWG

Clark College Foundation

MacKay Sposito

WETLANDS

PROPOSED SEWER ROUTE & EASEMENT

**AREA OF PROJECT SITE PLAN**

PROPOSED TEMPORARY CONSTRUCTION EASEMENT & CONSTRUCTION ROAD

FARM WELL

10-ACRE PROJECT SITE

PROPOSED LOCATION OF CLARK COLLEGE BUILDING

ELEVATIONS

"WATR NODES"

STORM FACILITY

WETLANDS

265

270

275

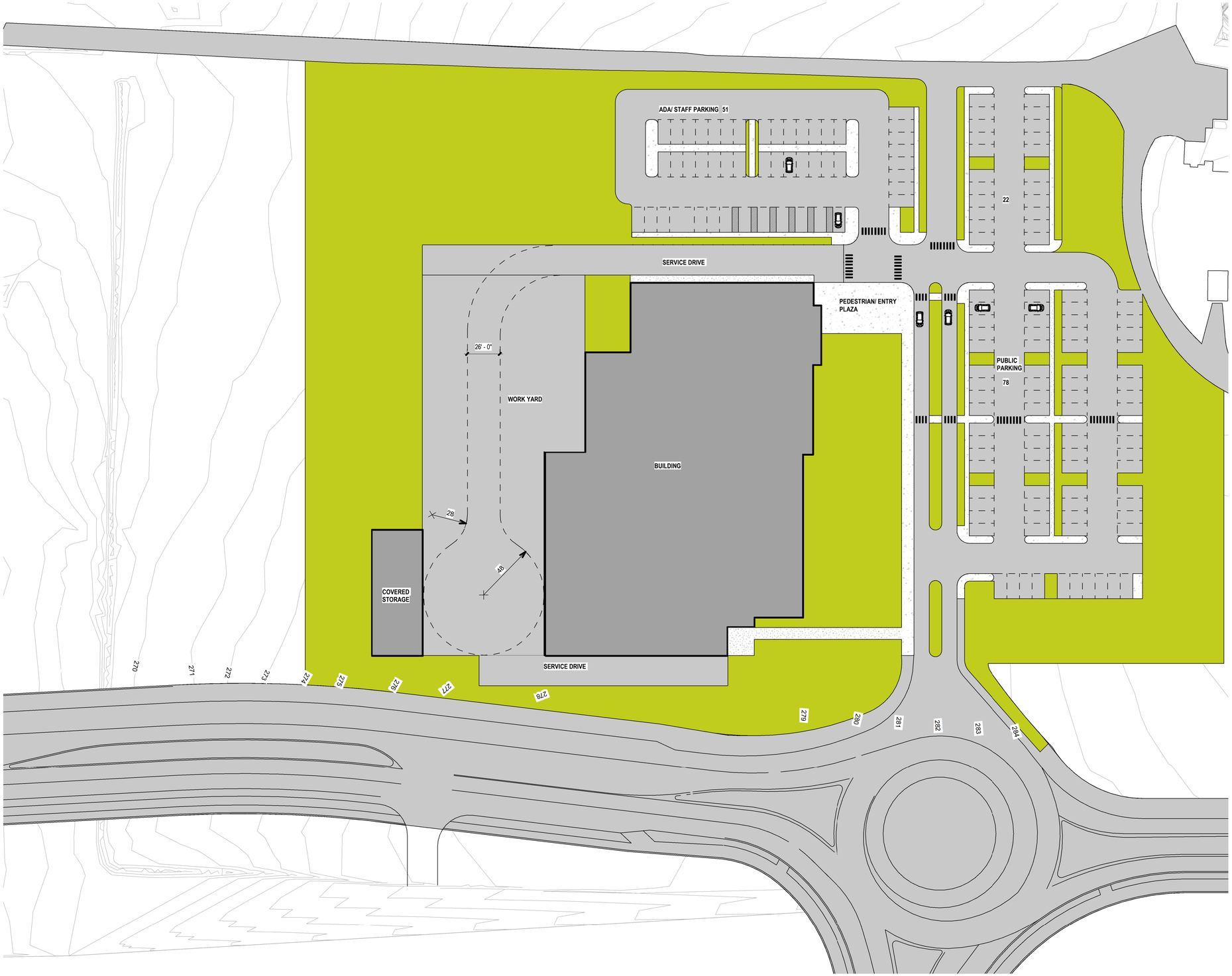
280

282

OHP

# CLARK COLLEGE BOSCHMA FARMS

O:\Capital Projects_Jim Watkins_____18-254 AMC - CBF - North County_____QUICK REF\CBF MASTER site topo easements streetROW 2.14.19.dwg, 70-acre topo, 2/20/2019 1:40:16 PM




# PROJECT SITE PLAN

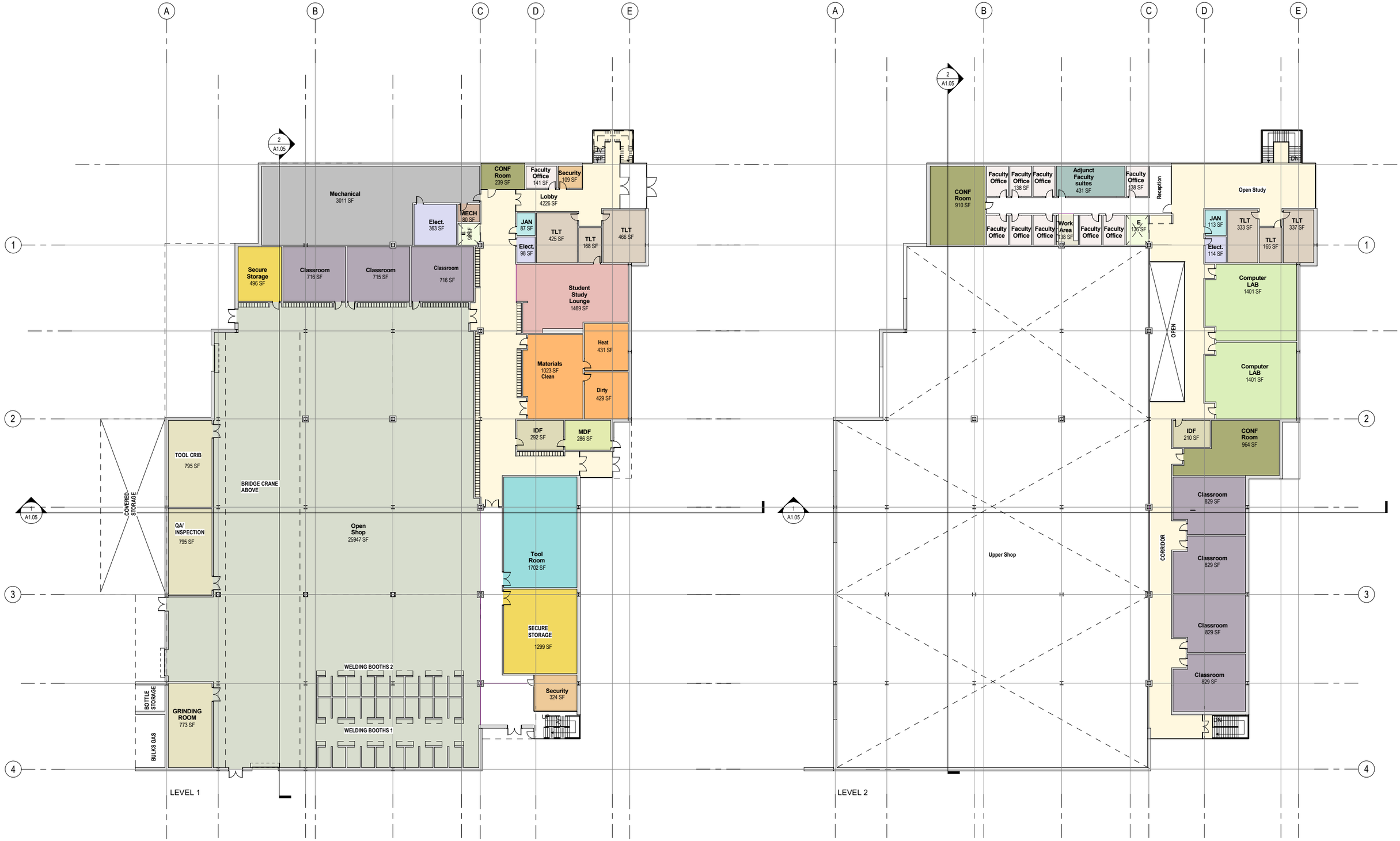
1
A1.06
Scale: 1" = 40'-0"

CLARK COLLEGE

**Clark Collage North County**
PARKING

12/28/18
1" = 40'-0"

SW ARCHITECTS
SCHREIBER STARLING WHITEHEAD

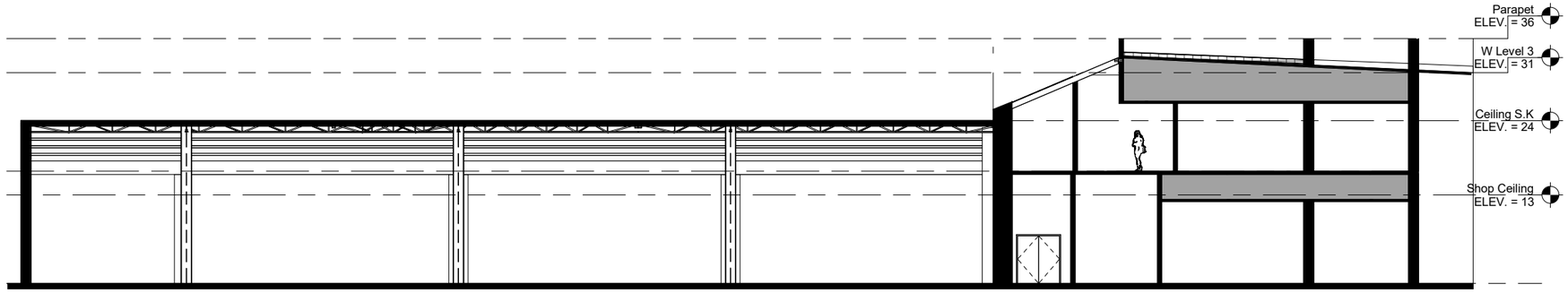



# CONCEPT FLOOR PLAN

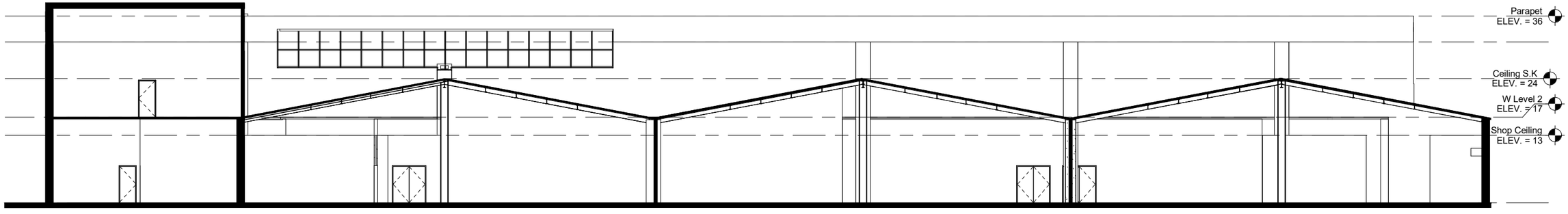
**Clark Collage North County**
Floor Plan

09/11/18
1" = 20'-0"

SCHREIBER STARLING WHITEHEAD ARCHITECTS




1
A1.05
Section 1
Scale: 1" = 10'-0"




2
A1.05
Section 2
Scale: 1" = 10'-0"

# CONCEPT SECTIONS

CLARK COLLEGE
EST. 1933

# ATTACHMENT 6.4

## Land Commitment

November ____, 2018

State of Washington

Olympia, WA

Re: Commitment to Transfer Ownership of Boschma Farms Property to the State of Washington

Dear _____:

The Clark College Foundation is committed to developing a majority of the acreage it owns in Clark County, Washington, near the City of Ridgefield, as the Clark College North Campus at Boschma Farms. There are several steps required to accomplish this goal.

First, the Foundation is working with the City of Ridgefield and other local real property owners to identify a right of way for Pioneer Street, which will be extended along the southern boundary of the Foundation's property. It currently appears most of this right of way will be placed on the Foundation's property. Once the precise location and width of the right of way is determined, the Foundation will transfer that portion of the property to the City of Ridgefield.

Then, the Foundation will work with the City of Ridgefield to establish the exact site for the first College building, and the square footage of real property necessary to provide parking, utilities, stormwater accommodations, and other land use and permitting requirements for the building. This work will establish the proper boundaries for the first parcel of land that will become the Clark College North Campus at Boschma Farms.

Once the first parcel boundaries are identified, the Foundation can obtain a full legal description of the parcel. The Foundation will then transfer ownership of the first parcel to the State of Washington for oversight and management by the State Board for Community and Technical Colleges for development of the Clark College North Campus at Boschma Farms.

As the Foundation secures additional financing and project management capacity, the Foundation will repeat this process to build additional structures, roads, and parking lots on the Boschma Farms site. The Foundation will then transfer those parcels to the State of Washington, at the appropriate time, for development of the North Campus.

The Foundation is currently working with the City of Ridgefield and Clark County government officials to prepare a Development Agreement and a Master Site Plan, which will memorialize each of these milestones and will vest the North Campus development rights under current law. The Foundation intends to provide copies of these and other important North Campus land use documents to the State of Washington as they are finalized.

The Foundation also intends to and will provide advance notice of its development plans to the State. The Foundation will also provide advance notice of its intent to transfer parcels of property to the State as each parcel becomes ready for development, in accordance with state law.

I hope this letter has clarified the Foundation's intent and plans for development of the Clark College North Campus at Boschma Farms site. I look forward to working with you and the Board of the State Board for Community and Technical Colleges to make this vision a reality.

Sincerely,

Lisa Gibert

MacKay Sposito

VANCOUVER OFFICE

1325 SE Tech Center Drive, Suite 140 • Vancouver, WA 98683
360.695.3411 • info@mackaysposito.com

16451LD1
10/19/18
CJM

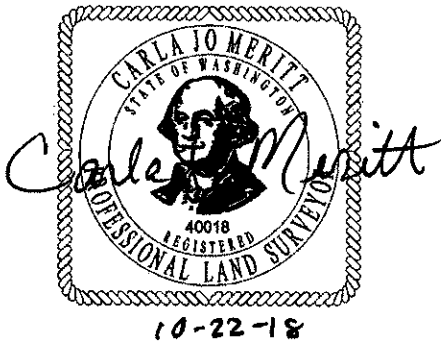
# EXHIBIT "A"
## CLARK COLLEGE FOUNDATION
## TAX PARCELS 214247000 AND 214196000

THAT PARCEL OF LAND DESCRIBED IN DOCUMENT RECORDED IN BOOK 190, PAGE 176, CLARK COUNTY DEED RECORDS SITUATED IN THE SOUTH HALF OF THE SOUTH HALF OF THE NORTHWEST QUARTER OF SECTION 22, TOWNSHIP 4 NORTH, RANGE 1 EAST, WILLAMETTE MERIDIAN, CITY OF RIDGEFIELD, CLARK COUNTY, WASHINGTON, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE WEST QUARTER CORNER OF SAID SECTION 22; THENCE SOUTH 88°31'07" EAST ALONG THE SOUTH LINE OF THE NORTHWEST QUARTER OF SAID SECTION 22 A DISTANCE OF 660.42 FEET TO THE SOUTHEAST CORNER OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF THE NORTHWEST QUARTER OF SAID SECTION 22 AND THE **TRUE POINT OF BEGINNING;** THENCE CONTINUING SOUTH 88°31'07" EAST ALONG SAID SOUTH LINE A DISTANCE OF 792.51 FEET TO THE EAST LINE OF THE PARCEL OF LAND DESCRIBED IN WARRANTY DEED RECORDED IN BOOK 190, PAGE 176 OF CLARK COUNTY DEED RECORDS; THENCE NORTH 02°10'10" EAST ALONG SAID EAST LINE A DISTANCE OF 655.29 FEET TO THE NORTH LINE OF THE SOUTH HALF OF THE SOUTH HALF OF THE NORTHWEST QUARTER OF SAID SECTION 22; THENCE NORTH 88°35'39" WEST ALONG SAID NORTH LINE A DISTANCE OF 788.36 FEET TO THE NORTHEAST CORNER OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF THE NORTHWEST QUARTER OF SAID SECTION 22; THENCE SOUTH 02°32'03" WEST ALONG THE EAST LINE OF SAID SOUTHWEST QUARTER A DISTANCE OF 654.32 FEET TO THE **TRUE POINT OF BEGINNING.**

CONTAINING APPROXIMATELY 11.88 ACRES.

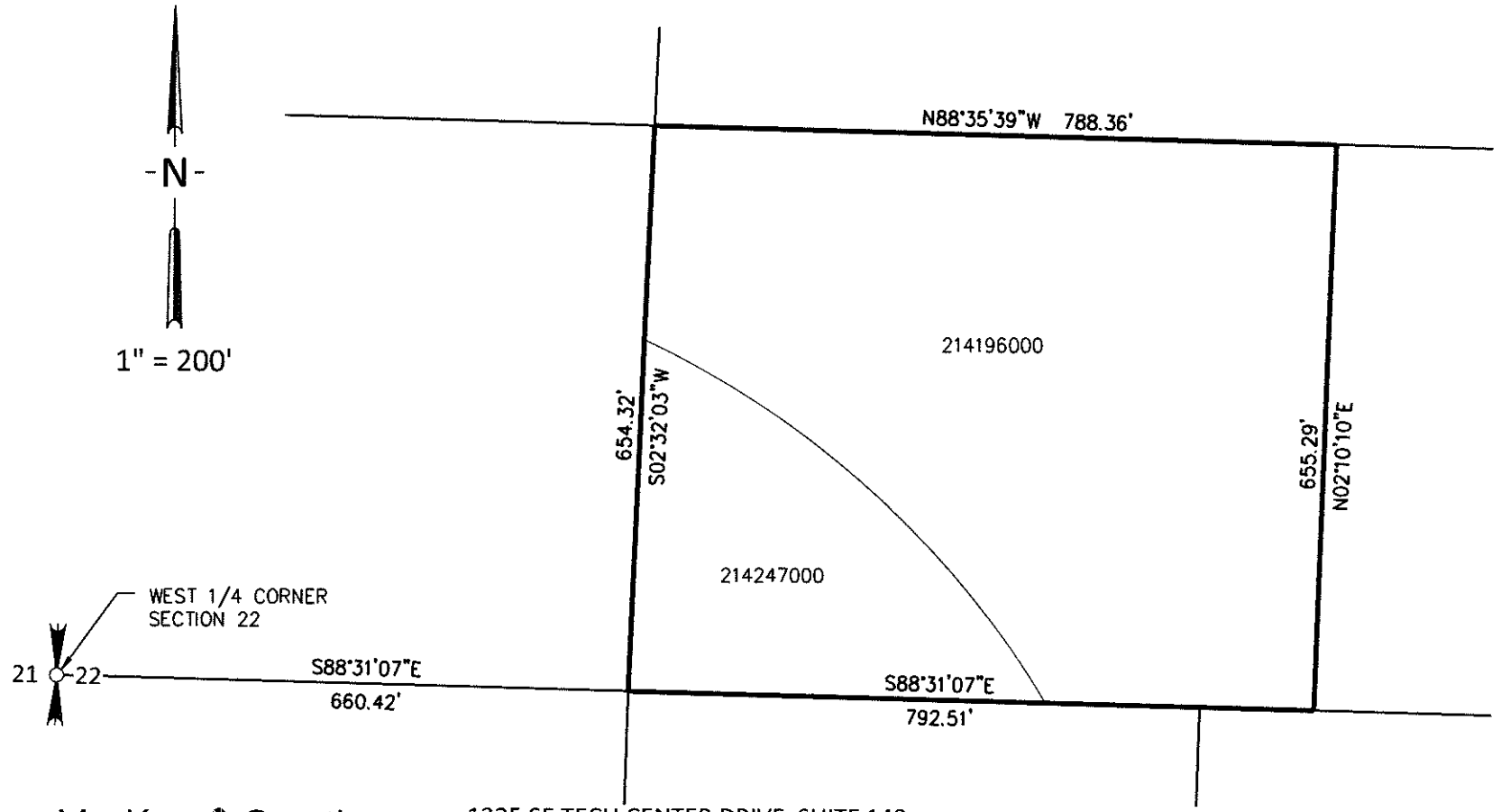
SUBJECT TO EASEMENTS OF RECORD.




10-22-18

# EXHIBIT A

CITY OF RIDGEFIELD, CLARK COUNTY, WASHINGTON





MacKay Sposito

ENERGY PUBLIC WORKS LAND DEVELOPMENT

www.mackaysposito.com

1325 SE TECH CENTER DRIVE, SUITE 140
VANCOUVER, WA 98683
VANCOUVER: (360) 695-3411
PORTLAND: (503) 289-6726
FAX (360) 695-0833




16451SS1

# MASTER LAND USE APPLICATION

230 Pioneer Street / PO Box 608
Ridgefield, WA 98642
Tel: (360) 887-3557 / Fax: (360) 887-0861
www.ci.ridgefield.wa.us

| OFFICE USE ONLY |
|---|
| FILE # |
| FILE NAMES |
| RECEIVED BY |
| FEE PAID |
| DATE SUBMITTED |

## CONTACT INFORMATION

**APPLICANT:** ☐ Check box if primary contact

Contact Name Lisa Gibert

Company Clark Community College District No. 14 Foundation

Address 1933 Fort Vancouver Way

City, State, ZIP Vancouver, WA

Phone 360-992-2677 Email lgibert@clark.edu

Signature Lisa Gibert, CEO

**(Original signature required)**

**APPLICANT'S REPRESENTATIVE:** ☒ Check box if primary contact

Contact Name Maren Calvert

Company Horenstein Law Group, PLLC

Address 500 Broadway, Suite 120

City, State, ZIP Vancouver, WA 98660

Phone 360-597-0978 Email maren@horensteinlawgroup.com

Signature Maren Calvert

**(Original signature required)**

**PROPERTY OWNER:** ☐ Check box if primary contact

Contact Name Lisa Gibert

Company Clark Community College District No.14 Foundation

Address 1933 Fort Vancouver Way

City, State, ZIP Vancouver, WA 98663

Phone 360-992-2677 Email LGibert@clark.edu

**(Original signature or a letter of authorization from the owner required)**

Signature Lisa Gibert, CEO

## PROPERTY INFORMATION

Site Address _____N/A_____

Legal Description _____Please see attached Exhibits 1, 2, 3, and 4_____

Assessor's Serial Number ___214195-000; 214196-000; 214197-000; 214199-000; and 214247-000_____

Lot Size (square feet) ____Please see attached Exhibits 1, 2, 3, and 4_____

Zoning/Comprehensive Plan Designation _____CBR_____

Existing Use of Site _____Agriculture_____

**(If more than one lot, attach separate sheet with full description of each lot**

## DEVELOPMENT PROPOSAL

Proposed Development Action: ___The Owner proposes to transfer a large portion of the Property to the State of Washington for the construction of a north campus for Clark College. The Owner also proposes to build or have built an easterly extension of Pioneer Street, along the southern stem of the proposed Legal Lot 4, which will be dedicated to the City as a public right of way once the street is built. The remaining portions of the Property are then intended to be developed in the future for commercial and educational uses consistent with the situs of a growing and thriving college campus._____

Previous Project Name and File Number(s), if known_____

_____

Pre-Application Conference Date and File Number, if applicable_____

_____

CLARK COLLEGE
EST. 1933

# ATTACHMENT 6.5

## Traffic Study

KITTELSON & ASSOCIATES
851 SW 6th AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

February 27, 2019 Project #: 23701

Bryan Kast, PE
City of Ridgefield
301 N 3rd Avenue
PO Box 608
Ridgefield, WA 98642

***RE: Clark College at Boschma Farms Campus Manufacturing Building Transportation Impact Analysis – Ridgefield, WA***

Dear Bryan,

Clark College is proposing to develop a new campus on approximately 50 acres located north of Pioneer Street and east of N 65th Avenue ("Clark Boschma Farms", or CBF) in Ridgefield. CBF campus development is expected to occur gradually over the next several decades as the community and demand for services continues to grow.

At this time, the College is proposing to construct the first building representing Phase 1 of campus development. The new building will include approximately 70,000 square feet of advanced manufacturing instructional space. Unlike the general education focus of Clark College's other buildings at the Columbia Tech Center campus and their main campus on Fort Vancouver Way, CBF Phase 1 will focus on providing specialized industry-based training.

This report documents roadway infrastructure and trips associated with initial proposed site development and finds that the Phase 1 instructional building can be constructed and operated without creating a significant impact on the transportation system. The study finds that study intersections will operate well under capacity and recommends that adequate intersection sight distance be provided at the driveway per City standards. No off-site capacity improvement needs were identified at the study intersections. Additional details regarding the study methodology, findings and recommendations are provided herein. Note that all report figures are presented in Appendix A.

## PROJECT BACKGROUND

The Phase 1 CBF building is expected to house up to approximately 260 enrolled students supported by approximately 12 full time faculty and 10 adjunct staff. Clark College anticipates this building will be open between approximately 7:00 AM and 10:00 PM on class days (primarily Monday through Thursday, with limited classes on Friday), with students on-campus as needed attending their respective class(es). With many students enrolled part time and having off-site employment, no more than 120 students are anticipated on campus at any one time. Clark College anticipates the fewest number of classes in early afternoon (due to faculty holding office hours before evening classes begin), with a comparatively larger number of classes in the late afternoon and evening hours (in part accommodating part-time working students).

Figure 1 illustrates the site vicinity and Figure 2 shows the conceptual site plan. Access to the building will be provided via a site driveway on the planned extension of Pioneer Street east of N 65th Avenue. Occupancy and commencement of class scheduling is anticipated in 2021.

Additional future phased development of instructional buildings supporting the campus over the next 30 to 50 years. As the campus evolves, additional on-site infrastructure and connections to the adjacent transportation system are anticipated.

## SCOPE OF THE REPORT

This report identifies the transportation-related impacts associated with the proposed education building and was prepared in accordance with City of Ridgefield requirements. The study intersections and scope were selected based on consultation with City staff. Weekday AM and PM peak hour operational analysis was performed at the following intersections:

1. I-5 Southbound Ramps/SR 501 (Pioneer Street),
2. I-5 Northbound Ramps/SR 501 (Pioneer Street), and
3. N 65th Avenue/Pioneer Street.

## REPORT FORMAT

The remaining sections of this report address the following transportation issues:

- Analysis methodology;
- Existing land use and transportation system conditions;
- Planned developments and transportation improvements in the study area;
- Trip generation and distribution estimates for the proposed college building;
- Operational analysis of the study intersections under:
  - Existing conditions,
  - Forecast year of opening (2021) background traffic conditions,
  - Forecast 2021 total traffic conditions with Phase 1 build-out; and,
- Findings and recommendations.

## ANALYSIS METHODOLOGY

Level-of-service (LOS) analyses described in this report were performed in accordance with the procedures stated in the 2010 *Highway Capacity Manual* (HCM 2010, Reference 1) and the *2000 Highway Capacity Manual* (HCM 2000, Reference 2) using Synchro 9 software for signalized and two-way stop controlled intersections. Synchro 9 is unable to implement the HCM 2010 methodology at signalized

intersections with custom or non-NEMA phasing, unique ring barrier structures, pedestrian split times that exceed maximum split times, or U-turns. Due to these limitations, the signalized intersections on Pioneer Street at the I-5 ramps were analyzed using the HCM 2000 methodology. Highway Capacity Software (HCS) 7 was used to analyze roundabouts implementing HCM 6th Edition roundabout models.

Peak 15-minute flow rates were used in the evaluation of all intersection levels of service to provide analyses based on a reasonable worst-case scenario. For this reason, the analyses reflect conditions that are only likely to occur for 15 minutes out of each average peak hour.

### City of Ridgefield Operating Standards

City of Ridgefield Comprehensive Plan Section 8.1.4 defines the City's LOS standards for signalized and unsignalized intersections. The City's standard is LOS D, except for at unsignalized intersections that do not meet signal warrants or where a signal is not desired, where the acceptable LOS is E. The City standards apply to Pioneer Street/N 65th Avenue (study intersection #3).

### WSDOT Operating Standards

The Washington State Department of Transportation (WSDOT) operates and maintains the study intersections at the Pioneer Street (SR 501)/I-5 interchange. At the ramp locations (study intersections #1 and #2), WSDOT requires LOS D, given I-5's designation as an HSS.

### Queuing Analyses

Two-way stop controlled intersection queuing analyses presented in this report were prepared using Synchro 9 software to identify 95th percentile queue length estimates. Roundabout queues were obtained from HCS 7.

## EXISTING CONDITIONS

The existing conditions analysis identifies site conditions and the current operational and geometric characteristics of roadways within the study area. Kittelson & Associates, Inc. (KAI) staff visited and inventoried the proposed campus site and surrounding area in the fall of 2018 to observe adjacent land uses, existing traffic operations, and transportation facilities in the study area.

### Site Conditions and Adjacent Land Uses

The proposed campus is within City of Ridgefield limits and is largely undeveloped farmland. A single family home and supporting farm buildings are located on a portion of the site. Land uses near the site generally reflect a mixture of rural residential farmland to the north and east, commercial and industrial employment lands to the south, and undeveloped land to the west. Clark County Fire & Rescue Station 21 is located on the west side of N 65th Avenue northwest of the proposed campus.

## Transportation Facilities

Table 1 summarizes the existing transportation facilities and roadways in the study area.

**Table 1. Existing Transportation Facilities and Roadways in the Study Area**

| Roadway | Functional Classification[1] | Number of Travel Lanes | Posted Speed (mph) | Sidewalks? | Bicycle Lanes? | On-Street Parking? |
|---|---|---|---|---|---|---|
| Pioneer Street | Principal Arterial | 2 - 4 | 40 | Yes | No | No |
| N 65th Avenue | Standard Collector | 2 | 35 | Partial | No | No |

[1] Source: City of Ridgefield 2016 Functional Classification System (Reference 3)

### *Transit Facilities*

Transit service for Ridgefield is provided by C-TRAN's Connector service. The Connector provides Camas, La Center and Ridgefield with fully accessible dial-a-ride reservation-based service and limited fixed route service. The fixed route service is provided to each of the cities Monday through Friday only. For Ridgefield, this service offers two boarding times in the morning and two boarding times in the evening within the City Center and connects riders to the 99th Street Transit Center (Reference 4). The nearest boarding location for the fixed route service is located at the Ridgefield City Center and is not within a ¼ mile reasonable walking distance from the campus.

### *Pedestrian and Bicycle Facilities*

Sidewalk and bicycle facilities along the study area roadway facilities are summarized in Table 1. As shown there are no sidewalks along the site frontage of N 65th Avenue[1].

## Study Intersection Crash Analysis

The crash history of the study intersections was obtained from WSDOT for the five-year period from December 1, 2012 to November 30, 2017. The data was reviewed to identify potential safety issues. Table 2 summarizes the crash type and crash rate reported at the study intersections. *Appendix B contains the WSDOT crash data.*

**Table 2. Study Intersection Crash Frequency and Severity (December 2012 through November 2017)**

| Intersection | | Total No. of Crashes | Crash Type | | | | | Crash Severity | | Crash Rate[1] |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Angle | Turning | Sideswipe | Fixed Object/ Run Off Road | Other | PDO[2] | Injury | |
| 1 | Pioneer Street/I-5 SB Ramps | 8 | 4 | 0 | 1 | 0 | 3 | 6 | 2 | 0.22 |
| 2 | Pioneer Street/I-5 NB Ramps | 5 | 3 | 1 | 0 | 0 | 1 | 5 | 0 | 0.17 |
| 3 | Pioneer Street/N 65th Avenue | 4 | 0 | 2 | 0 | 1 | 1 | 4 | 0 | 0.27 |

[1] Crash rate is calculated as the number of crashes per million entering vehicles.
[2] Property damage only.

[1] A sidewalk is present along the west side of N 65th Avenue north of Pioneer Street to NW 269th Street and for approximately 280 feet north of NW 269th Street along a commercial retail site development.

As shown in Table 2, none of the study intersections experienced a crash rate greater than 1.0 crash/million entering vehicles. Based on the crash data review, no safety-based mitigation needs were identified that need to be implemented in conjunction with site development.

# TRANSPORTATION IMPACT ANALYSIS

The transportation impact analysis identifies how the study intersections currently operate and how they are projected to operate in the year 2021 when the first instructional building of the proposed campus is expected to be fully built and occupied. After assessing existing study intersection performance, the impact of trips generated by the proposed building were examined as follows:

- Approved in-process developments and transportation improvements impacting the study intersections were identified and accounted for;
- Background hour traffic conditions for the year 2021 (initial build-out year) were analyzed;
- Site-generated trips were estimated;
- A site trip distribution pattern was identified and site-generated trips were assigned; and
- Year 2021 total traffic conditions with Phase 1 campus development were analyzed.

## Intersection Operations Analysis

Study intersection operations were analyzed under existing conditions and future conditions prior to and with Phase 1 campus development. Study intersections traffic volumes were developed for each analysis period as described in the following sections and intersection performance was measured using the analysis methodologies previously described. As will be detailed below, the study intersection performance was found to satisfy the applicable City and WSDOT performance standards during all analysis periods.

## Traffic Volumes and Peak Hour Operations

### *Existing Conditions*

Turning movement counts were obtained at the study intersections in the fall of 2018 on a typical mid-week day during the morning (7:00 AM to 9:00 AM) and evening (4:00 PM to 6:00 PM) peak time periods while school was in session and during typical weather conditions. *Appendix C contains the traffic count worksheets.*

Figure 3 provides a summary of the existing study intersection lane configurations and traffic control devices. Figure 4 shows the weekday AM and PM peak hour turning movement counts, as well as the corresponding intersection performance measures. As shown, all intersections meet the applicable LOS

D or better standard during both peak hours. *Appendix D includes the existing traffic conditions LOS worksheets.*

### *Year 2021 Background Traffic Conditions*

The year 2021 background traffic analysis identifies how the study area's transportation system will operate prior to opening the proposed Phase 1 college building. This analysis includes the addition of in-process trips as well as from general growth in the region (application of 0.5 percent annual growth) but does not include traffic from the proposed site. In-process trips were provided by the City of Ridgefield. *Appendix E contains a list of the in-process developments and Figure 5 illustrates the cumulative in-process volumes assumed at each study intersection.*

The Pioneer Street Extension east of the existing roundabout at N 65th Avenue was assumed to be in place by 2021 in conjunction with the in-process developments. Figure 3 displays the assumed lane configurations and traffic control devices at the study intersections in 2021. Figure 6 presents the 2021 background traffic volumes during the weekday AM and PM peak hours as well as the corresponding intersection performance. As shown, all intersections are anticipated to continue to meet the applicable LOS D or better standard during both peak hours. *Appendix F contains the year 2021 background traffic LOS worksheets.*

### *Proposed Campus Building Access and Trip Generation*

The proposed CBF Manufacturing Building will be accessible via a single site driveway to be located on Pioneer Street east of N 65th Avenue. Site trip generation for the CBF Manufacturing Building was estimated using national average trip rates cited in *Trip Generation*, *10th Edition* (Institute of Transportation Engineers, 2017) as shown in Table 3. As shown in Table 3, the trip estimates are predicated on the total estimated student enrollment of 260, rather than the maximum number of students anticipated on campus at any one time (120).

**Table 3. Trip Generation Estimate**

| Land Use | ITE Code | Size (students) | Total Daily Trips | Weekday AM Peak Hour | | | Weekday PM Peak Hour | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Total Trips | In | Out | Total Trips | In | Out |
| Junior/Community College | 540 | 260 | 300 | 29 | 23 | 6 | 29 | 16 | 13 |

### *Proposed Campus Building Trip Distribution/Assignment*

The estimated site-generated trips shown in Table 3 were assigned to the study intersections using the estimated trip distribution pattern shown in Figure 7. Minimal trips were assigned west of I-5 in an effort to avoid double-counting trips made by existing Clark College students that commute to campuses to and from the south.

### *Year 2021 Total Traffic Conditions*

The total traffic conditions analysis forecasts how the study area's transportation system will operate with the traffic generated by the CBF Manufacturing building. The weekday AM and PM peak hour site-generated trips shown in Figure 7 were added to the year 2021 background traffic volumes shown in Figure 6 to arrive at the year 2021 total traffic volumes shown in Figure 8. As shown, all intersections are anticipated to continue to meet the applicable LOS D or better standard during both peak hours when Phase 1 is open for students. *Appendix G contains the year 2021 total traffic LOS worksheets.*

### *Queuing Analysis*

A queuing analysis was completed for the N 65th Avenue/Pioneer Street roundabout under year 2021 background and total traffic volumes. Table 4 documents the projected 95th-percentile queues by movement and rounded to the nearest vehicle length, assuming 25 feet per vehicle. As shown, sufficient storage is available to accommodate the projected queues and the proposed campus trips have a negligible impact on the length of the queues. Future northbound queues at the roundabout are expected to be reduced when Pioneer Street and Union Ridge Parkway are connected by others and, as a result, trips re-route to the planned arterial corridor. *Appendix F and G contains the queuing worksheets for year 2021 background and total traffic conditions.*

**Table 4. 95th-Percentile Queues, 2021 Background and Total Traffic Conditions**

| Intersection | | Approach | Movement | 95th-percentile Queue (feet) | | | | Available Storage Length (feet) | Storage Adequate? |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 2021 Background | | 2021 Total Traffic | | | |
| | | | | AM Peak Hour | PM Peak Hour | AM Peak Hour | PM Peak Hour | | |
| 3 | 65th Avenue/ Pioneer Street | Eastbound | Left/Through | 50 | 50 | 50 | 50 | 520 | Yes |
| | | | Through/Right | 50 | 75 | 50 | 75 | 520 | Yes |
| | | Westbound | Left/Through | 25 | 25 | 25 | 25 | >200 | Yes |
| | | | Through/Right | 25 | 25 | 25 | 25 | >200 | Yes |
| | | Northbound | Left/Through/Right | 175 | 275 | 175 | 275 | >200 | Yes |
| | | Southbound | Left/Through/Right | 25 | 25 | 25 | 25 | >200 | Yes |
| | | | Right | 100 | 75 | 100 | 75 | >200 | Yes |

## INTERSECTION SIGHT DISTANCE CONSIDERATIONS

Driveway sight distance review will be prepared at the time of future site plan applications through the design-build process. Above-ground utilities, monuments/signs, fencing, and landscaping should be appropriately located and maintained to provide intersection sight lines at the interim and ultimate site driveway locations as well as along the on-site parking areas in conformance with City of Ridgefield standards.

# FINDINGS AND RECOMMENDATIONS

The following provides a summary of the findings herein and the suggested recommendations.

## Findings

- The study intersections currently satisfy applicable City of Ridgefield and WSDOT operating standards and are projected to continue to do so with site development.
- The proposed CBF Manufacturing Building is estimated to generate approximately 300 daily trips; including 29 trips (23 in, 6 out) during the weekday AM peak hour and 29 trips (16 in, 13 out) during the weekday PM peak hour.

## Recommendations

- On-site landscaping and any above ground utilities or signage should be located and maintained at the interim and ultimate site driveway and along the parking areas to provide adequate intersection sight distance in conformance with City of Ridgefield standards.

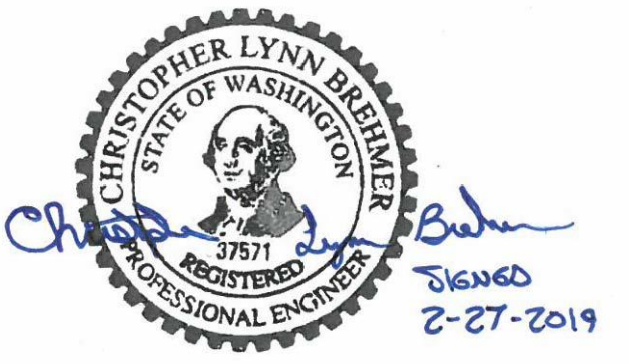
We trust this Transportation Impact Analysis provides sufficient detail for review of the proposed CBF Manufacturing Building. If you have any questions, please call us at (503) 228-5230.

Sincerely,
KITTELSON & ASSOCIATES, INC.

Chris Brehmer, PE
Senior Principal Engineer

Julia Kuhn, PE
Senior Principal Engineer

Cc: Bob Williamson, Clark College
Jim Watkins, Clark College
Keith Schreiber, Schreiber Starling Whitehead Architects



CLARK COLLEGE
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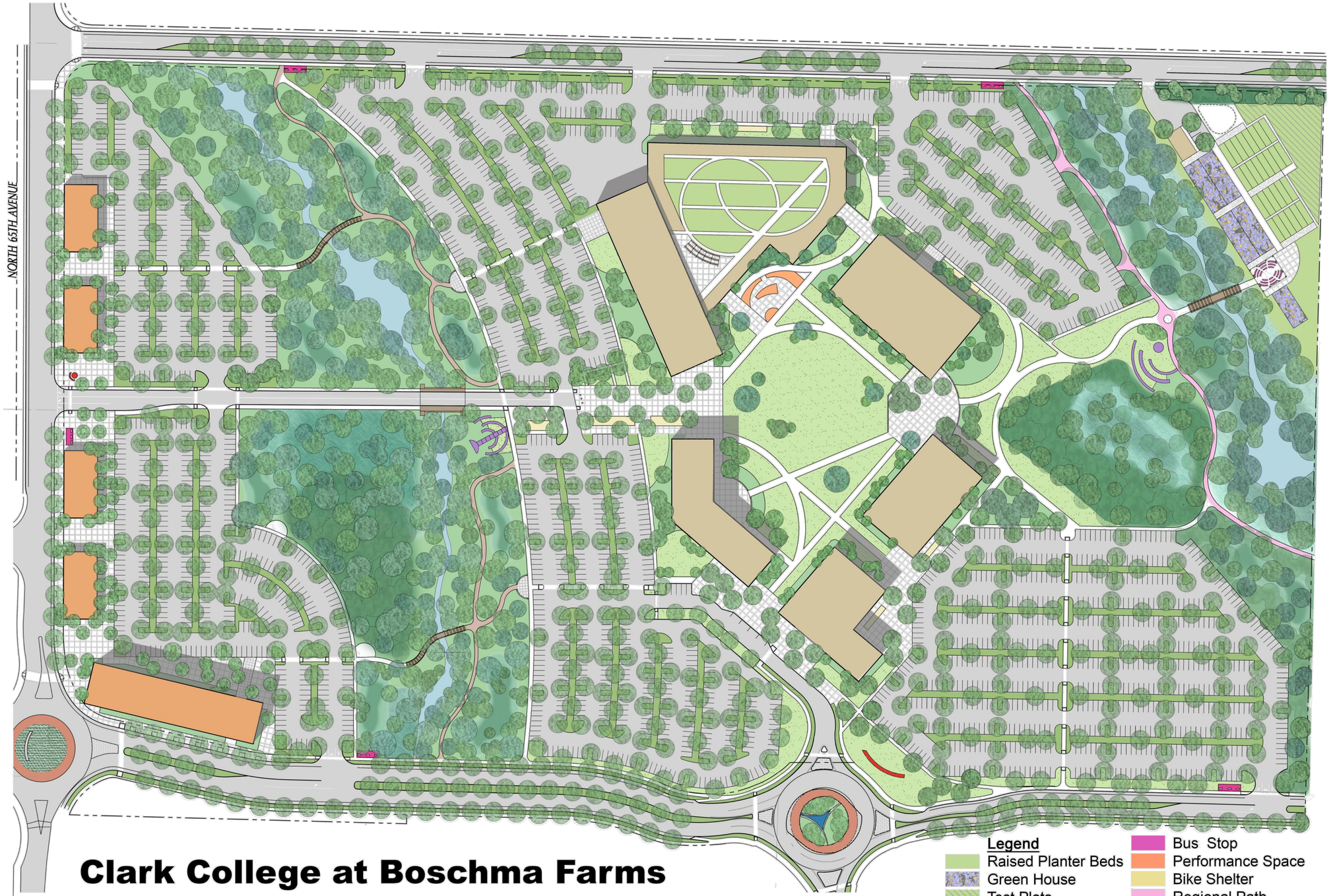
# ATTACHMENT 6.6

## Clark College North Campus

## Master Plan




# Clark College at Boschma Farms

Master Plan- December 2016

0 60 120

**Legend**

- Raised Planter Beds
- Green House
- Test Plots
- Key Art Areas
- Outdoor Classrooms
- Bridge
- Entry Monument
- Bus Stop
- Performance Space
- Bike Shelter
- Regional Path
- Paved Plaza
- Pedestrian Path
- Education Building
- Commercial Building

CLARK COLLEGE FOUNDATION

MacKay Sposito

FILE: W:\16976\CIVIL\DWG\EXHIBITS\16976_MASTERPLAN.DWG

MacKay Sposito

ENERGY PUBLIC WORKS LAND DEVELOPMENT

www.mackaysposito.com

PRELIMINARY NOT FOR CONSTRUCTION

CLARK COLLEGE PHASE 1
CLARK COUNTY, WASHINGTON

CONCEPTUAL MASTER PLAN

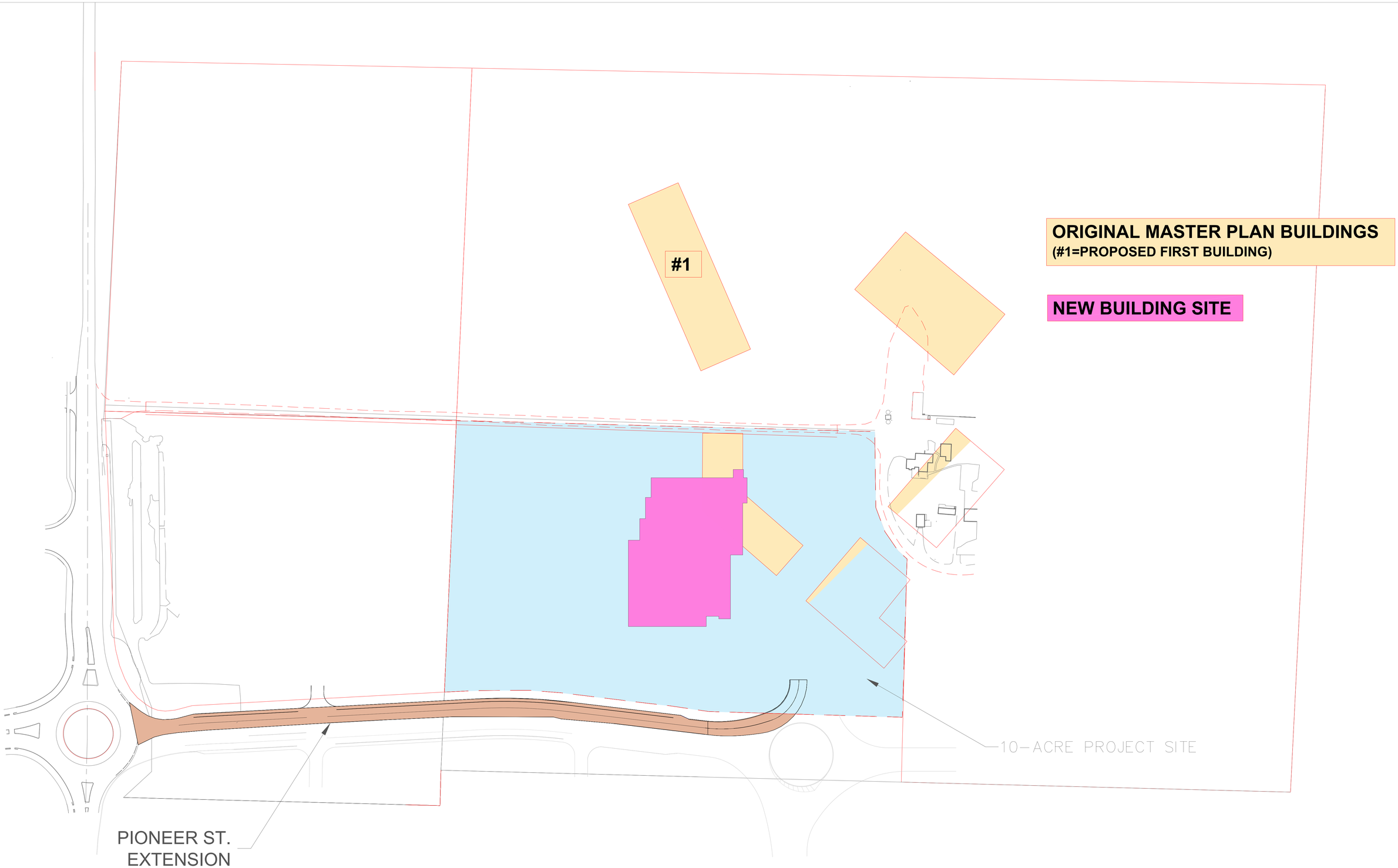
REVISIONS:

| | |
|---|---|
| JOB NO.: | 16976 |
| DATE: | 4/6/2018 |
| SCALE: | N.T.S. |
| DESIGNED BY: | TS |
| DRAWN BY: | RB |
| CHECKED BY: | TS |

PRELIMINARY

EXH-5

NO. 5 OF 8




# CLARK COLLEGE @ BOSCHMA FARMS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