Homer City Hall
491 E. Pioneer Avenue
Homer, Alaska 99603
www.cityofhomer-ak.gov

City of Homer
Agenda

Planning Commission Regular Meeting
Wednesday, January 05, 2022 at 6:30 PM
Cowles Council Chambers and Via Zoom Webinar
Webinar ID: 979 8816 0903 Password: 976062
Dial: 1 669 900 6833 or 1 253 215 8782 Toll Free 1 877 853 5247 or 1 888 788 0099

CALL TO ORDER, 6:30 P.M.

AGENDA APPROVAL

PUBLIC COMMENTS The public may speak to the Commission regarding matters on the agenda that are not scheduled for public hearing or plat consideration. (3 minute time limit).

RECONSIDERATION

CONSENT AGENDA All items on the consent agenda are considered routine and non-controversial by the Planning Commission and are approved in one motion. There will be no separate discussion of these items unless requested by a Planning Commissioner or someone from the public, in which case the item will be moved to the regular agenda.

A. Planning Commission Regular Meeting Minutes of December 1, 2021 **p. 3**

B. Decisions and Findings Document for Conditional Use Permit 21-08 to Allow a Greenhouse at 3860 Kachemak Way **p. 13**

PRESENTATIONS / VISITORS

REPORTS

A. Staff Report 22-1, City Planner's Report **p. 18**

PUBLIC HEARINGS

PLAT CONSIDERATION

PENDING BUSINESS

A. Staff Report 21-3, Coastal Bluff Analysis **p. 20**

B. Staff Report 21-5, Storage Container Dwellings **p. 62**

NEW BUSINESS

INFORMATIONAL MATERIALS

COMMENTS OF THE AUDIENCE Members of the audience may address the Commission on any subject. (3 min limit)

COMMENTS OF THE STAFF

COMMENTS OF THE COMMISSION

ADJOURNMENT

Next Regular Meeting is Wednesday, January 19, 2022 at 6:30 p.m. All meetings are scheduled to be held in the City Hall Cowles Council Chambers located at 491 E. Pioneer Avenue, Homer, Alaska and via Zoom Webinar. Meetings will adjourn promptly at 9:30 p.m. An extension is allowed by a vote of the Commission

Session 21-24, a Regular Meeting of the Planning Commission was called to order by Chair Scott Smith at 6:33 p.m. on December 1, 2021 at Upstairs Conference Room in City Hall located at 491 E. Pioneer Avenue, Homer, Alaska, and via Zoom Webinar.

PRESENT: COMMISSIONERS BARNWELL, BENTZ, CONLEY, HIGHLAND, SMITH, VENUTI AND CHIAPPONE

STAFF: CITY PLANNER ABBOUD
DEPUTY CITY CLERK KRAUSE

The Planning Commission held a worksession prior to the regular meeting. On the agenda was a presentation and discussion on Coastal Bluff Analysis by Jaci Overbeck, Coastal Hazards Program Manager, Alaska Division of Geological & Geophysical Surveys.

APPROVAL OF THE AGENDA

HIGHLAND/CONLEY MOVED TO APPROVE THE AGENDA AS PRESENTED.

There was no discussion.

VOTE: NON OBJECTION: UNANIMOUS CONSENT

Motion carried.

PUBLIC COMMENTS ON ITEMS ALREADY ON THE AGENDA

RECONSIDERATION

CONSENT AGENDA

A. Planning Commission Regular Meeting Minutes of November 3, 2021

HIGHLAND/BENTZ MOVED TO APPROVE THE CONSENT AGENDA AS PRESENTED.

There was no discussion.

VOTE: NON OBJECTION: UNANIMOUS CONSENT.

Motion carried.

PRESENTATIONS / VISITORS

REPORTS

A. Staff Report 21-67, City Planner's Report

City Planner Abboud reviewed his staff report that was included in the packet. He commented further on the following:

- City Council will be meeting as the Board of Adjustment to address the appeal of the dismissal of the Conditional Use Permit for Wild Honey Bistro
- There will only be one resolution on the December 13th Council Meeting agenda related to planning – the 2022 Regular Meeting Schedule for Council and Advisory Bodies
- Initial meeting for the hazard mitigation team went well, reported providing lots of information, and there will be information in the City Newsletter regarding public outreach and scheduling more meetings soon.
- Continued progress on developing the permitting software and learning how to use it and goal is to be up and running in January no later than February
- Kenai Homelessness Coalition strategic planning underway and soliciting comments from communities. In Kenai they have acquired a building to use for habitation so it will be an actual shelter
- The EDC talked about accessible Homer and the Disability Travel Market, updated their Strategic Plan and Goals and requesting City Council for $25,000 for a three year period for the Alaska Small Business Development Center.

City Planner Abboud facilitated discussion on the following:

- Lift or ramp for the harbor for wheelchair users to access boats
- Continuing the discussion on the use of connexes as dwellings

PUBLIC HEARINGS

A. Staff Report 21-68, Conditional Use Permit 21-08 to allow a Greenhouse at 3860 Kachemak Way

Chair Smith requested Commissioners to declare if they may have a conflict pertaining to this action.

Commissioner Venuti stated that it was proposed that he may have a conflict of interest since his wife is an employee at the college even though he has nothing to do with the college.

Chair Smith requested a motion and second.

HIGHLAND/BENTZ MOVED THAT COMMISSIONER VENUTI HAS A CONFLICT OF INTEREST.

The City Planner explained that city code provides guidance on what constitutes conflict of interest which covers financial gain and the perception of bias.

Commissioner Chiappone expressed that he is also a employee of the college, part time.

Chair Smith stated that they will address Commissioner Chiappone's conflict after Commissioner Venuti's. He then requested Commissioner Venuti to state for the record the nature of his conflict of interest.

Commissioner Venuti stated that his wife is a highly paid employee of the University but he has no personal interest in this project. He clarified that he personally will not gain over $1000 from the project. He further stated that if the greenhouse is built he could not imagine how he or his wife would personally benefit.

VOTE. NO. CONLEY, BENTZ, HIGHLAND, CHIAPPONE, SMITH, BARNWELL

Motion failed.

Commissioner Chiappone declared that he may have a conflict as he is employed part time by the college. He stated that he will not benefit financially in any manner if the project is allowed.

Chair Smith requested a motion and second for Commissioner Chiappone's potential conflict of interest.

HIGHLAND/BARNWELL MOVED THAT COMMISSIONER CHIAPPONE HAS A CONFLICT OF INTEREST.

Chair Smith briefly restated Commissioner Chiappone proposed conflict of interest.

VOTE: NO. SMITH, HIGHLAND, VENUTI, BARNWELL, CONLEY, BENTZ

Motion failed.

Chair Smith called for any additional declarations of conflict of interest.

Commissioner Bentz declared that she was an employee of the University of Alaska, Anchorage employee, not affiliated with the Kachemak Bay campus by contract and have no reason or financial gain from this project either.

Chair Smith requested a motion and second for Commissioner Bentz declared conflict.

HIGHLAND/BARNWELL MOVED THAT COMMISSIONER BENTZ HAS A CONFLICT OF INTEREST.

There was a brief statement reiterating Commissioner Bentz' perceived conflict.

VOTE. NO. CONLEY, SMITH, HIGHLAND, BARNWELL, CHIAPPONE, VENUTI.

Motion failed.

Chair Smith noted the two laydown packets and requested assurance from the commission that they were able to fully review those packets and if needed he would call for a recess.

There was no request for review.

City Planner Abboud provided a review of Staff Report 21-68 to the Commission. He offered to provide additional insight into the comments provided by Mr. Griswold.

Reid Brewer, Director, Representing the Applicant Kachemak Bay Campus, Kenai Peninsula College, provided background information on the development of multiple career education programs and one in particular a agricultural program to include creating an agricultural teaching lab which will provide credit courses. The goal is to develop into a degree course in the near future. The non-credit courses and free workshops will provide instruction to the community that is interested. To conduct these courses will include construction of a Rimmel high tunnel from Kenai Feed and be erected/constructed by them. There will be a traditional greenhouse as well plus some raised beds. Students and faculty will use the existing campus facilities and parking. They will encourage collaboration among non-profits in the Homer area and have received endorsements from multiple organizations and the school district.

Chair Smith opened the Public Hearing.

Bob Shavelson, city resident, commented in support of the project and reiterated the strong support from the community and that it would be a good thing to plant in the local downtown area.

Chair Smith closed the public hearing seeing no further public wishing to provide testimony and opened the floor to questions from the Commission.

Mr. Brewer responded to the following:

- The students will learn the various steps from planting, harvesting, marketing and selling the product produced
    - The option of the Food Bank would be open
- Removal of trees was already conducted and the trees that remain will not be removed. Trees that were removed were dead or presented a hazard to the electrical lines.
- The high tunnel construction is broad and estimated life is 10 to 20 years with the covering estimated to last five years. Replacement has been configured into the maintenance cost. The smaller greenhouse will be a standard constructed greenhouse using glass or similar materials. The smaller greenhouse will be used for tomatoes and similar plants that need warmer temperatures.
- the location will be fenced since they have previously dealt with vandalism and trespassing, access to the site will be limited to people that are participating in the university programs

- the project has not been submitted to the Fire Marshall, engineers have signed off on the project before they submitted it to the Planning department

City Planner Abboud stated that if the Commission has concerns on Fire Safety then they can make that a condition of granting the permit. Currently, that is a requirement regardless it is in code for zoning. The commission can make a motion to add it as a condition.

Additional responses and comments on these topics followed:

- Water usage and drainage
  - City Water will be used and there is no current plan for address drainage at this time
  - It is assumed that they will meet any necessary requirements for utilities
- The property was surveyed and an asbuilt will be provided as required when the project is completed.
- the positive nature of the project within a very fractious society, those that believe higher education is only for the elite yet this represents practical education that is arguably very useful
- Currently there are no plans for informational signage to assist in letting the neighboring property owners and general public passing by know what is happening on or in the property but appreciation was expressed for the idea
  - Community outreach will be conducted in a number of ways through seminars, media print and social media
- Ventilation will be installed in the green house that consists of vents with wax seals that will automatically open when the wax melts

BENTZ/BARNWELL MOVE TO ADOPT STAFF REPORT 21-68 AND APPROVE CUP 21-08 TO ALLOW A GREEN HOUSE AT 3860 KACHEMAK WAY WITH FINDINGS 1-10 AND CONDITION 1

1. OUTDOOR LIGHTING MUST BE DOWNLIT PER HOMER CITY CODE 21.59.030 AND THE COMMUNITY DESIGN MANUAL (CDM)

A brief discussion on adding a second condition and if the Fire Marshall was a code requirement ensued.

VOTE. NON-OBJECTION. UNANIMOUS CONSENT.

Motion carried.

PLAT CONSIDERATION

A. Staff Report 21-69 REVISED Terra Bella Subdivision Preliminary Plat

Chair Smith introduced the item by reading of the title and request City Planner Abboud to present his report.

City Planner Abboud provided a summary of Staff Report 21-69 for the commission.

There was no applicant present.

Chair Smith opened the Public Comment period.

Bob Shavelson, neighboring property owner commented that he appreciated the revised plat and admitted that he has not seen the item in the supplemental packet but reported the eastern drainage is an actual year round creek and periodically glaciates over the road and would like to see a culvert installed. He reported on the parking for Reber Trail issues and solutions should be considered for the future to designate parking. He further expressed appreciation for the installation of a sidewalk for connectivity to Karen Hornaday Park and other trails in the community which is super important. Mr. Shavelson expressed his appreciation for the Commissioners and how the Chair conducted these meetings.

There were technical issues on a second member of the public attending and the attendee could not be heard to provide testimony. They were offered the choice of calling in on the conference phone line, check the volume on their device, were promoted to panelist, staff suggested emailing the planning department or to use another device.

Chair Smith called for a five minute recess at 7:41 p.m. The meeting was called back to order at 7:46 p.m. with the Chair noting for the record that the member of the public did not call in or contact Planning or the Clerk during that time.

Deputy City Clerk Krause stated that she had the phone number and will try to locate the owner and get in contact with them.[1]

Chair Smith opened the floor to questions from the Commission.

City Planner Abboud facilitated a lengthy discussion and provided responses to the following concerns and questions expressed by the commission:

- Storm water plans for this property have satisfied Public Works requirements
    - drainage easements applied are in Public Works domain and they follow what is outlined in their rules
- concerns expressed by multiple members of the commission on the development of the steeper parcels and how those developments will impact the drainage downslope
- parking for the Reber Trail should be directed to Karen Hornaday Park which is a short walk from the trail head
    - Signage
- concerns that drainage boundaries are artificial and should follow natural drainage boundaries
    - maintenance of the drainage has been requested

[1] Clerk located the owner of the phone number and had their email from previous contact. No response was received from that member of the community to her inquiry.

    - it is not expected that nine additional residences will impact the natural drainage any more than what is actually going on currently
- what development is proposed for Lot A since the majority of the parcel is over 20% slope
    - Parcel A does not really lend itself for development and be feasible
    - Make that parcel a nature conservancy if possible
    - There is a spot in the NW corner that could be developed and possibly could be accessed from Alpine Way

HIGHLAND/MOVE TO ADOPT STAFF REPORT 21-69 AND RECOMMEND APPROVAL OF THE REVISED TERRA BELLA PRELIMINARY PLAT TO CREATE NINE RESIDENTIAL LOTS ALONG FAIRVIEW AVENUE AND ONE LARGE TRACT ACCESSED FROM ALPINE WAY WITH THE FOLLOWING COMMENTS:

1. DEDICATE A PUBLIC ACCESS EASEMENT OVER THE EXISTING CAMPGROUND ROAD WHERE IT ENCROACHES ON TRACT A
2. GRANT A PUBLIC ACCESS OR TRAIL EASEMENT FROM THE NORTHWEST CORNER OF KAREN HORNADAY PARK TO THE CITY PARCEL
3. CORRECT PLAT NOTE 6 TO SPECIFY WHICH LOTS HAVE ACCESS TO CITY WATER AND SEWER
4. DEDICATE A 60 FOOT DRAINAGE EASEMENT CENTERED ON THE EASTERN CREEK.
5. ACCEPT A 40 FOOT DRAINAGE EASEMENT ON THE WESTERN CREEK AS SHOWN ON THE PLAT (TO BE PROVIDED AS A LAYDOWN AT THE MEETING.)

A lengthy discussion ensued on approving the plat with development of the steeper parcels that will create drainage issues for the downslope properties. City Planner Abboud counseled the Commission on denial of the plat without the basis of standing regulations. Further discussion on postponement to have the applicant present or respond to their concerns ensued as well as points made on supporting their recommendation by the Borough and if the issue went to Court, and development versus subdivision is where these issues can be addressed.

VOTE. YES. BENTZ, CONLEY, BARNWELL, VENUTI, SMITH, CHIAPPONE
VOTE. NO. HIGHLAND.

Motion carried.

PENDING BUSINESS

A. Staff Report 21-70 Coastal Bluff Analysis

Chair Smith Introduced the item by reading of the title and invited City Planner Abboud to provide his report.

City Planner Abboud stated that this is a follow-up to the presentation and believed that Ms. Overbeck did a great job on what is in existing code. He facilitated discussions and responses to questions on the following:

- Recommended 40 foot setback requirement
  - Commented on the approval and construction of the cabin on the bluff side just at the entrance of the Homer
  - location of the 40 feet may not be adequate
    - increasing to 60 feet or more may not be advisable
- defining coastal bluff that would be relative to Homer
- when the coast line marches back those definitions should still be applicable
  - is 30 years the right term to plan for
- changing environmental conditions will policy and definitions still be effective
- review definitions to determine better ones that identify or describe coastal bluffs
- determine if a thirty year planning horizon the right term limit to consider
  - Environmental conditions
  - Infill on coastal bluffs
    - having policy and definitions that will address these conditions
- gradual erosion rate versus historic erosion rates
  - Hard data available to 60 years in the past
  - erosion versus evulsion regulations
  - description of the bluffs since they will move
- getting professional assistance
  - providing property at the end of West Hill is not described in the definitions
    - this may be a location where the bluff will let go all at once
    - the capacity to perform a buyout
    - application is 100 pages
    - rules and regulations pertaining to this
- satisfying the needs of the lender over the home owner and selecting a term that is in between
- the impact of the chemicals and toxins not to mention the human aspect when those house go into the ocean
- receding shoreline and the willingness of property owners in 20-30 years for implementing shoreline hardening and what that will look like for the community

NEW BUSINESS

A. Staff Report 21-71, Rezoning Portions of Rural Residential District to Urban Residential

Chair Smith introduced the item by reading of title and invited City Planner Abboud to provide his report.

City Planner Abboud provided a summary of Staff Report 21-71 for the Commission.
He facilitated discussion on the following:

- green infrastructure to mitigate drainage issues
- the inherent need of housing
- natural infrastructure is like fingers of green that are necessary for drainage connectivity trails or non-motorized access
- concerns on the wetlands
  - all area is wet, some of the larger lots they can have a discussion and some property owners may have to go to the Corps of Engineers

VENUTI/HIGHLAND MOVE TO RECOMMEND THE PLANNING DEPARTMENT COMMENCE THE PROCESS NECESSARY TO REZONING PORTIONS OF RURAL RESIDENTIAL TO URBAN RESIDENTIAL .

No discussion

VOTE. NON-OBJECTION UNANIMOUS CONSENT

Motion carried.

INFORMATIONAL MATERIALS

A. City Manager's Report for November 8, 2021 City Council Meeting
B. Kenai Peninsula Borough Notice of Decisions
C. Planning Commission Calendar

COMMENTS OF THE AUDIENCE

COMMENTS OF THE CITY STAFF

Deputy City Clerk Krause wished everyone and very Merry Christmas and Happy New Year.

City Planner Abboud commented on the challenges presented by the projects before them and the commission will definitely hear more in the future on the drainage.

COMMENTS OF THE COMMISSION

Commissioner Bentz had no further comments.

Commissioner Highland wished everyone Happy Holidays.

Commissioner Venuti commented that it was an interesting meeting, wished the Commission and staff a very Merry Christmas and announced the publication of Commissioner Chiappone book, A Hunger Crows, highly recommended and would make a great Christmas present.

Commissioner Chiappone commented on his experiences in Phoenix and was happy to be home again.

Commissioner Barnwell expressed his appreciation for Chair Smith and how he handled the meetings and inherent challenges this year; he liked the term fingers of green and is very supportive of trails; wishing everyone happy holidays, he will be spending the holidays in a far northern place.

Commissioner Conley commented on the interesting meeting and wished everyone Happy Holidays.

Chair Smith expressed his appreciation for everyone’s hard work and moral compass and believed it makes for a very pleasant environment. He expressed his appreciation for the efforts of the Clerk and Planning Staff. He wished everyone a wonderful month off.

Commissioner Highland commented exuberantly, “See everyone next year!”

ADJOURN

There being no further business before the Commission, the meeting was adjourned at 9:08 p.m. The next Regular Meeting is Wednesday, January 5, 2022 at 6:30 p.m. A worksession is scheduled for 5:30 p.m. All meetings scheduled to be held in the City Hall Cowles Council Chambers located at 491 E. Pioneer Avenue, Homer, Alaska and via Zoom webinar.

____
Renee Krause, MMC, Deputy City Clerk II

Approved:_______________________________________

City of Homer
www.cityofhomer-ak.gov
Planning
491 East Pioneer Avenue
Homer, Alaska 99603
Planning@ci.homer.ak.us
(p) 907-235-3106
(f) 907-235-3118

HOMER PLANNING COMMISSION

Approved CUP 2021-08 at the Meeting of December 1, 2021

Address: 3860 Kachemak Way
Legal Description: T 6S R 13W SEC 20 SEWARD MERIDIAN HM 0740847 GLACIER VIEW SUB NO 2 REPLAT BLOCKS 8 9 & 10 LOT 6 BLK 8

DECISION

Introduction

Reid Brewer and Jill Burnam representing the Kenai Peninsula College Kachemak Bay Campus (the "Applicants") applied to the Homer Planning Commission (the "Commission") for a Conditional Use Permit (CUP) under Homer City Code (HCC) 21.18.030(g), to construct a greenhouse in the Central Business Zoning District (CBD).

The applicants propose to construct a 30' x 48' high-tunnel greenhouse including a 10' x 10' accessory greenhouse.

The application was scheduled for a public hearing as required by Homer City Code 21.94 before the Commission on December 1, 2021. Notice of the public hearing was published in the local newspaper and sent to 26 property owners of 34 parcels within a 300-foot periphery of the site.

At the December 1, 2021 meeting of the Commission, the Commission made separate motions regarding possible conflicts of interest concerning Commissioner's Venuti, Chiappone, and Bentz and after finding that no conflicts existed they voted with unanimous consent of the seven Commissioners present, to approve CUP 21-08, with findings 1-10 and condition 1.

Evidence Presented

City Planner Abboud reviewed the staff report. The Applicants testified, Bob Shavelson testified in support of the proposal and written comments opposing the proposal were received from Frank Griswold. The City Planner Abboud provided lay downs to the Commission prior to the meeting that provided additional information and addressed the concerns of Mr. Griswold.

<u>Findings of Fact</u>

After careful review of the record, the Commission approves Condition Use Permit 2021-08 with findings 1-10 and 1 condition.

The criteria for granting a Conditional Use Permit is set forth in HCC 21.71.030 and 21.71.040.

a. The applicable code authorizes each proposed use and structure by conditional use permit in that zoning district.

> **Finding 1:** The applicable code authorizes greenhouse use and structure.

b. The proposed use(s) and structure(s) are compatible with the purpose of the zoning district in which the lot is located.

> **Finding 2:** The proposed use and structure are compatible with the purpose of the CBD.

c. The value of the adjoining property will not be negatively affected greater than that anticipated from other permitted or conditionally permitted uses in this district.

> **Finding 3:** A greenhouse is not expected to negatively impact the adjoining properties greater than other permitted or conditional uses.

d. The proposal is compatible with existing uses of surrounding land.

> **Finding 4:** The proposal is compatible with existing uses of surrounding land.

e. Public services and facilities are or will be, prior to occupancy, adequate to serve the proposed use and structure.

> **Finding 5:** Existing public, water, sewer, roads, and fire services are adequate to serve the greenhouse.

f. Considering harmony in scale, bulk, coverage and density, generation of traffic, the nature and intensity of the proposed use, and other relevant effects, the proposal will not cause undue harmful effect upon desirable neighborhood character.

> **Finding 6:** The Commission finds the proposal will not cause undue harmful effect upon desirable neighborhood character as described in the purpose statement of the district.

g. The proposal will not be unduly detrimental to the health, safety or welfare of the surrounding area or the city as a whole.

Finding 7: The proposal will not be unduly detrimental to the health, safety or welfare of the surrounding area or the city as a whole when all applicable standards are met as required by city code.

h. The proposal does or will comply with the applicable regulations and conditions specified in this title for such use.

Finding 8: The proposal will comply with applicable regulations and conditions specified in Title 21.

i. The proposal is not contrary to the applicable land use goals and objectives of the Comprehensive Plan.

Finding 9: The proposal *aligns Goal 1 and Objectives A and* D and no evidence has been found that it is contrary to the applicable land use goals and objects of the Comprehensive Plan.

j. The proposal will comply with all applicable provisions of the Community Design Manual (CDM).

Finding 10: Project complies with the applicable provisions of the CDM.

Condition 1: Outdoor lighting must be down lit per HCC 21.59.030 and the CDM.

HCC 21.71.040(b). b. In approving a conditional use, the Commission may impose such conditions on the use as may be deemed necessary to ensure the proposal does and will continue to satisfy the applicable review criteria. Such conditions may include, but are not limited to, one or more of the following:

1. Special yards and spaces: No specific conditions deemed necessary
2. Fences and walls: No specific conditions deemed necessary
3. Surfacing of parking areas: No specific conditions deemed necessary.
4. Street and road dedications and improvements: No specific conditions deemed necessary.
5. Control of points of vehicular ingress and egress: No specific conditions deemed necessary.
6. Special provisions on signs: No specific conditions deemed necessary.
7. Landscaping: No specific conditions deemed necessary.
8. Maintenance of the grounds, building, or structures: No specific conditions deemed necessary.

9. Control of noise, vibration, odors or other similar nuisances: No specific conditions deemed necessary.
10. Limitation of time for certain activities: No specific conditions deemed necessary.
11. A time period within which the proposed use shall be developed: No specific conditions deemed necessary.
12. A limit on total duration of use: No specific conditions deemed necessary.
13. More stringent dimensional requirements, such as lot area or dimensions, setbacks, and building height limitations. Dimensional requirements may be made more lenient by conditional use permit only when such relaxation is authorized by other provisions of the zoning code. Dimensional requirements may not be altered by conditional use permit when and to the extent other provisions of the zoning code expressly prohibit such alterations by conditional use permit.
14. Other conditions necessary to protect the interests of the community and surrounding area, or to protect the health, safety, or welfare of persons residing or working in the vicinity of the subject lot.

Conclusion: Based on the foregoing findings of fact and law, Conditional Use Permit 2021-08 is hereby approved, with Findings 1-10 and Condition 1.

Condition 1: Outdoor lighting must be down lit per HCC 21.59.030 and the CDM.

______________________	______________________________________
Date	Chair, Scott Smith
______________________	______________________________________
Date	City Planner, Rick Abboud, AICP

NOTICE OF APPEAL RIGHTS
Pursuant to Homer City Code, Chapter 21.93.060, any person with standing that is affected by this decision may appeal this decision to the Homer Board of Adjustment within thirty (15) days of the date of distribution indicated below. Any decision not appealed within that time shall be final. A notice of appeal shall be in writing, shall contain all the information required by Homer City Code, Section 21.93.080, and shall be filed with the Homer City Clerk, 491 East Pioneer Avenue, Homer, Alaska 99603-7645.

CERTIFICATION OF DISTRIBUTION

I certify that a copy of this Decision was mailed to the below listed recipients on ________________, 2022. A copy was also delivered to the City of Homer Planning Department and the Homer City Clerk on the same date.

_________________________ ____

Date Travis Brown, Planning Technician

KPC Kachemak Campus c/o Reid
Brewer/Jill Burnham
533 E Pioneer Ave
Homer AK 99603

Rob Dumouchel
City Manager
491 E Pioneer Avenue
Homer, AK 99603

Michael Gatti
Jermain, Dunnagan & Owens
3000 A Street, Suite 300
Anchorage, AK 99503

Planning
491 East Pioneer Avenue
Homer, Alaska 99603
Planning@ci.homer.ak.us
(p) 907-235-3106
(f) 907-235-3118

City of Homer

www.cityofhomer-ak.gov

Staff Report Pl 22-01

TO: Homer Planning Commission
FROM: Rick Abboud, City Planner
DATE: January 5, 2022
SUBJECT: City Planner's Report

City Council 12.13.21

Board of Adjustment (BOA)

a. Consideration of Motion for Leave to Supplement Points on Appeal to Address Planning Commission's Dismissal of Appeal by Frank Griswold, Appellant
Memorandum 21-201 from City Clerk as backup

b. Recommendation by the Planning Commission to Dismiss the Appeal of Conditional Use Permit (CUP) 20-15 for the Reconstruction of a Restaurant Building at 106 W. Bunnell Avenue, Homer, Alaska based on the Applicant's Withdrawal of their CUP Application.
Memorandum 21-202 from City Clerk as backup

REFERRED matters to a hearing officer with discussion.

Regular meeting

i. Ordinance 21-72, An Ordinance of the City Council of Homer, Alaska Appropriating $3,400 from the Land Fund to Acquire Tax Foreclosed Property from the Kenai Peninsula Borough and Retaining the Property for the Public Purpose of Determining the Special Assessment Liens and Creating a Clear Title to the Property, and Authorizing the City Manager to Negotiate and Execute the Appropriate Documents. City Manager. Recommended dates Introduction December 13, 2021 Public Hearing and Second Reading January 10, 2022.
Memorandum 21-209 from Deputy City Planner as backup

Kenai Homelessness Coalition

I did record a presentation that was presented at the MAPP Community Meeting on December 17th. If the Commission has interest, I can share the 3 minute video. We have come up with a new Draft Strategic Plan. You can sign up for updates on the coalition at https://www.kenaipeninsulahomeless.org/.

Permitting software

We continue to work on modifying and testing the software with hope that it will be ready for the next building season.

Hazard Mitigation Plan Update

Have not interacted much with the contractor during the holiday season, I look forward to picking things up in the New Year.

Rural Residential Rezone Update: a rough project outline

1. Make information available (January)

Over the next few weeks, staff will create content for a flier and the city website on the rezone. This content will include:

~ The rezone process
~Why now is the time to change the land use rules
~Analyze current land uses and non-conformities
~Explain what land use rights would change for property owners

2. Work with community partners (February)

After we have this information together, we'd like to work with community partners such as the realtor and developer community on increasing community awareness of the need for change. This could include public presentations if appropriate.

3. Schedule public outreach (conduct in mid-late February)

Prior to scheduling a public hearing, we'd like to have some method for people to meet with a planner and possibly a commissioner. Planning is working on another project, and we're trying a library fireplace area open house/brown bag type interaction. We'll see how that goes and modify for this rezone project.

4. Conduct public hearing and forward recommendations to Council (March?)

Economic Development Advisory Commission

At their December meeting, the EDC made some recommendations on the Land Allocation Plan, and reviewed the latest draft of the Wayfinding and Streetscape plan. Final review will be January 11th, with City Council review tentatively planned for January 42th.

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Planning
491 East Pioneer Avenue
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Planning@ci.homer.ak.us
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(f) 907-235-3118

Staff Report PL 22-03

TO:	Homer Planning Commission
FROM:	Rick Abboud, AICP, City Planner
DATE:	January 5, 2022
SUBJECT:	Consideration of bluff setbacks

Introduction We heard from Jaci Overbeck at our last meeting concerning bluff stability.

Analysis Now that we have the study it is time to consider actions. One item that I plan to address is creating a definition of Coastal Bluff that works for Homer. I have talked to the Public Works Director to help find the appropriate professional among the engineering firms that the City has under contract.

Next is to consider the amount of regulation that is appropriate to apply. I propose to start the conversation with the consideration of having a set 40' setback from the bluff starting on the east side of town and then transition to a 60' setback from the bluff starting south of Saltwater Drive. Due to still having technical issues with our GIS system, I plan to screen share the Borough Parcel Viewer to provide the Commission with a view and sense of dimensions of the lots that are found along the coast from Saltwater Drive to the west. Using the maps attached to the study, you can see the increased erosion rates and decreased bluff stability from below Saltwater Drive and to the west.

Third is to consider the allowance for a land owner to develop closer than the setback with the guidance of an engineer. This item is intertwined with the consideration of the amount of regulation that is decided upon. Generally, our numbers from the study are based off of the consideration of a 30 year time frame. This is where we may make an allowance for an erosion mitigation device or methods.

Based on the discussion I will draft up some draft language for technical review and I will seek out answers to any technical question that we may have about the consideration of regulations. I do wish to make regulations that will work well with established building regulations and won't interfere with the possibility of Homer adopting a building code.

Staff Recommendation
Have a discussion and make recommendations regarding general regulations and standards that will be considered for adoption and/or further study

Attachments

Draft Coastal Bluff Stability Analysis
Draft Homer Map 1 Shoreline Change Analysis
Draft Homer Map 2 Coastal Bluff Stability
Final Latter Homer Bluff Considerations DGGS

Report of Investigation 202X-X

COASTAL BLUFF STABILITY ASSESSMENT FOR HOMER, ALASKA

Richard M. Buzard and Jacquelyn R. Overbeck

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Cover. Coastal bluff by the Sterling Highway, Homer, Alaska.

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State of Alaska
Department of Natural Resources
Division of Geological & Geophysical Surveys

STATE OF ALASKA
Mike Dunleavy, Governor

DEPARTMENT OF NATURAL RESOURCES
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DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
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Alaska Division of Geological & Geophysical Surveys
3354 College Rd., Fairbanks, Alaska 99709-3707
Phone: (907) 451-5010 Fax (907) 451-5050
dggspubs@alaska.gov | dggs.alaska.gov

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COASTAL BLUFF STABILITY ASSESSMENT FOR HOMER, ALASKA

Richard M. Buzard[1] and Jacquelyn R. Overbeck[1]

Abstract

We evaluate the stability of coastal bluffs in Homer, Alaska, using aerial imagery and modern elevation data. We produce maps of historical shoreline change and an alongshore bluff instability hazard score. Shoreline change is calculated by comparing the bluff top and toe positions in historical and modern orthorectified aerial imagery. Since 1951, Homer's coastal bluffs have eroded at an average rate of -1.0 ft/yr (-0.29 m/yr). Key indicators of bluff instability are historical shoreline change rates, bluff slope and height, vegetation, existing erosion protection structures, and water drainage. Most of the Homer coastline has a low to medium bluff instability hazard score. These coastal hazard products can guide decisions to reduce risk.

INTRODUCTION

Coastal bluff failure poses a hazard to the City of Homer (Baird and Pegau, 2011; Kenai Peninsula Borough, 2019; Salisbury, 2021). To assess this hazard, the Alaska Division of Geological & Geophysical Surveys (DGGS) created this report, associated maps, and GIS layers and data tables. This project is funded by the Federal Emergency Management Agency (FEMA) Cooperating Technical Partners (CTP) Program. This report is suitable to guide potential future updates to the FEMA Multi-Hazard Risk MAP analysis for Homer, should such an analysis be launched, and provide critical technical information for the next update of the Homer Local Hazard Mitigation Plan and future development plans or policies.

BACKGROUND

Geologic and Coastal Setting

The City of Homer, near the southwestern end of the Kenai Peninsula, is characterized by a prominent spit that extends into Kachemak Bay referred to locally as "Homer Spit" (Kenai Peninsula Borough, 2019; fig. 1). West of Homer Spit, bluffs near the coast rise to 800 ft (240 m) above mean sea level (MSL). The predominate rock type (the Kenai Group) comprises layers of poorly consolidated sands, silts, and clays, with intergraded beds of medium- to low-grade coal (Barnes and Cobb, 1959). Coal beds dip less than 10 degrees away from the shoreline and act as aquicludes, resulting in suspended water tables. The bluffs are partially vegetated with shrubs and trees. Exposed bluffs display visible groundwater seeps at coal beds. Properties at the top of the bluff overlook Kachemak Bay and Cook Inlet, with unimpeded views of the Kenai Mountains to the south and the volcanic Aleutian Range to the west. Coastal bluffs east of the spit are typically below 100 ft (30 m) above MSL and have numerous drainage channels. Residences and other infrastructure are built on the hilltops from Diamond Creek to past East End Road.

The majority of the Homer coastline consists of gently sloping (1 to 15 degrees) beaches of sand, pebbles, and cobbles (Kenai Peninsula Borough, 2021). Homer has semidiurnal tides with a great diurnal range of 18.4 ft (5.62 m; National Oceanic and Atmospheric Administration Center for Operational Oceanographic Products and Services [NOAA CO-OPS], 2020a; table 1). The local tidal datum was established in 2019, but the nearby Seldovia tide gage has been in operation since 1975 and has a similar datum (NOAA CO-OPS, 2020b; table 1). The highest water level recorded

[1]Alaska Division of Geological & Geophysical Surveys, 3354 College Rd., Fairbanks, Alaska 99709-3707.

in Seldovia reached 25.3 ft (7.72 m) above mean lower low water (MLLW) on November 5, 2002. Since 1964, relative sea level has fallen 1.8 ft (0.56 m; NOAA CO-OPS, 2020b).

Understanding Bluffs, Coastal Bluffs, and Erosion Rates

Bluffs are landforms that are steepened by erosion processes including wind, water, weathering,

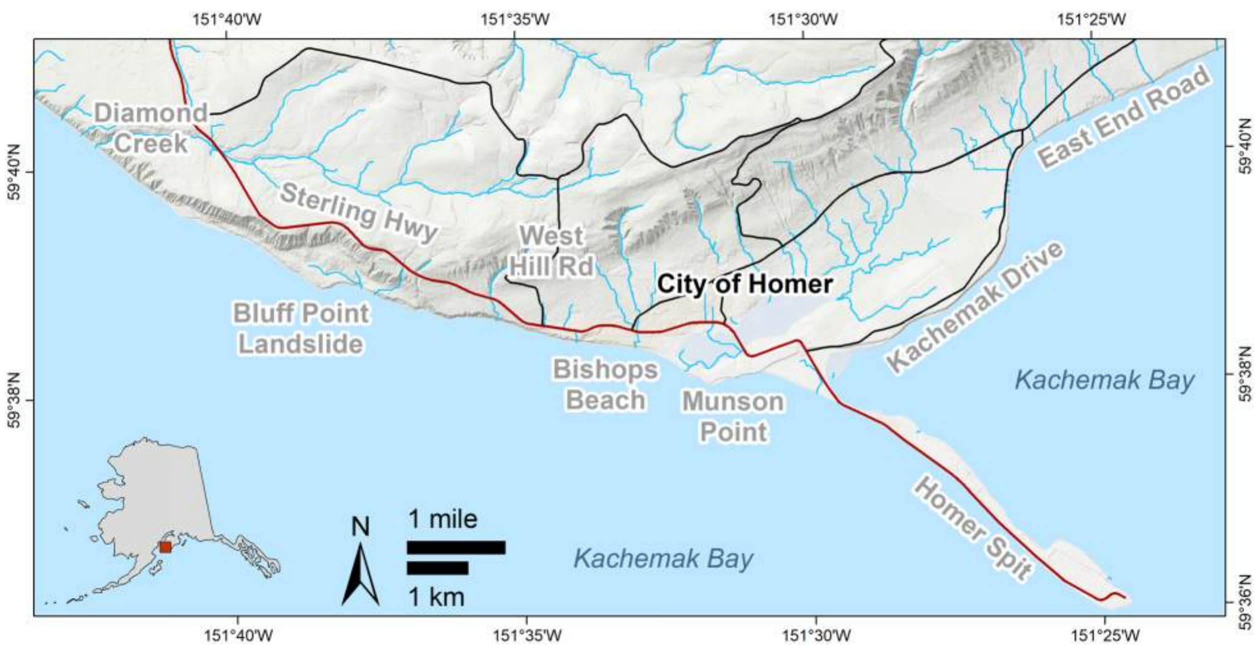

Figure 1. The area of interest for coastal bluff stability analysis includes the City of Homer and surrounding area. The hill-shade elevation model shown was collected by Salisbury and others (2021).

Table 1. Tidal datums for Homer, Alaska (Coal Point; station 9455558), and nearby Seldovia (station 9455500).

Datum	Datum abbreviation	Homer ft (m) above MLLW	Seldovia ft (m) above MLLW
Mean Higher-High Water	MHHW	18.432 (5.618)	18.041 (5.499)
Mean High Water	MHW	17.592 (5.362)	17.231 (5.252)
Mean Tide Level	MTL	9.626 (2.934)	9.462 (2.884)
Mean Sea Level	MSL	9.734 (2.967)	9.554 (2.912)
Mean Diurnal Tide Level	DTL	9.216 (2.809)	9.091 (2.771)
Mean Low Water	MLW	1.657 (0.505)	1.696 (0.517)
Mean Lower-Low Water	MLLW	0.000 (0.000)	0.000 (0.000)
North American Vertical Datum of 1988	NAVD88	5.095 (1.553)	5.161 (1.573)
Great Diurnal Range	GT	18.432 (5.618)	17.231 (7.072)
Mean Range of Tide	MN	15.935 (4.857)	7.766 (6.308)
Highest Astronomical Tide	HAT	N/A	23.110 (7.042)

and tectonic motion. Bluffs and steep slopes are often the focus for hazard assessments because they can gradually or rapidly erode and have the potential for massive failure (Highland and Bobrowsky, 2008). Several factors can contribute to destabilize a slope, including earthquakes, undercutting, increased load (such as from groundwater or surface water flooding), stratigraphy and aquicludes, or weak vegetation (Hampton and Griggs, 2004; Highland and Bobrowsky, 2008; Kokutse and others, 2016).

There is not a quantitative definition for a coastal bluff. "Coastal bluff" is a general term to describe a steep slope that is eroded by coastal processes like tides, waves, and currents (Hampton and Griggs, 2004). Coastal bluffs (and lake and riverine bluffs) can erode faster than inland bluffs due to frequent undercutting from water bodies. Coastal areas are also natural end points for watershed drainage, so ground and surface water accumulation may be higher than in inland areas (Heath, 1983).

Erosion of composite coastal bluffs (containing more than one type of material) commonly occurs in a two-step cycle of undercutting and steepening (toe erosion) via wave action, then mass movement (top erosion; Maine Geological Survey, 2015; fig. 2). The typical speed of this paired failure can dictate the proper method to assess a hazard: if there is annual to sub-decadal erosion, the hazard is described using long-term linear erosion rates (Himmelstoss and others, 2018). If erosion occurs rarely, such as on centennial or longer timescales, then it becomes more appropriate to describe hazards using probability or categorical hazard levels (such as Hapke and Plant, 2010). This is especially the case for extreme mass movements like deep-seated landslides (Varnes, 1978; Salisbury, 2021).

Coastal Bluff Erosion and Stability in Homer

The majority of Homer's coastal boundary comprises bluffs. Using sets of aerial images from 1951 to 2003, Baird and Pegau (2011) calculate average erosion rates of 2.6 ft/yr (0.8 m/yr) west of the spit and 2.0 ft/yr (0.6 m/yr) east. The period of greatest erosion occurred after March 27, 1964, when the magnitude 9.2 Good Friday earthquake caused an average 3.5 ft (1.1 m) of subsidence in the region (Stanley, 1968). High tide mostly submerged the spit, and waves reached the toes of many coastal bluffs (Gronewald and Duncan, 1965). Due to the unprecedented wave action, bluffs eroded as much as 8 ft (2.4 m) back in just 6 months (Stanley, 1968). Other than this major event, bluff erosion in Homer has been a slow process relative to many Alaska communities (Overbeck and others, 2020). Still, several structures are near eroding bluffs and have potential to be exposed to erosion in the coming decades.

METHODS

This analysis focuses on two goals: (1) calculate historical bluff erosion, and (2) estimate current bluff stability. Historical bluff erosion is computed using orthorectified aerial imagery and the Digital Shoreline Analysis System (DSAS; Himmelstoss and others, 2018). Bluff stability is estimated by combining variables that factor into instability: height, slope angle, vegetation, drainage, erosion history, and shoreline armoring.

Lidar-derived elevation models are critical for this analysis. In 2019, DGGS collected lidar over Homer and created a bare earth digital terrain model (DTM) and digital surface model (DSM) with a ground sampling distance (GSD) of 1.6 ft (0.5 m; Salisbury and others, 2021; fig. 1). DGGS also collected oblique alongshore imagery. In the same year, the U.S. Army Corps of Engineers (USACE) collected topobathymetric lidar from the Homer spit northwest to Diamond Creek, creating a DTM with 3.3-ft (1.0 m) GSD (OCM Partners, 2021). USACE also created two orthomosaics (at high tide and low tide) with 2-inch (0.05 m) GSD.

Identifying Coastal Bluffs and Study Extent

The extent of the DGGS lidar is used as the study area boundary (fig. 1). All slopes with toes reaching a coastal area are examined for this study. We extract the Mean High Water (MHW) line

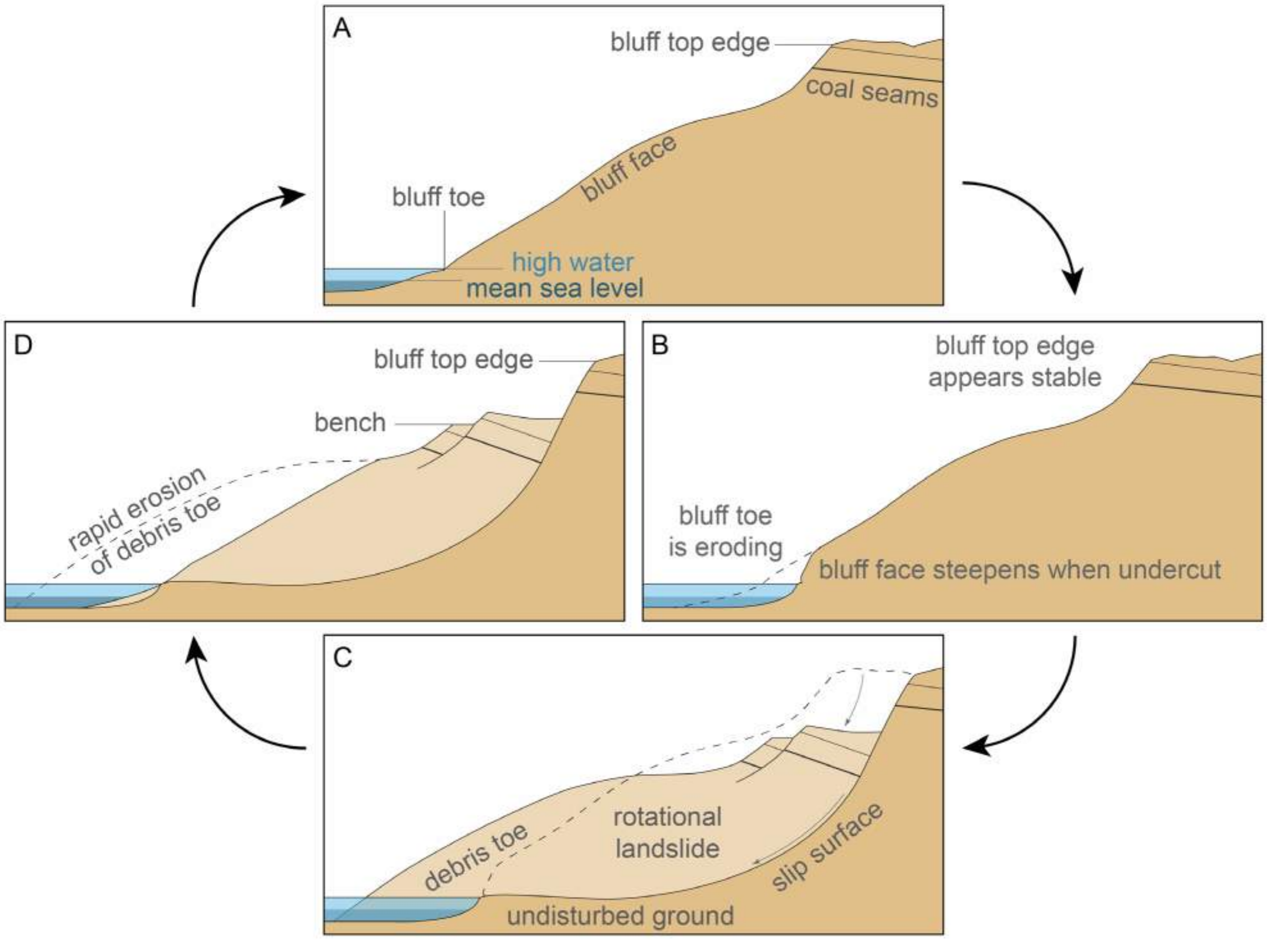

Figure 2. This schematic expands the two-step (top and toe) coastal bluff erosion cycle into four phases. **A.** The bluff is being eroded and undercut at the toe by storm-driven waves. **B.** Although the bluff top edge remains stable, the angle between the toe and top is steepening, leading to unstable conditions. **C.** A landslide (rotational slump) occurs and debris flows toward the ocean, lowering the blocks at the former bluff top edge along the slip surface. **D.** The debris in the intertidal and storm tide zone is eroded relatively quickly. Erosion slows because the remaining bluff is outside the intertidal zone. The new bluff face is at a shallower angle than before, and the cycle renews.

(12.50 ft [3.809 m] NAVD88) using the DGGS DTM and smooth it to contour the coastline. Along this line, we delineate the 2019 bluff toe and top using a combination of digital elevation models (DEM), orthomosaics, and oblique aerial imagery. The toe is generally defined as the seaward extent of a slope where a break to relatively flat land occurs (often a sediment transition), land continues down to the MHW line, and along that transect there exists no topography higher than the bluff toe (fig. 3). The bluff top edge is identified as the seaward extent of relatively flat land where a slope break or scarp occurs. For complex slopes with benches, the bluff top edge is landward of the benches (fig. 3). These manually delineated bluff features define the envelope where bluff face characteristics are measured.

Historical Shoreline Change Analysis

Traditionally, shoreline change is calculated by matching two aerial images taken at different times, delineating shorelines, and measuring the distance between them (Baird and Pegau, 2011; Overbeck and others, 2020). The coastal bluff erosion history in Homer has been calculated many times using this method, as recently as 2016 (City of Homer, 2021). We received the shorelines and imagery from 1951 to 2003 that were used and found two major

Figure 3. Oblique image of a coastal bluff with delineated toe (blue) and top edge (maroon). The right side shows how delineations are made for a complex section. The bluff has a bench (black dashed lines), so the delineated top edge is landward of this bench. In this example, there is a building on the bench that is seaward of the bluff top edge (far right side).

components that have caused significant errors: (1) some of the image sets are not orthorectified, and (2) delineations do not consistently follow the same features through time in all areas (switching between bluff top and toe). The affected images and shorelines are for the years 1951, 1961, 1968, 1975, and 1996. The orthorectified 2003 image is adequate. For these reasons, we source raw aerial imagery to orthorectify, delineate shorelines, and compute shoreline change using the DSAS tool (Himmelstoss and others, 2018). The orthoimagery dates are 1951/1952, 1964, 1985, 2003, 2011, and 2019 (table 2). The time steps between image collections are 12 or 13, 21, 18, 8, and 8 years, respectively.

Image Corrections

Orthometric corrections are vital for evaluating erosion of tall, steep bluffs. Buzard (2021) explains the historical aerial image orthorectification process. Historical aerial photos are initially collected with a low distortion frame lens pointed nadir. A simple method to display these images in a map is to shift and scale them to match features on the landscape. This method, called "georeferencing" or "georectification," may appear adequate from a distance, but the perspective from the image center causes offsets at finer scales (termed "relief displacement;" Crowell and others, 1991). Offsets increase near high-angle features, like bluffs, and

Table 2. Imagery used for shoreline delineations include color (RGB), color-infrared (CIR), and black and white (BW).

Date	Type	Orthomosaic pixel size (m)	Source
2019 JUL 17	RGB	0.05	OCM Partners (2021)
2011	RGB	0.75	GeoNorth BDL
2003	RGB	1.00	Baird and Pegau (2011)
1985 AUG 27	CIR	1.88	Alaska High Altitude Program
1964 APR 14	BW	0.55	Unknown
1951/1952	BW	1.14	U.S. Air Force

cause significant inaccuracy to bluff delineations. To allow for accurate measurements across the horizontal geographic plane on the image, the image must be orthorectified. Orthorectification is the process by which the perspective of an entire image is corrected to nadir: anywhere one looks in the orthorectified aerial image will appear as if looking straight down. Orthorectification can be accomplished using a DEM acquired near the same time or performing photogrammetric or structure-from-motion techniques on a collection of overlapping images. An orthorectified product is called an orthoimage or orthomosaic.

Shoreline Change Rate Calculations

The USGS created the DSAS tool to compute shoreline change by casting virtual transects perpendicular to an alongshore baseline and measuring the distance between shorelines on each transect (Himmelstoss and others, 2018). We space transects 16.4 ft (5 m) apart and calculate shoreline change rates separately for the bluff top edge and bluff toe. The average of these rates is used for the final change rate. This method summarizes total bluff erosion and is less susceptible to episodic events related to the bluff erosion cycle (Buzard and others, 2020). Where at least three shorelines are present, we calculate the weighted linear regression rate of change (WLR) and associated 90 percent confidence interval (WCI90). Otherwise, the end point rate of change (EPR) is calculated. These metrics describe the long-term erosion trend using an annualized linear rate of change in distance per year.

Shoreline Delineation

We delineate the bluff top and toe in each orthoimage. Slow and episodic bluff erosion complicates shoreline erosion calculations that rely on only one feature. For example, if the bluff toe eroded between two images and a study only calculates bluff top change, the study will incorrectly identify that bluff as stable when it is steepening and getting closer to a mass movement. Likewise, if a mass movement did occur over the study period, the bluff top edge may suggest far faster rates of erosion than will be seen in the future. Tracking the top and toe can determine what stage of the erosion cycle a bluff is in and improve understanding of current erosion hazards.

Bluff toes are generally clearly identifiable as the seaward extent of a bare or vegetated slope. Bluff tops are more subjective because some areas have partial slides or benches, leading to multiple edges. The chosen bluff top edge must represent the seaward extent of land that is neither part of a previous landslide nor a bench on a slope (fig. 3). We view the 2019 lidar to ensure the correct bluff top edge is chosen, but only use imagery for these delineations to maintain consistency. Interpretations of historical aerial imagery are aided by the DSMs produced by the orthorectification process. Where vegetation made visual interpretation challenging, the slope is visualized to identify steep slope breaks (fig. 4). This method helps to

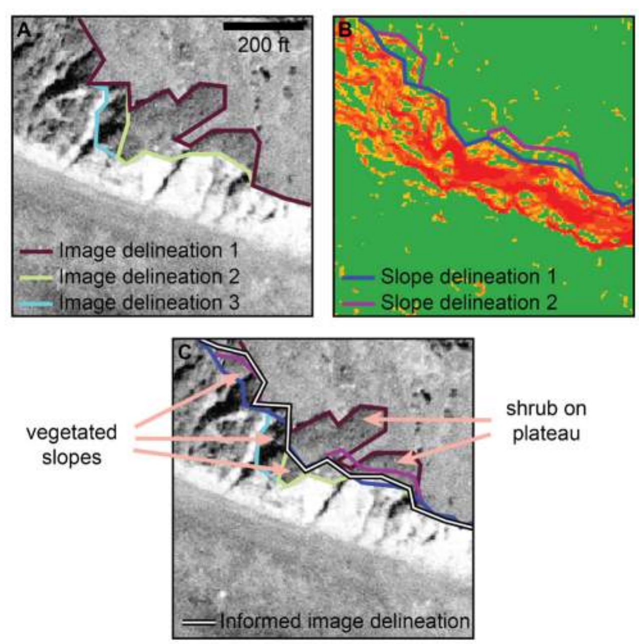

Figure 4. A. The orthoimage in 1951 has vegetation growing down the slope, making the bluff top edge challenging to identify. The three colored lines are separate interpretations of where the bluff top edge could be. **B.** The steep slope map is derived from the digital surface model created during the orthorectification process. The bluff top edge and toe are close to where steep slope angles (red) meet shallow slopes (green). **C.** A new delineation is made on the orthoimage, assisted by the interpretations from the slope map.

maintain consistent tracking of the bluff top edge and toe, especially around benches and complex bluffs. The shoreline delineations are still made using the orthoimage.

This study has one digitizer. Digitizing precision uncertainty represents the consistency with which the digitizer can interpret and trace a feature in an image. To compute digitizing precision, sections of the bluff toe totaling 3.3 miles (5.3 km) in length are delineated three times on the BDL. We cast transects at 16.4-ft (5 m) spacing perpendicular to these lines to measure the distance between them. Digitizing precision (U_d) is calculated by taking the mean of the maximum distance between the three lines (L_1, L_2, L_3) on each transect (equation 1).

Equation 1:

$$U_d = \sum_{i=1}^{n} \frac{max\left(|L_{1i} - L_{2i}|, |L_{1i} - L_{3i}|, |L_{2i} - L_{3i}|\right)}{n}$$

U_d = digitizer uncertainty

L_n = distance to baseline

The total uncertainty (U_t; equation 2) represents the positional accuracy of the delineated shorelines relative to real-world coordinates (table 3). Total uncertainty is high because all images are referenced to the BDL that has a total horizontal uncertainty of 6.3 ft (1.92 m). The total uncertainty relative to the BDL (U_r; equation 3) represents the positional accuracy of delineated shorelines relative to each other (table 4). This is a more appropriate metric for estimating uncertainty of delineations on imagery that are referenced relative to the same image.

Equation 2:

$$U_t = \sqrt{U_o^2 + U_p^2 + U_d^2}$$

Equation 3:

$$U_r = \sqrt{U_i^2 + U_p^2 + U_d^2}$$

U_t = total uncertainty of shoreline delineation

U_o = total uncertainty of image

U_r = relative uncertainty of shoreline delineation

U_t = relative uncertainty of image

U_p = pixel size

Coastal Bluff Stability Assessment

Long-term, annualized erosion rates may not adequately identify potential instability. We assess current coastal bluff stability by identifying combinations of variables that contribute to instability (similar to Maine Geological Survey, 2015). The chosen variables are erosion rate, slope angle, vegetation, water drainage, and erosion mitigation (fig. 5). (See "Study Limitations" for a discussion about these and other possible variables.) Each

Table 3. Total uncertainty of image orthorectification (U_o) and shoreline delineation (U_t). All values are in meters.

Year	Total uncertainty	Pixel size	Uncertainty to control	Uncertainty to BDL	Total image uncertainty	Digitizer uncertainty
	U_t	U_p	$U_{o,source}$	U_i	U_o	U_d
2019	**1.06**	0.05	0.07	1.92	0.07	1.06
2011	**2.32**	0.75	1.92	-	1.92	1.06
2003	**3.61**	1.00	1.92	2.69	3.30	1.06
1985	**4.20**	1.88	1.92	3.05	3.60	1.06
1964	**2.43**	0.55	1.92	0.89	2.12	1.06
1951/1952	**3.65**	1.14	1.92	2.68	3.30	1.06

Table 4. Relative total uncertainty of shoreline delineation (U_r). All values are in meters.

Year	Total uncertainty	Pixel size	Uncertainty to BDL	Digitizer uncertainty
	U_t	U_p	U_i	U_d
2019	**2.19**	0.05	1.92	1.06
2011	**1.30**	0.75	-	1.06
2003	**3.06**	1.00	2.69	1.06
1985	**3.74**	1.88	3.05	1.06
1964	**1.49**	0.55	0.89	1.06
1951/1952	**3.10**	1.14	2.68	1.06

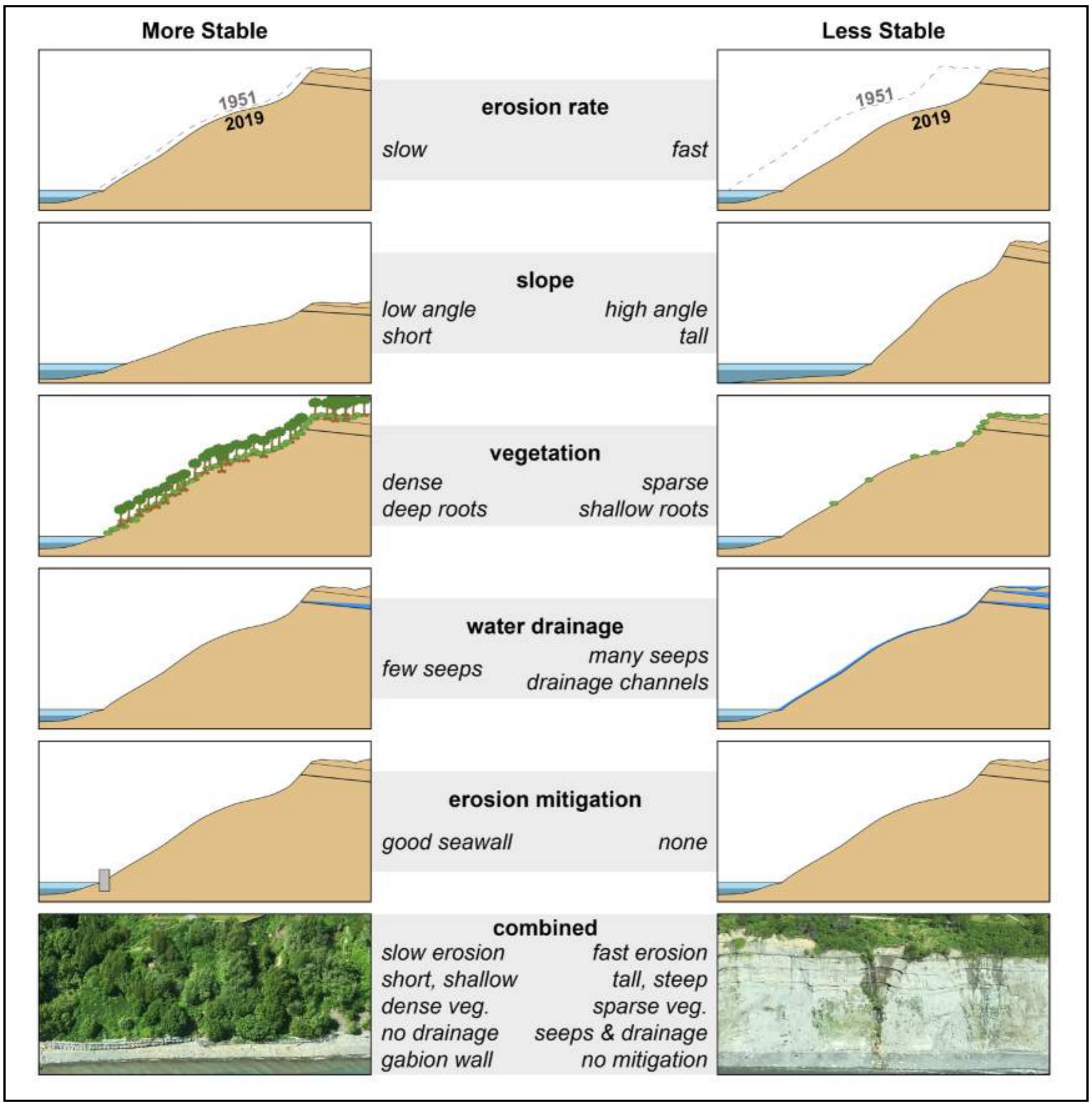

Figure 5. Conceptual diagram of bluff instability variables. The combination of variables determines the overall stability.

variable is evaluated using four instability categories: very low, low, medium, and high. The categories are combined for a total instability hazard score (fig. 5). Coastal slopes are manually identified using the delineations of the bluff top and toe from the DGGS DTM. Transects are cast perpendicular to the bluff toe at 16.4-ft (5-m) spacing along 14 miles (22 km) of shoreline. Variables are computed along each transect.

Instability Due to Erosion Rate

Coastal zone management often uses linear regression erosion rates to define coastal setback zones and erosion hazard areas (Crowell and others, 2018; Perello, 2019). We multiply the average erosion rate of the bluff top and toe by 50 years to symbolize possible future erosion distance based on observed change over the past 60 to 70 years. Fifty years is chosen because structures are commonly designed with 50-year design life (Val and others, 2019). Instability categories are based on coastal setback values of 15 and 40 ft (4.6 and 12 m; table 5). These setback distances are commonly used by homeowners or builders in Homer in compliance with existing city zoning. For example, if erosion rates suggest between 15 and 40 ft (4.6 and 12 m) of erosion will occur in the next 50 years, the location has a medium instability score in the erosion category.

Instability Due to Slope and Height

Greater slope angle increases the probability of a mass movement occurring (Highland and Bobrowsky, 2008; Kokutse and others, 2016). We use factor of safety (FOS) results to determine safe and unsafe slope angles. Salisbury (2021) calculates that, in Homer, silty sand slopes below 27 degrees tend to have an FOS greater than 1.5, meaning they have lower likelihood of failure. Kokutse and others (2016) find a similar slope angle threshold of 27 degrees for sand, silt, and clay slopes, like Homer's coastal bluffs. Rotational landslides are common modes of mass movement in Homer (Reger, 1979; Berg, 2009), so we use this as the failure type. We assume any slope greater than 27 degrees has some likelihood of failure, and if it fails in a rotational landslide the post-movement slope will be 27 degrees (51 percent slope) hinging roughly about the toe (Bishop, 1955; Chowdhury and Xu, 1994; Jiang and others, 2017; fig. 6). On each profile, we calculate the slope percent from toe to top (B_s) and subtract 51 percent slope to determine the angle change (equation 4).

In the context of hazards to infrastructure on the bluff, the greatest concern is the inland distance that the mass movement will reach. The erosion distance (B_e) is proportional to the height (B_h) and the change in slope (Bishop, 1955; fig. 6,

Table 5. Instability category thresholds for 50 years of bluff erosion (E_{50}) based on historical erosion rates.

Instability category	Erosion distance (ft)
High	$E_{50} > 40$
Medium	$15 < E_{50} \leq 40$
Low	$0 < E_{50} \leq 15$
Very low	$E_{50} = 0$

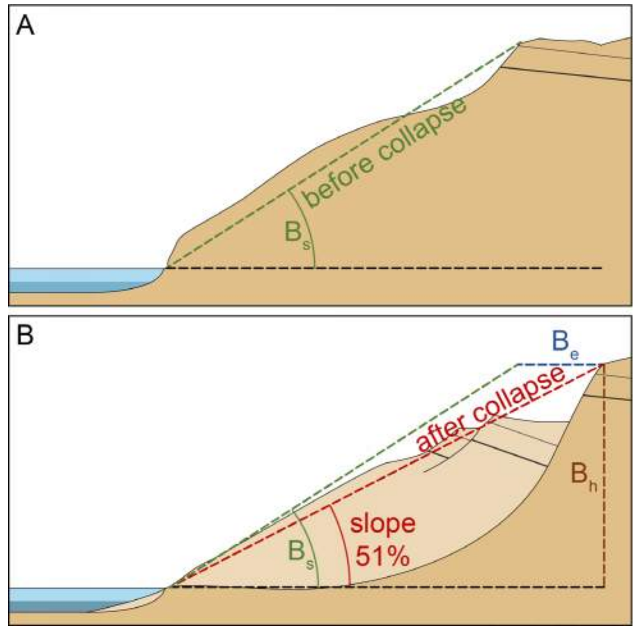

Figure 6. A. The current slope angle between the top and toe (B_s) is reduced after a mass movement **B.** Bluff erosion (B_e) is a function of height (B_h) and change from B_s to 51 slope percent. Taller and steeper bluffs experience greater horizontal erosion.

equation 4). Instability categories are based on coastal setback values of 15 and 40 ft (4.6 and 12 m; table 6).

Equation 4:

$$B_e = B_b \times (B_s - 0.51)$$

B_e = horizontal bluff erosion due to slope failure

B_b = bluff height

B_s = average bluff slope percent (as a fraction)

Table 6. Instability category thresholds for bluff erosion (B_e) due to slope failure.

Instability category	Erosion distance (ft)
High	$B_e > 40$
Medium	$15 < B_e \leq 40$
Low	$0 < B_e \leq 15$
Very low	$B_e = 0$

Instability Due to Lack of Vegetation

Exposed slopes are often used as a proxy for instability because they can imply recent failure and/or frequent erosion (Salisbury, 2021). Deforestation is commonly a contributing factor to landslides (Highland and Bobrowsky, 2008). Vegetation improves slope stability primarily through soil cohesion via root tensile strength and reduced soil moisture via evapotranspiration and reduced infiltration (Wu, 1984). Vegetation also reduces erosion from wind and surface runoff. Kokutse and others (2016) show that the FOS of non-reinforced slopes is increased by up to 19 percent by trees, 14 percent by shrubs, and 7 percent by grasses. This increase is due to the root matrix increasing soil cohesion. However, heavy precipitation can increase sediment pore pressure, reduce the tensile strength of roots, and increase surface load, leading to shallow landslides (Hales and Miniat, 2017). The increased surcharge from trees can improve stability, except on very steep slopes (Nilaweera and Nutalaya, 1999; Kokutse and others, 2016). Despite these scenarios, increased vegetation is considered a net-positive for slope stability (Wu, 1984).

The root properties influencing soil cohesion are roughly proportional to vegetation height (Kokutse and others, 2016). We quantify the instability due to lack of vegetation using a function of vegetation height and coverage, similar to Maine Geological Survey (2015; table 7). On slope profiles, we calculate vegetation height as the difference between the DGGS DSM and DTM. We use mean vegetation height on each profile to generalize the type (grass, shrub, and tree). In Alaska, vegetation is classified as a small tree when it reaches 12 ft (4 m) in height (among other variables related to canopy and trunk width; Little, 1953). However, willow—a large shrub common to Homer (Ager, 1998)—is considered a tree due to its size and likeness to trees (Viereck and Little, 1972). Therefore, we consider vegetation height exceeding 5 ft (1.5 m) to be trees and large shrubs (Viereck and Little, 1972). Per Viereck and Little (1972), we classify heights below 2 ft (0.6 m) as grasses and small shrubs. While the average vegetation height calculation includes the entire profile, we had to limit percent coverage to vegetation at or above 3.3 ft (1.0 m; medium shrub) to reduce overestimations due to DEM noise.

Table 7. Instability category thresholds for vegetation type and coverage. Ties between categories average, rounding to the less stable category. For examples, a slope with trees (low) and 25 to 49 percent coverage (medium) is in the medium category. A slope with shrubs (medium) and greater than 75 percent coverage (very low) is in the low category.

Instability category	Vegetation type and coverage
High	Grass or less than 25 percent coverage
Medium	Shrubs or 25 to 49 percent coverage
Low	Trees or 50 to 75 percent coverage
Very low	Trees and greater than 75 percent coverage

Instability Due to Lack of Erosion Protection

Existing erosion protection structures can reduce erosion rates and prevent undercutting of coastal bluffs. Complex engineered structures such as seawalls and gabions tend to prevent erosion better than simple structures like riprap or piled debris (USACE, 2004; Rella and Miller, 2012). During the 2019 lidar survey, DGGS also collected alongshore oblique aerial imagery. We orthorectify and roughly georeference these data to create high-resolution 3D models in Agisoft Metashape. Using these models and other imagery, we delineate lengths of shoreline armoring and give a qualitative score of their current condition (good, fair, or poor). Instability is categorized as a function of armoring type and current condition (table 8). Erosion protection structures can have significant detrimental effects, especially to natural sediment dynamics and beach nourishment (Ruggiero, 2010). We include existing erosion protection because it is an important factor for assessing current instability. We do not express or imply whether existing or new structures are appropriate solutions for bluff instability hazards.

Table 8. Instability category thresholds for erosion protection.

Instability category	Erosion protection condition and type
High	None, or poor riprap
Medium	Poor seawall/gabion, fair riprap
Low	Fair seawall/gabion, good riprap
Very low	Good seawall/gabion

Instability Due to Drainage

Precipitation, groundwater, and streams lead to slope instability. Surface runoff causes erosion, confining layers cause suspended water tables, and increased pore fluid pressure reduces soil cohesion (Harp and others, 2006; Bukojemsky and Scheer, 2007). The water table generally contours surface topography, and lakes and streams are surface

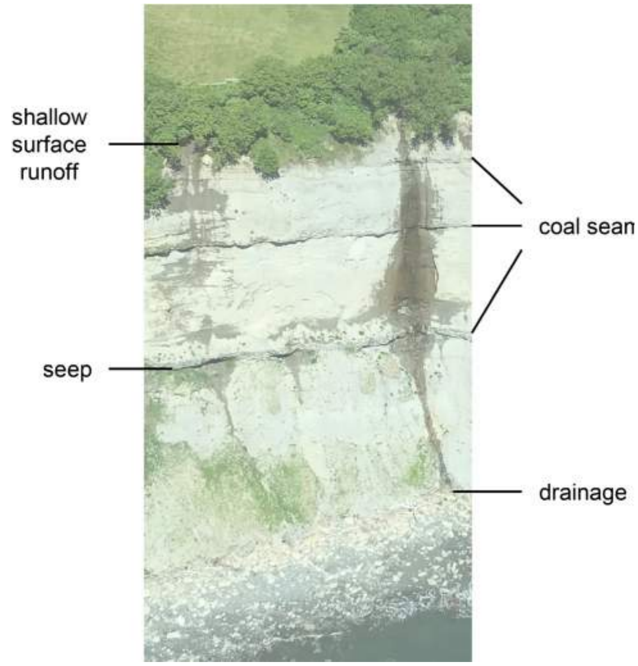

Figure 7. This 200-ft coastal bluff in Homer has surface runoff causing a continuous stream that drains to the beach. Groundwater also seeps from coal seams and other changes in the stratigraphy. Water causes channeling on the bluff face and undercuts coal seams, leading to instability.

expressions of the water table (Heath, 1983; Winter and others, 1998). We follow the assumption that areas where water collects have more groundwater flow and greater potential for related hazards.

We identify surface and groundwater expressions on the bluff slope using 3D models and imagery (fig. 7). However, many areas are obscured by vegetation, so water expressions may not be visible. In addition, the imagery only provides a snapshot in time, and conditions may have been unseasonably wet or dry. To consistently map drainage, we correlate observed hydrologic features with the flow accumulation through each transect based on the DTM. Flow accumulation represents the area of contributing streams toward a single point on the land surface within a user-defined catchment area. We identify flow channels on the DGGS DTM, correct the DTM to allow for flow through culverts under roads, then calculate the direction and accumulation of flow using ArcGIS hydrology tools. We correlate maximum flow accumulation and visible water expressions on each transect.

Shallow surface runoff and groundwater seeps tend to have lower flow accumulation than visible drainage streams and creeks. Half of all shallow surface runoff zones and seeps have flow accumulation below 27,000 ft^2 (2,500 m^2), so this is used as a lower cutoff to identify areas at very low drainage. As flow accumulation increases to 200,000 ft^2 (18,500 m^2), surface runoff and seeps transition to visible drainage channels. This is used as the lower threshold for medium drainage (where running water is actively causing minor erosion). Well-developed surface drainage channels primarily have flow accumulation upward of 540,000 ft^2 (50,000 m^2), and transition to creeks as flow increases. This flow accumulation value is used for the high drainage category (table 9). The value's magnitude is somewhat arbitrary because it is limited by the user-defined catchment; hence, we correlate the relative magnitude with observed hydrologic conditions.

Table 9. Instability category thresholds for drainage.

Instability category	Drainage indicators
High	Creeks, streams, continuous flow of water causing erosion
Medium	Flow of water from seeps and runoff causing minor erosion channels on bluff and beach
Low	Seeps and runoff exist but are not causing beach erosion
Very low	Seeps and runoff are rarely present

Combining Instability Variables

Instability variables are combined into one metric to determine the hazard posed by a combination of factors that destabilize slopes. No two categories are strongly correlated (table 10). Weights are not applied, but we give special consideration for areas with coastal armoring. Like vegetation, armoring can stabilize slopes and prevent erosion (Rella and Miller, 2012). For this reason, we use the most stable score between vegetation and armoring. For example, a seawall in good condition with no vegetation scores "very low" in the vegetation category. Similarly, we adjust the erosion score to the lesser of erosion and armor. This adjustment means an area with historically rapid erosion still scores "very low" if a seawall in good condition now exists. If an area has no armoring but very slow erosion, it still scores "very low." These modifications are only applied to the calculation of combined instability hazard scores; the original individual values are still available in the geodatabase. After these adjustments, combined instability is calculated using the average score rounded to the less stable score. The

Table 10. Correlation between instability variables. Values closer to 1 are strongly positively correlated (as variable 1 increases, variable 2 increases). Values of 0 are not correlated. Values closer to -1 are strongly negatively correlated (as variable 1 increases, variable 2 decreases).

	Armoring	Erosion	Slope	Vegetation	Drainage	Combined
Armoring	1					
Erosion	0.02	1				
Slope	0.19	0.08	1			
Vegetation	-0.17	0.42	0.26	1		
Drainage	0.12	-0.04	-0.18	-0.18	1	
Combined	0.41	0.56	0.52	0.54	0.21	1

average calculation involves four category values: drainage, slope and height, the most stable score between vegetation and armoring, and the most stable score between erosion and armoring.

RESULTS

Coastal bluff hazards are assessed using a historical shoreline change analysis and by combining bluff instability variables into a categorical hazard map. The shoreline change maps are more representative of the effects of long-term erosion trends. The bluff stability map communicates the potential for slope failure that may not be reflected in the historical erosion record.

Historical Shoreline Change Analysis (Map Sheet 1: Shoreline Change [1951 to 2019])

Shoreline change rates are between 1.0 and -3.9 ft/yr (0.3 and -1.2 m/yr; tables 11, 12). Erosion rates are greatest around the Bluff Point landslide

Table 11. Coastal bluff characteristics by region in feet and slope percent. Mean values are bolded. Bluff height is the difference between the top and toe elevation. Slope angle is between the bluff top and toe. Slope angle standard deviation (SD) is shown as a range about the mean because slope percent does not scale linearly with degrees. Negative shoreline change is erosion, positive is seaward movement of the shoreline (such as by accretion, aggradation, or mass movements).

	Bluff Height (ft)				Slope Angle (percent)				Shoreline Change Rate (ft/yr)			
	Mean	SD	Min.	Max.	Mean	Mean ± SD	Min.	Max.	Mean	SD	Min.	Max.
Diamond Crk	**310**	82	186	473	**31**	23 to 39	18	51	**-0.5**	0.3	-1.2	0.3
Bluff Pt	**79**	53	17	485	**74**	41 to 121	17	184	**-1.7**	1.0	-3.7	0.8
Downtown	**139**	75	12	276	**87**	39 to 179	22	205	**-1.0**	0.5	-2.7	0.7
Munson Pt	**16**	5	1	28	**64**	40 to 94	12	114	**-0.8**	1.3	-3.9	0.8
Kachemak Dr	**55**	23	10	89	**73**	44 to 113	24	317	**-0.5**	0.6	-2.7	0.7
East End Rd	**68**	16	26	113	**56**	31 to 87	17	128	**-1.1**	0.4	-3.2	0.7

Table 12. Coastal bluff characteristics in meters and degrees.

	Bluff Height (m)				Slope Angle (degrees)				Shoreline Change Rate (m/yr)			
	Mean	SD	Min.	Max.	Mean	SD	Min.	Max.	Mean	SD	Min.	Max.
Diamond Crk	**94**	25	57	144	**17**	4	10	27	**-0.15**	0.09	-0.37	0.09
Bluff Pt	**24**	16	5	148	**37**	14	10	61	**-0.52**	0.30	-1.13	0.24
Downtown	**42**	23	4	84	**41**	20	12	64	**-0.30**	0.15	-0.82	0.21
Munson Pt	**5**	2	0	9	**33**	11	7	49	**-0.24**	0.40	-1.19	0.24
Kachemak Dr	**17**	7	3	27	**36**	12	13	72	**-0.15**	0.18	-0.82	0.21
East End Rd	**21**	5	8	34	**29**	12	10	52	**-0.34**	0.12	-0.98	0.21

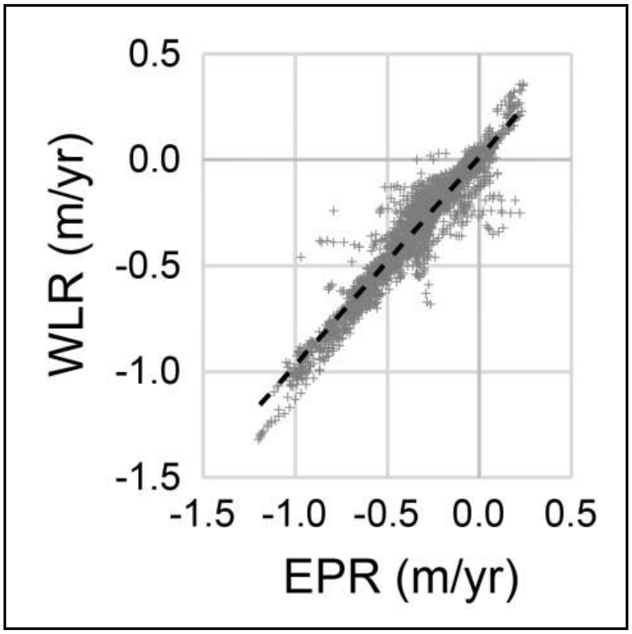

Figure 8. The end point rate (EPR) and weighted linear regression (WLR) shoreline change rate are highly correlated (slope = 0.99, R^2 = 0.92). EPR uses only the first and last shoreline. WLR uses all shorelines weighted by uncertainty.

area, Mount Augustine Drive, Bishops Beach, the seawall at Munson Point, and various sections near East End Road. Historical erosion is relatively slow or stable in the Diamond Creek area and along the section of Kachemak Drive near the airport runway. Bluff toe erosion often outpaces bluff top edge erosion from the Bluff Point landslide area to Bishops Beach, suggesting bluff steepening. The most significant toe erosion occurred after the 1964 earthquake (also observed by Stanley, 1968). Although this was a period of heightened erosion, it did not deviate significantly from the long-term change rate: the WLR rates of change are similar to EPR for both tops and toes (fig. 8). This finding suggests annualized erosion rates appropriately communicate erosion hazards in Homer, although erosion should not be expected on an annual basis. For example, if a shoreline eroded on average 3 ft/yr (1 m/yr), it may have remained stable for most of a 10-year period and eroded in one or a few episodes that total 30 ft (10 m).

Bluff Stability Assessment (Map Sheet 2: Coastal Bluff Stability)

Five variables are combined to visualize coastal bluff instability. Tall, steep bluffs with little vegetation, high drainage, rapid erosion, and no erosion protection have the highest hazard score. The area between the Bluff Point landslide and Bishops Beach is found to be the least stable. Munson Point, where the seawall now exists, is generally the most stable in all categories except historical erosion.

DISCUSSION

This coastal hazard assessment covers historical shoreline change and current bluff stability. In this section, we summarize findings and observations by location, then discuss study limitations.

Summary of Findings by Location

We break down results for six regions of Homer: Diamond Creek, Bluff Point Landslide Area, Downtown, Munson Point, Kachemak Drive, and East End Road (fig. 9; tables 11–13). Figures 10–12, 14, and 15 are screenshots from the oblique image-derived 3D model. This is a research tool to visualize the bluff complex for qualitative analysis, but many features and structures appear skewed due to insufficient overlap and camera angle.

Diamond Creek

The coastal bluffs of the Diamond Creek area reach from 250 to 500 ft (75 to 150 m) above MSL with an average slope of 17 ± 4 degrees (23 to 39

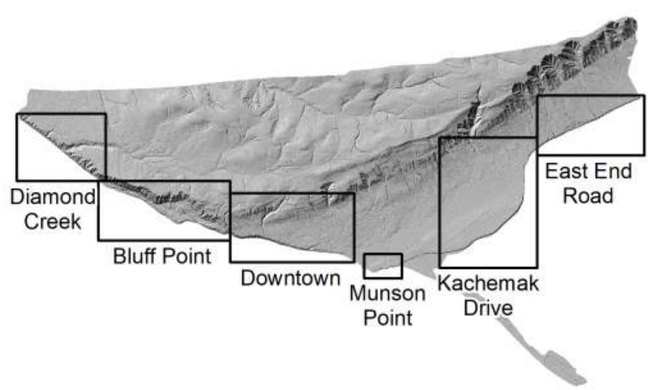

Figure 9. Discussion of results is divided into these six regions.

Table 13. Average coastal bluff instability by region. Scores range from 0 (very low instability) to 3 (high instability).

	Combined Instability	Combined Instability Score	Armor	Erosion	Slope	Veg.	Drainage
Diamond Crk	Medium	**1.8**	3.0	2.0	1.6	1.3	1.1
Bluff Pt	Medium	**2.0**	3.0	2.6	1.4	1.8	0.9
Downtown	Medium	**2.3**	3.0	2.7	2.0	2.4	0.7
Munson Pt	Very Low	**0.3**	1.2	1.4	0.8	1.8	0.3
Kachemak Dr	Low	**1.4**	2.8	1.7	1.3	1.5	0.4
East End Rd	Medium	**1.8**	3.0	2.8	0.8	1.9	0.7

Figure 10. Looking northeast at the coastal bluffs of Diamond Creek. The bluffs are tall, exposed, and undercut, leading to higher instability. This is a screenshot from our oblique image-derived 3D model.

Figure 11. Looking northwest at the Bluff Point landslide area. The coastal bluffs are the seaward-most bluffs in this screenshot from our oblique image-derived 3D model. Unlike the larger bluffs in the background, these coastal bluffs are mostly unvegetated and experience significant erosion.

percent). They are typically exposed, with grass near the coast and denser vegetation on the flanks leading to a plateau above (fig. 10). Water seeps and surface water runoff are common. Much of the area has a low to medium bluff instability score, mainly due to fast erosion rates and high drainage.

Bluff Point Landslide Area

The Bluff Point landslide area is most notable for the tallest coastal relief in Homer, reaching up to 800 ft (240 m) above MSL. The lower landscape is formed from a widespread landslide deposit (Reger, 1979). The entire bluff complex is influenced by coastal processes over geologic timescales. However, Reger (1979) explains that the inland bluffs are relatively stable because wave action only reaches the deposit. Therefore, we did not consider the larger landward bluffs to be coastal bluffs. The landslide deposit is so large that there are structures and small roads built upon it, and it has its own coastal bluffs about 30 to 100 ft (10 to 30 m) tall (fig. 11). These slopes are the second steepest in Homer, averaging 74 percent (36 degrees). This region has the fastest average erosion in Homer of -1.7 ft/yr (0.52 m/yr), reaching up to -3.7 ft/yr (-1.1 m/yr). The combined instability score of 2.0 (medium) is largely driven by these rapid erosion

Figure 12. Looking east at the steep, exposed bluffs near Mount Augustine Drive in the oblique image-derived 3D model. The bluffs gradually shorten and become less steep toward Bishops Beach.

rates and the lack of vegetation on slopes. Despite steep slopes, the hazard due to slope failure is lower because they are relatively short (there is less inland erosion due to slope failure).

Downtown

Coastal bluffs gradually transition from tall, steep, and exposed bluffs around Mount Augustine Drive to short and vegetated slopes at Bishops Beach (fig. 12). This region has a high coastal bluff instability score due to tall, steep slopes, considerable erosion, and little to no vegetation. Even though the Bishops Beach area has much shorter bluffs, there are still hazards due to rapid erosion. In general, the exposed bluffs have greater erosion at the toe than the top, indicating bluff steepening. The greatest toe erosion occurred between 1951 and 1964, likely in the aftermath of the earthquake (Stanley, 1968).

Munson Point

Munson Point has very low coastal bluff instability due to relatively short slopes and a seawall (fig. 13). Before the seawall, this area had the fastest erosion in Homer (-3.9 ft/yr, -1.2 m/yr). The area received the lowest combined bluff instability score of all regions. This is due to the short bluffs, little drainage, and significant armoring preventing further erosion.

Kachemak Drive

The coastal bluffs along Kachemak Drive have low combined instability. There is relatively slow erosion to stable shorelines, and the area with the greatest erosion is now protected by gabion seawalls. The bluffs average 55 ft (17 m) tall with slopes around 35 degrees (73 percent). Some sections of the bluffs are densely vegetated, others exposed (fig. 14). No major streams run through this area. There are still some areas with medium to high instability due mainly to steepness, height, and lack of vegetation. Overall, this region has the second lowest instability score (table 13). Although erosion rates are slow, some structures are very close to the bluff edge.

East End Road

The bluffs near East End Road have medium instability. They average 68 ft (21 m) tall with an angle of 56 percent (29 degrees), which is short and shallow relative to western Homer. However, erosion rates average -1.1 ft/yr (-0.34 m/yr), the second fastest in Homer. There is no armoring and most bluffs have light vegetation or are bare. Drainage channels and groundwater seeps are common (fig. 15). These factors compound to elevate the instability score.

Figure 13. A. This 2019 photo looking northwest at Munson Point (left) shows the seawall protecting grassy and exposed bluffs. **B.** This closeup photo shows how water comes right up to the seawall and would surely undercut the bluffs.

Figure 14. Looking west toward the partially vegetated bluffs near Kachemak Drive in the oblique image-derived 3D model.

Figure 15. Looking west toward the grassy-to-exposed bluffs and a densely vegetated creek near East End Road in the oblique image-derived 3D model. Exposed slopes show groundwater flow.

Study Limitations

This assessment is based on remotely sensed products and semi-automated techniques. This approach allows for a consistent metric to be applied across broad scales, but it is less accurate at small scales because it is unsupervised. The results are appropriate for regional-scale assessments of hazards, but localized interpretations should be made with critical judgement.

Coastal bluffs can become destabilized by several compounding environmental factors (Hampton and Griggs, 2004). When deciding which bluff stability variables to include, we consider available data, relative influence of the variable, and whether it may be correlated with other data. For example, high winds erode bluffs, but the magnitude can be relatively small compared to erosion from wave action. Including wind as a parameter may have little to no influence on the results. In addition, by measuring observed shoreline change over decades, we summarize all major eroding forces. If we include specific drivers (such as wind or wave activity) as a separate variable from historical erosion, the two may be correlated enough to bias the combined instability score. Similarly, lithology is an important factor in bluff stability. Lithology influences slope, height, drainage, vegetation cover, and how quickly a bluff erodes. Homer's coastal bluffs have similar lithology throughout (sands, silts, and clays; Barnes and Cobb, 1959; Salisbury, 2021). Due to the influence of lithology on so many variables and its homogeneity in the study area, we assume lithology is adequately represented. Ultimately, including the subtler influences of instability could improve this analysis, but they likely already factor into the existing variables.

Certain aspects of this study are automated; others are manually determined. We originally attempted an automated bluff top and toe detection using the method described by Palaseanu-Lovejoy and others (2016). The results were mostly accurate but required numerous minor fixes. Given the relatively small study area, it became faster and more accurate to delineate the bluff manually rather than correct the automated delineation. USGS recently published the Cliff Feature Delineation Tool that also follows an automated method (Seymour and others, 2020). We tested the USGS tool on our dataset and found the results unfavorable. The processing tool we built proved most useful for analyzing slope, vegetation, and drainage statistics in a small area while allowing easy manual corrections using visual interpretations.

Shoreline change analyses have well-documented limitations related to data collection, analysis methods, and non-linear change drivers (Crowell and others, 2018; Overbeck and others, 2020). When using erosion rates, some important factors to consider are changes in drivers of erosion over time. Relative sea level fall (as is documented in Seldovia; NOAA CO-OPS, 2020b) can result in fewer wave impact hours, slowing erosion of the bluff toe. Changes in prevailing wind direction and intensity could change the wave climate, although only minor changes in winds have been measured in Homer (explore climate data at uaf-snap.org). Hydrographic changes, such as river channel migration or

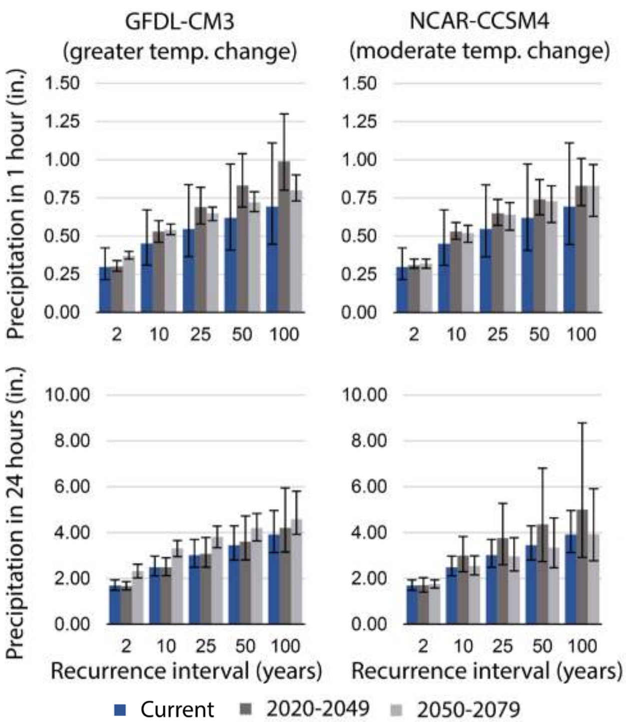

Figure 16. Current (blue) and future predicted (grayscale) precipitation trends in Homer, Alaska. The two columns show results from climate models predicting greater temperature change (left) and moderate temperature change (right). The rows show the current and predicted precipitation patterns in 1-hour (top) and 24-hour (bottom) periods. The Y axis is the total precipitation in inches. The X axis is the recurrence interval, from a 1- in 2-year event to a 1- in 100-year event. Modeled precipitation is similar to current conditions, especially considering the level of uncertainty. Data provided by uaf-snap.org.

drainage infrastructure, can bring unprecedented change to an area. Engineered structures may age or be damaged, repaired, or newly installed, changing coastal dynamics in the immediate area as well as nearby coastlines (Rella and Miller, 2012). These examples underscore the important considerations to make when using erosion rates.

Landslides can cause erosion outside the normal rate. Two major triggers for coastal bluff landslides are earthquakes and intense rainfall (Highland and Bobrowsky, 2008). Remarkably, the 1964 earthquake did not trigger major coastal landslides in Homer (Waller, 1966), but subsidence led to undercutting and swift erosion rates in the following years (Stanley, 1968). Climate model trends suggest a slight increase in extreme precipitation events in Homer, but there is no significant departure from current conditions (fig. 16). Regardless, current precipitation trends are enough to trigger landslides in Homer (Homer News, 2013). (See Salisbury [2021] for a full discussion on landslide susceptibility in Homer.)

Observations of 2009 Landslide in the Bluff Point Landslide Area

After completing this assessment, we found evidence that the 2009 landslide in the Bluff Point landslide area likely complicated erosion rates while providing insights into the connection between the coastal and inland bluffs. Between July 2 and July 3, 2009, two flanks collapsed in the Bluff Point landslide area and the beach uplifted as much as 15 ft (4.6 m), indicating a rotational slump occurred (Berg, 2009). Reger (1979) explains how these coastal bluffs are the eroded toes of rotated slump blocks from one or multiple ancient landslides. There are wide, underground shear planes connecting the inland bluffs to the coastal bluffs and beach (Berg, 2009). After a rotation, the uplifted area erodes. This process redistributes stress in the slump block back toward the bluff until another rotation occurs (fig. 2). The history of coastal erosion likely played a major role in destabilizing the bluff.

The 2009 landslide occurred across 800 ft (250 m) of shoreline, but comparisons of the 2008 and 2019 lidar reveal that the 2,500 ft (760 m) of coastal bluffs was translated seaward as far as 80 ft (25 m; fig. 17). The coastal bluffs remained mostly intact. Berg (2009) identified fissures in the slide mass that indicated active creeping. This suggests that the mass is debutressing from the inland bluff, leading to greater instability (B. Higman, written comm., 2021). Salisbury (2021) estimates that as far as 1,200 ft (366 m) inland from the bluff top edge is highly susceptible to a continued, retrogressive failure of the existing deep-seated rotational landslide block.

Where the Sterling Highway comes closest to the bluff edge (fig. 17, profile C), we did not find evidence of rotation from the 2009 landslide. The

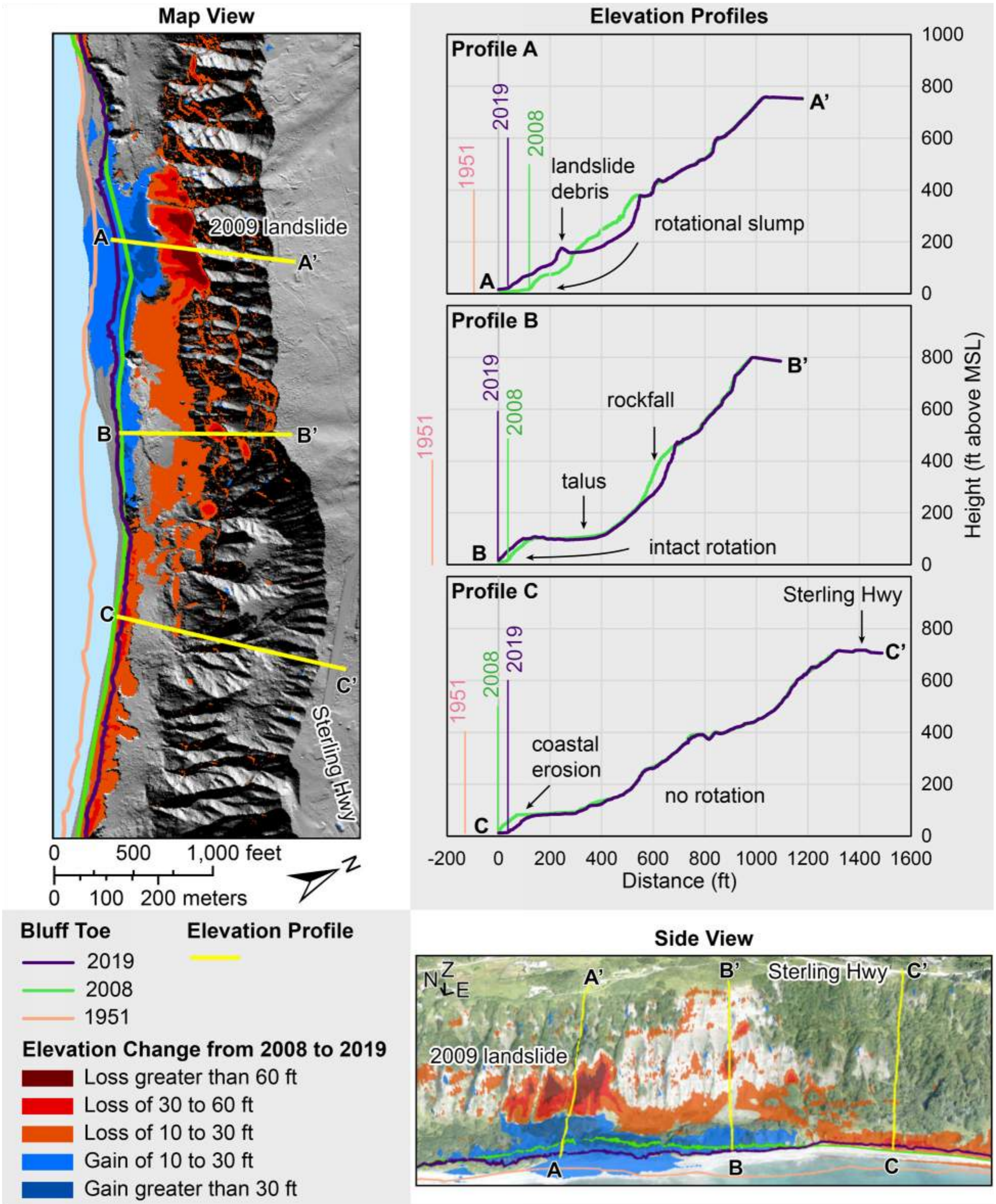

Figure 17. Map View and Side View of the region where the 2009 landslide occurred. The vertical change between the 2008 and 2019 lidar DTMs shows where the inland portion of the slump block lowered (warm colors) and rotated, uplifting the seaward section (cool colors). The bluff toe moved seaward between 2008 (green) and 2019 (purple). This is most apparent along profile A where the flank collapse occurred. On profile B, a smaller rockfall left a wide talus debris fan, and the coastal bluffs migrated seaward while remaining intact (carrying upright vegetation with them). Southeast of this area the rotation appears to end, and profile C has regular coastal erosion (also indicated by warm colors).

erosion history is similar to the nearby failure area, but the bluff is less steep. Continued erosion and bluff steepening decreases stability.

CONCLUSION

We assess coastal bluff stability for the Homer region using a shoreline change analysis and a combined coastal bluff instability score. Results indicate slow and ongoing erosion is steepening bluffs and encroaching on existing structures. Many bluffs have greater instability due to their height and slope, erosion at the toe, and lack of vegetation. The coastal bluff stability products highlight existing hazards and are tools to guide decisions to improve community safety.

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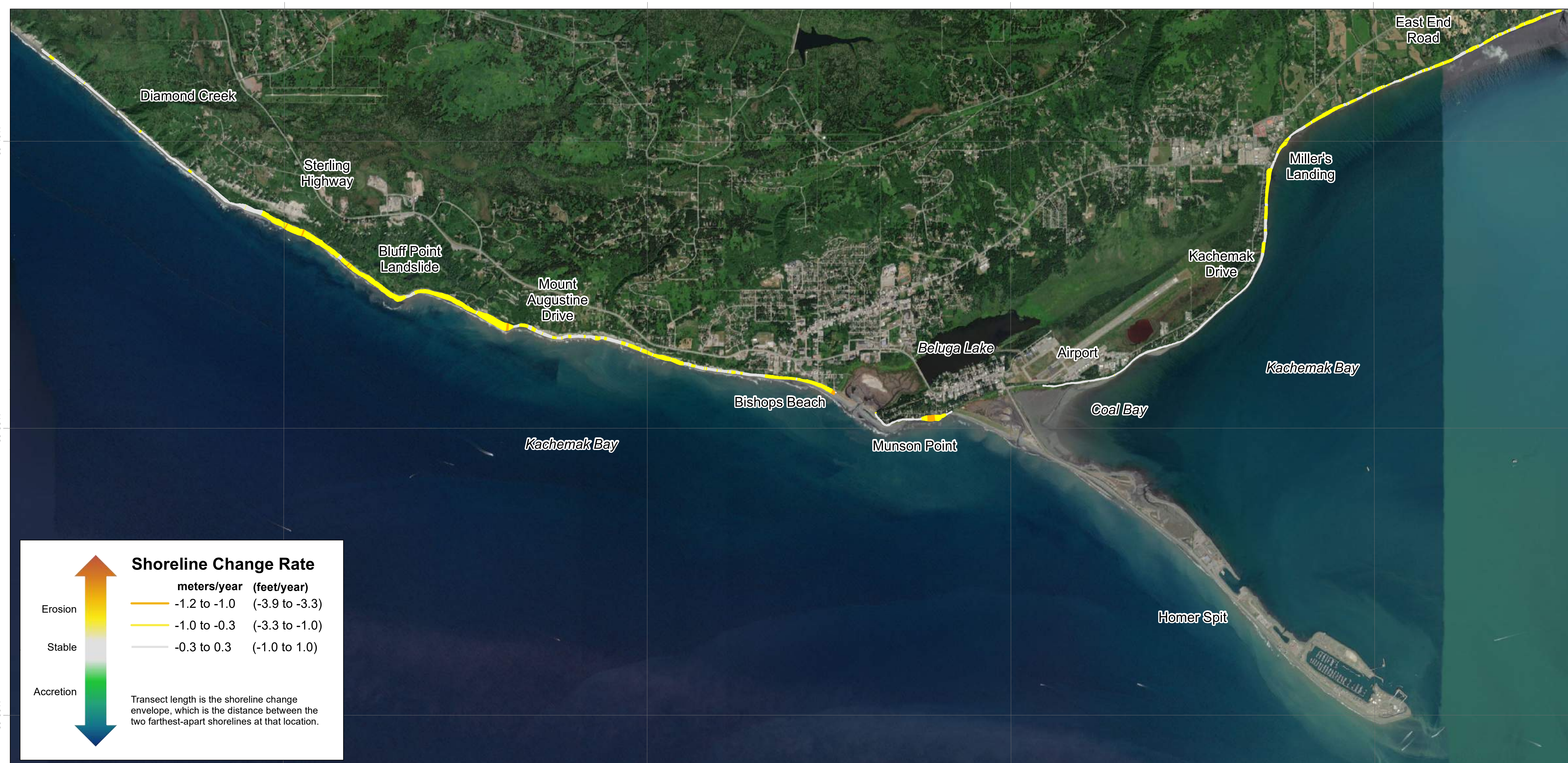
DRAFT Shoreline Change (1951 to 2019)

Homer, Alaska



STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS

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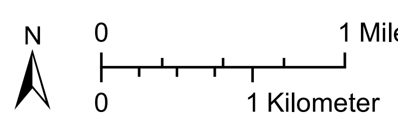

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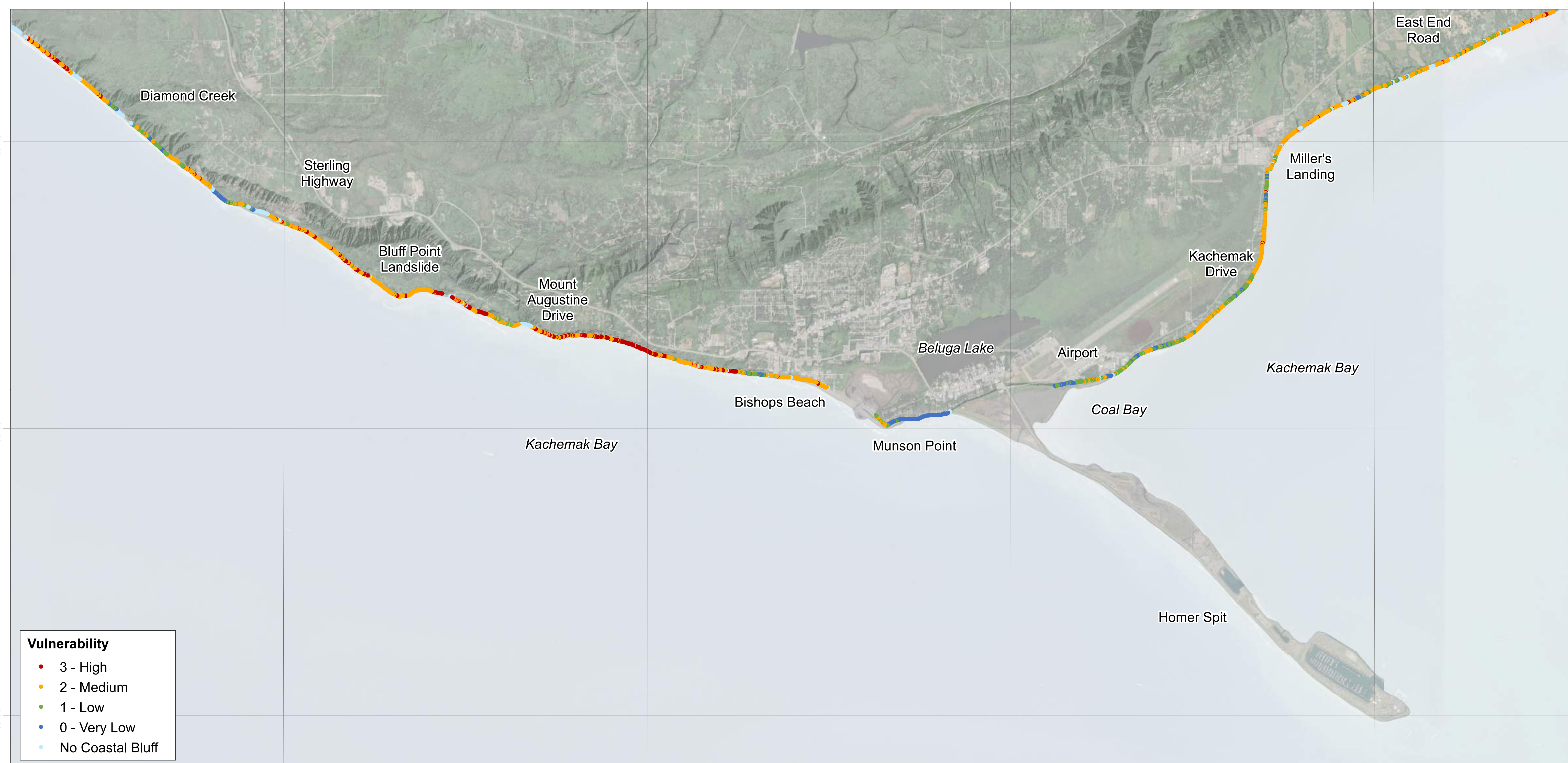
Projection: NAD83 (2011) UTM Zone 5N. Orthoimagery from the Alaska High Resolution Imagery available from agc.dnr.alaska.gov/imagery_services.html The bluff top and toe are delineated from historical photographs collected between 1951 and 2019. Using the Digital Shoreline Analysis System developed by the U.S. Geological Survey, the measured distance between shorelines through time determines the linear rate of shoreline change at shore-perpendicular transects. The transect length indicates the distance between the nearest and farthest bluff toe between 1951 and 2019. The shoreline change envelope is colored by the shoreline change rate (meters/year and feet/year), with hot colors representing erosion and cool colors representing accretion. The average linear rate of the bluff top and toe is used for the visualized change rate. Linear rates of shoreline change are simplified and do not accurately reflect shoreline erosion and accretion at all locations.

This work is funded by the Federal Emergency Management Agency. The Alaska Division of Geological & Geophysical Surveys is a Cooperating Technical Partner.

DRAFT Coastal Bluff Stability

Homer, Alaska

Report of Investigation 2021-X
Buzard and Overbeck, 2021
Sheet 2 of 2



STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS

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Projection: NAD83 (2011) UTM Zone 5N. Orthoimagery from the Alaska High Resolution Imagery available from agc.dnr.alaska.gov/imagery_services.html
Coastal bluff vulnerability represents the potential for and impacts of slope failure. Vulnerability is estimated using slope angle, height, historical erosion, existing shoreline protection, vegetation, and drainage patterns. Red and orange areas tend to have faster erosion rates, less vegetation and protection, and taller and/or steeper bluffs.Green and blue areas generally have shorter and less steep slopes and more vegetation and/or protection. Some green and blue areas may not technically be coastal bluffs. Light blue areas are generally creekbeds or flanks.

This work is funded by the Federal Emergency Management Agency. The Alaska Division of Geological & Geophysical Surveys is a Cooperating Technical Partner.

THE STATE of ALASKA
GOVERNOR MICHAEL J. DUNLEAVY

Department of Natural Resources

DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS

3651 Penland Parkway
Anchorage, Alaska 99508
Main: 907.696.0079
Fax: 907.696.0078

Homer Planning Commission &
City of Homer

November 24, 2021

RE: Considerations for coastal bluff definitions and coastal setbacks Homer, Alaska

The Alaska Division of Geological & Geophysical Surveys (DGGS) is charged by Alaska state statute to determine the potential geologic hazards that impact Alaska's people and infrastructure. DGGS, with a letter of support of the Homer Planning Commission received a competitive grant from the Federal Emergency Management Agency to conduct a coastal bluff stability analysis of the City of Homer. In addition, DGGS will provide considerations and data to the Homer Planning Commission that would inform the Commission should they seek changes to the Homer City Code. This letter outlines the current policy and how policy language relates not only to the current physical state of coastal bluffs but also descriptions of coastal setback policies from other states and how existing data may be used as tools in creating new policies. This letter is not meant to persuade policy change recommendations.

Many resources are available from the NOAA Coastal Zone Management program and various state management program counterparts outside of Alaska, as well as user guides for implementing land use regulations due to natural hazards. A great resource is the Oregon Landslide Hazard Land Use Guide (Sears and others, 2019), which encourages: making use of technical information and assistance, clearly linking the implementation of provisions (zoning code, building code, etc.) to technical information, and referring to documentation and maps in provisions, among other goals. These recommendations clearly state the importance of utilizing geologic and geographic information in the development and enforcement of land use regulations and provide guidance on implementing suggestions beyond what this document could accomplish.

DGGS conducted a remote sensing analysis of historical shoreline change and coastal bluff stability of Homer. The analysis has three primary components:

1. Computations of physical parameters that describe Homer bluff morphology (including bluff top edge, toe, and slope)
2. Historical shoreline change assessment with updated (from Baird and Pegau, 2011) methods for image processing to decrease uncertainty, re-identification of shorelines, and added imagery from historical and recent aerial imagery collections.
3. Coastal bluff stability map using a metric which considers historical erosion rate, horizontal distance of bluff failure from 2019 slope to a uniformly defined stable position, vegetation type and cover, presence of existing erosion protection, and drainage of surface and groundwater runoff.

The full analysis (Buzard and Overbeck, in prep) is in preparation and will be available in draft upon request of this commission and to the public upon final publication.

Regulations across the U.S. define coastal bluffs in many ways, usually mechanistically, geometrically, or some combination of both. The current definition of a coastal bluff in the Homer City Code is written such that the code does not identify any coastal bluffs in Homer (Table 1). Because of this issue, bluff parameters and applicable geometric and mechanistic definition examples from other states are described below (Tables 1 & 2).

Table 1. Homer City Code definitions for coastal bluffs and bluff parameters measured at Homer.

Jurisdiction	Source	Description
City of Homer	https://www.codepublishing.com/AK/Homer/#!/html/Homer21/Homer2144.html	**Steep Slope:** *starts at 45%* Buildings are not allowed to be built on these slopes unless approved by City Engineer.
	https://www.codepublishing.com/AK/Homer/cgi/defs.pl?def=25	**"Bluff"** means an abrupt elevation change in topography of at least 15 feet, with an average slope of not less than 200 percent (two feet difference in elevation per one foot of horizontal distance). *In Homer, most coastal bluffs have slopes between 31 and 87 percent.*
	https://www.codepublishing.com/AK/Homer/cgi/defs.pl?def=45	**"Coastal bluff"** means a bluff whose toe is within 300 feet of the mean high water line of Kachemak Bay. *The coastal bluff must first be defined as a bluff, which the current coastal bluffs in Homer do not satisfy. Then a measured distance must be made between the bluff toe and the mean high water line, however, a bluff toe is not defined.*
None	Measurements from Buzard and Overbeck (in prep)	In 2019, bluff parameters were measured from lidar and quality controlled with coincident aerial imagery to interpret bluff toe, bluff top edge and benches along the coast of Homer. **Bluff toe** - generally defined as the seaward extent of a slope where a slope break to relatively flat land occurs (often a sediment transition), land continues down to the MHW shoreline. **Bluff top edge** - the seaward extent of relatively flat land where a slope break or scarp occurs. For complex slopes with one or more benches, the bluff top edge is landward of the benches. **Bench** - a platform mid-slope of a larger slope complex that typically shows exposed earth upslope.

Table 2. Example definitions of coastal bluffs in other states.

California	Code of Regulations 10-5.2204 4 CCR § 13577 https://govt.westlaw.com/calregs/Document/I2EA4E8D32D044C78BF258B4F0DA30B08?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default)	(h) Coastal Bluffs. Measure 300 feet both landward and seaward from the bluff line or edge. Coastal bluff shall mean: (1) those bluffs, the toe of which is now or was historically (generally within the last 200 years) subject to marine erosion; and (2) those bluffs, the toe of which is not now or was not historically subject to marine erosion, but the toe of which lies within an area otherwise identified in Public Resources Code Section 30603(a)(1) or (a)(2). Bluff line or edge shall be defined as the upper termination of a bluff, cliff, or seacliff. In cases where the top edge of the cliff is rounded away from the face of the cliff as a result of erosional processes related to the presence of the steep cliff face, the bluff line or edge shall be defined as that point nearest the cliff beyond which the downward gradient of the surface increases more or less continuously until it reaches the general gradient of the cliff. In a case where there is a steplike feature at the top of the cliff face, the landward edge of the topmost riser shall be taken to be the cliff edge. The termini of the bluff line, or edge along the seaward face of the bluff, shall be defined as a point reached by bisecting the angle formed by a line coinciding with the general trend of the bluff line along the seaward face of the bluff, and a line coinciding with the general trend of the bluff line along the inland facing portion of the bluff. Five hundred feet shall be the minimum length of bluff line or edge to be used in making these determinations.
New Jersey	7:7-9.29 https://www.nj.gov/dep/rules/rules/njac7_7.pdf	(a) A coastal bluff is a steep slope (greater than 15 percent) of consolidated (rock) or unconsolidated (sand, gravel) sediment which is adjacent to the shoreline or which is demonstrably associated with shoreline processes. 1. The waterward limit of a coastal bluff is a point 25 feet waterward of the toe of the bluff face, or the mean high water line, whichever is nearest the toe of the bluff. 2. The landward limit of a coastal bluff is the landward limit of the area likely to be eroded within 50 years, or a point 25 feet landward of the crest of the bluff, whichever is farthest inland. 3. Steep slopes, as defined at N.J.A.C. 7:7-9.32, are isolated inland areas with slopes greater than 15 percent. All steep slopes associated with shoreline processes or adjacent to the shoreline and associated wetlands, or contributing sediment to the system, will be considered coastal bluffs.
Michigan	https://www.govinfo.gov/content/pkg/CZIC-gb459-5-g8-g786-1979/html/CZIC-gb459-5-g8-g786-1979.htm	1. Bluffline means the line which is the edge or crest of the elevated segment of the shoreline above the beach which normally has a precipitous front inclining steeply on the lakeward side.
Connecticut	Gen. Stat. Ann. § 22a-93	Coastal bluffs and escarpments means naturally eroding shorelands marked by dynamic escarpments or sea cliffs which have slope angles that constitute an intricate adjustment between erosion, substrate, drainage and degree of plant cover.

Maine	Ch. 1000, 38 M.R.S.A § 435-449 https://www.law.cornell.edu/regulations/maine/06-096-Me-Code-R-Ch-1000	For principal structures, water and wetland setback measurements shall be taken from the top of a coastal bluff that has been identified on Coastal Bluff maps as being "highly unstable" or "unstable" by the Maine Geological Survey pursuant to its "Classification of Coastal Bluffs" and published on the most recent Coastal Bluff map. If the applicant and the permitting official(s) are in disagreement as to the specific location of a "highly unstable" or "unstable" bluff, or where the top of the bluff is located, the applicant may at his or her expense, employ a Maine Registered Professional Engineer, a Maine Certified Soil Scientist, a Maine State Geologist, or other qualified individual to make a determination. If agreement is still not reached, the applicant may appeal the matter to the board of appeals.

The purpose of coastal setbacks are to avoid coastal bluff erosion or mass wasting impacting infrastructure over a design life or home mortgage period. Currently in Homer, structures may not be built closer than 40 feet from the top of a coastal bluff, and not closer than 15 feet from the toe (less common). Through the analysis of Buzard and Overbeck (in prep), we find scenarios where erosion or bluff failure may encroach further than 40 feet over a 30-year timeframe. DGGS uses two different methods for computing forecast erosion distances, both of which have inherent uncertainties. The first method assumes the historical erosion rates continue over a 30-year timeframe (multiply the erosion rate by 30 years to determine distance). The second method assumes a bluff could erode due to slope failure from its current height and slope to a slope with a low risk of failure (similar to Kokutse and others [2016] for sand, silt, and clay slopes as described in Salisbury [in prep]; Figure 1). Such events may occur over decadal to centennial timescales (or longer), so the measured erosion rates may not reflect this phenomenon.

$$B_e = B_h \times (B_s - 0.51)$$

B_e = Horizontal bluff erosion due to slope failure
B_h = Bluff height
B_s = Average bluff slope percent (as a fraction)

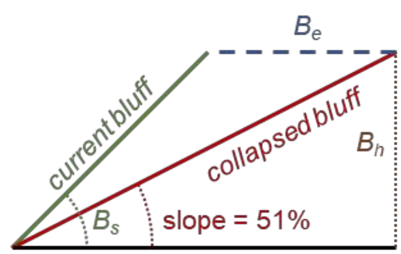

Figure 1. Equation and schematic of bluff relaxation computation from Buzard and Overbeck (in prep).

Erosion distances using both methods are mapped by parcels within the City of Homer (Figures 2 & 3). The mapped erosion distance for each parcel boundary is determined by taking the maximum erosion distance (for either the 30-year forecast-Figure 2 or the slope failure distance-Figure 3) and applying that distance to the entire parcel. To evaluate the overlap in either methods, we map them both, showing only the parcels with erosion greater than 40 ft (from either method; Figure 4). Using these methods, we find that a total of 69 parcels (36% of all parcels on coastal bluffs) have computed erosion distances greater than 40 ft somewhere along the parcel. These values can be utilized to determine whether changes to the coastal setback distance are needed in any future updates to the Homer City Zoning Code.

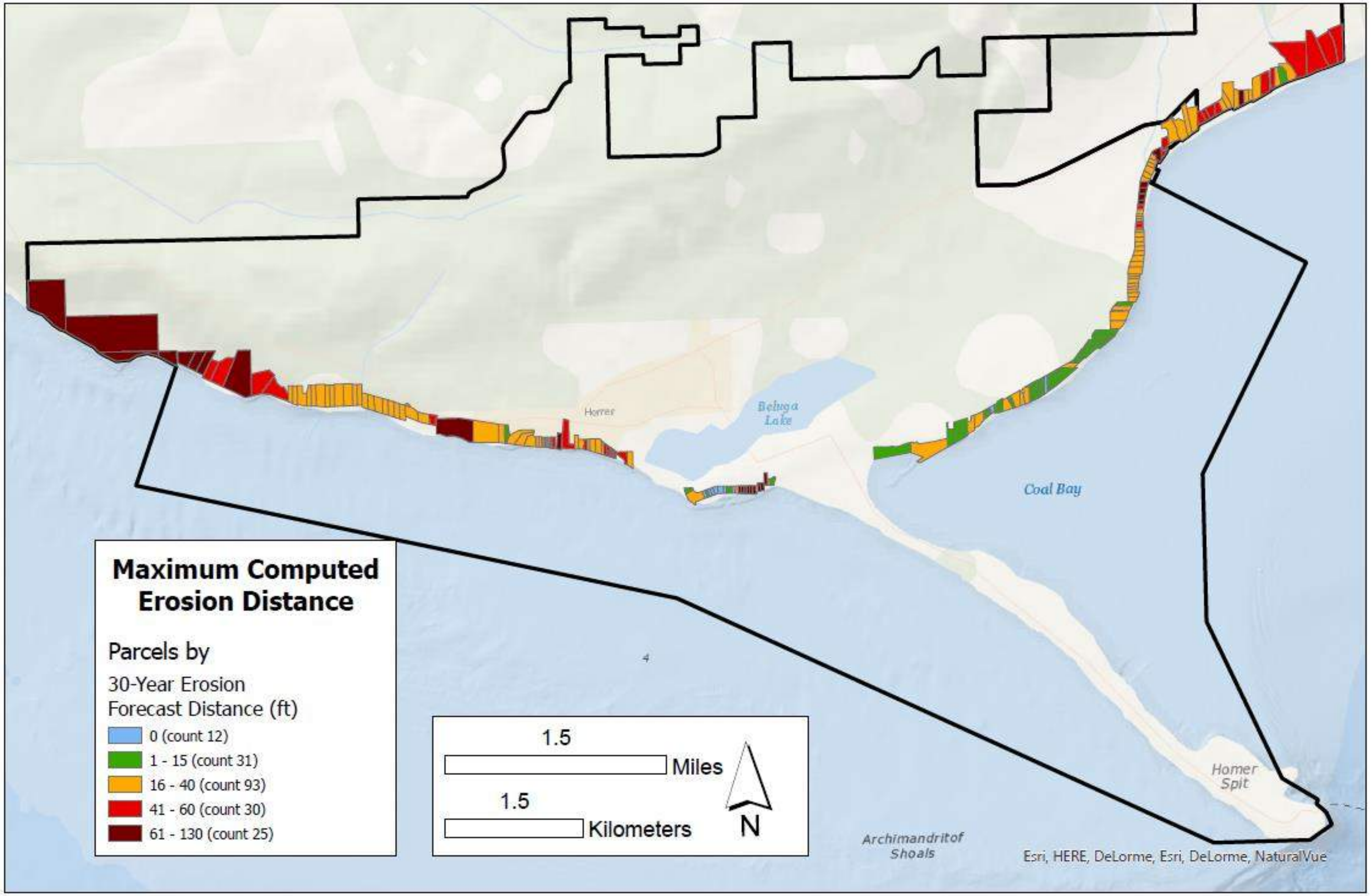

Figure 2. City of Homer parcels on coastal bluffs are symbolized by the maximum 30-year erosion forecast distance for coastal bluff erosion. This map shows 55 total parcels with a maximum erosion distance greater than 40 ft. The total number of parcels on coastal bluffs are 191, resulting in 29% of parcels having at least some section of their bluffs with an erosion distance greater than 40 ft. This City of Homer boundary is shown as a thick black boundary. Parcels are not differentiated between developed and undeveloped.

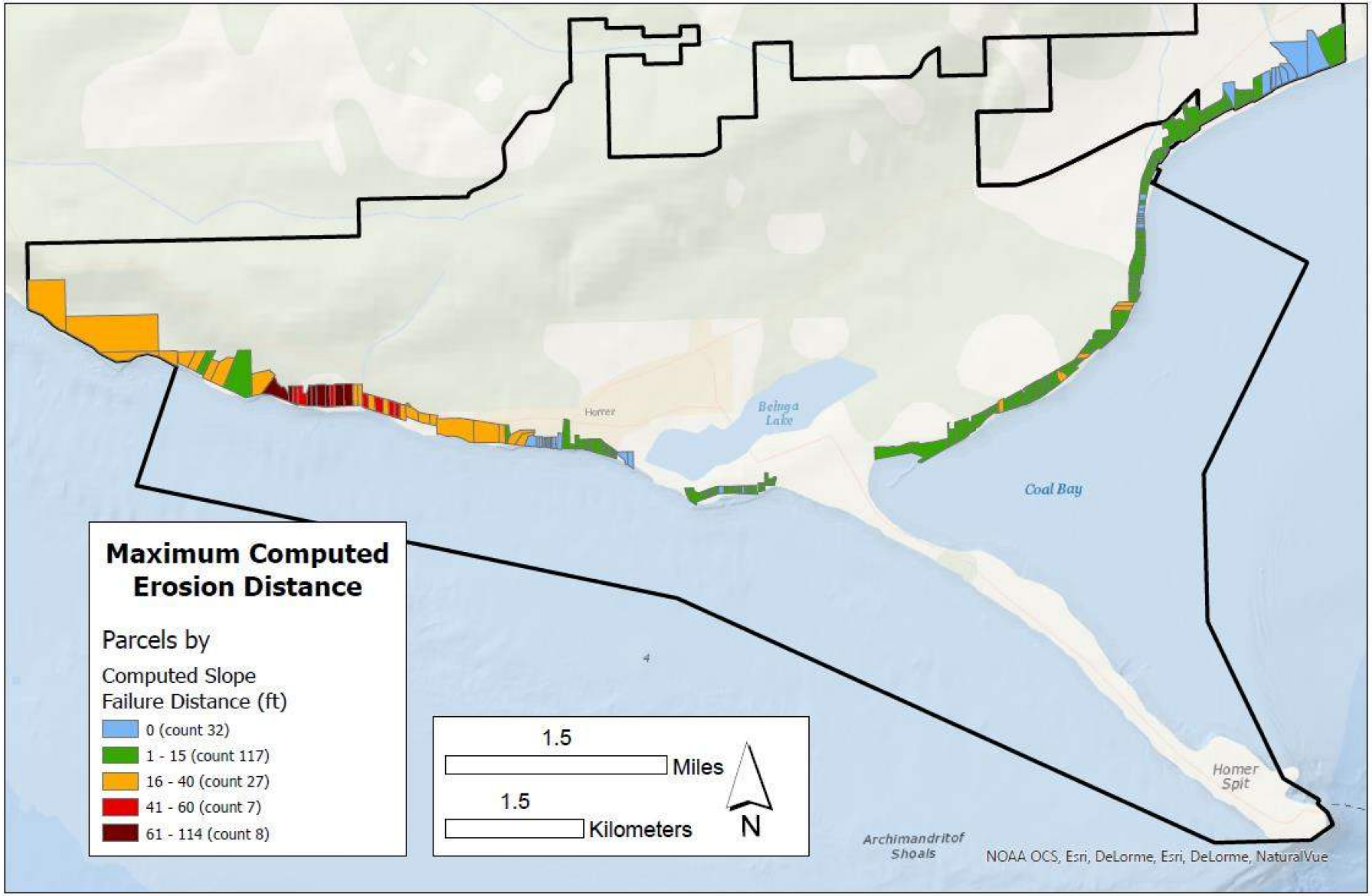

Figure 3. City of Homer parcels on coastal bluffs are symbolized by the maximum slope failure distance for coastal bluff erosion. This map shows 15 total parcels with a maximum erosion distance greater than 40 ft. The total number of parcels on coastal bluffs are 191, resulting in 8% of parcels having at least some section of their bluffs with an erosion distance greater than 40 ft. This City of Homer boundary is shown as a thick black boundary. Parcels are not differentiated between developed and undeveloped.

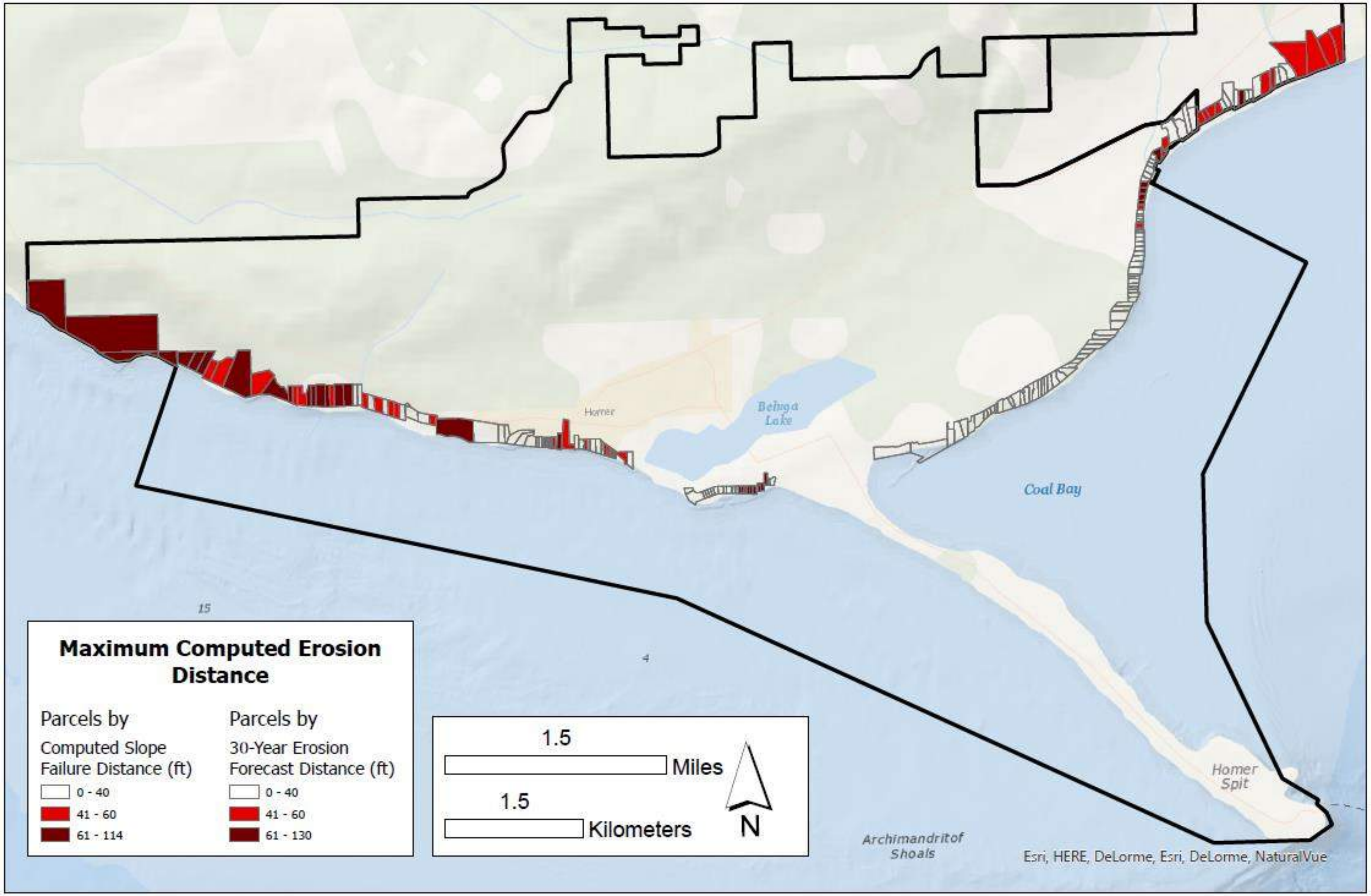

Figure 4. City of Homer parcels on coastal bluffs are symbolized by either the maximum 30-year erosion forecast distance or the computed slope failure distance for coastal bluff erosion. This map shows 69 total parcels with a maximum erosion distance greater than 40 ft. The total number of parcels on coastal bluffs are 191, resulting in 36% of parcels having at least some section of their bluffs with an erosion distance greater than 40 ft. This City of Homer boundary is shown as a thick black boundary. Parcels are not differentiated between developed and undeveloped.

Other states in the U.S. have well developed policies for coastal setback determinations or building restrictions due to erosion zonation. Examples from other states are compared to the current Homer City Zoning Code (Table 3).

In general, most states utilize a metric that is either defined at a set distance from a regulatory boundary (e.g., 150 feet from the ordinary high water mark) or by a timeline in which historical erosion rates are forecast to impact an area (e.g., a 30-year timeline with an erosion rate of 1 foot per year would make the setback 30 feet). Regulations become far more complex not only due to options for authorities to adjust policy among county or municipal boundaries (one county to the next may have a different policy) but also because greater limitations may be applied for areas considered at high erosion risk or ecologically important. These types of designations are expressed both linearly along the shoreline and as mapped zones (areas or polygons).

Table 3. Coastal setback examples from other states and parameters relevant to Homer coastal bluffs.

Homer City Zoning Code	
21.44.030 Slope development standards	No structure may be closer than 40 ft from the top of a coastal bluff, and not closer than 15 feet from the toe.
Homer Bluff Parameters from Buzard and Overbeck (in prep) City of Homer Boundaries	
Shoreline change analysis	Shoreline change rates range from 1 to 3.7 feet per year. Based on historical rates of shoreline change, 55 parcels (29%) are expected to undergo greater than 40 ft of erosion over a 30-year period.
Coastal bluff stability analysis	Horizontal bluff erosion due to slope failure ranges from zero to 114 feet, with 15 parcels (8%) with computed slope failure distances greater than 40 ft.
Combined	Combining these methods, there is only one parcel with overlap, resulting in 69 parcels (36%) with computed erosion distance greater than 40 ft.
Coastal Setback Examples from Other States	
Minnesota (outside high erosion areas)*	For non-erosion hazard areas: 75 feet from ordinary high water line elevation. 50 ft from shoreland in City of Duluth.
Minnesota (in North Shore Management Board Zone high risk erosion area)*	The annual erosion rate times 50 plus 25 feet from the top edge of the eroding bluff. 125 feet where annual erosion rate is unknown (based on 1989 map).
Michigan*	Determined by 30 (readily moveable structure) or 60 (non-readily moveable structure) year projected recession lines. Calculated as the recession rate ft/yr * 30 or 60 (depending on structure type) plus 15 ft. The state statute mandates that the erosion hazard line (EHL) be measured in reference to vegetation, which can be complicated due to various disturbances and fails to take the geomorphology of the site in account.
Ohio*	Required permitting in coastal erosion area. Defined using transects limitations on building in the defined area which represents the 30-year linear trend forecast of erosion. Mandatory updating of maps every 10 years.
Maine	All new principal and accessory structures shall be set back at least one hundred (100) feet, horizontal distance, from the normal high-water line of great ponds classified GPA and rivers that flow to great ponds classified GPA, and seventy-five (75) feet, horizontal distance, from the normal high-water line of other water bodies, tributary streams, or the upland edge of a wetland, except that in the General Development I District the setback from the normal high-water line shall be at least twenty five (25) feet, horizontal distance, and in the Commercial Fisheries/Maritime Activities District there shall be no minimum setback. In the Resource Protection District the setback requirement shall be 250 feet, horizontal distance, except for structures, roads, parking spaces or other regulated objects specifically allowed in that district in which case the setback requirements specified above shall apply.
Washington	Up to individual counties. Most examples are quite complex, including multiple buffer zone types (characterized zone—ecological function, human alteration, open space, public access, forecast rate, and single value). A minimum setback of 150 feet.

**see full text reference from Perello (2019)*

The geospatial datasets used to assess the coastal bluffs in Homer will be made available to the public so that physical features, metrics, and erosion rates (with uncertainties) described in this paper can be referenced.

For additional information or to gain access to the report of investigations on Homer Coastal Bluff Stability, please contact Jacquelyn Overbeck, information below.

Regards,

Jacquelyn Overbeck
Certified Floodplain Manager
Coastal Hazards Program Manager
Alaska Department of Natural Resources
Division of Geological & Geophysical Surveys
Office: 907-451-5026
jacquelyn.overbeck@alaska.gov

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City of Homer
www.cityofhomer-ak.gov

Planning
491 East Pioneer Avenue
Homer, Alaska 99603
Planning@ci.homer.ak.us
(p) 907-235-3106
(f) 907-235-3118

Staff Report PL 21-05

TO:	Homer Planning Commission
FROM:	Rick Abboud, AICP, City Planner
DATE:	January 5, 2022
SUBJECT:	Storage Container Dwellings

Introduction At the request of the Chair, I have added this item to the agenda.

Analysis It is my understanding that Commissioner Venuti proposes to regulate the usage of storage containers as dwellings based on zoning district.

The use of shipping containers has been a subject of staff report 21-52 that was presented to the commission. At the meeting of November 3rd, the subject was discussed and is highlighted in the minutes. No motion to regulate the use of shipping containers was made, although a request was made for Commissioners to work with staff to produce some proposed code.

Staff Recommendation Listen to and consider Commissioner Venuti's proposal.

Attachments

PC Minutes from meeting of 11/3/21

- Getting the new permitting software lined up and ready which will allow the Planning Department to be connected with Public Works, for real time information that can be shared, online payments, future permitting and enforcement issues will be able to be addressed
- Requested volunteers to attend the City Council meeting on November 8, 2021. He then provided guidance on giving the reports to City Council especially those items that may be quasi-judicial.

PUBLIC HEARINGS

A. Staff Report 21-66, Draft Ordinance 21-xx, Amending Onsite Parking Requirements for Detached One Bedroom or Efficiency Dwelling Units.

City Planner Abboud provided a review of Staff Report 21-66 to the Commission.

There was no applicant.

Chair Smith opened the Public Hearing and having no public present in the audience or attending via Zoom he closed the Public Hearing and opened the floor to questions from the Commission.

There was no questions from the Commission.

VENUTI/BENTZ MOVED TO ADOPT STAFF REPORT 21-66 AND FORWARD DRAFT ORDINANCE TO AMEND PARKING REQUIREMENTS FOR DETACHED ONE BEDROOM AND EFFICIENCY DWELLING UNITS.

There was a brief discussion regarding clarification that by adopting the Staff Report the Commission will be recommending that the draft ordinance be forwarded to City Council for Public Hearing and approval.

Deputy City Clerk Krause confirmed that would be the action needed from the Commission.

VOTE: NON-OBJECTION. UNANIMOUS CONSENT.

Motion carried.

PLAT CONSIDERATION

PENDING BUSINESS

A. Staff Report 21-52, Use of Shipping Containers

Chair Smith introduced the item by reading of the title and invited City Planner Abboud to provide his report.

City Planner Abboud prefaced the discussion by stating that they are not referencing the previous appeal and anything specific regarding that specific site. This is to be a general discussion on the future use of shipping containers not delving into anything that the Commission might have talked about regarding that previous permit.

City Planner Abboud then facilitated discussion on the future use of shipping containers. Some of the following points discussed were:

- Aesthetics
  - no specific residential building regulations
  - anything goes if its not financed
  - metal rectangles are not as appealing to many communities
  - not allowed for use a dwelling in Anchorage
- Safety
- Expensive to convert
- Alternative to standard building materials
- Most issues are solved within building codes, however Homer has no building codes
- No rush in using this alternative as a dwelling
- Recycling
- Possible devaluing property values
- Difficulties in wiring and plumbing connexes and making sure they have proper egresses
- Toxicity exposure with used connexes
- Including it in the Zoning Code and holding public hearings to get input
- other popular building materials or dwellings is yurts and how far into the details does the Commission want to go
- Ongoing maintenance as property owner ages for a connex dwelling
- logistically impossible to ban one type of materials over another and what that language or code would look like and if all the boxes are checked for safety and habitability then it should not be excluded based on material.
- Specific areas in the city are allowed to have mobile homes
  - Mobile homes in other districts were in place before so are grandfathered in
  - Central Business District and Rural Residential allows mobile homes
- Designs can be reviewed on some really nice homes constructed out of connexes.
- Apply all requirements such as health and safety to all dwellings
- Building issues or development within the zoning code leads to development of a building code
- Cost of land in Homer does not lend to placing a connex dwelling
- Previous act setting a precedent
- Current economy and lack of availability may preclude this from being an issue
- Examples of connexes and mobile homes that have been totally changed appearance wise on the exterior
- Commissioners who are interested in proposing language work with planning staff to develop proposed code for review and discuss at a future meeting.
- Cabins installed on top of connexes out on the spit and if these should be regulated in some manner such as limiting the spread.
  - This is where we need to adopt a building code to address this issue
  - Then we will need a building department
    - Not sure how much longer the city can go on without having a building code and department

        - Commission can make a recommendation and Planning will then work with Administration and see where it goes
            - Listing of the situations where having a building code would be addressed that is not handled by zoning code
    - other neighboring first class cities have building departments
        - Permit fees would fund building permits
        - Inspection of properties/projects
    - Planning Department provide a list of situations, process for adoption, enforcement and working with the local professional community
        - date uncertain as to bringing back the information to the Commission on Building Department/Building Code

NEW BUSINESS

A. Memorandum from City Clerk re: Advisory Bodies 2022 Meeting Schedule

Chair Smith introduced the item by reading of the title.

City Planner Abboud commented on the typical meeting schedule noting the months where the Commission only meets once during those months.

BENTZ/HIGHLAND MOVED TO APPROVE THE RESOLUTION TO ESTABLISH THE 2022 MEETING SCHEDULE AS PRESENTED.

There was no discussion.

VOTE: NON-OBJECTION. UNANIMOUS CONSENT.

Motion carried.

INFORMATIONAL MATERIALS

A. City Manager's Report for October 25, 2021 City Council Meeting
B. Planning Commission Calendar

COMMENTS OF THE AUDIENCE

COMMENTS OF THE CITY STAFF

City Planner Abboud commented he was actually kind of excited about getting some of these initiatives and topics rolling and noted that while some of it is a little intimidating he felt that he was up for the challenge. Mr. Abboud stated that they got a lot of dots to connect, they kind of look at microcosms and then step back and kind of look at the macro issues that may be a bigger solution or better way to look at things.

Deputy City Clerk Krause commented that it was a good meeting and lots of good information.

City of Homer
www.cityofhomer-ak.gov

Office of the City Manager
491 East Pioneer Avenue
Homer, Alaska 99603
citymanager@cityofhomer-ak.gov
(p) 907-235-8121 x2222
(f) 907-235-3148

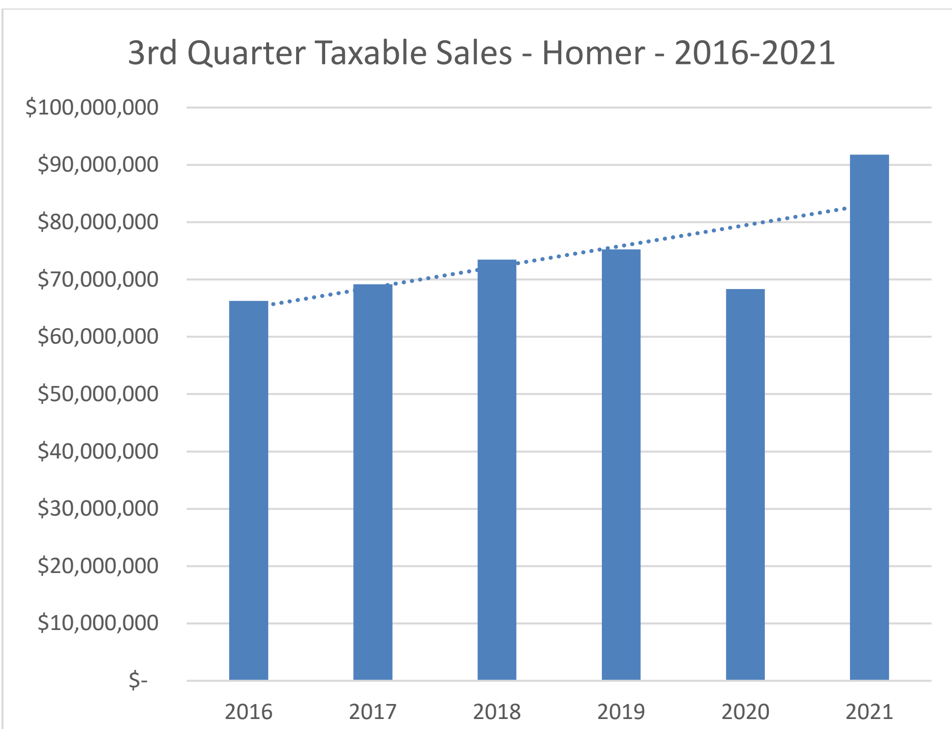
Memorandum

TO:	Mayor Castner and Homer City Council
FROM:	Rob Dumouchel, City Manager
DATE:	December 8, 2021
SUBJECT:	City Manager's Report for December 13, 2021 Council Meeting

Sales Tax Data

Sales tax is off to a very strong start for fiscal year 2022 which began in July 2021. The third quarter of calendar year 2021 (or first quarter of fiscal year 2022) set a record for the most taxable sales in Homer within a single quarter. This equates to approximately $4.45 million in expected sales tax revenue (includes General Fund, HART, HAWSP, and Police Station revenues).

The chart below shows the trend for taxable sales in the third quarter of each calendar year going back to 2016. With the recent change in fiscal year, it's going to be a little awkward talking about year over year trends. On the staff side, we'll do our best to make it clear when we're talking about calendar years or fiscal years to minimize confusion as we all get used to the change.



HERC Progress – Survey and Website

By the time of Monday's Council meeting, staff anticipates the website and community survey will be live and ready for responses. More information will be added to the website as time allows, including information Council requested during the recent work session. More public outreach to come!

Alaska Municipal League Conference

I attended the Alaska Municipal League (AML) conference as well as the Alaska Municipal Management Association (AMMA) conference in Anchorage the week of November 15th. Both conferences were valuable opportunities to learn from and collaborate with other local governments around the state on issues that affect us here in Homer. During the AMMA conference, I was voted onto the AMMA Board of Directors.

New Year's Fireworks Planning

Through the efforts of community members to organize and fundraise, New Year's Eve fireworks are returning to Mariner Park again this year. Staff from the Homer Police Department, Homer Volunteer Fire Department, Public Works, and Administration met with the special event applicant to discuss safety, traffic, etc. as it relates to the fireworks event. After discussing the possibility of using other locations on the spit, the fireworks will remain at Mariner Park with a much more coordinated effort between the special event permit holder and City staff. More event information, including how to support the fireworks financially, is available at: https://www.facebook.com/events/591640528720768/

Wayfinding Update

The Economic Development Commission's Wayfinding and Streetscape Plan is nearing the final draft. See the results at the EDC's meeting on Tuesday, December 14, 6:00pm, in person at City Hall or via zoom. The draft plan will also be posted on the Planning Department website after the meeting. Comments welcome until December 30th.

North Pacific Update

Alaska Scrap finished dismantling the derelict vessel North Pacific last month. They broke apart the vessel and transported scrap steel to a pile on the chip pad, which was then broken down to a size that can be resold. Other refuse went to the transfer station. Alaska Scrap is working with Port staff to schedule the loading of a scrap steel on to a barge load out across the Deep Water Dock later this winter.

Pacific Marine Expo - Seattle

Harbormaster Hawkins, along with the Marine Trades Association, represented the Port of Homer at the Pacific Marine Expo in Seattle. The Expo is a three-day tradeshow featuring all sectors of the commercial fishing industry. It has hundreds of exhibitors and thousands of visitors. Harbormaster Hawkins promoted Homer as a strategic and beneficial location to conduct maritime-related businesses.

Spit Power Outage Follow Up

On the night of Nov. 6-7, a power failure along the coastline caused disruption to radio communications at two sites. On the Spit, most of the equipment that relays emergency signals for police and fire automatically switched over to batteries, but the device that boosts the broadcast power was not included in that circuit. Without that boost, the signals coming off the tower could be received at close range but were too weak to reach most of the City. Fire Chief Kirko and IT Manager Nick Poolos set up a generator to power the signal booster, and the tower resumed full operations. The tower continued running off the generator all night, even after HEA restored service at 8 am. Communications briefly went down again when the generator ran out of fuel around 11 am. Fire personnel reconnected the tower to the HEA supply, which resolved the problem. Separately, the radio system at Public Works also switched over to battery power. It operated through the night but was not reconnected to HEA even after power was restored, and the batteries eventually died. Connecting the radios back to the HEA supply brought them back into operation.

These unexpected disruptions caused by the power outage led City staff to implement the following changes:

- For the Spit tower, parts have been ordered to wire the signal booster into the battery backup, along with all the other equipment.
- The Public Works relay tower has a new battery now. IT staff are working on a system that will automatically, rather than manually, switch the radios between main power and battery power as circumstances require.
- As part of ongoing radio upgrades, we are working to make sure all emergency devices are compatible with the Alaska Land Mobile Radio (ALMR) standards. That will allow messages to be sent from every device and every tower, which provides much greater redundancy.
- Communications procedures between the various departments have been overhauled, to ensure that key personnel have the information they need when they need it. The new plan was tested during a scheduled power outage on Nov. 15, and things went much more smoothly.
- The relay tower on Skyline Drive is also being fitted with new batteries. It would not have helped during this specific event, but it will be important in case of a power outage that affects the ridge.

The following changes have not yet been completed, but are recommended:

- HPD needs a status panel that announces when the police station itself switches over to generator power.
- Upgrading the microwave communications network, which is already in progress, will allow dispatch to access automatically-reported data such as alarms on batteries.

Opportunity to Acquire Bridge Creek Watershed Protection District Lots

The City has been contacted by Jay Farmwald, a land owner within the Bridge Creek Watershed Protection District. He and some friends individually own four lots about 3,500 feet east of the eastern end of the reservoir. A tributary to the main stem Bridge Creek traverses the properties. These land owners have approached the City with a proposal to sell two lots to the city, and grant drainage easements on two other lots. Council direction or a sponsor is needed to pursue these opportunities.

2022 KPEDD Industry Outlook Forum

The Kenai Peninsula Economic Development District's annual industry outlook forum is being held on January 6th between 8:15am and 3:40pm at the Kenai Visitor's Center. More information is included as an attachment to this report.

Community Rec Partners with Library on Sports Gear Lending Program

Through a collaborative effort with the Community Recreation program, the Sports Gear Library is now available through the Homer Public Library. If you have a library card, similar to checking out a book you can now check out some outdoor recreational equipment. There is a limited quantity and selection of items, but the intent is to encourage community members to get outside to play and recreate. Some items include sleds, ultimate Frisbees, balls, etc. If you do not see any items you are looking for we may be able to assist with connecting you to an organization who may be able to help. This is a free program and we will gladly accept any donated items that are clean, safe and in working condition that could be utilized by other community members.

Sister City Update

Do you have a memorable experience with Homer's Sister City Teshio, Japan that you'd like to share? The Consular Office of Japan in Anchorage is conducting a 'Japan-Alaska Sister Cities Photo + Essay Campaign' on the topic of "a Heartwarming Experience Achieved Through the Japan-Alaska Sister City Exchange." Residents of any age from all municipalities with formal Japan-Alaska sister city relationships are eligible to participate and can even win some great prizes! Submission deadline is February 4, 2022. See the enclosed flyer or visit https://www.anchorage.us.emb-japan.go.jp/itpr_en/11_000001_00215.html for more information.

Kachemak Bay State Park Trail Maintenance Training Grant
I provided a letter to the Alaska State Trail Program supporting a Recreational Trail Grant application submitted by the Homer Office, Kenai Area of Alaska State Parks for Kachemak Bay State Park. The Letter is included with this report.

Personnel Updates
Public Works: Public Works welcomed Pedro Ochoa as its new Building Maintenance Technician I. Pedro, a member of the Alaska Army National Guard's Infantry Airborne, has worked for the City of Homer for multiple years as a temporary employee, first with the PW Water & Sewer Department and most recently with Port & Harbor. Pedro is a graduate of Homer High School and has an Associates of Arts degree from the UAA's Kachemak Bay Campus. Pedro is an elite runner, having represented the National Guard in marathon events across the country.

Finance: We are excited to share the news that Tamara Fletcher has joined the Finance team. She previously worked for the Port and Harbor and brings with her several years of accounts payable experience. We are looking forward to how her experience can assist the department in developing clear and easy to follow procedures.

Port & Harbor: On December 6th we welcome Del Masterhan as the new Ice Plant/Fish Dock supervisor. Del has a wealth of experience working at sea as Chief Engineer onboard catcher processors as well onshore based industrial refrigeration systems in the fish processing industry. Most recently Del was employed with Ocean Marine Services as their Port Engineer. In that position Del was responsible for the maintenance of the OMSI fleet both while at Sea and served as project manager when the company had their vessels in a shipyard for repairs. Burt and Dell will be busy for the next month working towards this transition and of course making the off season repairs to the plant to make sure it's ready for business next March.

Administration: Renee Krause, MMC, Deputy City Clerk was elected to serve a two year term as Treasurer for the Alaska Association of Municipal Clerks (AAMC) at their November Annual Meeting. Renee has served on the AAMC Finance Committee for 6 years and will now take it to the next level and with this important seat on the Executive Board. Congratulations Renee!

Enclosures:

1. Sales tax memo and attachments
2. Map of Potential Bridge Creek Acquisitions
3. KPEDD Industry Outlook Forum Flyer and Agenda
4. Sister City Flyer
5. Trail Grant Letter of Support

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491 East Pioneer Avenue
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citymanager@cityofhomer-ak.gov
(p) 907-235-8121 x2222
(f) 907-235-3148

Memorandum

TO: MAYOR CASTNER AND CITY COUNCIL

FROM: Andrea Browning

DATE: December 13, 2021

SUBJECT: December Employee Anniversaries

I would like to take the time to thank the following employees for the dedication, commitment and service they have provided the City and taxpayers of Homer over the years.

Mark Robl	**Police**	**37**	**Years**
Bryan Hawkins	**Port**	**22**	**Years**
Todd Cook	**Public Works**	**12**	**Years**
Sean Perry	**Police**	**7**	**Years**
Mike Zelinski	**Public Works**	**7**	**Years**
Josh Mershon	**Port**	**2**	**Years**
Luis Yoder	**Fire**	**2**	**Years**
Regina Johanos	**Library**	**1**	**Year**

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Finance Department
491 East Pioneer Avenue
Homer, Alaska 99603
finance@cityofhomer-ak.gov
(p) 907-235-8121
(f) 907-235-3140

Memorandum

TO: Mayor Castner and Homer City Council

THROUGH: Rob Dumouchel, City Manager

FROM: Elizabeth Walton, Finance Director

DATE: December 7, 2021

SUBJECT: 3[4d] Quarter Sales Tax Analysis

The purpose of this memo is to provide contextual information associated with taxable sales figures for the 3rd quarter of calendar year 2021 (now 1st quarter of fiscal year 2022 with the change in City fiscal year which went into effect on July 1, 2021). Also provided in this memo is an analysis of sales tax revenue received to date for Fiscal Year 2022.

Basic Sales Tax Information:

Sales tax is one of the primary drivers of revenue for the General Fund as it represents roughly 46% of total projected revenue for the FY22 budget. Consumers in Homer pay a sales tax rate of 7.85%. Of that, 3% goes to the Kenai Peninsula Borough while the other 4.85% is remitted to the City of Homer. The majority of City sales tax (3%) collected goes to the General Fund to cover the expenses associated with providing core services. Other dedicated purposes of the City of Homer share of sales tax are as follows: HART (0.75%), HAWSP (0.75%), Public Safety Operations and Infrastructure (0.35%).

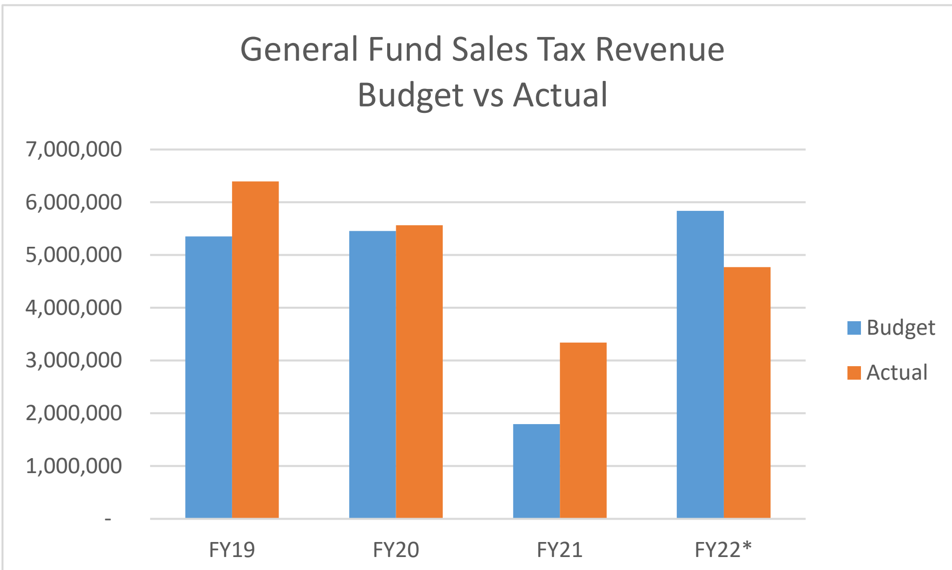
Sales Tax Destination	Sales Tax Amount Charged to Consumers*
Kenai Peninsula Borough	3%
Homer General Fund	3%
Homer Accelerated Roads and Trails	.75%
Homer Accelerated Water and Sewer Program	.75%
Homer Police Station	.35%

*Sales tax is only charged on the first $500 of a single purchase

An important reminder is that the City of Homer does not collect sales tax directly. The City elects for the Kenai Peninsula Borough to collect, administer and then remit sales tax revenue to us. KPB remits sales tax revenue to the City on a monthly basis, but there is a two month “lag” in the revenue received. This means that the revenue that is received by the City in one month is not a reflection on sales tax actually earned in that particular month. Finance makes an accounting entry at the end of the year to adjust for this delay. This is important to keep in mind when comparing sales tax revenue received vs. taxable sales.

General Fund Sales Tax Revenue Analysis:

The General Fund budgeted sales tax for FY22 is $5,837,403, with an additional $207,225 budgeted for remote sales tax. Actual current data for FY22 (July 1, 2021 – November 30, 2021) reports that the City has received $4,771,119 in sales tax and $69,033 in remote sales tax. It looks realistic for the City to exceed budget expectations for FY22 as the General Fund has already received 82% of budgeted sales tax. If current trends continue, the City should have no issue meeting remote sales tax budget expectations for FY22, as the General Fund has received 33% of budgeted remote sales tax.



***FY22 data is reflective of sales tax revenue received July – November 2021.**

Enclosures:

Accompanying this memo are four documents to help provide context to the historical trends associated with sales tax revenue.

Attachment A provides a data set of Line of Business (LOB) taxable sales for the 3rd quarter going back to 2016. The LOB categories are determined and reported by the Kenai Peninsula Borough. The biggest dollar share in taxable sales has historically came from the Retail Trade sector and this quarter is no different. This sector experienced a 20% increase comparative to the 3rd quarter in 2020 and a 21% increase over 2019. Most of the sectors tied closely with the tourism industry rebounded in 2021 comparative to 2020 and came back in line (and above) with taxable sales in 2019. Overall, the City experienced a roughly 34% increase in taxable sales comparative to the 3rd quarter in 2020 and a 22% increase over 2019.

Attachment B provides a data set comparing the LOB taxable sales on a quarterly basis back to 2017.

Attachment C provides a data set of sales tax revenue collected on a quarterly basis going back to 2017. The sales tax data is broken out by the funds that received a portion of the total revenue. One thing to note is that HART sales tax was diverted into the General Fund for fiscal years 2016-2018. In 2019, HART began receiving their respective share of the overall revenue. Also to note in 2019, the sales tax rate increased to fund debt service payments and maintenance of the police station facility.

Attachment D provides a data set of sales tax revenue collected in the 3rd and 4th quarters of each calendar year going back to 2016. The purpose of this chart is to provide current fiscal year to date sales tax revenue comparison with previous years using the same time interval (July – December).

Attachment A

3rd Quarter LOB Taxable Sales
Presented November 18, 2021

	2016	2017	2018	2019	2020	2021	% Δ 2021 - 2020	% Δ 2021 - 2019
ADMINISTRATIVE, WASTE MAN	401,661	336,793	204,971	202,322	162,542	317,064	95%	57%
AGRICULTURE, FORESTRY, FI	144,270	205,859	234,217	202,286	187,204	221,045	18%	9%
ARTS AND ENTERTAINMENT	677,310	674,135	737,507	731,228	477,017	879,483	84%	20%
CONSTRUCTION CONTRACTING	486,586	381,548	385,926	336,222	397,914	473,646	19%	41%
EDUCATIONAL SERVICES	47,609	53,633	55,190	75,184	44,879	52,725	17%	-30%
FINANCE AND INSURANCE	16,893	28,566	25,924	29,481	40,410	22,441	-44%	-24%
GUIDING LAND	132,975	169,829	228,047	258,602	79,186	188,069	138%	-27%
GUIDING WATER	6,225,895	6,158,152	6,061,804	5,988,975	4,822,074	9,582,806	99%	60%
HEALTH CARE AND SOCIAL AS	131,576	134,541	80,786	45,090	28,941	112,550	289%	150%
HOTEL/MOTEL/BED & BREAKFA	7,026,750	7,153,924	7,518,922	8,375,973	6,389,397	10,468,820	64%	25%
INFORMATION	1,108,504	1,093,603	1,031,736	1,037,924	935,171	716,705	-23%	-31%
MANAGEMENT OF COMPANIES	-	-	-	311,026	-	-	0	-100%
MANUFACTURING	581,747	633,841	641,802	715,234	687,424	850,127	24%	19%
MINING/QUARRYING	-	-	150	10,926	26,838	42,077	57%	285%
PROFESSIONAL, SCIENTIFIC	732,636	771,398	770,672	761,163	823,623	819,924	0%	8%
PUBLIC ADMINISTRATION	2,150,884	2,560,676	2,458,720	2,845,900	3,105,875	2,921,998	-6%	3%
REMEDIATION SERVICES	-	-	-	-	-	-	0%	0%
RENTAL COMMERCIAL PROPERT	63,881	101,707	130,158	95,207	81,163	92,538	14%	-3%
RENTAL NON-RESIDENTAL PRO	256,561	246,013	238,829	234,955	129,139	201,955	56%	-14%
RENTAL OF SELF-STORAGE &	643,544	561,005	528,323	537,757	570,643	683,119	20%	27%
RENTAL PERSONAL PROPERTY	229,364	242,233	259,883	229,691	216,695	287,696	33%	25%
RENTAL RESIDENTAL PROPERT	1,799,042	1,835,339	1,880,675	1,834,018	1,708,348	2,044,382	20%	11%
RESTAURANT/BAR	8,195,446	8,780,547	9,542,688	9,553,633	6,529,920	11,337,427	74%	19%
RETAIL TRADE	29,665,962	30,421,714	34,053,544	34,490,183	34,754,701	41,805,658	20%	21%
SERVICES	2,202,016	2,645,475	2,305,938	2,586,137	2,465,235	2,980,616	21%	15%
TELECOMMUNICATIONS	419,879	428,326	511,781	332,138	468,600	495,505	6%	49%
TELECOMMUNICATIONS-CABLE	235	1,811	1,305	691	809	2,386	195%	245%
TIMBERING	-	430	-	-	-	-	0%	0%
TRANSPORTATION AND WAREHO	1,110,780	1,569,692	1,545,966	1,410,586	1,072,654	1,918,578	79%	36%
UTILITIES	1,602,262	1,795,759	1,757,390	1,727,760	1,812,700	1,958,574	8%	13%
WHOLESALE TRADE	193,516	214,032	298,755	280,016	291,360	295,931	2%	6%
TOTAL	**66,247,784**	**69,200,581**	**73,491,609**	**75,240,308**	**68,310,460**	**91,773,846**	**34%**	**22%**
Applied Sales Tax 4.85%*	**3,213,018**	**3,356,228**	**3,564,343**	**3,649,155**	**3,313,057**	**4,451,032**	**1,137,974**	**801,877**

*Effective January 1, 2019 the sales tax rate for the City of Homer was increased from 4.5% to 4.85%. The applied rate of 4.85% is used here for comparison puposes only. This value is derived by mutiplying the total taxable sales by the sales tax rate.

This chart represents taxable sales that are collected by KPB and does not include taxable sales collected by ARSSTC.

Attachment B

Quarterly LOB Taxable Sales

Presented November 18, 2021

	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021
ADMINISTRATIVE, WASTE MAN	207,412	305,688	336,793	164,649	155,528	203,986	204,971	155,250	136,996	211,749	202,322	166,876	126,571	115,955	162,542	152,225	158,366	200,697	317,064
AGRICULTURE, FORESTRY, FI	14,600	144,996	205,859	49,869	33,710	203,853	234,217	37,022	640,248	160,020	202,286	44,149	18,712	111,415	187,204	41,097	18,509	163,842	221,045
ARTS AND ENTERTAINMENT	249,016	472,227	674,135	328,352	249,287	501,469	737,507	277,357	253,475	548,940	731,228	303,677	216,312	165,688	477,017	145,134	147,074	514,908	879,483
CONSTRUCTION CONTRACTING	484,978	438,379	381,548	372,787	315,934	409,170	385,926	386,079	333,640	373,100	336,222	364,590	367,431	392,005	397,914	487,741	491,123	416,849	473,646
EDUCATIONAL SERVICES	71,272	52,994	53,633	66,973	61,687	54,866	55,190	78,859	58,316	56,928	75,184	90,528	72,931	42,283	44,879	58,566	53,019	44,623	52,725
FINANCE AND INSURANCE	19,204	23,980	28,566	30,128	27,385	25,820	25,924	27,189	28,275	36,654	29,481	26,563	26,553	19,785	40,410	25,265	24,390	25,729	22,441
GUIDING LAND	-	94,324	169,829	5,898	-	105,778	228,047	-	-	125,677	258,602	-	-	42,822	79,186	477	-	88,796	188,069
GUIDING WATER	36,497	2,697,548	6,158,152	117,984	79,447	2,869,368	6,061,804	134,694	187,753	2,985,820	5,988,975	120,809	110,697	1,359,274	4,822,074	193,829	274,578	4,896,767	9,582,806
HEALTH CARE AND SOCIAL AS	77,243	126,554	134,541	54,418	80,890	95,062	80,786	50,658	78,958	62,473	45,090	38,063	21,795	15,422	28,941	16,437	11,280	52,394	112,550
HOTEL/MOTEL/BED & BREAKFA	1,532,096	4,558,923	7,153,924	1,641,953	1,490,223	4,422,516	7,518,922	1,455,582	1,543,084	4,629,194	8,375,973	1,734,109	1,279,481	2,828,851	6,389,397	1,710,573	1,865,239	6,938,219	10,468,820
INFORMATION	1,020,993	1,084,186	1,093,603	985,693	972,981	1,061,677	1,031,736	1,008,965	984,852	978,052	1,037,924	992,162	983,669	883,165	935,171	710,741	669,902	747,268	716,705
MANAGEMENT OF COMPANIES	-	-	-	-	-	-	-	-	-	126,214	311,026	-	-	10,508	-	-	-	-	-
MANUFACTURING	225,385	503,806	633,841	318,410	249,843	530,866	641,802	339,803	281,903	756,819	715,234	406,462	344,961	505,214	687,424	428,970	417,190	713,612	850,127
MINING/QUARRYING	500	-	-	-	-	-	150	150	150	1,150	10,926	19,981	3,220	14,961	26,838	21,611	3,618	28,586	42,077
PROFESSIONAL, SCIENTIFIC	698,422	708,767	771,398	700,387	691,012	756,620	770,672	680,434	648,929	785,571	761,163	635,037	702,504	767,048	823,623	763,313	856,513	857,983	819,924
PUBLIC ADMINISTRATION	1,100,933	1,309,629	2,560,676	999,094	816,016	1,427,693	2,458,720	1,143,132	829,928	1,432,737	2,845,900	1,022,188	971,581	1,368,423	3,105,875	874,562	866,942	1,466,313	2,921,998
REMEDIATION SERVICES	32,666	-	-	-	38,717	-	-	-	33,767	-	-	-	-	-	-	-	-	-	-
RENTAL COMMERCIAL PROPERT	58,558	96,775	101,707	61,466	69,250	85,800	130,158	64,428	196,565	99,765	95,207	60,191	58,935	80,696	81,163	71,944	62,633	72,545	92,538
RENTAL NON-RESIDENTAL PRO	128,347	180,793	246,013	146,382	144,070	187,303	238,829	148,707	138,064	184,240	234,955	126,417	92,816	90,896	129,139	96,490	89,296	155,709	201,955
RENTAL OF SELF-STORAGE &	201,259	248,428	561,005	284,593	232,561	265,933	528,323	276,934	217,415	272,863	537,757	294,635	231,287	271,739	570,643	322,683	230,502	289,507	683,119
RENTAL PERSONAL PROPERTY	138,081	197,202	242,233	150,791	148,701	210,142	259,883	157,676	141,046	221,419	229,691	174,262	165,835	194,678	216,695	192,495	172,735	214,495	287,696
RENTAL RESIDENTAL PROPERT	1,035,396	1,512,623	1,835,339	1,140,120	1,146,434	1,638,398	1,880,675	1,089,752	1,077,295	1,632,238	1,834,018	1,116,156	1,101,887	1,402,570	1,708,348	1,140,114	1,085,363	1,703,802	2,044,382
RESTAURANT/BAR	2,787,404	6,211,565	8,780,547	3,337,515	3,101,373	6,773,895	9,542,688	3,482,700	3,179,549	6,848,886	9,553,633	3,501,273	2,514,895	3,762,292	6,529,920	2,851,904	2,841,878	8,170,597	11,337,427
RETAIL TRADE	12,505,192	24,992,523	30,421,714	15,948,127	12,769,708	27,043,054	34,053,544	17,314,037	14,151,272	29,033,873	34,490,183	18,463,774	15,612,943	27,598,497	34,754,701	20,013,292	17,584,839	34,839,450	41,805,658
SERVICES	1,799,351	2,703,585	2,645,475	2,078,565	1,894,742	2,768,109	2,305,938	2,071,964	1,749,725	2,701,456	2,586,137	2,001,089	1,608,833	2,196,866	2,465,235	2,059,134	1,742,283	2,875,372	2,980,616
TELECOMMUNICATIONS	408,560	430,719	428,326	440,014	449,669	469,468	511,781	534,464	401,118	337,618	332,138	334,477	335,461	440,569	468,600	462,880	446,343	490,947	495,505
TELECOMMUNICATIONS-CABLE	627	642	1,811	2,771	574	1,202	1,305	519	495	6,282	691	429	861	516	809	1,932	694	1,389	2,386
TIMBERING	500	-	430	-	-	-	-	500	505	-	-	-	-	-	-	-	-	-	-
TRANSPORTATION AND WAREHO	190,285	780,040	1,569,692	178,728	177,563	853,236	1,545,966	168,374	196,800	925,578	1,410,586	165,792	195,409	347,778	1,072,654	252,295	201,873	1,209,752	1,918,578
UTILITIES	2,322,217	1,992,650	1,795,759	2,156,588	2,445,497	2,058,123	1,757,390	2,045,862	2,503,521	2,114,934	1,727,760	2,028,860	2,710,459	2,197,539	1,812,700	2,365,856	2,683,123	2,348,284	1,958,574
WHOLESALE TRADE	262,379	317,823	214,032	421,454	325,567	355,069	298,755	355,568	296,494	398,831	280,016	223,920	273,328	338,319	291,360	208,920	303,219	450,299	295,931
TOTAL	**27,609,373**	**52,187,369**	**69,200,581**	**32,183,709**	**28,168,369**	**55,378,476**	**73,491,609**	**33,486,659**	**30,290,138**	**58,049,081**	**75,240,308**	**34,456,469**	**30,149,367**	**47,565,777**	**68,310,460**	**35,670,480**	**33,302,524**	**69,978,734**	**91,773,846**
Applied Sales Tax 4.85%*	**1,339,055**	**2,531,087**	**3,356,228**	**1,560,910**	**1,366,166**	**2,685,856**	**3,564,343**	**1,624,103**	**1,469,072**	**2,815,380**	**3,649,155**	**1,671,139**	**1,462,244**	**2,306,940**	**3,313,057**	**1,730,018**	**1,615,172**	**3,393,969**	**4,451,032**

*Effective January 1, 2019 the sales tax rate for the City of Homer was increased from 4.5% to 4.85%. The applied rate of 4.85% is used here for comparison puposes only. This value is derived by mutiplying the total taxable sales by the sales tax rate.

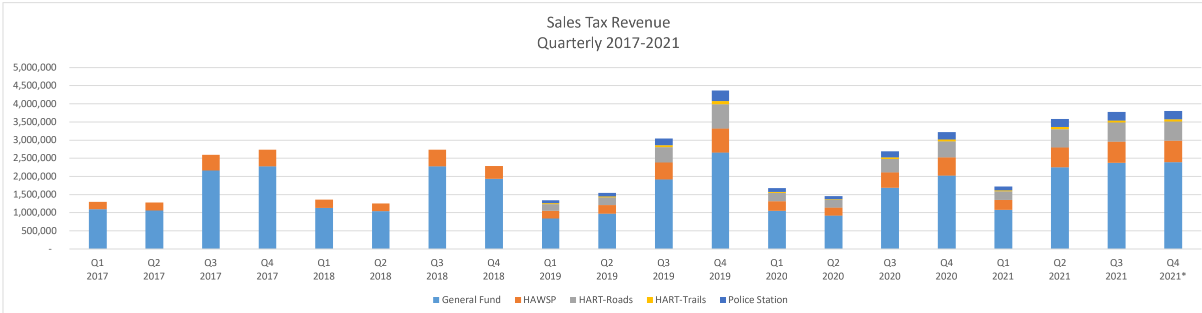
This chart represents taxable sales that are collected by KPB and does not include taxable sales collected by ARSSTC.

Attachment C

Quarterly Sales Tax Revenue

Presented December 13, 2021

	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021*
General Fund	1,098,377	1,068,738	2,167,895	2,282,295	1,136,958	1,049,686	2,285,324	1,937,016	848,744	972,481	1,917,010	2,656,754	1,058,824	921,925	1,694,506	2,026,245	1,085,933	2,257,774	2,375,582	2,395,537
HAWSP	203,692	213,799	433,683	456,366	227,446	209,988	457,167	349,894	208,708	239,135	471,396	663,850	260,367	226,703	416,682	498,129	267,033	546,802	584,159	589,067
HART-Roads	-	-	-	-	-	-	-	-	187,837	215,221	424,256	675,890	234,330	204,033	375,014	448,446	240,329	500,650	525,744	530,160
HART-Trails	-	-	-	-	-	-	-	-	20,871	23,913	47,140	81,879	26,037	22,670	41,668	49,942	26,703	63,208	58,416	58,907
Police Station	-	-	-	-	-	-	-	-	83,483	95,654	188,558	297,006	104,147	90,681	166,673	199,252	106,813	218,721	233,664	235,627
Total	**$ 1,302,069**	**$ 1,282,537**	**$ 2,601,579**	**$ 2,738,660**	**$ 1,364,404**	**$ 1,259,673**	**$ 2,742,491**	**$ 2,286,910**	**$ 1,349,642**	**$ 1,546,404**	**$ 3,048,360**	**$ 4,375,378**	**$ 1,683,704**	**$ 1,466,011**	**$ 2,694,542**	**$3,222,014**	**$ 1,726,812**	**$ 3,587,155**	**$ 3,777,565**	**$3,809,297**



Key Points:

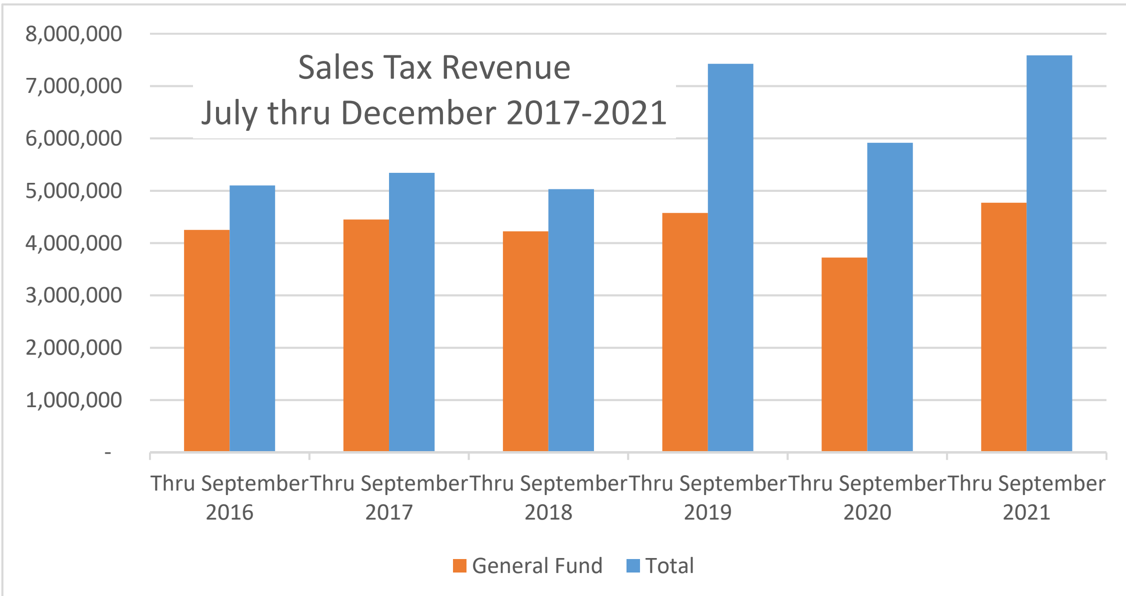
- HART Sales Tax was diverted into the General Fund from 2016-2018
- Sales Tax increased in 2019 to fund debt service payments associated with Police Station bond

*Q4 2021 - Sales Tax Revenue thru 11/30/21

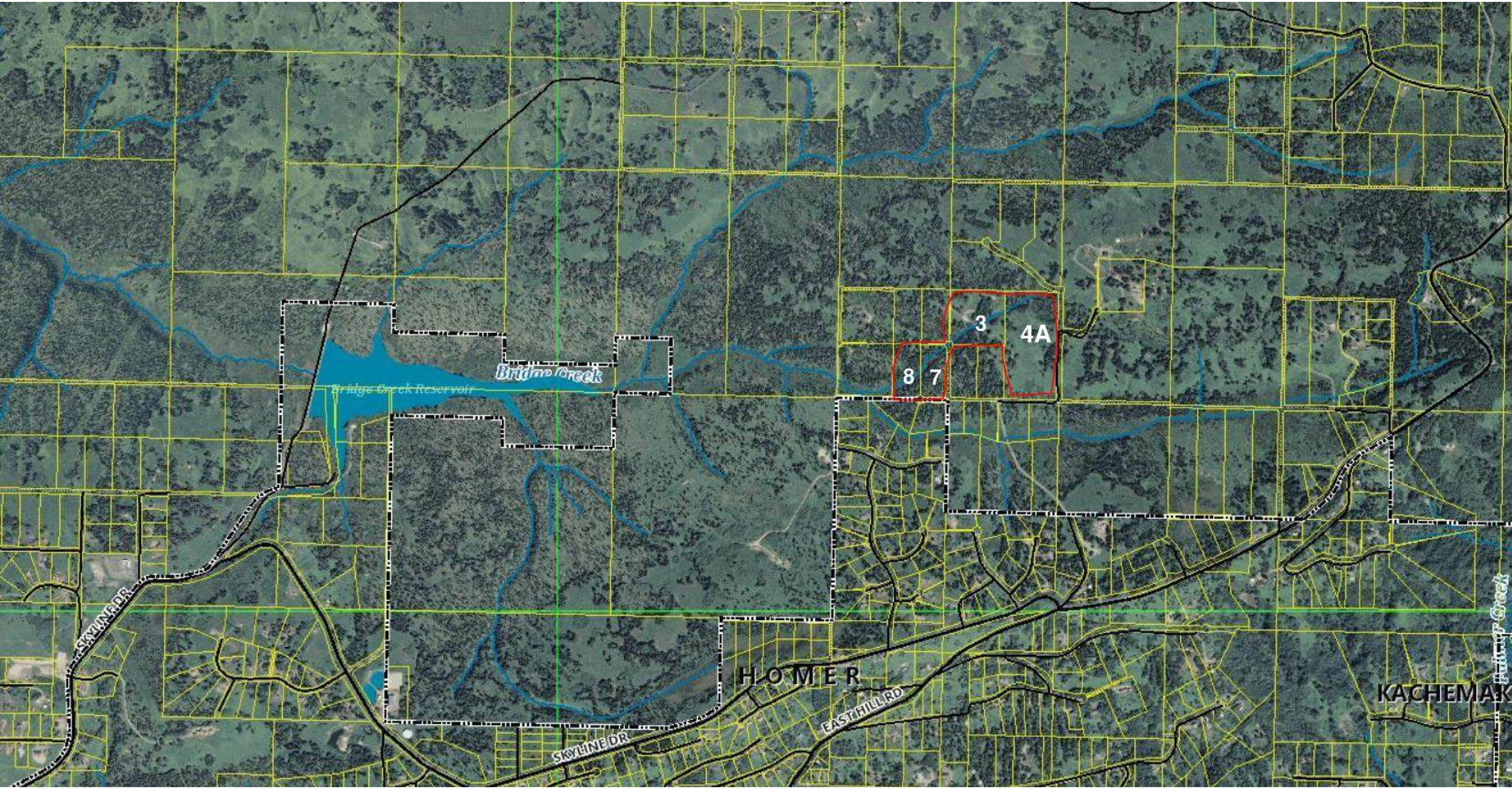
Attachment D

FY22 YTD Sales Tax Revenue
Presented December 13, 2021

	Q3 & Q4 2016	Q3 & Q4 2017	Q3 & Q4 2018	Q3 & Q4 2019	Q3 & Q4 2020	FY22 YTD*
General Fund	4,249,316	4,450,190	4,222,340	4,573,763	3,720,751	4,771,119
HAWSP	850,174	890,049	807,061	1,135,245	914,811	1,173,226
HART-Roads	-	-	-	1,100,146	823,459	1,055,903
HART-Trails	-	-	-	129,019	91,611	117,323
Police Station	-	-	-	485,564	365,924	469,290
Total	**5,099,489**	**5,340,239**	**5,029,401**	**7,423,738**	**5,916,556**	**7,586,862**



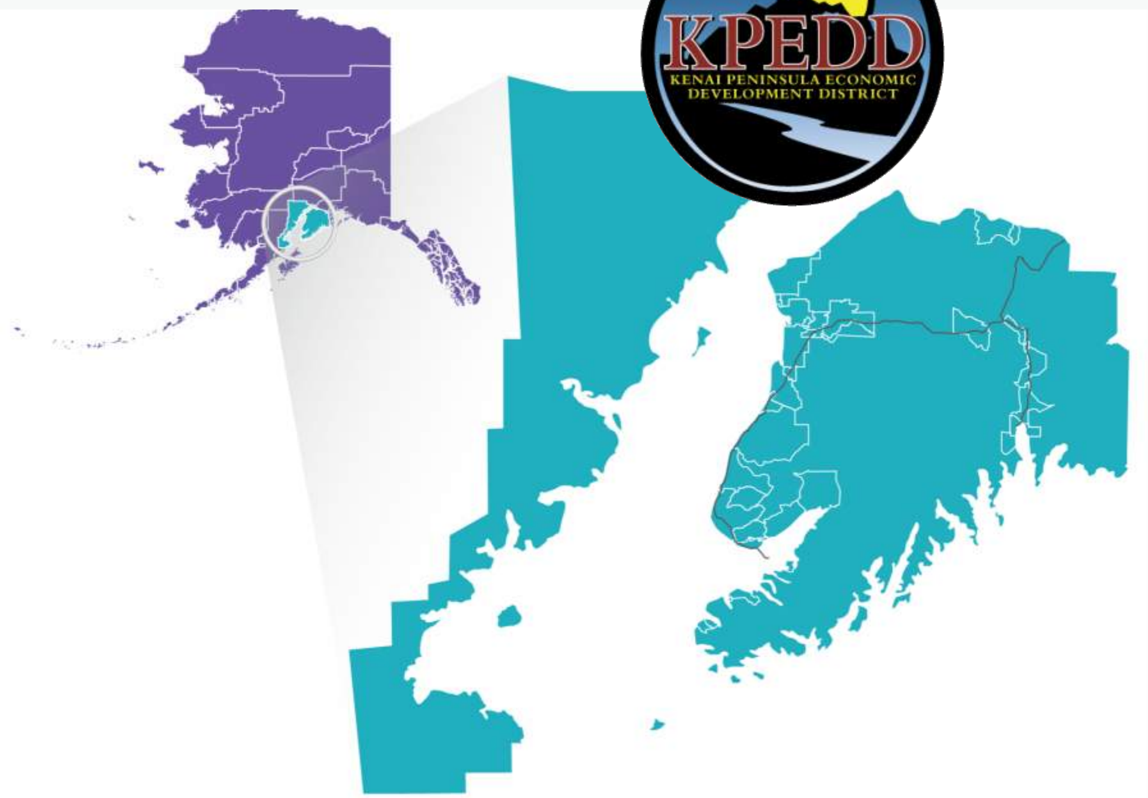
*FY22 YTD - represents sales tax revenue received July - November 2021



Bridge Creek
Bridge Creek Reservoir
3
4A
8
7
HOMER
KACHEMAK
SKYLINE DR
EAST HILL RD
SKYLINE DR

KPEDD 2022

INDUSTRY OUTLOOK FORUM



KENAI VISITOR'S CENTER

JANUARY 6TH, 2022

8:15AM-3:40PM

KENAI, ALASKA

REGISTER HERE:

HTTPS://FORMS.GLE/BKX83NDHOM78W22A

2022 INDUSTRY OUTLOOK FORUM

HOSTED BY

Kenai Peninsula Economic Development District

And Supported By

Cities and Chambers of Commerce of:

Kenai, Soldotna, Homer, and Seward

Thursday, January 6th, 2022 – Kenai Chamber of Commerce in Kenai, Alaska

8:15	Registration & Continental Breakfast	30 min
8:45 - 8:50	Safety Minute *Brittany Brown, Executive Director of the Kenai Chamber*	5 min
8:50 – 8:55	Pledge of Allegiance & Overview of the Day *Tim Dillon, Executive Director of KPEDD*	5 min
8:55 – 9:05	Welcome & Update *Brian Gabriel, Mayor of Kenai*	10 min
9:05 – 9:20	***Regional Real Estate Update:*** *Dale Bagely, President Elect Alaska Association of Realtors*	15 min
9:20 – 9:50	***Tourism Update:*** *Sarah Leonard, CEO Alaska Travel Industry Association (ATIA)*	30 min
9:50 – 10:10	***State of Alaska Marine Highway System Update:*** *Robert Venebles, Executive Director Southeast Conference*	20 min
10:10 – 10:20	Networking Break	10 min
10:20 – 10:40	***Medical Services Impact on the Economy:*** *Jared Kosin, President and CEO, Alaska State Hospital and Nursing Home Association*	20 min
10:40 – 11:10	***Transition and Succession Planning for Businesses:*** *Jon Bittner, Executive Director Alaska Small Business and Development Center (AKSBDC)*	30 min

11:10 – 11:35	**KPEDD Resources and Business Resiliency Program:** Cassidi Cameron, Kenai Peninsula Development District	25min
11:35-11:40	**Central Peninsula Young Professionals:** Kim Sparacio, Monique Burgin	5 min.
11:40 – 12:00	***Hilcorp Update**:* Vanessa Hughes, Asset Team Leader	20 min
12:00 – 1:00	**Lunch*: The Kenai Peninsula Solar Farm*** Brad Janorschke, General Manager Homer Electric Association Jenn Miller, Chief Executive Officer Renewable IPP CEO	1 hr
1:00 – 1:20	***Alaska Manufacturing:*** Alyssa Rodrigues, Director	20 min
1:20 – 1:40	***Mariculture Update:*** Julie Decker, Executive Director Alaska Fisheries Development Foundation	20 min
1:40 – 1:50	**Networking Break**	10 min
1:50 – 2:10	***Kenai Peninsula Borough Land Management Update:*** Marcus Mueller, Land Management Officer	20 min
2:10 – 2:40	***Gas and Oil Update:*** Kara Moriarty, CEO Alaska Oil and Gas Association	30 min
2:40 – 3:10	**Statewide CEDS and Economy Update:** Nolan Klouda, Executive Director University Of Alaska Center for Economic Development	30 min
3:10 – 3:30	***Allutiiq Pride Marine Institute* –** An introduction: Jeff Hetrick, APMI Director	20 min
3:30 – 3:40	**KPEDD Upcoming Events and Closing** Tim Dillon, Executive Director	10 min

The Consular Office of Japan in Anchorage

Presents:

Japan-Alaska Sister Cities Photo + Essay Campaign

Eligibility	Submission	Deadline
Residents from municipalities with Japan-Alaska sister city relationships are eligible to participate. There will be an 'adult' category (19 and over) and a 'youth' category (under 19).	1-5 photos and an essay About 100-1000 words long (English)	12:00 pm on February 4, 2022 (Alaska time)

For more information on eligibility and submission guidelines, please see the Consular Office's homepage:

https://www.anchorage.us.emb-japan.go.jp/itpr_en/11_000001_00215.html

COJ-ANC

Office of the City Manager
491 East Pioneer Avenue
Homer, Alaska 99603

City of Homer

www.cityofhomer-ak.gov

citymanager@cityofhomer-ak.gov
(p) 907-235-8121 x2222
(f) 907-235-3148

Alaska State Trail Program
RTP Grant Administrators
550 W. 7th Ave, Suite 1380
Anchorage AK 99501-3561

To Whom It May Concern,

I am writing to express the City of Homer's support for the Recreational Trail Grant proposal/application submitted by the Homer Office, Kenai Area of Alaska State Parks for Kachemak Bay State Park.

The trails in Kachemak Bay State Park are highly valued by the people of Homer. Trail Maintenance Trainings will be a highly prized educational opportunity for the citizens of Homer. The knowledge the members of this training will benefit not only volunteers of the Park, but also volunteers who contribute their time and energy to trails in and around Homer.

I encourage the approval of this application to fund Trail Maintenance Training submitted by Kachemak Bay State Park. Thank you for taking the time to consider this important project.

Sincerely,

Rob Dumouchel
City Manager

Planning Department

144 N. Binkley Street, Soldotna, Alaska 99669 • (907) 714-2200 • (907) 714-2378 Fax

Charlie Pierce
Borough Mayor

November 30, 2021

NOTICE OF DECISION
KENAI PENINSULA BOROUGH PLAT COMMITTEE
MEETING OF NOVEMBER 29, 2021

Re: West Hill Subdivision Harness Addition Preliminary Plat
KPB File Number: 2021-021r1

The Plat Committee reviewed and granted conditional approval of the subject preliminary plat during their regularly scheduled meeting of November 29, 2021 based on the findings that the preliminary plat meets the requirements of the Kenai Peninsula Borough Code 20.25, 20.30. 20.40, and must meet 20.60.

A party of record may request that a decision of the Plat Committee be reviewed by the Planning Commission by filing a written request within 15 days of notification of the decision in accordance with KPB 2.40.080.

For additional information please contact the Planning Department, 907-714-2200 (1-800-478-4441 toll free within the Kenai Peninsula Borough).