WHATCOM COUNTY CONTRACT
INFORMATION SHEET

Whatcom County Contract No.
202408026

Originating Department:	Public Works
Division/Program: *(i.e. Dept. Division and Program)*	Natural Resources – Climate Action (907010)
Contract or Grant Administrator:	Chris Elder
Contractor's / Agency Name:	Western Washington University

Is this a New Contract? Yes ☒ No ☐
If not, is this an Amendment or Renewal to an Existing Contract? Yes ☐ No ☒
If Amendment or Renewal, (per WCC 3.08.100 (a)) Original Contract #:

Does contract require Council Approval? Yes ☒ No ☐ If No, include WCC:
Already approved? Council Approved Date:
(Exclusions see: Whatcom County Codes 3.06.010, 3.08.090 and 3.08.100)

Is this a grant agreement?
Yes ☐ No ☒ If yes, grantor agency contract number(s): CFDA#:

Is this contract grant funded?
Yes ☒ No ☐ If yes, Whatcom County grant contract number(s): 202401027

Is this contract the result of a RFP or Bid process?
Yes ☐ No ☒ If yes, RFP and Bid number(s):
Contract Cost Center: 156400

Is this agreement excluded from E-Verify? No ☐ Yes ☒ If no, include Attachment D Contractor Declaration form.

If YES, indicate exclusion(s) below:

☐ Professional services agreement for certified/licensed professional.
☐ Goods and services provided due to an emergency
☐ Contract work is for less than $100,000.
☐ Contract for Commercial off the shelf items (COTS).
☐ Contract work is for less than 120 days.
☐ Work related subcontract less than $25,000.
☒ Interlocal Agreement (between Governments).
☐ Public Works - Local Agency/Federally Funded FHWA.

Contract Amount:(sum of original contract amount and any prior amendments):
$ 35,600

This Amendment Amount:
$

Total Amended Amount:
$

Council approval required for; all property leases, contracts or bid awards **exceeding $40,000**, and professional service contract amendments that have an increase greater than $10,000 or 10% of contract amount, whichever is greater, **except when:**

1. Exercising an option contained in a contract previously approved by the council.
2. Contract is for design, construction, r-o-w acquisition, prof. services, or other capital costs approved by council in a capital budget appropriation ordinance.
3. Bid or award is for supplies.
4. Equipment is included in Exhibit "B" of the Budget Ordinance
5. Contract is for manufacturer's technical support and hardware maintenance of electronic systems and/or technical support and software maintenance from the developer of proprietary software currently used by Whatcom County.

Summary of Scope: This interlocal agreement with Western Washington University will support development of coastal bluff erosion rates due to sea level rise across Whatcom County to be used in the Phase 2 Climate Vulnerability Assessment and Shoreline Management Solutions project.

Term of Contract: June 1, 2024	Expiration Date: June 30, 2025

Contract Routing:

1. Prepared by:	Chris Elder	Date: 7/24/2024
2. Attorney signoff:	Christopher Quinn	Date: 7/26/2024
3. AS Finance reviewed:	bbennett	Date: 08/23/2024
4. IT reviewed (if IT related):		Date:
5. Contractor signed:		Date:
6. Executive contract review:		Date:
7. Council approved (if necessary):	AB2024-554	Date: 9/10/2024
8. Executive signed:		Date:
9. Original to Council:		Date:

Whatcom County Contract No.

_____202408026_____

2024 INTERLOCAL AGREEMENT BETWEEN
WHATCOM COUNTY AND WESTERN WASHINGTON UNIVERSITY FOR DEVELOPING PROJECTIONS OF COASTAL BLUFF EROSION OWING TO SEA LEVEL RISE ACROSS WHATCOM COUNTY

This Interlocal AGREEMENT ("AGREEMENT") is between the Western Washington University ("WWU") and Whatcom County ("COUNTY") as public agencies pursuant to the Interlocal Cooperation Act (RCW 39.34) for developing projections of coastal bluff erosion owing to sea level rise across Whatcom County.

WHEREAS, Whatcom County has entered into an agreement with Washington State Department of Ecology through the Shorelands Shoreline Planning Competitive Grant program to provide funds for implementation of the Whatcom Climate Vulnerability Assessment and Shoreline Management Solutions project.

WHEREAS, Western Washington University currently has a graduate student that is able to develop projections of coastal bluff erosion rates owing to sea level rise scenarios; and,

WHEREAS, the COUNTY has the authority to utilize the services and expertise of other agencies to further efforts beneficial to the residents and citizens of Whatcom County; and,

WHEREAS, WWU desires to provide such services to the COUNTY.

NOW, THEREFORE, WWU and the COUNTY agree as follows:

I. *Purpose:* The purpose of this AGREEMENT is to set the terms whereby the COUNTY will make available funds to WWU to develop projections of coastal bluff erosion rates owing to sea level rise scenarios which will contribute to the Whatcom Climate Vulnerability Assessment and Shoreline Management Solutions project, as described in Exhibit A attached hereto.

II. *Administration:* No new or separate legal or administrative entity is created to administer the provisions of this AGREEMENT.

III. *Western Washington University Responsibilities:* WWU hereby agrees to conduct the work described in Exhibit A attached hereto.

IV. *County Responsibilities:* The COUNTY hereby agrees to reimburse WWU, not to exceed the total budget amount allocated to WWU as shown in Exhibit B attached hereto, for the costs of providing and performing the services stated.

V. *Payment:* WWU shall submit itemized invoices in a format approved by the COUNTY in accordance with the requirements of Exhibit B. The COUNTY will compensate WWU for services rendered within thirty (30) days following receipt of an approved invoice, provided all other terms and conditions of the contract have been met and are certified as such by the Contract Administrator.

VI. *Term:* This AGREEMENT shall be effective for services performed from June 1, 2024 through June 30, 2025.

VII. *Responsible Persons:* The persons responsible for administration of this AGREEMENT shall be the Whatcom County Public Works (WCPW) Department Director and WWU College of the Environment Dean or their respective designees.

VIII. *Treatment of Assets and Property:* No fixed assets or personal or real property will be jointly or cooperatively acquired, held, used, or disposed of pursuant to this AGREEMENT.

IX. *Indemnification:* Each party agrees to be responsible and assume liability for its own wrongful and/or negligent acts or omissions or those of their officials, officers, agents, or employees to the fullest extent required by law, and further agree to indemnify and hold the other party harmless from any such liability. It is further provided that no liability shall attach to the Parties by reason of entering into this AGREEMENT except as expressly provided herein.

X. *Modifications:* This AGREEMENT may be changed, modified, amended or waived only by written AGREEMENT executed by the Parties hereto. Waiver or breach of any term or condition of this AGREEMENT shall not be considered a waiver of any prior or subsequent breach.

XI. *Applicable Law:* In the performance of this AGREEMENT, it is mutually understood and agreed upon by the Parties hereto that this AGREEMENT shall be governed by the laws and regulations of the State of Washington and the federal government, both as to interpretation and performance. The venue of any action arising herefrom shall be in the Superior Court of the State of Washington in and for Whatcom County.

XII. *Severability:* In the event any term or condition of this AGREEMENT or application thereof to any person or circumstance is held invalid, such invalidity shall not affect other terms, conditions, or applications of this AGREEMENT that can be given effect without the invalid term, condition, or application. To this end, the terms and conditions of this AGREEMENT are declared severable.

XIII. *Entire Agreement:* This Agreement contains all the terms and conditions agreed upon by the Parties. All items incorporated herein by reference are attached. No other understandings, oral or otherwise, regarding the subject matter of this Agreement shall be deemed to exist or to bind any of the Parties hereto.

XIV. *Performance*: The parties agree to satisfy all aspects of this AGREEMENT in a timely and professional manner. WWU shall notify the COUNTY as soon as problems, delays, or adverse conditions become known that will materially impair its ability to meet the deliverables described in Exhibit A.

XV. *Audit and Inspection*: The COUNTY and WWU shall maintain records pursuant to this AGREEMENT in accordance with generally accepted accounting principles and practices consistently applied. Records shall be subject at all reasonable times to inspection and audit and State auditor. The COUNTY and WWU shall preserve and make such records available to said parties until expiration of three (3) years from the date of final payment under this

AGREEMENT.

XVI. *Dispute Resolution:* The parties to this AGREEMENT shall first attempt to resolve disputes informally at the staff level. In the event that the dispute cannot be resolved at the staff level, a dispute resolution procedure shall be followed under the guidance of the Whatcom Dispute Resolution Center.

XVII. *Rights and Remedies:* In no event shall a making by the COUNTY of any payment to the WWU constitute or be construed as a waiver by the COUNTY of any breach of covenant or any default that may then exist on the part of the WWU. The making of any such payment by the COUNTY while any such breach or default shall exist shall in no way impair or prejudice any of the COUNTY's rights, which are hereby expressly recognized, to recover payments or portions thereof, to which the WWU has not entitled under this AGREEMENT, or where any payments were made by mistake, or to pursue any other remedy available to the COUNTY in respect to breach or default of this AGREEMENT.

This AGREEMENT shall not relieve the COUNTY or the WWU of any obligation or responsibility imposed by law except that performance pursuant to this AGREEMENT may, where appropriate, be offered in satisfaction of an obligation or responsibility conveyed to the COUNTY or the WWU by law.

XVIII. *Insurance Requirements:* WWU shall carry for the duration of this AGREEMENT insurance with the coverage and limits as follows:

A. Commercial General Liability (CGL) Insurance

Property damage	$500,000.00 per occurrence
General Liability & Bodily Injury	$1,000,000.00 per occurrence
Annual Aggregate	$2,000,000.00

B. Business Automobile Liability

$500,000.00 Minimum, per occurrence
$1,000,000.00 Minimum, Annual Aggregate

WWU shall provide auto liability coverage for owned, non-owned and hired autos using ISO Business Auto Coverage form CA 00 01 or the exact equivalent with a limit of no less than $500,000 per accident. If Contractor owns no vehicles this requirement may be met through a non-owned auto Endorsement to the CGL policy.

C. Additional Insurance Requirements and Provisions

1. WWU shall provide COUNTY with a certificate of insurance and endorsements required by the Agreement.
2. For the commercial general liability and business automobile insurance, Whatcom County shall be named as an additional insured.
3. WWU's insurance shall be primary and non-contributory, and shall waive all rights of subrogation against Whatcom County and its coverage. Whatcom County's insurance shall not serve as a source of contribution.

In the alternative, either party to this agreement may fulfill the insurance obligations contained herein by maintaining membership in a joint self-insurance program authorized by RCW 48.62. In this regard, the parties understand that the party to this agreement who is a member of such a program is not able to name the other party as an "additional insured" under the liability coverage provided by the joint self-insurance program.

4. The State of Washington, including WWU, is self-insured for all exposures to tort liability, including general liability, professional liability, property damage liability and vehicle liability, as provided in statute Chapter 4.92 RCW – Action and claims against state, but only as respects the negligence of State. Whatcom County Flood Control Zone District shall be named as an additional insured. The parties agree that this coverage satisfies the insurance requirements shown above.

XIX. *Miscellaneous:* No obligation in this AGREEMENT shall limit the WWU in fulfilling its responsibilities otherwise defined by law. No obligation in this AGREEMENT shall limit the COUNTY in fulfilling its responsibilities otherwise defined by law.

XX. *Signatures:* The undersigned representatives accept the provisions of this AGREEMENT. This AGREEMENT shall be in effect when signed by both parties.

IN WITNESS WHEREOF, the parties have signed this Agreement this _____ day of _____, 2024.

WESTERN WASHINGTON UNIVERSITY

_____
Date

Western Washington University
516 High Street
Bellingham, WA 98225

WHATCOM COUNTY

Recommended for Approval:

_____
Elizabeth Kosa, Public Works Director Date

Approved as to form:

_____
Christopher Quinn, Chief Civil Deputy Prosecuting Attorney Date

Approved:
Accepted for Whatcom County:

By: _____
Satpal Singh Sidhu, Whatcom County Executive Date

EXHIBIT A - SCOPE OF WORK

Background and Purpose

This project includes modeling and assessment of historical and anticipated future coastal buff change associated with expected sea level rise across Whatcom County. Modeling based on recent advancements in multi-parameter regression analyses and process-based buff erosion models applied in California will be used to evaluate historical bluff erosion rates and the anticipated increase as sea level rise leads to more frequent tide and wave-related erosion of coastal bluffs. Outputs in the form of GIS data layers of the forecasted future position and uncertainty of bluffs for a series of future sea level positions provide fundamental information for planning coastal adaptation.

Overview

The goals of the project are to refine a multi-parameter regression model of bluff erosion (MacLennan, 2018) to account for bluff material strength and apply it and the process-based approach of Limber et al. (2018) used in California to estimate change in bluff erosion rates and bluff positions owing to sea level rise. The project expands on recent advancements of MacLennan (2018) in Little (In Review) to account for wave energy based on USGS modeling of regional extreme water levels (Grossman et al., 2023a) and wave energy (Crosby et al., 2023) instead of fetch distance (a proxy for wave energy) previously used. The revised model incorporating hindcast modeled wave energy and eliminating site-specific historical bluff erosion information explains 40-60% of the observed variability in historical bluff erosion associated with basal bluff erosion by waves and extreme water level. It does not include the direct effects of rainfall, groundwater, and other processes operating at the crest of bluffs that are expected to improve and increase predictions. The revised model incorporating new measures of bluff erosion are expected to improve the predictions of bluff erosion and capture greater variability dependent on bluff geology and material strength, thereby aiding regional planning. The outputs will be mapped and served as GIS data layers and coupled to USGS Coastal Storm Modeling System sea level rise scenarios reported in Nederhoff et al. (2024) and Grossman et al. (2024) for use in a county wide vulnerability assessment along with Nooksack River flood projections (Grossman et al., 2023b).

The project timeline will occur over the calendar year 2024 and support an M.S. graduate student at WWU working on bluff erosion along the Tulalip Tribes reservation coastline and select sites across Puget Sound to update the regional multi-parameter regression model for bluff material strength in order to apply across all of Whatcom County complementing the 2-3 select sites assessed by USGS as part of their CoSMoS project.

Tasks

Task 1-Model refinement. The model currently covering two to three select 1-3 km reaches of Whatcom County will be refined to span all bluffed shorelines. Model domain will span the county at 5-10 meter spacing alongshore and to include all areas suspected to be affected by the range of USGS CoSMoS sea level rise scenarios.

Task 2-Field measures of bluff and bluff slide deposit material strength. Direct measures of bluff material strength stratified by historical bluff erosion rate, mapped geology, and

exposure to wave energy will be collected with a dynamic cone penetrometer. Metrics including blow counts per depth penetration, the California Bearing Ratio, bulk density and compaction will be derived and evaluated for use and improvement of the multiparameter regression model of MacLennan et al. (2018).

Task 3-Model calibration. A refined multiparameter regression model based on MacLennan et al. (2018) that now accounts for historical water levels and wave power derived from the USGS CoSMoS effort and hindcast of 1941-2015 and eliminates site-specific parameters that restricts its use to locations with historic observations, will be applied across Whatcom County bluffed shorelines. The model will be evaluated for improvement using measures of bluff material strength and to compute bluff erosion coefficients for application to modeling future bluff change (**Figure 1A, B**).

Task 4-Model simulations of future bluff change. Following the approach of Limber et al. (2018) applied across California, simulations will be made of the change in bluff erosion rate owing to higher sea level and more frequent exposure of the bluff toe to wave energy. Model outputs of change in bluff erosion rate based on the using the Hackney and Total Water Level (TWL) models (Limber et al., 2018) will be used to compute and map in GIS the future bluff position for each USGS CoSMoS sea level scenario. A best estimate and the uncertainty representing all sources of model and computed error and the range of projections based on Hackney vs the TWL models will be provided as GIS shapefiles.

Task 5-Reporting and Results Dissemination. Written quarterly progress reports and any requested presentations will be delivered to the County and a summary of methods and findings will be generated as a technical memo.

Deliverables:

- A draft technical memo will be shared by March 1, 2025; final by June 1, 2025.
- Draft GIS data layers delivered by October 30, 2024; final by March 1, 2025.
- Presentation to Whatcom County Flood Control District and partners as desired.
- Participation in quarterly project meeting to provide guidance to county-wide vulnerability assessment and development.

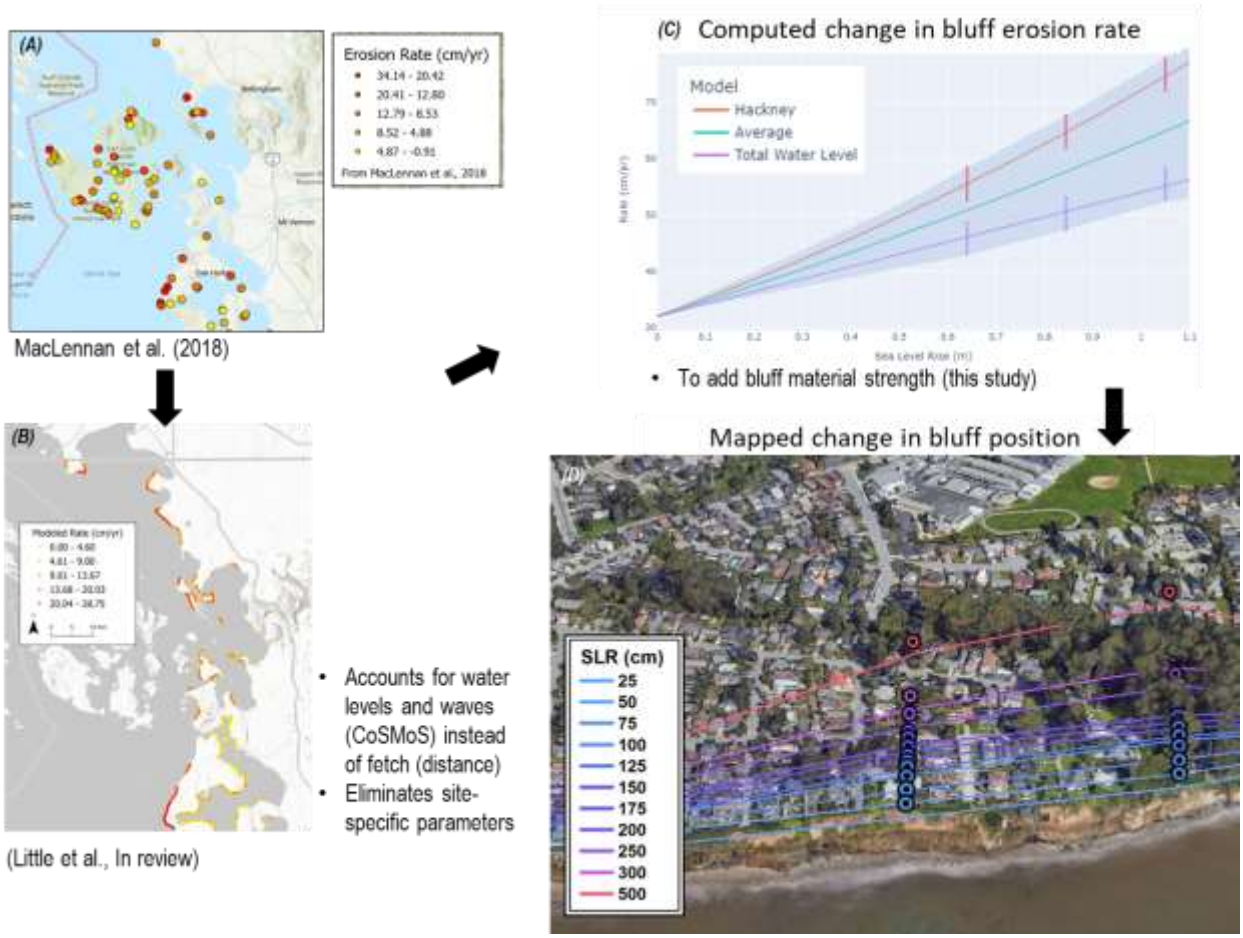

Figure 1. A) Historical bluff erosion rates measured at select sites in cm/year (after MacLennan et al. 2018). **B)** Modeled historical bluff erosion across northern Puget Sound bluffs based on CoSMoS water levels and waves instead of fetch and eliminating site-specific parameters that restrict model application. **C)** Example computed change in bluff erosion rate with sea level rise every 5-10 meters alongshore accounting for bluff material strength derived in this study. **D)** Example mapped change in bluff position alongshore to be served for each CoSMoS sea level scenario along all bluff shorelines of Whatcom County.

References

Crosby, S.C., Nederhoff, C.M., VanArendonk, N., and Grossman, E.E., 2023, Efficient modeling of wave generation and propagation in a semi-enclosed estuary: Journal of Ocean Modelling, , https://doi.org/10.31223/X5R94V.

Grossman, E.E., Tehranirad, B., Nederhoff, C.M., Crosby, S.C., Stevens, A.W., Van Arendonk, N.R., Nowacki, D.J., Erikson, L.H., Barnard, P.L. 2023a. Modeling Extreme Water Levels in the Salish Sea: The Importance of Including Remote Sea Level Anomalies for Application in Hydrodynamic Simulations. Water, 15, 4167. https://doi.org/10.3390/w15234167.

Grossman, E.E., vanArendonk, N.R., and Nederhoff, K., 2023b, Compound flood model for the lower Nooksack River and delta, western Washington—Assessment of vulnerability and nature-based adaptation opportunities to mitigate higher sea level and stream flooding: U.S.

Geological Survey Scientific Investigations Report 2023–5047, 49 p., https://doi.org/10.3133/sir20235047

Grossman, E.E., vanArendonk, N.R., Crosby, S.C., Nederhoff, K., Parker, K.A., Barnard, P.L., Erikson, L., Danielson, J.J. 2024. Coastal hazards assessment associated with sea level rise and storms along the Whatcom County, Northwest Washington State coast. U.S. Geological Survey, Data Release, https://doi.org/10.5066/P9I08NS5.

Limber, P.W., Barnard, P.L., Vitousek, S., and Erikson, L.H., 2018, A Model Ensemble for Projecting Multidecadal Coastal Cliff Retreat During the 21st Century: Journal of Geophysical Research: Earth Surface, v. 123, p. 1566–1589, doi:10.1029/2017JF004401.

MacLennan, A., Johannessen, J., Waggoner, J., Waddington, J., and Lubeck, A., 2018, Long-Term Bluff Recession Rates in Puget Sound: Implications for the Prioritization and Design of Restoration Projects: Coastal Geologic Services, 51 p., https://coastalgeo.com/publications/bluffrecession/.

Nederhoff, K.; Crosby, S.C.; Van Arendonk, N.R.; Grossman, E.E.; Tehranirad, B.; Leijnse, T.; Klessens, W.; Barnard, P.L. Dynamic Modeling of Coastal Compound Flooding Hazards Due to Tides, Extratropical Storms, Waves, and Sea-Level Rise: A Case Study in the Salish Sea, Washington (USA). Water 2024, 16, 346. https://doi.org/10.3390/w16020346.

EXHIBIT B – BUDGET

The proposed budget aims to cover anticipated hourly rates of graduate and undergraduate technical assistance, travel to conduct field sampling of bluff material strength at model validation/calibration sites, and materials and supplies. The total budget is not to exceed $35,600 and will be allocated as described in the table below. Standard WWU overhead is 25% of total direct costs (salaries) for regional governments.

Budget Items	Total
Personnel Salaries	
Graduate Students (2 quarters)	$11,700
Undergraduates (115 hours)	$1,709
Subtotal, salaries	$13,409
Estimated Benefits (Fringe)	
Graduate Students (25%)	$3,978
Undergraduates (10%)	$171
Subtotal, fringe	$4,149
Total Personnel (Salaries & Fringe)	$17,558
Other Direct Costs	
Travel	$1,000
Materials and Supplies	$750
Tuition and Fees	$9,386
Subtotal, other direct costs	$11,136
Total Direct Costs	$28,694
Total Indirect Costs	$6,906
Total Cost	$35,600

EXHIBIT C - INSURANCE