

2020 PROJECT PROPOSAL CHECKLIST
2021-23 Biennium Four-year Higher Education Scoring Process

INSTITUTION	CAMPUS LOCATION
365 - Washington State University	Pullman
PROJECT TITLE	FPMT UNIQUE FACILITY ID # (OR NA)
Campus Fire Protection and Domestic Water Reservoir	N/A (new facility)
PROJECT CATEGORY	PROJECT SUBCATEGORY
Infrastructure	Standalone
PROPOSAL IS	
New or Updated Proposal (for scoring)	Resubmitted Proposal (retain prior score)
<input checked="" type="checkbox"/> New proposal <input type="checkbox"/> Resubmittal to be scored (more than 2 biennia old or significantly changed)	<input type="checkbox"/> Resubmittal from 2017-19 biennium <input type="checkbox"/> Resubmittal from 2019-21 biennium
CONTACT	PHONE NUMBER
Kate Kamerrer	509-335-9314

PROPOSAL CONTENT

- Project Proposal Checklist: this form; one for each proposal
- Project Proposal Form: Specific to category/subcategory (10-page limit)
- Appendices: templates, forms, exhibits and supporting/supplemental documentation for scoring.

INSTITUTIONAL PRIORITY

- Institutional Priority Form. Sent separately (not in this packet) to: [Darrell Jennings](#).

Check the corresponding boxes below if the proposed project meets the minimum threshold or if the item listed is provided in the proposal submittal.

MINIMUM THRESHOLDS

- Project is not an exclusive enterprise function such as a bookstore, dormitory or contract food service.
- Project meets LEED Silver Standard requirements.
- Institution has a greenhouse gas emissions reduction policy in place in accordance with RCW 70.235.070 and vehicle emissions reduction policy in place per RCW 47.01.440 or RCW 43.160.020 as applicable.
- Design proposals: A complete predesign study was submitted to OFM by July 1, 2020.
- Growth proposals: Based on solid enrollment projections and is more cost-effectively providing enrollment access than alternatives such as university centers and distance learning.
- Renovation proposals: Project should cost between 60 – 80% of current replacement value and extend the useful life of the facility by at least 25 years.
- Acquisition proposals: Land acquisition is not related to a current facility funding request.
- Infrastructure proposals: Project is not a facility repair project.
- Stand-alone, infrastructure and acquisition proposals: is a single project requesting funds for one biennium.

2020 PROJECT PROPOSAL CHECKLIST
2021-23 Biennium Four-year Higher Education Scoring Process

REQUIRED APPENDICES

- Capital Project Report CBS 002
- Project cost estimate:
 - CBS 003 for projects between \$2 million and \$5 million
 - Excel C-100 for projects greater than \$5 million
- Degree Totals and Targets template to indicate the number of Bachelors, High Demand and Advanced degrees expected to be awarded in 2021. (Required for Overarching Criteria scoring criteria for Major Growth, Renovation, Replacement and Research proposals).
- Availability of Space/Campus Utilization template for the campus where the project is located. (Required for all categories/subcategories except Infrastructure and Acquisition proposals).
- Assignable Square Feet template to indicate program-related space allocation. (Required for Growth, Renovation and Replacement proposals, all categories/subcategories).

OPTIONAL APPENDICES

Attach supplemental and supporting project documentation, *limit to materials directly related to and needed for the evaluation criteria*, such as:

- Degree and enrollment growth projections
- Selected excerpts from institutional plans
- Data on instructional and/or research space utilization
- Additional documentation for selected cost comparables (acquisition)
- Selected materials on facility conditions
- Selected materials on code compliance
- Tables supporting calculation of program space allocations, weighted average facility age, etc.
- Evidence of consistency of proposed research projects with state, regional, or local economic development plans
- Evidence of availability of non-state matching funds
- Selected documentation of prior facility failures, high cost maintenance, and/or system unreliability for infrastructure projects
- Documentation of professional assessment of costs for land acquisition, land cleanup, and infrastructure projects
- Selected documentation of engineering studies, site survey and recommendations, or opinion letters for infrastructure and land cleanup projects
- Other: WSU Facility Development Plan

I certify that the above checked items indicate either that the proposed project meets the minimum thresholds or the corresponding items have been included in this submittal.

Name: Kate Kamerrer

Title: *Exec Director, Finance, Business & Building Systems*

Signature: 

Date: 08/14/2020

INSTITUTION	CAMPUS
Washington State University	Pullman
PROJECT TITLE	
Campus Fire Protection and Domestic Water Reservoir	

SUMMARY NARRATIVE

- *Problem statement (short description of the project – the needs and the benefits)*
- *History of the project or facility*
- *University programs addressed or encompassed by the project*

Problem Statement - Washington State University is requesting \$8,000,000 in the 2021-23 capital budget to construct a new fire protection and domestic water reservoir to serve the Pullman campus. WSU's four reservoirs are essential to providing domestic water for drinking, sanitation, and fire protection to university facilities and occupants, but all four have exceeded their intended life and one is permanently out of service. This leaves the university in a vulnerable position; regular preventive and corrective maintenance must be performed to assure reliability, but the system lacks the redundancy to allow a reservoir to be taken offline for the maintenance work to occur. Without a replacement, the lack of storage capacity endangers WSU's ability to provide water to meet regulatory requirements and fulfil its educational and research missions. A new reservoir is essential to continued provision of a safe and reliable water supply to the campus.

WSU owns and operates the water system serving all of the Pullman campus, and this system functions independently from the adjacent City of Pullman. Historically the water system was served by four reservoirs, which range in age from 45- to over 70-years- old.

Name	Capacity (gallons)	Year Constructed
East Reservoir	2,000,000	1947
High Tank	100,000	1947
West Reservoir	2,000,000	1963
North Fairway Reservoir	2,000,000	1975

History - In 2018 the East reservoir began leaking significantly. Several options for repair were investigated but none were found to be cost effective due to the non-compliant wood roof structure and other deferred maintenance requirements. An engineering analysis of the water system storage capacity determined that minimal regulatory compliance was being met so the East reservoir was removed from service and a replacement reservoir became the university's highest infrastructure priority.

University Programs - The new reservoir will serve the entire campus and is essential to the continued operation of the university in Pullman. No university programs can occur without a reliable domestic and fire protection water supply.

GENERAL CATEGORY SCORING CRITERIA

1. Significant health, safety, and code issues

- A. Identify whether the project is needed to bring the facility within current life safety (including seismic and ADA), energy, utilities or transportation code requirements.*

B. Clearly identify the applicable standard or code, and describe how the project will improve consistency with it. Provide selected supporting documentation in appendix and reference in the body of the proposal.

This proposed project will address multiple code issues associated with life safety, energy and utilities.

Justification:

The Washington State Department of Health's (DOH) Water System Design Manual provides a consistent framework for the design of large water systems compliant with Washington State's corresponding regulatory requirements (WAC 246-290) and dictates the standards a water system must meet. Section 4.4.3 of the DOH Design Manual defines water storage requirements for operational, equalizing, standby, and fire protection storage. In its current state, WSU's system is compliant with these storage requirements, but with zero redundancy and only when all remaining large reservoirs are in service and available. With either the North Fairway or West reservoirs out of service due to planned or unexpected outages, not only would the system's storage capacity be inadequate to meet Department of Health requirements, but the unavailability of these important system components creates substantial operational challenges and a high risk of water contamination. Since periodic outages at the existing reservoirs are required for maintenance, cleaning, and major repairs and renewal, without the added capacity of another reservoir the current situation makes this work impossible. Additionally, an unplanned outage would be disastrous to campus operations but is also increasingly likely with a long list of deferred maintenance needs to the campus water system. With no redundancy or opportunity to work on the reservoirs, the university is always at risk of losing its water supply.

In 2018 the Department of Health notified the university that the East Reservoir's wood roof structure was not compliant with the standards for domestic water storage as defined by WAC section 246-290-235; a copy of this correspondence can be seen in **Appendix A**. Considering the age of the reservoir structure, recent multiple leaks, and other deferred maintenance requirements, the cost to replace the roof structure and address the other needs exceeds the East reservoir's replacement value. A new water reservoir will succinctly address the current deficiencies and assure compliance with current health regulations.

2. Evidence of increased repairs and/or service interruption

Identify prior facility repairs, work order repair history or contractor repair call-outs, increased utility and/or maintenance costs, and/or system unreliability. Provide selected supporting documentation in appendix, and reference them in the body of the proposal.

The WSU Pullman campus fire protection and domestic water system has experienced multiple repairs and service interruptions over the past five years and beyond.

Justification:

The detailed work order history shown in **Appendix B** indicates (59) work orders related to the water system and reservoir over the past six years with an average of almost (10) per year. Each of the work orders noted represent a corresponding risk to safety and the reliable delivery of water, particularly since 2018 when the storage capacity was greatly reduced with the decommissioning of the East reservoir. Many of the issues necessitating these work orders could be addressed with the renewal of obsolete or end-of-life equipment, but without any

inherit redundancy this work is nearly impossible to complete. Thankfully, due to the efforts of dedicated staff there have been only isolated water service interruptions affecting only small portions of campus, but enhanced water conservation measures and irrigation restrictions have been imposed on several occasions due to unplanned outages in the system. This proposed project will return storage capacity and the redundancy to the water system allowing work orders like these to be addressed appropriately and the risks of system unreliability greatly reduced.

3. Impact on institutional operations without the infrastructure project

Describe how and the extent to which there would be an impact on existing operations and programs. Describe the potential impact on future, already funded or planned construction projects or program needs should this infrastructure project not occur.

An unplanned outage or failure at any of the reservoirs would have serious impacts on existing operations or programs. The inability to provide water for drinking and sanitation would create a public health crisis. The safety of the public could be endangered, millions of dollars in research projects impacted, accreditations placed at risk, and the reputation of the university damaged. The importance of the water supply to the campus cannot be understated

4. Reasonable estimate

Provide as much detailed cost estimate information as possible, including documentation of professional assessment of costs (may contain opinions of external experts or experienced project management staff from the institution).

A detailed cost estimate for a new reservoir has been compiled by Parametrix, a civil engineering firm specializing in infrastructure. Please see **Appendix C**.

5. Engineering study

Identify whether there is a completed comprehensive engineering study, site survey and recommendations or opinion letter. Provide referenced supporting documentation in appendix.

A comprehensive engineering study of the proposed reservoir was also performed by Parametrix, including an analysis of the proposed site, revising the water system hydraulic model to include the new reservoir, and reviewing the necessary piping connections to the existing distribution network. Please see an executive summary of this study in **Appendix D**.

6. Support by planning

Describe the proposed project's relationship and relative importance to the institution's:

A. Campus/facilities master plan

B. Ongoing academic and/or research program need and strategic plan

The construction of a new reservoir is a requirement to support the University's Development Plan, its long-term planning and strategic missions, and ongoing academic and research programs; a reliable water supply for both domestic and fire protection uses is essential to WSU's ability to function. For further information please see the University's Development Plan in **Appendix E**.

7. Resource efficiency and sustainability

Document project benefits associated with low-impact stormwater management techniques, improvements in energy and resource conservation, and use of renewable energy sources

This project will incorporate low impact storm water management techniques to address runoff from the top of the reservoir and the surrounding hardscape, and will also provide improvements in resource use by reducing leaks in the system and assuring operational efficiency. It is also notable that this project is due to the age and condition of the system, but not due to campus growth or an increase in water resource use. Recognizing declining aquifer levels and the finite nature of the campus' water source, WSU began focused conservation efforts in the 1980's; while campus square footage has increased by almost 40 percent since that time, the annual water use has decreased by more than 40 percent over the same period. The replacement of the reservoir will also further reduce undocumented water use, due to leaks that frequently occur from within the base of the reservoirs. Washington State University values the importance of incorporating resource conservation and sustainability practices in all projects.

Capital Project Request

2021-23 Biennium

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Version: 10 2021-23 WSU Capital Budget Request

Report Number: CBS002

Date Run: 8/13/2020 4:25PM

Project Number: 40000272

Project Title: Campus Fire Protection and Domestic Water Reservoir

Description

Starting Fiscal Year: 2022

Project Class: Preservation

Agency Priority: 4

Project Summary

Washington State University is requesting \$8,000,000 to construct a new fire protection and domestic water reservoir to serve the Pullman campus. WSU's four reservoirs are essential to providing domestic water for drinking, sanitation, and fire protection to university facilities and occupants, but all four have exceeded their intended life and one is permanently out of service due to persistent leaks and a non-compliant wood roof structure. A new reservoir is essential to continued provision of a safe and reliable water supply to the campus.

Project Description

Identify the problem or opportunity addressed. Why is the request a priority? This narrative should identify unserved/underserved people or communities, operating budget savings, public safety improvements or other backup necessary to understand the need for the request. For preservation projects, it is helpful to include information about the current condition of the facility or system.

WSU has four reservoirs dating from 1948 to 1973. In 2018 the oldest reservoir was decommissioned, as the necessary repairs were a greater cost than a wholesale replacement. Although WSU's water system is compliant with Department of Health regulations for storage capacity, the system currently operates without redundancy. Regular preventive and corrective maintenance must be performed to the remaining reservoirs to assure system reliability, but all three must remain in operation to meet fire flow and reserve capacity requirements, despite their advanced age and a long list of deferred maintenance needs. Lacking the redundancy which would allow a reservoir to be taken out of service means that necessary work cannot occur and the likelihood of significant outages affecting campus personnel and functions increases greatly. A new reservoir is an essential priority for the university.

What will the request produce or construct (i.e., predesign or design of a building, construction of additional space, etc.)? When will the project start and be completed? Identify whether the project can be phased, and if so, which phase is included in the request. Please provide detailed cost backup.

This project would construct a new two-million-gallon reservoir, provide the corresponding site improvements and access road, and would install new required piping to link the new reservoir to the existing distribution network. The design and construction of this project would be completed in the 21-23 biennia, with most construction activities anticipated for the 2022 summer construction season. A detailed cost estimate compiled by Parametrix can be seen in Appendix C.

How would the request address the problem or opportunity identified in question 1? What would be the result of not taking action?

Constructing a new reservoir will return much-needed redundancy to the domestic and fire protection water system, assure WAC and Department of Health compliance, and will address a long list of maintenance requirements that have been deferred due to the inability to perform the work. If no action is taken a significant water system failure is not only likely but imminent. An inability to provide water for drinking and sanitation would create a public health crisis, impact millions of dollars in research projects, place accreditations at risk, and damage the reputation of the university.

What alternatives were explored? Why was the recommended alternative chosen? Be prepared to provide detailed cost backup. If this project has an associated predesign, please summarize the alternatives the predesign considered.

Repair of the existing out of service reservoir was considered, but the work required to address deferred maintenance, replacement of the wood roof structure with a compliant material, and correcting water leaks from the structure exceeds the replacement cost. A new reservoir is the most viable and cost-effective solution to succinctly address fire flow needs, reliability, and public health.

Which clientele would be impacted by the budget request? Where and how many units would be added, people or communities served, etc.

The new reservoir will serve the entire Pullman campus community and is essential to the continued educational, research and business operations of the university. No university programs can occur without a reliable domestic and fire protection water supply.

Does this project or program leverage non-state funding? If yes, how much by source? If the other funding source requires cost share, also include the minimum state (or other) share of project cost allowable and the supporting citation or documentation.

This project will only utilize state funding.

Capital Project Request

2021-23 Biennium

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Version: 10 2021-23 WSU Capital Budget Request

Report Number: CBS002

Date Run: 8/13/2020 4:25PM

Project Number: 40000272

Project Title: Campus Fire Protection and Domestic Water Reservoir

Description

Describe how this project supports the agency's strategic master plan or would improve agency performance.

Reference feasibility studies, master plans, space programming and other analyses as appropriate.

The construction of a new reservoir is a requirement to support the University's Development Plan, its long-term planning and strategic missions, and ongoing academic and research programs; a reliable water supply for both domestic and fire protection uses is essential to WSU's ability to function. For further information please see the University's Development Plan in Appendix E.

Does this decision package include funding for any Information Technology related costs including hardware, software (to include cloud-based services), contracts or staff? If the answer is yes, you will be prompted to attach a complete IT addendum. (See Chapter 10 of the operating budget instructions for additional requirements.)

This request does not include or require any Information Technology related costs.

If the project is linked to the Puget Sound Action Agenda, describe the impacts on the Action Agenda, including expenditure and FTE detail. See Chapter 12 Puget Sound Recovery) in the 2021-23 Operating Budget Instructions.

This proposed project is not linked to the Puget Sound Action Agenda.

How does this project contribute to statewide goals to reduce carbon pollution and/or improve energy efficiency? Please elaborate.

The new reservoir contributes to increased energy efficiency by reducing undocumented water loss due to leaks, thus resulting in decreased energy use due to the avoided pumping of groundwater. The increased available storage capacity will also provide added flexibility to when well pumps are operated, reducing electrical use at peak time and avoiding utility surcharges. It is also noteworthy that this project is due to the age and condition of the water system, but not due to campus growth or an increase in water resource use. WSU began focused conservation efforts in the 1980's; while campus square footage has increased by almost 40 percent since that time, the annual water use has decreased by more than 40 percent over the same period.

Is there additional information you would like decision makers to know when evaluating this request?

Please see the corresponding Project Proposal Form for additional information regarding this request.

Location

City: Pullman

County: Whitman

Legislative District: 009

Project Type

Infrastructure (Major Projects)

Growth Management impacts

WSU Pullman's physical planning policies are coordinated with many agencies and government units. The Growth Management Act and its companion Traffic Demand Management legislation and the State Environmental Policy Act, however, are applicable to WSU's physical facilities and programs. Growth Management Act (GMA)-WSU will coordinate with Counties and Municipalities throughout the State to ensure compliance with GMA. WSU will avoid construction or activities which would permanently impair "critical" areas on its campuses as they are defined in the GMA. Transportation Demand Management-A companion piece of legislation sets forth a policy for Transportation Demand Management in which the State of Washington will provide leadership. The Director of the State of Washington Department of General Administration (DGA) is required to develop a commute trip reduction plan for state agencies which are Phase I major employers WSU will conform to the plans developed by DGA. State Environmental Policy Act (SEPA)-WSU has adopted procedures set forth in the State Environmental Policy Act Handbook December 1988 and the State Environmental Policy Act Rules Chapter 197-11 Washington Administrative Code Effective April 4, 1984. Adherence to these procedures will be one of the principal means by which WSU coordinates its compliance with Growth Management requirements.

Funding

Acct Code	Account Title	Estimated Total	Expenditures		2021-23 Fiscal Period	
			Prior Biennium	Current Biennium	Reapprops	New Approps
057-1	State Bldg Constr-State					
062-1	WSU Building Account-State	8,000,000				8,000,000

Capital Project Request

2021-23 Biennium

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Version: 10 2021-23 WSU Capital Budget Request

Report Number: CBS002

Date Run: 8/13/2020 4:25PM

Project Number: 40000272

Project Title: Campus Fire Protection and Domestic Water Reservoir

Funding					
Total	8,000,000	0	0	0	8,000,000
Future Fiscal Periods					
	2023-25	2025-27	2027-29	2029-31	
057-1 State Bldg Constr-State					
062-1 WSU Building Account-State					
Total	0	0	0	0	

Schedule and Statistics

	Start Date	End Date
Predesign	07/01/2021	08/01/2021
Design	9/1/2021	2/1/2022
Construction	3/1/2022	9/1/2022

	Total
Gross Square Feet:	1
Usable Square Feet:	1
Efficiency:	100.0%
Escalated MACC Cost per Sq. Ft.:	6,059,571
Construction Type:	Civil
Is this a remodel?	No
A/E Fee Class:	C
A/E Fee Percentage:	7.21%

Cost Summary

	Escalated Cost	% of Project
Acquisition Costs Total	0	0.0%
Consultant Services		
Pre-Schematic Design Services	0	0.0%
Construction Documents	0	0.0%
Extra Services	30,927	0.4%
Other Services	52,205	0.7%
Design Services Contingency	(60,046)	-0.8%
Consultant Services Total	478,527	6.0%
Maximum Allowable Construction Cost(MACC)	6,059,571	
Site work	425,539	5.3%
Related Project Costs	1,142,313	14.3%
Facility Construction	4,491,719	56.2%
GCCM Risk Contingency	0	0.0%

**365 - Washington State University
Capital Project Request**

2021-23 Biennium

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Version: 10 2021-23 WSU Capital Budget Request

Report Number: CBS002

Date Run: 8/13/2020 4:25PM

Project Number: 40000272

Project Title: Campus Fire Protection and Domestic Water Reservoir

Cost Summary

	<u>Escalated Cost</u>	<u>% of Project</u>
Construction Contracts		
GCCM or Design Build Costs	0	0.0%
Construction Contingencies	303,447	3.8%
Non Taxable Items	0	0.0%
Sales Tax	496,315	6.2%
Construction Contracts Total	6,859,332	85.7%
Equipment		
Equipment	0	0.0%
Non Taxable Items	0	0.0%
Sales Tax	0	0.0%
Equipment Total	0	0.0%
Art Work Total	39,801	0.5%
Other Costs Total	78,050	1.0%
Project Management Total	544,290	6.8%
Grand Total Escalated Costs	8,000,000	
Rounded Grand Total Escalated Costs	8,000,000	

Operating Impacts

No Operating Impact

Narrative

This is an Infrastructure project request.

Capital Project Request

2021-23 Biennium

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<u>Parameter</u>	<u>Entered As</u>	<u>Interpreted As</u>
Biennium	2021-23	2021-23
Agency	365	365
Version	10-A	10-A
Project Classification	*	All Project Classifications
Capital Project Number	40000272	40000272
Sort Order	Project Priority	Priority
Include Page Numbers	Y	Yes
For Word or Excel	N	N
User Group	Agency Budget	Agency Budget
User Id	*	All User Ids

STATE OF WASHINGTON
AGENCY / INSTITUTION PROJECT COST SUMMARY

Updated June 2020

Agency	Washington State Univeristy
Project Name	Campus Fire Protection and Domestic Water Reservoir
OFM Project Number	40000272

Contact Information

Name	Jeff Lannigan
Phone Number	509-335-7221
Email	lannigan@wsu.edu

Statistics

Gross Square Feet	1	MACC per Square Foot	\$5,812,600
Usable Square Feet	1	Escalated MACC per Square Foot	\$6,059,571
Space Efficiency	100.0%	A/E Fee Class	C
Construction Type	Civil Construction	A/E Fee Percentage	7.21%
Remodel	No	Projected Life of Asset (Years)	50

Additional Project Details

Alternative Public Works Project	Yes	Art Requirement Applies	Yes
Inflation Rate	2.38%	Higher Ed Institution	Yes
Sales Tax Rate %	7.80%	Location Used for Tax Rate	Pullman
Contingency Rate	5%		
Base Month	August-20	OFM UFI# (from FPMT, if available)	N/A (new facility)
Project Administered By	Agency		

Schedule

Predesign Start	July-21	Predesign End	August-21
Design Start	September-21	Design End	February-22
Construction Start	March-22	Construction End	September-22
Construction Duration	6 Months		

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Project Cost Estimate

Total Project	\$7,678,117	Total Project Escalated	\$8,000,004
		Rounded Escalated Total	\$8,000,000

STATE OF WASHINGTON
AGENCY / INSTITUTION PROJECT COST SUMMARY

Updated June 2020

Agency	Washington State Univeristy	
Project Name	Campus Fire Protection and Domestic Water Reservoir	
OFM Project Number	40000272	

Cost Estimate Summary

Acquisition			
Acquisition Subtotal	\$0	Acquisition Subtotal Escalated	\$0

Consultant Services			
Predesign Services	\$0		
A/E Basic Design Services	\$303,630		
Extra Services	\$30,000		
Other Services	\$186,413		
Design Services Contingency	-\$57,510		
Consultant Services Subtotal	\$462,533	Consultant Services Subtotal Escalated	\$478,527

Construction			
GC/CM Risk Contingency	\$0		
GC/CM or D/B Costs	\$0		
Construction Contingencies	\$290,630	Construction Contingencies Escalated	\$303,447
Maximum Allowable Construction Cost (MACC)	\$5,812,600	Maximum Allowable Construction Cost (MACC) Escalated	\$6,059,571
Sales Tax	\$476,052	Sales Tax Escalated	\$496,316
Construction Subtotal	\$6,579,282	Construction Subtotal Escalated	\$6,859,334

Equipment			
Equipment	\$0		
Sales Tax	\$0		
Non-Taxable Items	\$0		
Equipment Subtotal	\$0	Equipment Subtotal Escalated	\$0

Artwork			
Artwork Subtotal	\$39,801	Artwork Subtotal Escalated	\$39,801

Agency Project Administration			
Agency Project Administration Subtotal	\$213,175		
DES Additional Services Subtotal	\$0		
Other Project Admin Costs	\$0		
Project Administration Subtotal	\$521,301	Project Administration Subtotal Escalated	\$544,291

Other Costs			
Other Costs Subtotal	\$75,200	Other Costs Subtotal Escalated	\$78,051

Project Cost Estimate			
Total Project	\$7,678,117	Total Project Escalated	\$8,000,004
		Rounded Escalated Total	\$8,000,000

Cost Estimate Details

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

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				
Environmental Analysis				
Predesign Study				
Other				
Insert Row Here				
Sub TOTAL	\$0	1.0258	\$0	Escalated to Design Start
2) Construction Documents				
A/E Basic Design Services	\$303,630			69% of A/E Basic Services
Other				
Insert Row Here				
Sub TOTAL	\$303,630	1.0309	\$313,012	Escalated to Mid-Design
3) Extra Services				
Civil Design (Above Basic Svcs)				
Geotechnical Investigation	\$30,000			
Commissioning				
Site Survey				
Testing				
LEED Services				
Voice/Data Consultant				
Value Engineering				
Constructability Review				
Environmental Mitigation (EIS)				
Landscape Consultant				
Other				
Insert Row Here				
Sub TOTAL	\$30,000	1.0309	\$30,927	Escalated to Mid-Design
4) Other Services				
Bid/Construction/Closeout	\$136,413			31% of A/E Basic Services
HVAC Balancing				
Staffing				
Specialty Consultants	\$50,000			
Insert Row Here				
Sub TOTAL	\$186,413	1.0441	\$194,635	Escalated to Mid-Const.
5) Design Services Contingency				
Design Services Contingency	\$26,002			
Correction Factor	-\$83,512			
Insert Row Here				
Sub TOTAL	-\$57,510	1.0441	-\$60,047	Escalated to Mid-Const.
CONSULTANT SERVICES TOTAL			\$478,527	

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Cost Estimate Details

Construction Contracts				
Item	Base Amount	Escalation Factor	Escalated Cost	Notes
1) Site Work				
G10 - Site Preparation	\$350,000			
G20 - Site Improvements	\$60,000			
G30 - Site Mechanical Utilities				
G40 - Site Electrical Utilities				
G60 - Other Site Construction				
Other				
Insert Row Here				
Sub TOTAL	\$410,000	1.0379	\$425,539	
2) Related Project Costs				
Offsite Improvements				
City Utilities Relocation				
Parking Mitigation				
Stormwater Retention/Detention	\$70,000			
Water Line Replacement	\$1,030,600			
Insert Row Here				
Sub TOTAL	\$1,100,600	1.0379	\$1,142,313	
3) Facility Construction				
A10 - Foundations	\$300,000			
A20 - Basement Construction				
B10 - Superstructure				
B20 - Exterior Closure				
B30 - Roofing				
C10 - Interior Construction				
C20 - Stairs				
C30 - Interior Finishes				
D10 - Conveying				
D20 - Plumbing Systems	\$80,000			
D30 - HVAC Systems				
D40 - Fire Protection Systems				
D50 - Electrical Systems	\$200,000			
F10 - Special Construction	\$50,000			
F20 - Selective Demolition	\$472,000			
General Conditions				
Welded Steel Reservoir	\$3,200,000			
Insert Row Here				
Sub TOTAL	\$4,302,000	1.0441	\$4,491,719	
4) Maximum Allowable Construction Cost				
MACC Sub TOTAL	\$5,812,600		\$6,059,571	

5) GCCM Risk Contingency			
GCCM Risk Contingency			
Other			
Insert Row Here			
Sub TOTAL	\$0	1.0441	\$0
6) GCCM or Design Build Costs			
GCCM Fee			
Bid General Conditions			
GCCM Preconstruction Services			
Other			
Insert Row Here			
Sub TOTAL	\$0	1.0441	\$0
7) Construction Contingency			
Allowance for Change Orders	\$290,630		
Other			
Insert Row Here			
Sub TOTAL	\$290,630	1.0441	\$303,447
8) Non-Taxable Items			
Other			
Insert Row Here			
Sub TOTAL	\$0	1.0441	\$0
Sales Tax			
Sub TOTAL	\$476,052		\$496,316
CONSTRUCTION CONTRACTS TOTAL	\$6,579,282		\$6,859,334

Green cells must be filled in by user

Cost Estimate Details

Equipment					
Item	Base Amount		Escalation Factor	Escalated Cost	Notes
E10 - Equipment					
E20 - Furnishings					
F10 - Special Construction					
Other					
Insert Row Here					
Sub TOTAL	\$0		1.0441	\$0	
1) Non Taxable Items					
Other					
Insert Row Here					
Sub TOTAL	\$0		1.0441	\$0	
Sales Tax					
Sub TOTAL	\$0			\$0	
EQUIPMENT TOTAL					
EQUIPMENT TOTAL	\$0			\$0	

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 total project cost for new construction
Higher Ed Artwork	\$39,801				0.5% of total project cost for new and renewal construction
Other					
Insert Row Here					
ARTWORK TOTAL	\$39,801		NA	\$39,801	

Green cells must be filled in by user

Cost Estimate Details

Project Management					
Item	Base Amount		Escalation Factor	Escalated Cost	Notes
Agency Project Management	\$213,175				
Additional Services					
Construction Management	\$308,126				
Insert Row Here					
PROJECT MANAGEMENT TOTAL	\$521,301		1.0441	\$544,291	

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					
Permits	\$40,000				
Builders Risk	\$14,200				
Facilities Support	\$21,000				
OTHER COSTS TOTAL	\$75,200		1.0379	\$78,051	

Green cells must be filled in by user

C-100(2020)
Additional Notes

Tab A. Acquisition

<i>Insert Row Here</i>

Tab B. Consultant Services

<i>Insert Row Here</i>

Tab C. Construction Contracts

<i>Insert Row Here</i>

Tab D. Equipment

<i>Insert Row Here</i>

Tab E. Artwork

<i>Insert Row Here</i>

Tab F. Project Management

<i>Insert Row Here</i>

Tab G. Other Costs

<i>Insert Row Here</i>

Streva, Gregory Martin

From: Leachman, Timothy Ray
Sent: Tuesday, July 17, 2018 12:21 PM
To: Streva, Gregory Martin
Subject: FW: east reservoir

From: Cervantes, Andres (DOH) <Andres.Cervantes@DOH.WA.GOV>
Sent: Tuesday, July 17, 2018 12:19 PM
To: Leachman, Timothy Ray <trleachman@wsu.edu>
Subject: RE: east reservoir

Not a problem Tim,

Let him know, that as the Regional Engineer, I don't approve the wooden covers for new reservoirs.

Andres R. Cervantes
Regional Engineer
Office of Drinking Water
Washington State Department of Health
andres.cervantes@doh.wa.gov
509-329-2120 | www.doh.wa.gov

From: Leachman, Timothy Ray [mailto:trleachman@wsu.edu]
Sent: Tuesday, July 17, 2018 11:41 AM
To: Cervantes, Andres (DOH) <Andres.Cervantes@DOH.WA.GOV>
Subject: RE: east reservoir

Thank you ! this will surely help

From: Cervantes, Andres (DOH) <Andres.Cervantes@DOH.WA.GOV>
Sent: Tuesday, July 17, 2018 6:50 AM
To: Leachman, Timothy Ray <trleachman@wsu.edu>
Subject: RE: east reservoir

Hi Tim,

The following WAC outlines the requirement for the design and construction of a potable water reservoir. When you research the 10-State Standards, they go further to single out porous materials in contact with the water are not suitable for use in the construction of reservoirs.

Keep in mind:

- * A wooden cover over a slow sand filter is fine. However, the slow sand and disinfection (Inactivation Ratio), are designed for the removal of harmful bacteria and other pathogens.
- * The wood is not considered a durable product, and the pretreated materials can provide VOC's that can go into solution.
- * The ability of the wood roof structure to remain watertight overtime becomes more difficult with age. Moisture, heat, extreme cold will deteriorate and breakdown the cover quickly.

WAC 246-290-235

Finished water storage facilities.

- (1) Finished water storage facilities shall be designed to:
 - (a) Prevent entry by birds, animals, insects, excessive dust, and other potential sources of external contamination. The design shall include provisions for a lockable weathertight roof, a screened roof vent, an overflow pipe with atmospheric discharge or other suitable means to prevent a cross-connection, sample collection capability, a drain to daylight (or an approved alternative that is adequate to protect against cross-connection), a provision for tank isolation in order to perform maintenance procedures, and other appurtenances appropriate to the protection of stored water from contamination;
 - (b) Maintain water circulation, prevent water stagnation, and provide adequate disinfection contact time; and
 - (c) Be accessible for routine maintenance and water quality monitoring.
- (2) Equalizing storage, as defined in WAC 246-290-010, shall be provided to meet peak periods of demand, either daily or longer, when determined to be necessary based on available, or designed, source pumping capacity.
- (3) Operational, standby, and fire suppression storage volumes as defined in WAC 246-290-010 shall be provided, as applicable, for all pressure zones to meet both normal as well as abnormal demands of the system.
- (4) Standby and fire suppression storage volumes may be nested with the larger of the two volumes being the minimum available, provided the local fire protection authority does not require them to be additive.

[Statutory Authority: RCW 70.119A.180 and 43.20.050. WSR 08-03-061, § 246-290-235, filed 1/14/08, effective 2/14/08. Statutory Authority: RCW 43.02.050 [43.20.050]. WSR 99-07-021, § 246-290-235, filed 3/9/99, effective 4/9/99.]

Andres R. Cervantes
Regional Engineer
Office of Drinking Water
Washington State Department of Health
andres.cervantes@doh.wa.gov
509-329-2120 | www.doh.wa.gov

Appendix B - Work Order History

Work Order	Description	Date Created
2020-021881	RESERVOIR ALARM IS BEEPING	3/19/20 2:03 AM
2020-021665	OBSERVATORY HILL PUMPHOUSE DID NOT SEND SIGNAL TO WHITCOM TODAY PLEASE CHECK	3/13/20 11:14 AM
2020-011811	HIGH OBSERVATORY TANK IN ALARM (ALTITUDE VALVE)	11/11/19 1:55 AM
2020-009384	HIGH OBSERVATORY TANK IN ALARM (ALTITUDE VALVE)	10/10/19 2:39 AM
2020-008015	CHECK ALL PROGRAMMING FOR THE DOMESTIC WATER SYSTEM ON CAMPUS. PER RALPH WEBB.	9/27/19 9:09 AM
2020-007884	PROBLEMS WITH TRANSFER PUMP & WELL #8.	9/25/19 5:57 PM
2020-006645	OBSERVATORY RESERVOIR OVERFLOWED, CAUSING RESERVOIR LEVEL ALARM. MANUALLY SHUT DOWN WELL #7	9/6/19 5:19 PM
2020-005418	ASSIST CAMPUS POLICE AT OBSERVATORY TANK FOR BUGLER ALARM	8/26/19 1:27 AM
2020-005286	THE ALARM AT OBSERVATORY HILL WILL NOT REARM LOCK SWITCH PROBLEM	8/22/19 7:59 AM
2020-004747	OBSERVATORY HIGH TANK IS SHOWING LOW LEVEL	8/15/19 6:36 AM
2020-002988	MAKE SURE THE OBSERVATORY IS FULL FOR THE DAY CREW TOMORROW	7/25/19 3:35 PM
2020-001555	WEB REQUEST: WATER AND SEWER PROBLEMS REPLACE LEVEL SENSOR SEND TO CONTROL SHOP	7/10/19 8:35 AM
2020-001154	WEB REQUEST: WATER AND SEWER PROBLEMS LEVEL SENSOR FOR WELL 7 NEEDS TO BE REPAIRED MAYBE ISOLATED AND ZEROED OUT AND LINES BLOWN OUT	7/2/19 3:55 PM
2019-029399	ASSIST CAMPUS POLICE AT THE RESERVOIR	6/28/19 2:37 AM
2019-028913	WEB REQUEST: WATER AND SEWER PROBLEMS ASSIST LEE WITH LEVEL SENSOR AT OBSERVATORY SEND TO CONTROL SHOP	6/25/19 2:34 PM
2019-028295	REMOVE ULTRASONIC SENSOR FROM WEST RESERVOIR - VERIFY AND CALIBRATE NEW SENSOR, AND BACKUP SENSOR.	6/17/19 1:39 PM
2019-020837	WEB REQUEST: LIGHTING-INDOOR PLEASE REPAIR THE LIGHTING IN THE WEST RESIVOR AT THE OBSERVATORY AND IN THE OBSERVATORY PUMP HOUSE SEND TO	3/18/19 5:09 AM
2019-020153	WEB REQUEST: WATER AND SEWER PROBLEMS CHECK OLD LEVEL SENSOR AT OBSERVATORY TO WEST RESIVOIR SEND TO CONTROL SHOP	3/7/19 2:30 PM
2019-017892	FOMS NEED TO PHYSICALLY OBSERVE THE WATER LEVEL AT OBSERVATORY RESERVOIR.	2/11/19 9:16 PM
2019-014820	WEB REQUEST: ROOFING REPAIRS PLEASE INSPECT ROOF ON WEST OBS RESERVOIR THIS IS FOR THE ROOFING SHOP THANK YOU	1/7/19 11:40 AM
2019-014819	WEB REQUEST: WATER AND SEWER PROBLEMS EXCAVATE AROUND BROKEN WATER VALVE AT OBS HILL	1/7/19 11:37 AM
2019-012918	WEB REQUEST: LOCKS/KEY REPAIRS CAN NOT DIS ABLE INTRUDER ALARM AT OBSERVATORY HILL	12/6/18 8:36 AM
2019-012540	OBSERVATORY WEST RESERVOIR ON ALARM AT LEVEL 119.16	11/29/18 8:21 PM
2019-010436	WEB REQUEST: WATER AND SEWER PROBLEMS OBSERVATORY PUMP HOUSE POINT 310003P.RESV OVRFLW DET IS NOT WORKING. PLEASE CHECK. FOR CONTROL	11/5/18 8:36 AM
2019-010295	310003B E.W RESV LEVEL AND 3100003L WRT LVL PSI KEEP GOING IN AND OUT OF ALARM	11/2/18 9:15 AM
2019-002285	OB04C.OB TANK LEVEL	7/22/18 11:39 PM
2019-002280	OBSERVATORY HIGH TANK: LOW LEVEL ALARM IS ON	7/22/18 6:01 AM
2018-026280	OBSERVATORY HILL - TRANSFER PUMP HOUSE HAS THE ALARM KEY SWITCH NOT WORKING - THEIR KEY WILL NOT TURN THE LOCK.	6/14/18 12:12 PM
2018-018627	OBSERVATORY HILL PUMPHOUSE: CONSTRUCT SLOPED ROOF CAPITAL PROJECT 9396-2017	3/5/18 11:41 AM
2018-017882	WELL 7/OBSERVATORY: WHEN THE TANK FILLS, IT OVER FILLS. IT SHOULD STOP AT 8 FEET, BUT OVERFILLS TO 19.56 FEET. (CCMS PT: OB03M)	2/25/18 12:40 PM
2018-015797	OBSERVATORY HILL - BAS NETWORK IMPROVEMENTS CAPITAL PROJECT 9836-2018	1/30/18 10:30 AM
2018-015029	TAKE OB TRANSFER PUMPS OUT OF HAND OFF	1/18/18 3:09 PM
2018-007547	CHECK OUT ALARM BOX ON GATE AT OBSERVATORY IT WILL NOT UNALARM	10/3/17 10:56 AM
2018-003134	OBSERVATORY RESERVOIR FAILED.	8/2/17 9:54 PM
2018-002234	WEB REQUEST: WATER AND SEWER PROBLEMS OBSERVATORY HILL PUMP HOUSE MEC. RECODE AND RE-CONFIGURE CONTROLS AND PROGRAM FOR CONTROL	7/20/17 2:57 PM
2018-001490	WEB REQUEST: ELECTRICAL REPAIR OBSERVATORY LOW RESERVOIR LIGHTS DON'T WORK. ALSO, THE RED LIGHT ON THE ALARM ANNUNCIATOR DOESN'T WORK	7/10/17 7:52 PM
2018-001313	WEST OBSERV RES PLNT - PLEASE REMOVE KEY FROM LOCK AND PROVIDE SPARE	7/6/17 11:04 PM
2018-001312	PLEASE CHECK WEST OBSERV RES PLNT - VERY HOT AND HUMID COMPARED TO EAST OBSERV RES	7/6/17 11:01 PM
2017-024433	POOL OF WATER BETWEEN PARKING LOT BY OLD CENTRAL STORES AND THE JEWETT OBSERVATORY.	5/16/17 6:27 PM
2017-023024	ON FRIDAY TIM IS CLIMBING THE BIG WATER TANK. HE NEEDS A TRUCK DRIVER AND LIFT OPERATPR	4/26/17 1:22 PM
2017-010978	WEB REQUEST: WATER AND SEWER PROBLEMS WELL EBLN NODE TABLE NEEDS TO BE CHECKED.	11/10/16 4:14 PM
2017-010576	OBCOM6.COMM FAIL OBSERVATORY	11/6/16 10:33 PM
2017-010256	REPAIR SPOTLIGHT ON THE SOUTH SIDE OF THE EAST OBSERVATORY RESEVOIR BUILDING.	11/1/16 7:38 PM
2017-010255	REPLACE LIGHT ON STAIRWAY.	11/1/16 7:32 PM

Appendix B - Work Order History

2017-010010	COMMUNICATION FAILURE TO THE WELLS.	10/30/16 11:38 AM
2017-005835	CHECK COMM FAIL OBSERVATORY TO WELL #6 ALARM.GOES IN/OUT OF ALARM. CCMS PT OBCOM6.	9/5/16 1:30 PM
2016-025698	OB03M OB E W RESV LEVEL SURF ON ALARM ON HIGH ALARM CAME IN YESTERDAY THEN CLEARED. BACK TODAY	6/3/16 1:29 PM
2016-024736	MCR REPLACE FAILED TELGUARD COMMUNICATORS	5/20/16 12:43 PM
2016-024373	NO SIGNAL RECEIVED AT WSU RESERVOIR HILL PUMP HOUSE.	5/16/16 5:32 PM
2016-010880	CHECKING WELLS.	11/18/15 11:33 PM
2016-003933	OB05A DEHUMIDIFIER ALARM. CHECK WITH REFRIGERATION SHOP ABOUT THIS, DOES THIS NEED TO BE FIXED BEFORE FALL.	8/16/15 6:35 PM
2016-002546	DEHUMIDIFIER ALARM. CHECKED FOUND COMP CLICKING ON AND OFF ON OVERLOAD. NEEDS REFRIG. DEPT. TO CHECK OUT.	7/26/15 7:57 PM
2015-025147	WEB REQUEST: HEATING/COOLING OBSERVATORY TANK LEVEL COMING INTO HIGH ALRM. CHECKED LEVEL AND FOUND IT HIGH NEAR 20 FT. CHANGED WELL 7 D	5/26/15 2:39 AM
2015-024721	CCMS PT: OB03M; OBSERVATORY RESERVOIR LEVEL SURFACE WENT INTO ALARM.FOMS RESPONDED.	5/18/15 10:02 PM
2015-024090	WEB REQUEST: WATER AND SEWER PROBLEMS OBSERVATORY LOW TANK HIGH ALRM. AT 19.18. HAD FOMS CHECK TANK LEVEL AT 19.9 SHUT WELL 7 OFF NEED	5/8/15 1:38 AM
2015-023891	WEB REQUEST: WATER AND SEWER PROBLEMS OBSERVATORY OVERFLOW LEVEL ALRM. (OB03M) TANK LEVEL READING 18.12 TOOK PIC AND MANUALLY SHUT V	5/6/15 2:40 AM
2015-023888	LOW ALARM, OBSERVATORY HIGH TANK (OB04C)	5/5/15 10:13 PM
2015-023214	WEB REQUEST: WATER AND SEWER PROBLEMS OBSERVATORY TANK LEVEL ALRM. (OB04C) CHECKED WELLS AND TANK LEVEL OK WELL 6 RUNNING SYSTEM WEN	4/28/15 1:23 AM
2015-015525	AT THE PUMP HOUSE ON OBSERVATORY HILL THE HUMIDIFIER IS ICING UP WRONG SHOP	1/9/15 1:44 PM

**Engineer's Opinion of Preliminary Project Costs
 Washington State University - High Zone Tank**

Prepared By: Ron Pace PE, Tom Jordan
 Date: 6/9/2020

ITEM	DESCRIPTION	QTY	UNIT	UNIT PRICE	TOTAL COST
Construction of New Water Tank					
1	Mobilization	1	LS	\$ 200,000.00	\$ 200,000.00
2	Site Preparation / Grading / Temporary Erosion Control	1	LS	\$ 150,000.00	\$ 150,000.00
3	Paved Access Road and Tank Ring Road	1,200	SY	\$ 50.00	\$ 60,000.00
4	Welded Steel Reservoir	2,000,000	GAL	\$ 1.60	\$ 3,200,000.00
5	Tank Foundation	1	LS	\$ 300,000.00	\$ 300,000.00
6	Controls Building	1	LS	\$ 50,000.00	\$ 50,000.00
7	Electrical and Controls	1	LS	\$ 200,000.00	\$ 200,000.00
8	Piping and Appurtenances	1	LS	\$ 80,000.00	\$ 80,000.00
9	Tank Overflow Pond / Discharge to Storm Sewer	1	LS	\$ 50,000.00	\$ 50,000.00
10	Permanent and Low Impact Design (LID) Site Stabilization	1	LS	\$ 20,000.00	\$ 20,000.00
Subtotal					\$ 4,310,000.00
Offsite Waterline Replacement					
Full Road Replacement					
1	Mobilization	1	LS	\$ 50,000.00	\$ 50,000.00
2	Temporary Traffic Control	1	LS	\$ 60,000.00	\$ 60,000.00
3	Temp. Erosion Control / SPCC Plan	1	LS	\$ 45,000.00	\$ 45,000.00
4	12" C-900 PVC Water Line incl. Trench, Exc. & Backfill	4,300	LF	\$ 65.00	\$ 279,500.00
5	12" Resilient Seat Gate Valve	14	EA	\$ 2,000.00	\$ 28,000.00
6	Connection to Existing Water Line	5	EA	\$ 2,500.00	\$ 12,500.00
7	Remove Existing Water Line	4,300	LF	\$ 12.00	\$ 51,600.00
8	Remove and Replace Unsuitable Trench Foundation	800	CY	\$ 50.00	\$ 40,000.00
9	Fire Hydrant Assembly	15	EA	\$ 6,000.00	\$ 90,000.00
10	Water Service Connection	10	EA	\$ 600.00	\$ 6,000.00
11	Demo Existing Roadway	8,600	SY	\$ 8.00	\$ 68,800.00
12	3" Thick HMA Roadway (18' Width)	8,600	SY	\$ 22.00	\$ 189,200.00
13	9" CSTC (18' Width)	2,200	CY	\$ 50.00	\$ 110,000.00
Subtotal					\$ 1,030,600.00
Cost Per Foot:					\$ 239.67
Demolition of Existing Reservoir					
1	Mobilization	1	LS	\$ 22,000.00	\$ 22,000.00
2	Demolish Existing Reservoir	1	LS	\$ 300,000.00	\$ 300,000.00
3	Hazardous Material Abatement	1	LS	\$ 150,000.00	\$ 150,000.00
Subtotal					\$ 472,000.00
Construction Subtotal					\$ 5,812,600.00
Contingency (10% of Construction Subtotal)					\$ 581,260.00
Sales Tax (7.8 Percent of Construction Subtotal)					\$ 453,382.80
Construction Total					\$ 6,847,242.80
Design Costs					
1	Civil / Structural Design and Survey (6% of Construction Total)	1	LS	\$ 410,834.57	\$ 410,834.57
2	Geotechnical Engineering Evaluation	1	LS	\$ 30,000.00	\$ 30,000.00
Design Cost Subtotal					\$ 440,834.57
WSU Costs					
1	Other (Ops, FAIS, EHS, Admin)	1	LS	\$ 30,000.00	\$ 30,000.00
2	Specialty Consultants	1	LS	\$ 50,000.00	\$ 50,000.00
3	Permits and Insurance	1	LS	\$ 40,000.00	\$ 40,000.00
4	Construction Management (4.5% of Construction Total)	1	LS	\$ 308,125.93	\$ 308,125.93
5	Project Management (4.29% of Construction Total)	1	LS	\$ 293,746.72	\$ 293,746.72
WSU Cost Subtotal					\$ 721,872.64
Final Total					\$ 8,009,950.01

May 20, 2020
Parametrix No. 376-1937-029

Roxanne Holden, AUID, APAC
Jeffrey Lannigan, P.E.
Washington State University

Re: Executive Summary for WSU High Zone Tank Sizing Technical Memorandum

Dear Roxanne and Jeff:

Per our previous communications, we have completed the analysis of WSU's existing water system and plans for the addition of a new water tank in the high-pressure zone.

Based on our discussions and analysis, the existing water tanks are nearing the end of their useful life and will create significant risk of failure or contamination if they are not repaired or replaced soon. A new tank (approximately 2 million gallons) in the high-pressure zone will provide the University with the flexibility required to plan for the eventual rehabilitation of the remaining storage in the system, and drastically improve the ability of the rest of the water system to function and add fire flow capacity.

The University already owns vacant land which is in a prime location for the construction of a new water tank. This land is at the intersection of Ellis Way and Hog Lane and can be converted to serve a new water tank with minimal modifications.

We recommend that the University plan on seeking funding for the addition of this new water tank. The University should also plan on replacing old, undersized waterlines between the existing Well #8 pump house and the new tank, as well as demolishing the existing Eastern Observation Hill Tank. For more information and details, see the technical memorandum prepared by Parametrix, Inc. titled High Zone Tank Sizing and dated May 1, 2020.

Sincerely,



Ron Pace, P.E. – Principal



Tom Jordan, E.I.T. - Design Engineer

WSU Facility Development Plan

Pullman 2021-2023

Johnson Hall Demolition
\$8,000,000 (Design and Construction)

ARS Plant Biosciences Building
\$105,000,000 (Federal Funding)

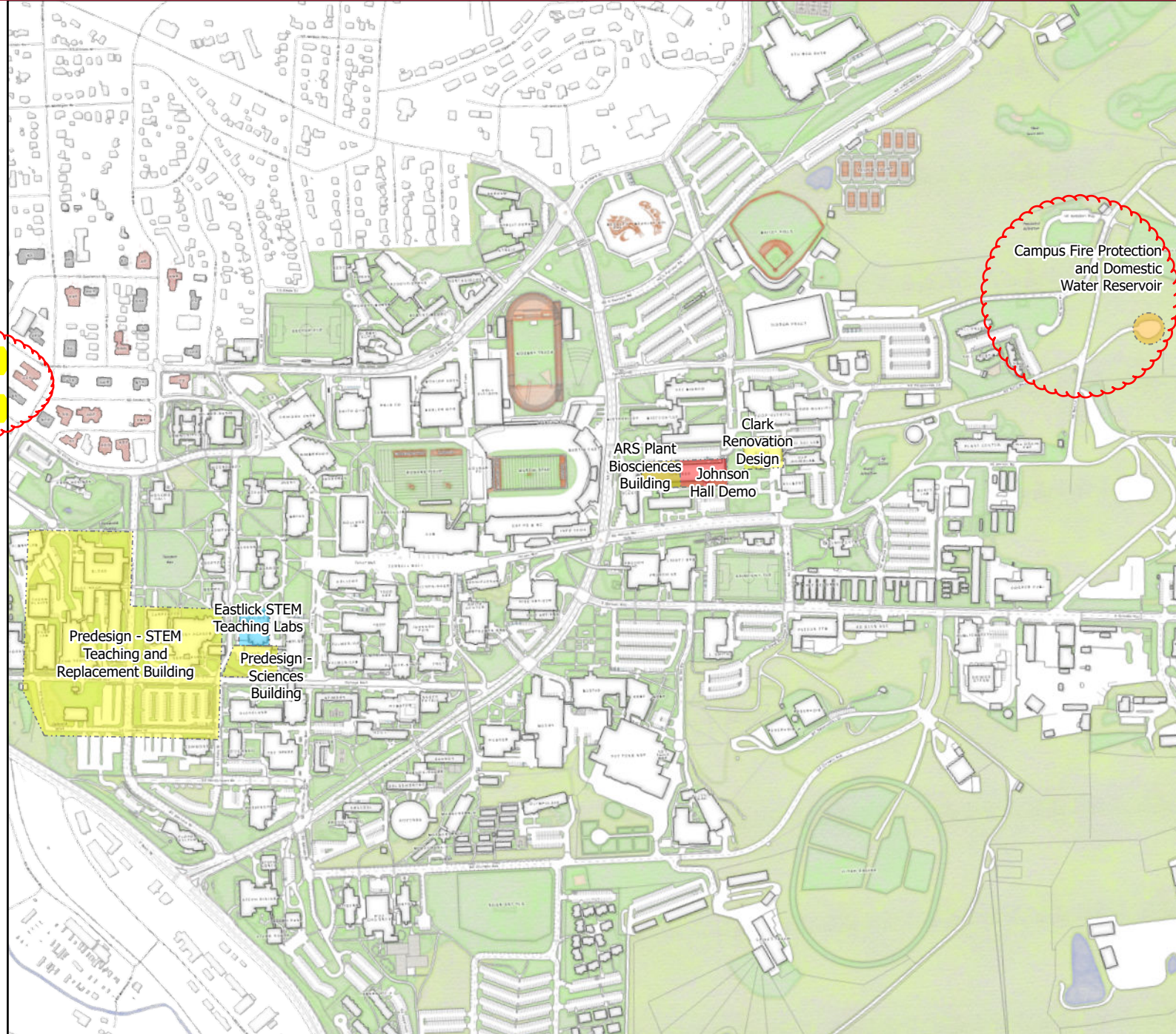
Campus Fire Protection and Domestic Water Reservoir
\$8,000,000 (Design and Construction)

Pullman Sciences Building
\$500,000 (Predesign)

STEM Teaching and Replacement Building – VCEA
\$500,000 (Predesign)

STEM Teaching Labs
\$4,900,000 (Design and Construction)

Clark Hall Research Lab Renovation
\$4,900,000 (Design and Construction)



WSU Facility Development Plan

Spokane 2021-2023

Spokane Phase One Building Renovation
\$15,000,000 (Design and Construction)

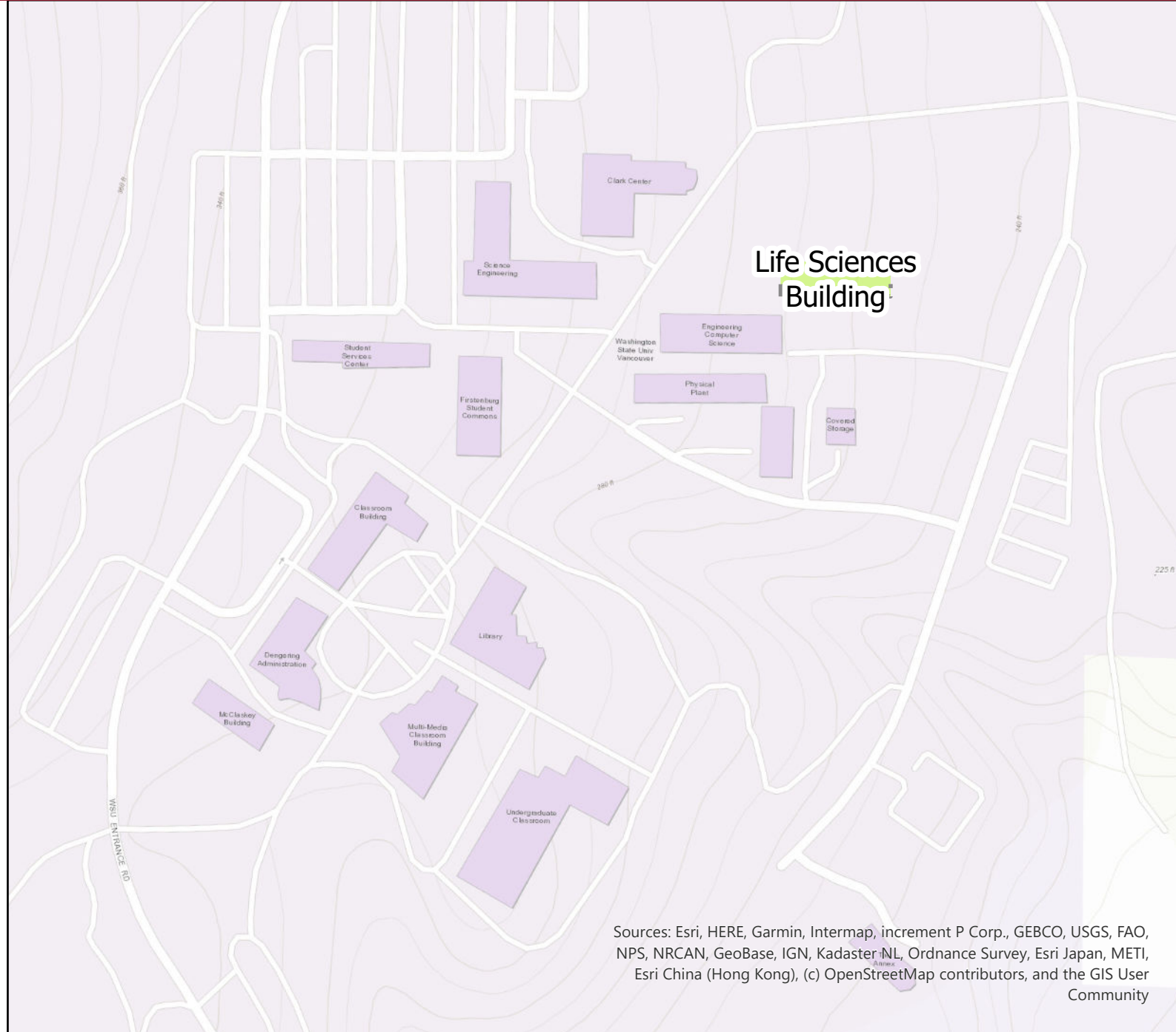


Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

WSU Facility Development Plan

Vancouver 2021-2023

Vancouver Life Sciences Building
\$52,600,000 (Construction)



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

WSU Facility Development Plan

Pullman 2023-2025

Pullman Sciences Building
\$53,000,000 (Design, Heald Hall
Demolition and Construction)

College Avenue Utility Upgrades
\$10,000,000 (Design and
Construction)

Thermal Fluids Building Renovation
\$10,000,000 (Design and
Construction)

Building Systems (roofs, elevators,
envelope, BAS, MEP)
\$10,000,000 (Design and
Construction)
(Multiple locations - not shown on map)



WSU Facility Development Plan

Spokane 2023-2025

Spokane-Biomedical and Health Sciences Building Ph II
\$5,000,000 (Design)



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

WSU Facility Development Plan

Pullman 2025-2027

STEM Teaching and Replacement Building – VCEA
\$8,000,000 (Design and Dana Hall Demolition)

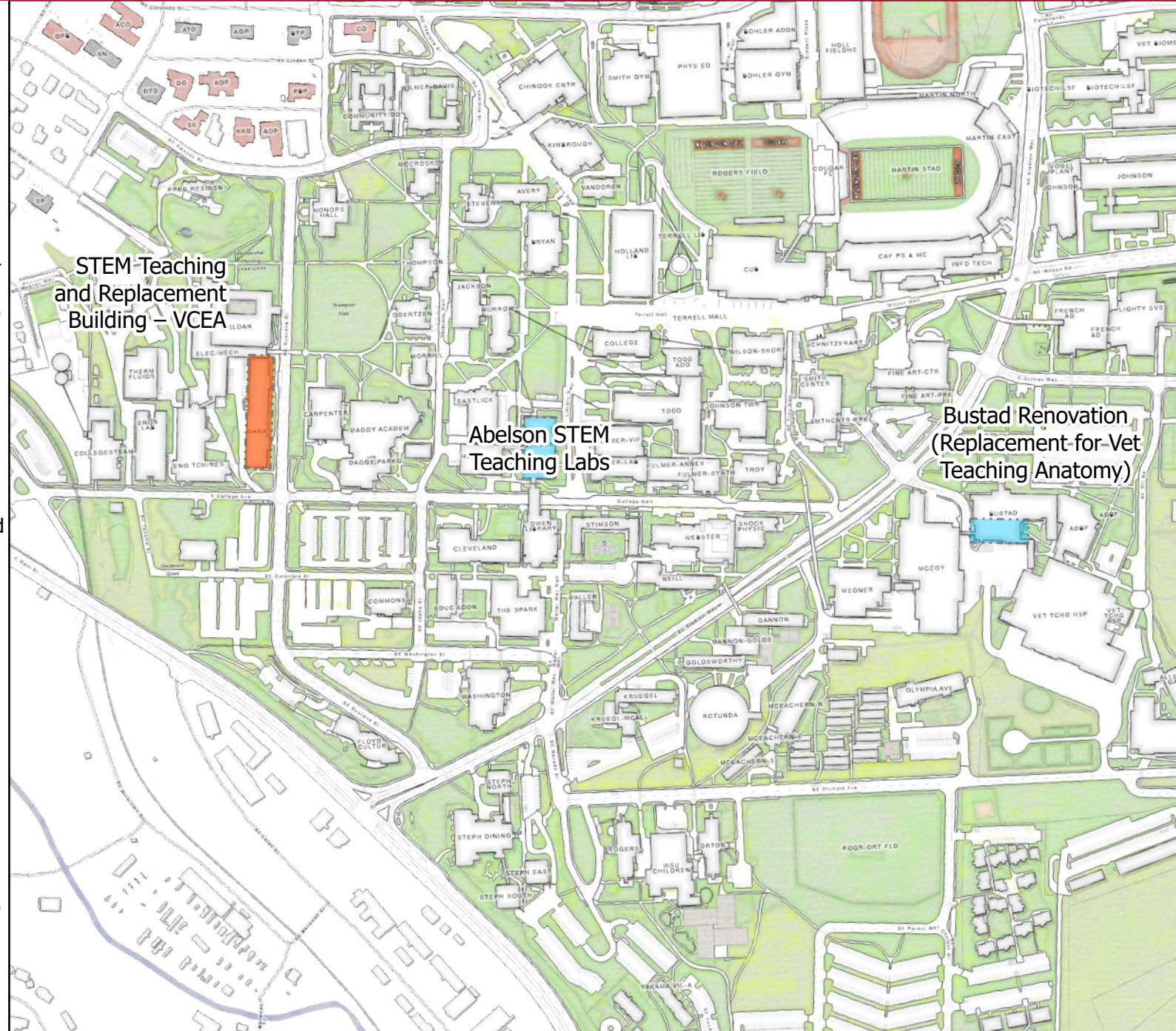
Washington State University Pullman - STEM Teaching Labs
\$5,000,000 (Design and Construction)

Bustad Renovation (Replacement for Vet Teaching Anatomy)
\$10,000,000 (Design and Construction)

Infrastructure (electrical, water, chilled water, steam, tunnels)
\$10,000,000 (Design and Construction)
(Multiple locations - not shown on map)

Learning Renovations
\$10,000,000 (Design and Construction)
(Multiple locations - not shown on map)

Information Technology Renovations
\$5,000,000 (Design and Construction)
(Multiple locations - not shown on map)



WSU Facility Development Plan

Spokane 2025-2027

Spokane-Biomedical and Health Sciences Building Ph II
\$35,000,000 (Construction Phase 1)



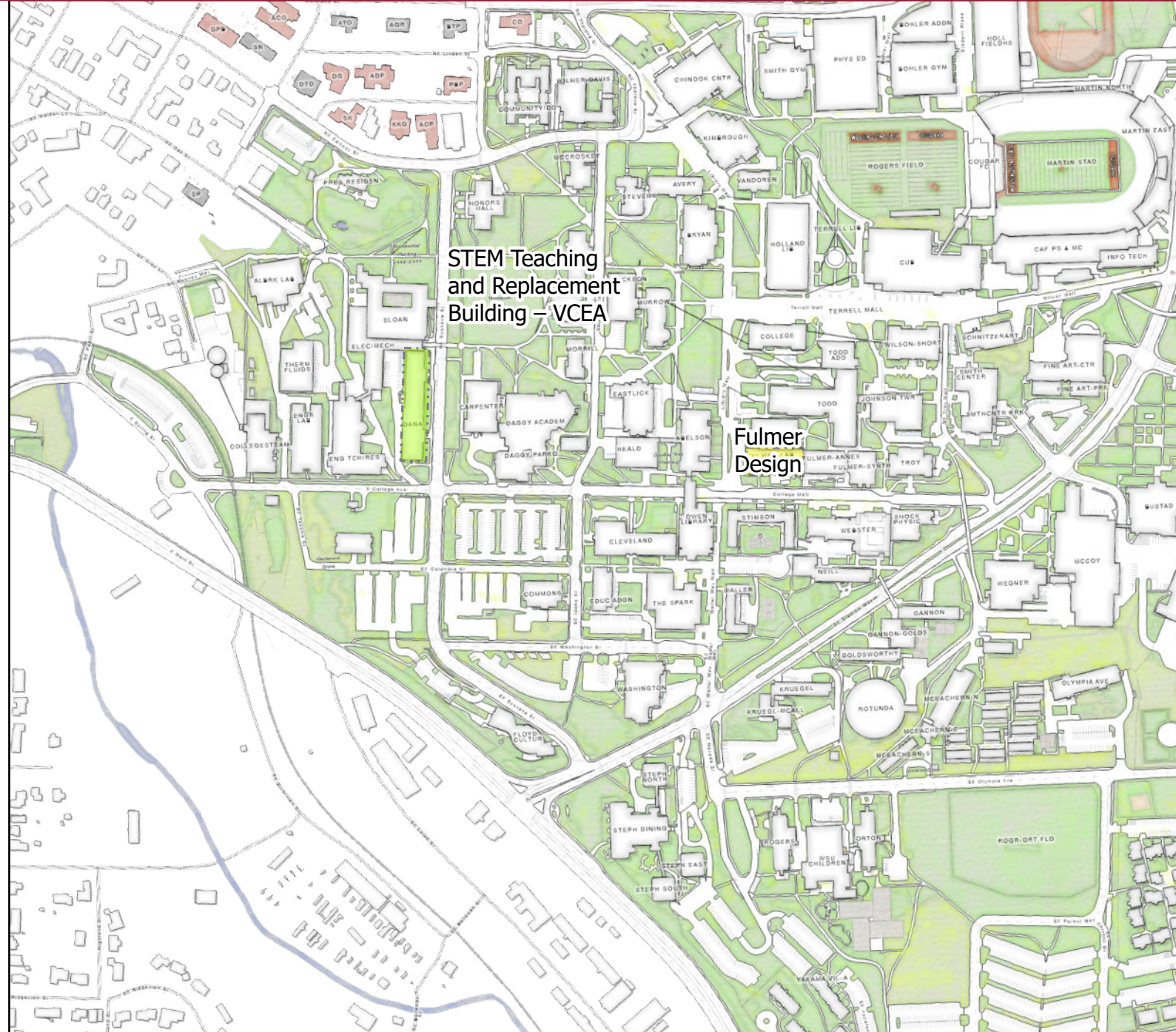
WSU Facility Development Plan

Pullman 2027-2029

STEM Teaching and Replacement Building – VCEA
\$45,000,000 (Construction)

Fulmer Hall Renovation Phase 1
\$3,000,000 (Design)

Research Renovations
\$10,000,000 (Design and Construction)
(Multiple locations - not shown on map)



WSU Facility Development Plan

Spokane 2027-2029

Spokane-Biomedical and Health Sciences Building Ph II
\$35,000,000 (Construction Phase 2)



WSU Facility Development Plan

Pullman 2029-2031

Fulmer Hall Renovation Phase 1
\$35,000,000 (Construction)

Engineering Renovation/Replacement Ph 2
- VCEA
\$8,000,000 (Design and Demolition of
Daggy Hall)

McCoy Hall Demolition
\$8,000,000 (Design and Demolition of
McCoy Hall)

Murrow Hall Renovation
\$3,000,000 (Design)

Building Systems (roofs, elevators,
envelope, BAS, MEP)
\$10,000,000 (Design and Construction)
(Multiple locations - not shown on map)

Infrastructure (electrical, water, chilled
water, steam, tunnels)
\$10,000,000 (Design and Construction)
(Multiple locations - not shown on map)

Learning Renovations
\$10,000,000 (Design and Construction)
(Multiple locations - not shown on map)

Information Technology Renovations
\$5,000,000 (Design and Construction)
(Multiple locations - not shown on map)

