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

City of Homer
Agenda

Public Works Campus Task Force Regular Meeting
Wednesday, July 28, 2021 at 4:30 PM
City Hall Cowles Council Chambers

CALL TO ORDER, 4:30 P.M.

AGENDA APPROVAL

PUBLIC COMMENTS UPON MATTERS ALREADY ON THE AGENDA

APPROVAL OF MINUTES

A. Minutes for the Regular Meeting of July 14, 2021 **pg 3**

VISITORS/PRESENTATIONS

REPORTS

PENDING BUSINESS

A. Draft Memorandum for the Final Report to City Council
- Final Revision Draft **pg 10**
- Draft Memorandum from Member Slone and Member Keiser **pg 15**

B. Draft Final Report to City Council on Tsunami Risk to Public Works Campus **pg 19**
- Exhibits proposed to be included (not in prioritized order) **pg 39**

NEW BUSINESS

A. Draft PowerPoint Presentation to City Council

B. Next Steps

INFORMATIONAL MATERIALS

COMMENTS OF THE AUDIENCE

COMMENTS OF CITY STAFF

COMMENTS OF THE TASK FORCE

ADJOURNMENT

Next Regular Meeting is Wednesday, August 11, 2021, at 4:30 p.m. All meetings scheduled to be held in the City Hall Cowles Council Chambers located at 491 E. Pioneer Avenue, Homer, Alaska.

Session 21-09, a Regular Meeting of the Public Works Campus Task Force was called to order by Chair Donna Aderhold at 4:31 p.m. on July 14, 2021 via Zoom Webinar from the City Hall Cowles Council Chambers located at 491 E. Pioneer Avenue, Homer, Alaska. One seat is vacant due to resignation.

PRESENT: MEMBERS ENGEBRETSEN, SLONE, VENUTI, KEISER, ADERHOLD, BARNWELL

STAFF: RENEE KRAUSE, DEPUTY CITY CLERK

AGENDA APPROVAL

Chair Aderhold requested a motion to amend the agenda to move New Business Item A to Pending Business Item B and renumbering Pending Business item B to Item C.

SLONE/VENUTI – MOVED TO AMEND THE AGENDA AS REQUESTED.

There was no discussion.

VOTE. NON-OBJECTION. UNANIMOUS CONSENT.

Motion carried.

There was no further discussion.

The amended agenda was approved by Consensus of the Task Force.

PUBLIC COMMENTS UPON MATTERS ALREADY ON THE AGENDA

APPROVAL OF MINUTES

A. Regular Meeting Minutes for June 23, 2021

Chair Aderhold requested a motion to approve the minutes of June 23, 2021.

SLONE/KEISER MOVED TO APPROVE THE MINUTES AS PRESENTED.

There was no discussion.

VOTE. NON-OBJECTION. UNANIMOUS CONSENT.

Motion carried.

VISITORS/PRESENTATIONS

REPORTS

PENDING BUSINESS

A. Memorandum from Public Works Director re: Costs Related to Incremental Approach

Chair Aderhold introduced the item by reading of the title and invited Public Works Director Keiser to speak to her memorandum.

Ms. Keiser provided a summary of her memorandum and facilitated discussion on the following items:

- Site selection and recommendation
    - Could use a smaller site to relocate the equipment, materials and mechanic shop
    - Offices could be located in separate location, the Maintenance facility in Soldotna was provided as an example.
- Cost estimates
    - Does not include fencing or security camera systems, costs for cameras run approximately $20,000
    - Not an exact figure just representative for the land cost, current site of interest is $575,000
- Utilizing the existing facility for the Parks and Building Maintenance departments would lower the costs for a new facility and move those departments from the HERC facility
    - While there would be the potential to lose equipment the impact would not be detrimental to the functions of the city and recovery in the case of a tsunami event
    - Replacement costs would be substantially less for materials and equipment
    - This point should be included in the report to Council
- New Fueling Depot could be placed on new site within the appropriate budget of $200,000
    - Old Police Department location is not a suitable location as there is not enough room even for temporary placement
- Project can be phased, utmost importance is on the purchase of land since there are extremely limited locations available currently
    - Current facility which includes the Sewer Treatment Plant and Lagoon is about 5 acres
    - 2 acres would be sufficient to start with option to purchase additional surrounding land preferred
    - Design and Development would include the entire project so that they could build as they go
- Including content as a topic and this memorandum as an exhibit to the report
    - Insert at line 268 within the report prefacing with the following statement, “of the three mitigation strategies, the Long Term Incremental Plan has the highest beneficial score. See page # laying out the plan’s cost estimated at $12 million.”

B. Memorandum from Public Works Director re: Inefficiencies of the Existing Public Works Campus

Chair Aderhold introduced the item by reading of the title, inviting Public Works Director Keiser to present her report.

Public Works Director Keiser reviewed the additional information included in the memorandum in response to the comments received from the Task Force at the last meeting. She noted the additional information included that would support how detrimental, to the City and residents, the loss of the facility in the event of a catastrophic incident would be, plus consideration of the necessity for

replacement of the facility due to growth and age. Ms. Keiser provided anecdotal information related to the recent inspection of the fuel tank and conditions.

Chair Aderhold facilitated discussion on the following points:

- Information provided on the condition of existing fuel depot should be included in a section Additional Considerations: Obsolescence after line 269 in the report
    - Refer to Mitigation Strategies in parentheses
    - Should be included in the report after they have reported on the assigned tasks
    - Distinguish between the two items tsunami and obsolescence
- The amount of work that Public Works was able to accomplish even during COVID
- Including information from the Planning Department in relation to the increase in building
    - This would lead to residents wanting additional services such as water & sewer and paved roads
- Total existing footprint including parking lot for the Administrative building and shop is 36,000 square feet and the gravel pit area to the south is roughly 35,000 square feet.

Mr. Barnwell will provide a GIS square footage for the next meeting of the existing facility.

c. Draft Memorandum and Report to City Council on Tsunami Risk for the Public Works Campus

Chair Aderhold introduced the item by reading of the title and invited the Clerk to provide input.

Deputy City Clerk Krause reviewed the process that she employed to add each of the Task Force member's comments to the document. She noted that Members Slone and Keiser recommendations were submitted late and were provided in the supplemental packet. They will be incorporated in the document and the completed draft can then be presented at the next meeting with any additional recommendations from this meeting.

Chair Aderhold facilitated discussion on the draft memorandum and report. The following points, recommendations and comments were made:

- Too much verbiage, more like a lecture
    - Should contain seven bullets
    - These bullet points should be in place of the introduction and background section
- Clarification of which document and section to be addressed
- Timeline on submission to City Council
    - August 9, 2021 Council meeting for presentation
    - Written information should be exhaustive as it will be referred to many times in the future
    - Highlight the most important points in the PowerPoint Presentation to Council
- Memo should focus on the specific topics assigned to the Task Force
    - Bullet points on materials reviewed, mitigations, risks
- Memo should be used as the Executive Summary of the Report
    - Remove the details from the draft and insert into the report
    - Report to include the details and exhibits
- Steps and process to create the Memorandum and Report
    - Memo/Executive Summary should include recommendation(s)

    - Editing the current draft memo and report to make them cohesive
        - Member Keiser volunteered to perform that task
- Addressing the issue of obsolescence in the memo

Member Slone incurred connectivity issues at 5:26 p.m. After numerous options to try to connect from Zoom Member Slone joined Member Keiser at Public Works to continue the meeting.

- The Task Force has not formally voted on the recommendation to move the Existing Facility and that the new facility should be placed on the Lake Street property and should be on the next agenda.
    - Creating an issue with the property owner since there has been no contact with them
        - Carey Meyer is believed to have been in contact previously with the property owner
        - There has been brief contact with the listing agent
        - The City cannot pay more than fair market value so a commercial appraisal would be done either way so there is no concern on increased property prices
        - Council has asked us to do this

Chair Aderhold requested two motions on the mitigation strategies and the preferred location so they can be included in the report.

KEISER/SLONE MOVED TO MAKE A RECOMMENDATION TO ADOPT THE LONG TERM INCREMENTAL MITIGATION STRATEGY.

KEISER/SLONE MOVED TO ADOPT AS A PREFERRED LOCATION THE PROPERTY ON LAKE STREET AS IDENTIFIED BY CAREY MEYER AS A POTENTIAL SITE.

There was a brief discussion to amend the motion to show that it was due to the analysis performed by the Task Force not Carey Meyer for the basis of selecting that particular location.

KEISER/ENGEBRETSEN MOVED TO AMEND THE MOTION TO STATE IN CONFORMANCE WITH THE ANALYSIS AND FINDINGS OF THE TASK FORCE THAT THE LAKE STREET PROPERTY.

There was no further discussion.

VOTE.(Amendment). NON-OBJECTION. UNANIMOUS CONSENT.

Motion carried.

There was no additional discussion on the motion as amended.

MOVED TO ADOPT AS THE PREFERRED LOCATION IN CONFORMANCE WITH THE ANALYSIS AND FINDINGS OF THE TASK FORCE THE LAKE STREET PROPERTY

VOTE. (Main) NON-OBJECTION. UNANIMOUS CONSENT.

Motion carried.

Member Slone inquired about including the Listing of Mitigation Strategies in the report as an exhibit.

Member Keiser responded that it is included in the report and showed Member Slone where it was located.

A brief discussion ensued on including recommendations on verbiage from Members Slone and Keiser; that the memorandum and report would be amended and edited to remove redundant information and the memorandum would serve as an executive summary for the report; Members Slone and Keiser would perform the editing tasks and submit to the Clerk for inclusion in the packet to be distributed by the Friday before the next meeting for final review; additional amendments can be presented to the Clerk for a laydown document or submitted during the meeting.

Chair Aderhold expressed appreciation to the Staff for getting the amount of information together and everyone contributing to the report.

NEW BUSINESS

A. Memorandum from Public Works Director re: Inefficiencies of the Existing Public Works Campus

This Item was moved to Pending Business item B.

B. Next Steps

Chair Aderhold noted that they briefly discussed the Powerpoint Presentation to Council and they need to determine who will do that.

Member Engebretsen will create the Powerpoint Presentation and provide a draft for the next meeting. Member Barnwell will assist in presenting to City Council.

SLONE/VENUTI MOVED THAT MEMBER ENGEBRETSEN AND BARNWELL PRESENT THE POWERPOINT PRESENTATION TO CITY COUNCIL.

There was no discussion.

VOTE. NON-OBJECTION. UNANIMOUS CONSENT.

Motion carried.

The Task Force reviewed the exhibits that were to be included with the report. It was determined to have the following:

- Risks - Evaluation and Mitigation Spreadsheet
- Memorandums provided by Public Works Director Keiser – latest versions
- Resolution 20-125
- Inundation Map

- Capital Improvement Plan Sheet
- Cost Estimate Spreadsheet
- Reference to presentation from DGGS

It was determined that a webpage can contain a link to the minutes for the Task Force and the main report from DGGS.

Further documents to be added as exhibits to the main report were:
- Memorandums from Member Engebretsen on site recommendations

INFORMATIONAL MATERIALS

A. Resolution 20-125 Establishing the Task Force and Outlining Scope of Work
B. PWCTF Meeting Schedule
C. Draft Risks, Evaluation, & Mitigation Spreadsheet
D. 2021-2026 Capital Improvement Project Sheet - New Public Works Facility

Chair Aderhold reviewed the informational items.

COMMENTS OF THE AUDIENCE

COMMENTS OF THE CITY STAFF

Deputy City Clerk Krause commented on it being a good meeting, there was a lot to take in and appreciated the comments and recommendations.

COMMENTS OF THE TASK FORCE

Member Slone expressed appreciation for the work that was done by the Clerk and Member Keiser on establishing the basic framework that they were able to build upon, there was a lot of information and believed they were going to be able to narrow it down and refine for the next meeting. He was also hoping that they did not have to have two additional meetings before presenting their final work to City Council.

Member Keiser expressed her heartfelt thanks for the support in their mission and the ability to perform the mission of the Public Works Department makes her feel good that they have that kind of community and looks forward to the next steps in the process.

Member Barnwell agreed that it was a good meeting and appreciated the hard work done by everybody. He further stated that they reviewed a lot of hard technical information he appreciated Member Keiser getting right to the punch of it on what they should do. He also noted that he will send Member Keiser the footprint maps.

Member Engebretsen appreciated that they would be wrapping it up.

Member Venuti commented that 2025 doesn't sound too far away and as a Councilmember she never dreamed how much went on at Public Works and is in awe at how much is accomplished there. She was glad to have served on this Task Force as the information has been invaluable as a citizen but even more as a Councilmember. She stated that she is in awe of the volunteers and expressed her appreciation to Members Slone and Barnwell.

Chair Aderhold thanked everyone, announced the next meeting and adjourned the meeting.

ADJOURNMENT
There being no further business to come before the Task Force the meeting adjourned at 6:00 p.m. The next regular meeting is scheduled for Wednesday, July 28, 2021 at 4:30 p.m. at the City Hall Cowles Council Chambers located at 491 E. Pioneer Avenue, Homer, Alaska.

_____
RENEE KRAUSE, MMC, DEPUTY CITY CLERK

Approved:_____

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MEMORANDUM

TO: MAYOR CASTNER AND HOMER CITY COUNCIL

FROM: PUBLIC WORKS CAMPUS TASK FORCE

THRU: RENEE KRAUSE, MMC, DEPUTY CITY CLERK II

DATE: JULY 14, 2021

SUBJECT: FINAL REPORT AND RECOMMENDATIONS OF THE PUBLIC WORKS CAMPUS TASK FORCE

INTRODUCTION & BACKGROUND

The Alaska Division of Geological and Geophysical Surveys (ADGGS) published updated tsunami and inundation maps for communities in Kachemak Bay, including Homer in 2019. Based on modeling a wide variety of earthquake generating tsunami scenarios, ADGGS concluded that a worst case scenario for Homer would be a tsunami of 50 feet elevation. In the event of the worst case scenario, the Homer Public Works Campus, along with the Homer Spit and other low lying areas of the city, would be inundated.

Aa tsunami that inundates the Public Works Campus would preclude Public Works staff from accessing the Campus until tsunami waters recede. Equipment and materials needed to respond to tsunami and earthquake damage would likely be damaged or destroyed by tsunami waves. Thus, when a tsunami warning sounds, Public Works staff immediately begin evacuating major pieces of heavy machinery and other mobile equipment from its campus to higher ground. Materials, equipment, and supplies that are not easy to move are left behind during these evacuations. If a tsunami occurred, these assets could be damaged or lost, obviating the Department's ability to respond to damage that would inevitably occur around the City.

In response to the ADGGS inundation maps, the Homer City Council included a new Public Works Facility on its Capital Improvement Plan as a high priority with a preliminary estimated cost of approximately $12 million. However, this was done before an assessment of the risk to the existing Public Works Campus from a worst-case scenario tsunami, was made. To remedy this, the City Manager and Public Works Director sponsored Resolution 20-125 asking Homer City Council to form a Public Works Campus Task Force for the purpose of evaluating this risk and providing recommendations back to the City Council. The resolution passed unanimously on November 23, 2020 and the Public Works Campus T ask Force (Task Force) was formed. The enabling resolution identified specific goals and objectives for the Task Force. Members were approved by City Council on January 11, 2021.

TASK FORCE EVALUATION & RECOMMENDATIONS

Goal 1

The first goal of the Task Force was to evaluate the risks of personal injury, property damage and loss of life in the event of a tsunami impacting the Public Works Campus (Campus). The Task Force reviewed the ADGGS tsunami inundation maps and methodology report, interviewed authors of the maps and report, and discussed the potential risks of a tsunami to the environment, workers, City operations, and City equipment. (Please see the attached *Risks - Evaluation and Mitigation* spreadsheet and the Inundation Maps).

Based on the ADGGS maps, report and author interviews, the Task Force determined that, while the risk cannot be quantified because of limitations in the available data for Alaska, the current location of the Campus is vulnerable to a tsunami. Based on the assessment evaluation and possible mitigation options, the Task Force determined that the greatest risk of a tsunami inundating the Public Works Campus would be the damage and loss of buildings, equipment, and materials, particularly equipment and materials that would be needed to help the City rebuild and recover from the earthquake/tsunami event.

The Task Force discussed possible mitigation strategies that could protect buildings, equipment and materials from tsunami inundation. The strategies and their potential pros and cons are summarized as follows:

- Create tsunami resistant seawalls or mounds on the perimeter of the Campus
    - This solution was tried in Japan. However, the structures failed during the 2011 Sendai-Tohoku earthquake/ tsunami because the structures were designed for a smaller event than what occurred. Because the structures were too small, the damage in some instances was greater than what may have occurred without the structures in place.
    - Seawalls or mounds placed around the current location of the Public Works Campus would likely not be practicable because of the size that would be needed. Further, the underlying fill material is not designed to resist the type of inundation, which could occur and could fail.
- Construct tsunami resistant buildings and infrastructure in the same location
    - This type of solution is typically used for port facilities, roads and bridges that cannot be moved outside of a tsunami zone.
    - This option does not take into account the potential damage to equipment and materials stored outside the structures.
- Relocate the Campus
    - Important resources such as the City fueling station, rolling stock, piping, culverts, sand and gravel, Mechanics' Shop, tools, and other equipment and materials would no longer be vulnerable to loss or damage during a tsunami.

- Relocating essential portions of the Campus outside the tsunami zone, while expensive, would allow Public Works to focus on supporting earthquake/tsunami response and recovery efforts rather than focusing on lost/damaged equipment and materials needed in the response.

Goal 1 Recommendation: The Public Works Campus and the critical equipment housed there should be relocated to the extent practicable. (Note: The Waste Water Treatment Plant cannot be relocated).

Goals 2 and 3

The second goal of the Task Force was to develop strategies of mitigating the identified risks. Based on the Goal 1 Recommendation to move the Public Works Campus outside the tsunami zone, the Task Force focused on strategies to address that recommendation. The third goal of the Task Force entailed developing a system for evaluating the strategies. Because these goals were interdependent, the Task Force is presenting them together.

I. The Mitigation Strategies

Strategy #1 – Limp Along. This is the "do nothing" strategy. It means the City continues to operate how it's been doing since learning about the Tsunami Inundation Zone; that is, evacuating the equipment when a tsunami warning sounds and hope for the best.

Strategy #2 – Lock, Stock & Barrel. With this strategy, plans would be put into motion to relocate the Campus as a priority.

Strategy #3 – Long Term Incremental. With this strategy, the risk to the Campus is acknowledged and a long term plan is put in place to relocate the campus incrementally; that is, property is purchased, a campus layout is designed, and the City seeks funding for the project costs, possibly, building features of the facility a step at a time.

II. Recommended Criteria**.** Task Force developed criteria by which to evaluate the identified strategies, with a goal of identifying criteria that were (a) measurable and (b) easy to define.

Criterion #1: Cost/Benefit Analysis. It's not enough to compute the expected costs of a particular strategy. We must also quantify the expected benefits. It may be the costs are high but the benefits are higher. We did not compute a finite numerical Cost/Benefit Ratio. Rather, we discussed and deliberated on the perceived merits of the benefits in comparison with the perceived costs. A high score means the perceived benefits are more valuable than the perceived costs.

Criterion #2: Public Works' Mission. This criterion considers the extent to which the strategy (a) preserves the ability of the Public Works Department to perform its essential mission(s) in emergencies; (b) supports the Department's ability to support the City's maintenance needs over the long term and (c) enables the Department to continue to serve as an integrated system; that is, the various functional units are housed on a single campus. A high score means the strategy allows the Department to efficiently and cost effectively fulfill its mission over the long term.

Criterion #3: Funding. This criterion considers the extent to which funding strategies are available to support a particular mitigation strategy. A high score means a reasonable source of funding is probably available.

Criterion #4: Phasing. This criterion considers the extent to which the implementation of the mitigation strategy can be phased over time. A high score means the strategy can be phased in a feasible and affordable manner.

Criterion #5: Timeliness. This criterion considers the extent to which taking action sooner rather than later would add value by generating benefits or avoid lost opportunity. A high score means taking action in a timely manner is important.

Criterion #6: Public perception. This criterion involves the strategy's ability to generate favorable public perception and support. A high score means the strategy can probably be designed to generate public support.

III. Ranking Scale

The criterion have been ranked according to the degree to which the mitigation strategy adds value to the Public Works Department and the Community. As an absurd illustration, adding a hot tub to the PW campus may add value to the Department's employees, but it does nothing to add value to the Community. Likewise, initiating a 7-12 working schedule, with no lunch break may add value to the Community, but it would create a hardship on employees.

Low –The mitigation strategy scores low for the criterion, meaning the strategy adds little value to the Department or the Community. This yields 0 points

Medium – The mitigation strategy scores in the middle of the range for the criterion, meaning while strategy may value to either the Department or the Community, it does not add value to both. This yields 50 points

High – The mitigation strategy scores high in the criterion, meaning the strategy adds high value to the Department and the Community. This yields 100 points.

ADDITIONAL CONSIDERATIONS

During the development of mitigation strategies and evaluation criteria, the Task Force identified functional inefficiencies of the existing Public Works Campus. We discussed and considered this factor, which we considered to be a problem of obsolescence, in the evaluation and development of our final recommendations to the City Council. The functional inefficiencies are identified as follows:

1. The existing bays in the Mechanics' Shop are too small to accommodate the larger pieces of the City's rolling stock and will not accommodate newer equipment in the future.
2. There are not enough working bays in the Shop to allow for efficient working space. Industry standard is 1.5 bays per mechanic. We have less than 1 bay for each of our mechanics.
3. There is not enough room for dry, temperate equipment storage in the winter.

4. The existing Public Works facility houses the Water/Sewer crew's shop in a very limited space, despite the fact that the City's water/sewer infrastructure has expanded due to private development and Special Assessment Districts
5. Several Public Works functions are currently housed in both of the HERC buildings because there is no room for them at the Public Works Campus. When the HERC building is finally demolished, these functions will have no place to go.
6. The existing fueling depot serves all of the City's rolling stock with gasoline and diesel fuel.

FINAL RECOMMENDATIONS

To Be Developed …

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MEMORANDUM

TO: MAYOR CASTNER AND HOMER CITY COUNCIL

FROM: PUBLIC WORKS CAMPUS TASK FORCE

THRU: RENEE KRAUSE, MMC, DEPUTY CITY CLERK II

DATE: JULY 28, 2021

SUBJECT: FINAL REPORT AND RECOMMENDATIONS ON TSUNAMI RISK FOR THE PUBLIC WORKS CAMPUS FACILITY

BACKGROUND

Prompted by Memorandum 20-194 (Exhibit A) from Public Works Director Keiser to City Council at their November 23, 2020 regular meeting regarding the potential damage to the public works campus from a tsunami City Council approved Resolution 20-125 creating the Public Works Campus Task Force (Exhibit B) to assess the potential tsunami risk, determine mitigation strategies and report back to Council with recommendations.
In subsequent meetings (Exhibit C) the Task Force reviewed numerous sources of relevant information (Refer to report, page 3).

Or Scenario 2
Prompted by a Memorandum 20-194 (note 1) from Public Works Director Jan Keiser regarding potential risk to persons or public works property in the event of a tsunami, last~~(January)~~ November the City Council created a task force (note 2, Resolution 20-125) to assess tsunami risk, determine mitigation strategies, and report back to the Council with mitigation recommendations.
In subsequent meetings (Exhibit C: task force schedule) the task force reviewed numerous sources of relevant information (list of sources) and has come to the following conclusions:

Or Scenario 3
Prompted by Memorandum 20-194 from Public Works Director Jan Keiser last November (December?) on November 23, 2020 the City Council authorized a Task Force (note 2, resolution 20-125) to:

1. Determine the potential risk to persons or public works property in the event of a tsunami;
2. Determine mitigation strategies;
3. Report back to Council with mitigation recommendations.

In subsequent meetings (Exhibit C) the Task Force reviewed numerous sources of relevant information (list sources) (refer to page in report-RK) and has come to the following conclusions:

Scenario 1
TSUNAMI RISK

1. Inundation of the public works campus would require a worst-case scenario of similar magnitude to the 1964 Alaska earthquake. Without mitigation effects, such an event would disable most of public works equipment/and rolling stock, thereby severely compromising the safety and availability of Homer's public infrastructure such as water/sewer systems and road maintenance.

2. The possibility of a worst-case tsunami risk cannot be quantified. Although the future holds promise for development of equipment providing greater sensitivity and accuracy, current knowledge of the earth sciences is inadequate to determine with any specificity the possibilities of a tsunami compromising the public works campus. A relevant phrase for encapsulating the situation is “low probability but high consequence”(further clarification).

Or Scenario 2 recommends flipping the above paragraphs.

Or Scenario 3

1. PUBLIC WORKS CAMPUS RISK FROM A TSUNAMI

The possibility of a worst-case tsunami risk cannot be quantified. Although the future holds promise for development of technology and equipment providing greater sensitivity and accuracy of a tsunami, current knowledge of the earth sciences is inadequate to determine with any specificity the possibilities of a tsunami compromising the public works campus. A relevant phrase for describing the situation is “low probability but high consequence”(note 3). Inundation of the public works campus would occur with a worst-case tsunami scenario of a magnitude similar to the 1964 Alaska earthquake (note 4, 9.3 Mw). In that event, and without having implemented any mitigation strategy, there is no practical method of reducing damage to some fixed public works functions such as the sewage treatment plant.

Although some minor and temporary mitigation strategies can be applied to campus assets in its current location, such as duplicating or safeguarding administrative records, or utilizing alternative vehicle re-fueling assets, there is no cost-effective method of preventing damage to valuable rolling stock, spare parts, stockpiled material, or administrative and maintenance facilities. Even temporary loss of those assets will severely impact public works ability to perform normal functions such as sewer/water/road maintenance.

TSUNAMI MITIGATION STRATEGIES
Scenario 1
Consequently, in the event the City Council determines that tsunami risk requires mitigation, the Task Force reviewed three potential perspectives (Exhibit D). Of those, the Long-Term Incremental Plan (definition/explanation of plan) was selected as the only practical choice. The essential component of this plan is the necessity of early land selection (rising cost and availability of land) and purchase (Exhibit E: Land requirements/availability); Fuel depot relocation and cost) for relocation of the most valuable and vulnerable components of the public works functions – fuel depot, maintenance shop and equipment barn. Approximate cost: $5 million (Exhibit G: Potential costs). Other functions – administrative, records/documents, Parks, can be duplicated or reconstituted inexpensively??

Or Scenario 2

The task force reviewed three potential mitigation strategies in the event of a tsunami (note 4). Of those, the Long-Term Incremental Plan (note 5) was selected as the only practical choice. The essential component of this plan is the necessity of early land selection for relocation of the most valuable and vulnerable components of the public works functions – public records, fuel depot, maintenance shop and equipment barn - as time and funding opportunity allowed. Approximate cost: $5 million (note 6).

Or Scenario 3

The task force reviewed three potential mitigation strategies in the event of a tsunami (note 4). Of those, the Long-Term Incremental Plan (note 5) was selected as the only practical choice. The essential component of this plan is the necessity of early land selection for relocation of the most valuable and vulnerable components of the public works functions – maintenance shop and equipment barn, fuel depot, as well as public records, spare parts and sand pile – as time and funding opportunity allowed. Approximate final cost: $5 million (note 6). However, an initial outlay of approximately $1million? would suffice, initially, for purchasing a suitable piece of property (Note: what is suitable; Jan/Julie's land review/report; not making any more land), placement of the fuel island, to prepare architectural planning, and to relocate public works records, spare parts and the sodium chloride sand pile.

RECOMMENDATIONS

Scenario 1
In the event the City Council determines that a viable tsunami risk exists, then adopt the Long-Term Incremental Plan as the most suitable remedy.

Or Scenario 2
Adopt the Long Term Incremental Plan as the most suitable remedy in the event of a tsunami.

ADDITIONAL CONSIDERATIONS:
Scenario 1
1. Obsolescence
In the course of its investigations the Task Force “unanimously” concluded (July 28thmotion!!!) that pending obsolescence of the public works campus will compromise its ability to function efficiently in the more likely event of a tsunami/landslide engulfing the Homer Spit {need to think more about this} (Exhibit I: Map of Tsunami Scenarios) as well as ordinary infrastructure maintenance. (Exhibit J: Keiser Memo, July 14??).
Obsolescence – from an infrastructure perspective (but disregarding additional personnel requirements) is also best served by adopting the Long-Term Incremental Plan.

2. Relocating HERC storage

Or Scenario 2

In the course of its investigations the Task Force concluded (note 7, July 28thmotion!!!) that pending obsolescence of the public works campus will compromise its ability to function efficiently beyond the near future. For example, the equipment-repair bays will require expansion to accommodate the larger size of future rolling stock such as road graders. Accordingly, obsolescence is also best served by adopting the Long-Term Incremental Plan. Of particular note is that the Homer Spit, lying at a lower elevation, will be more severely

impacted by tsunamis or landslides – even from those of a lesser magnitude - than will the public works campus. The resulting infrastructure damage will likely be extensive and require sustained public works effort for repair.
Scenario 3

B. OBSOLESCENCE RISK

In the course of its investigations the Task Force concluded (note 7, July 28thmotion!!!) that pending obsolescence of the public works campus will compromise its ability to function efficiently beyond the near future and therefore have a negative impact on public works ability to respond to a tsunami event. For example, the equipment-repair bays will require expansion to accommodate the larger size of future rolling stock such as road graders and fire department equipment.

Obsolescence is also best dealt with by adopting the Long-Term Incremental Plan.

Additional consideration:
Of particular note is that the Homer Spit, lying at a lower elevation, will be more severely impacted by tsunamis or underwater landslides – even from those of a lesser magnitude (Note: Scenarios 3,6 inundating the Spit) - than will the public works campus. The resulting infrastructure damage to the Spit will likely be extensive and require sustained public works effort for repair.

Homer Spit, March 1964 Photo by the BLM

Hazards to the City of Homer Public Works Campus Report

RISKS, MITIGATION STRATEGIES AND RECOMMENDATIONS

Public Works Campus Task Force | Resolution 20-125 | July 2021

Recommendations from the Task Force submitted for the July 28, 2021 Meeting

New materials in bold underline and recommended deletions in strike out, changes marked by footnote

The comments and prior recommendations have been incorporated from the last meeting. This Draft incorporates Member Slone and Keiser recommendations as of July 22, 2021.

INTRODUCTION & BACKGROUND

The Alaska Division of Geological and Geophysical Surveys (ADGGS) published updated tsunami and inundation maps for communities in Kachemak Bay, including Homer in 2019. Based on modeling a wide variety of earthquake generating tsunami scenarios, ADGGS concluded that a worst case scenario for Homer would be a tsunami of 50 feet elevation. In the event of the worst case scenario, the Homer Public Works Campus, along with the Homer Spit and other low lying areas of the city, would be inundated.

Because a tsunami that inundates the Public Works Campus would preclude Public Works staff from accessing the Campus until tsunami waters recede and equipment and materials needed to respond to tsunami and earthquake damage would likely be damaged or destroyed by tsunami waves, Public Works staff immediately begin evacuating major pieces of heavy machinery and other mobile equipment from its campus to higher ground. Materials, equipment, and supplies that are not easy to move are left behind during these evacuations, resulting in vulnerability to responding to an earthquake that generates a tsunami.

In response to the ADGGS inundation maps, the Homer City Council included a new Public Works Facility on its Capital Improvement Plan as a high priority with a preliminary estimated cost of approximately $12 million. However, the new facility was added without a risk assessment to the existing Public Works Campus from a worst-case scenario tsunami. To remedy this the City Manager and Public Works Director sponsored Resolution 20-125 requesting Homer City Council form a Public Works Campus Task Force to evaluate the risk and provide recommendations back to the City Council. The resolution passed unanimously on November 23, 2020 and the task force was formed and members were approved by City Council on January 11, 2021.

PURPOSE & SCOPE

City Council created the Public Works Campus Task Force through Resolution 20-125 for the following:

1. Evaluate the risks of personal injury, property damage and loss of life in the event of a tsunami impacting the Public Works Campus.
2. Develop System for Evaluating and Cataloguing Risks
3. Develop Strategies for Mitigating Identified Risks
4. Estimate Short and Long Term Costs for Mitigation of Risks
5. Submit Report on Recommendations to include Summary of Evaluation Process and Preferred Options

CONTRIBUTING MEMBERS

Donna Aderhold, City Council Member, Chair
Caroline Venuti, City Council Member, Task Force Member
Janette Keiser, PE, Director of Public Works, Task Force Member
Julie Engebretsen, Deputy City Planner, Task Force Member
Jacob Argueta, City Resident, Task Force Member
Larry Slone, City Resident, Task Force Member
Charles Barnwell, City Resident, Task Force Member
Renee Krause, Deputy City Clerk, Task Force Staff Support

RESOURCES

Report of Investigation 2018 -5 v.2 Updated Tsunami Inundation Maps for Homer and Seldovia, Alaska
Maps created using the LiDAR information provided in the report by Charles Barnwell, GIS Manager, Kinney Engineering, L.L.C.
A presentation and discussion roundtable with two of the authors of the 2018 report, Drs. Elena N. Suleimani and J. Barrett Salisbury was hosted.
Studied the City of Homer 2018 All Hazards Mitigation Plan
Community Tsunami Preparedness 2011 by the COMET Program - http://kejian1.cmatc.cn/vod/comet/emgmt/community/navmenu.php.htm

RISK ANALYSIS

Risk is made up of two parts: the probability of something going wrong and the negative consequences if it does. Risks can be hard to spot let alone prepare for and manage. If Homer is hit by a consequence that has not been planned for, costs and time, not to mention possibly lives, could be compromised.
Similarly overestimating or overreacting to risk can create panic and do more harm than good. By approaching risks in a logical manner the City of Homer can identify what can and cannot be controlled, tackling potential problems with measured and appropriate action.
Assessing tsunami threats at a specific location in Alaska is difficult. Some of the uncertainties include the following:

- Incomplete knowledge about past tsunamis, including their sources, characteristics, and frequencies
- Poorly understood details about near-field and far-field hazards that affect coastal communities
- Among the factors affecting tsunamis are:
  - The geology/geography of the area such as bathymetry, topography, potential for earthquakes and/or landslides and submarine slumps.
- Uncertainty about future tsunami events

We cannot exactly predict earthquakes or landslides, in the same way we cannot predict a tsunami. Once an earthquake occurs, our ability to detect and monitor tsunamis is still somewhat limited due to the scarcity of deep ocean sensors and tide gauges. Additionally, how high the waves will be once the tsunami hits the shore and what effects they will have are complicated questions influenced by a number of factors. We can confidently state that while the probability may appear low, the consequences and ramifications would be catastrophic should a tsunami event occur in Homer. For example, the entire Spit and elevations up to 35 feet along the City shoreline could be flooded in certain tsunami scenarios.

PRIMARY TSUNAMI IMPACTS

A main concern regarding tsunami impact is damage to structures and infrastructure from wave force, flooding and floating debris. Anything in the path of a tsunami such as docks, structures, vehicles, utility poles has the potential to become a battering ram as the water repeatedly surges and retreats. The damage potential increases if the tsunami arrives during conditions that are already producing high water such as a high tide.

Even small tsunamis can induce strong currents in harbors and bays, alter channel depths or cause water to be more turbulent, which can compound an already dangerous situation. The landscape and fresh (potable) water supplies can be degraded due to salt water intrusion.

SECONDARY TSUNAMI IMPACTS

Secondary impacts of tsunamis may include:

- Hazardous spills
- Fires
- Large amounts of debris, which in addition to blocking access and being expensive to clean up can cause injuries during response and recovery
- Disease outbreaks
- Post-traumatic stress disorder (both short-term and long-term)
- Damage to the local economy (e.g. tourism, agriculture, fishing)
- Loss of equipment and supplies
- Shortage of Personnel
- Loss of critical infrastructure such as water/sewer utilities and roads

TASK FORCE EVALUATION

Goal 1

The first goal (Exhibit ##) of the Task Force was to evaluate the risks of personal injury, property damage and loss of life in the event of a tsunami impacting the Public Works Campus. The impact of a tsunami to the Public Works Campus was considered by reviewing the resiliency of that existing infrastructure, how the loss of use of equipment and supplies would influence the ability to effect recovery and identified risk and mitigation strategies. The Task Force reviewed the ADGGS tsunami inundation maps and methodology report, interviewed authors of the maps and report, and discussed the potential risks of a tsunami to the environment, workers, City operations, and City equipment (Exhibit ## *Risks, Evaluation and Mitigation*).

Based on the ADGGS maps (Exhibit ## *Inundation Maps*), report and author interviews, the Task Force determined that, while the risk cannot be quantified because of limitations in available data for Alaska, the current location of the Public Works Campus is vulnerable to a tsunami. Based on the assessment evaluation and possible mitigation options, the Task Force determined that the greatest risk of a tsunami inundating the Public Works Campus would be the damage and loss of buildings, equipment, and materials, particularly equipment and materials that would be needed to help the city recover following the earthquake/tsunami event.

The Task Force discussed possible solutions to protect buildings, equipment and materials from tsunami inundation. The solutions and their potential pros and cons are summarized as follows:

- Relocating essential portions of the Campus outside the tsunami zone, while expensive, would allow Public Works Staff to focus on supporting earthquake/tsunami response and recovery efforts rather than focusing on lost and damage equipment and materials needed in the response.

Goal 1 Recommendation: The Public Works Campus and the critical nature of the equipment stored there should be relocated to the extent practicable (the sewer treatment plant cannot be relocated).

Goals 2 and 3

The second goal of the Task Force was to develop strategies of mitigating the identified risks. Based on the Goal 1 recommendation to relocate the Public Works Campus outside the tsunami zone, the Task Force focused on strategies to address that recommendation. The third goal of the Task Force entailed developing a system for evaluating the strategies. Because these goals were interdependent the Task Force is presenting them together.

PROTECTING FACILITIES AT EXISTING PUBLIC WORKS CAMPUS

Due to the level of destruction to buildings and infrastructure within the existing Public Works Campus the following mitigation strategies were considered:

- Creating tsunami resistant seawalls or mounds:

  This solution was tried in Sendai-Tohoku, Japan, and it works provided that the wall is designed for the earthquake/tsunami that actually occurs. In the 2011 Tohoku earthquake and tsunami, the seawall failed because it was designed for a smaller event. Larger earthquakes were not expected in this area. Seawalls or mounds placed around the current location of the Public Works Campus would likely not be practicable because of the size of the infrastructure that would be needed and because the underlying fill material is not designed to resist the type of inundation that could occur and could fail.

- Constructing tsunami resistant buildings and infrastructure in the same location:

  This solution is typically used for port facilities, roads and bridges. The structures at the existing Public Works Campus are not constructed as such, and it is not feasible to retrofit them. It is very expensive and would be done in critical cases where other less expensive options do not exist.

- Relocation:
  - Relocating essential buildings and functions of critical infrastructure outside of the tsunami zone. Important resources such as the city fueling station, rolling stock, piping, culverts, sand and gravel, motor pool shop and equipment, and other equipment and materials would no longer be vulnerable to loss or damage during a earthquake/tsunami event.

PROTECTING MISSION CRITICAL OPERATIONS

The Public Works Department maintains and repairs the City's roads, drainage, water distribution, wastewater collection, buildings & facilities, and motor vehicles.

Public Works is responsible for the placement of utilities in street right-of-ways; works with developers in conjunction with the planning department on proposed subdivisions, land use variances, right-of-way vacations, zoning changes, and building site plans.

Public Works maintains records on all City facilities and issues all right-of-ways permits, including utility, driveway, and water/sewer permits. Public Works reviews all plats, storm water plans and oversees the construction of new subdivisions. This Department also manages the planning, design, permitting, and construction inspection of the City's capital projects.

If the Departments ability to continue mission critical operations is impaired, the City's Ability to recover will be impaired.

OTHER ISSUES - OBSOLESCENCE

The functionality of the existing Public Works Campus, besides the fact the facility is located in the Tsunami Inundation Zone, is problematic is a number of areas. Some of these are as follows and a more comprehensive explanation can be found in Exhibit ##:

- **Mechanic Shop bays are too small**
  - **There are too few shop bays.**
- **Lack of dry, temperate storage for equipment and materials**
- **Lack of workshop space for small machine & equipment repairs.**
- **Lack of Administration/Office Space**[1]

MITIGATION STRATEGIES

After considering the risks, consequences and other factors, the Task Force considered the following three mitigation strategies:[2]

Strategy #1 – The Limp Along Plan
- The City takes no action regarding the Public Works Campus.

Strategy #2 – Lock, Stock & Barrel
- Make the decision to relocate the Public Works Facility as a priority

Strategy #3 – Long Term Incremental
- Recognize that there is a real threat and phase the project as follows:
  - Funding
  - Site Acquisition
  - Design
  - Construction in Phases

The Task Force recommends that mission critical functions of the Public Works Campus be relocated outside the Tsunami Inundation Zone, using Strategy #3 – the Long Term Incremental strategy. This strategy allows mission critical functions, including the Fueling depot, Mechanic's Shop and the Rolling stock, to be relocated out of danger, in an affordable manner, thereby preserving the department's ability to be part of the solution of repairing and rebuilding earthquake/Tsunami caused damage, rather than part of the problem. It would also enable other important, but less critical functions, to expand into the existing facility. (Exhibit ## *Memo on Criteria Ranking etc.*)

FINAL RECOMMENDATIONS

If the City Council determines that a viable future tsunami threat exists to Homer's Public Works Campus then the Task Force recommends the Long Term Incremental Plan (See Exhibit #) be adopted as best suited to serve the long term public maintenance needs of Homer.

[1] JK
[2] JK

Additionally, as a practicable matter, the Task Force recommends the City Council review the pending obsolescence of the Campus Facilities and Maintenance assets. Obsolescence would also be best served by adopting the Long term Incremental Plan[3]

EXHIBITS

A. Memorandum to City Council dated April 30, 2021 re: Risk Catalogue and Evaluation
B. Risk, Evaluation and Mitigation Spreadsheet
C. Inundation Map dated May 26, 2021 prepared by Charles Barnwell
D. Capital Improvement Plan Project Page 2021-2026 (Updated)
E. Memorandum from Public Works Director re: Inefficiencies
F. Memorandum from Public Works Director re:
G. Cost Estimates Related to Long Term Incremental Strategy
H. Resolution 20-125
I. Task Force Meeting Schedule
J. Footprint Calculations by Charles Barnwell
K. Criteria for Evaluating Strategies & Criteria Scoresheet
L. Memorandum from Deputy City Planner re: Available Property & Site Visits

(This list is not exhaustive and there may be a few that I missed listing)

[3] LS

Homer Spit, March 1964 Photo by the BLM

Hazards to the City of Homer Public Works Campus Report

RISKS, MITIGATION STRATEGIES AND RECOMMENDATIONS

Public Works Campus Task Force | Resolution 20-125 | July 2021

Recommendations from the Task Force submitted for the July 14, 2021 Meeting annotated in bold underline with initials of Member making changes/recommendations

~~PURPOSE & SCOPE~~ INTRODUCTION & BACKGROUND

INTRODUCTION & BACKGROUND

The Alaska Division of Geological and Geophysical Surveys (ADGGS) published updated tsunami and inundation maps for communities in Kachemak Bay, including Homer in 2019. Based on modeling a wide variety of earthquake generating tsunami scenarios, ADGGS concluded that a worst case scenario for Homer would be a tsunami of 50 feet elevation. In the event of the worst case scenario, the Homer Public Works Campus, along with the Homer Spit and other low lying areas of the city, would be inundated.

Because a tsunami that inundates the Public Works Campus would preclude Public Works staff from accessing the Campus until tsunami waters recede and equipment and materials needed to respond to tsunami and earthquake damage would likely be damaged or destroyed by tsunami waves, Public Works staff immediately begin evacuating major pieces of heavy machinery and other mobile equipment from its campus to higher ground. Materials, equipment, and supplies that are not easy to move are left behind during these evacuations, resulting in vulnerability to responding to an earthquake that generates a tsunami.

In response to the ADGGS inundation maps, the Homer City Council included a new Public Works Facility on its Capital Improvement Plan as a high priority with a preliminary estimated cost of approximately $12 million. However, the new facility was added without a risk assessment to the existing Public Works Campus from a worst-case scenario tsunami. To remedy this the City Manager and Public Works Director sponsored Resolution 20-125 requesting Homer City Council form a Public Works Campus Task Force to evaluate the risk and provide recommendations back to the City Council. The resolution passed unanimously on November 23, 2020 and the task force was formed and members were approved by City Council on January 11, 2021.[1]

PURPOSE & SCOPE

City Council created the Public Works Campus Task Force through Resolution 20-125 for the following:

1. Evaluat~~ing~~ **e**[2] the risks of personal injury, property damage and loss of life in the event of a tsunami impacting the Public Works Campus.
2. Develop System for Evaluating and Cataloguing Risks
3. Develop Strategies for Mitigating Identified Risks
4. Estimat~~ing~~**e**[3] Short and Long Term Costs for Mitigation of Risks
5. Submit Report on Recommendations to include Summary of Evaluation Process and Preferred Options

[1] DA
[2] CV
[3] CV

CONTRIBUTING MEMBERS

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Renee Krause, Deputy City Clerk, Task Force Staff Support[4]

RESOURCES

Report of Investigation 2018 -5 v.2 Updated Tsunami Inundation Maps for Homer and Seldovia, Alaska
Maps created using the LiDAR information provided in the report by Charles Barnwell, GIS Manager, Kinney Engineering, LLC
~~Hosted a~~ **A** presentation and discussion roundtable with two of the authors of the 2018 report, Drs. Elena N. Suleimani and J. Barrett Salisbury-**was hosted**[5]**.**
Studied the City of Homer 2018 All Hazards Mitigation Plan – CV – Not sure this is a resource.
Community Tsunami Preparedness 2011 by the COMET Program - http://kejian1.cmatc.cn/vod/comet/emgmt/community/navmenu.php.htm

RISK ANALYSIS

Risk is made up of two parts: the probability of something going wrong and the negative consequences if it does. Risks can be hard to spot let alone prepare for and manage. If ~~you are~~ **Homer is**[6] hit by a consequence that has not been planned for, costs and time, not to mention possibly lives, could be ~~on the line~~ **compromised**[7].
Similarly overestimating or overreacting to risk can create panic and do more harm than good. By approaching risks in a logical manner ~~you~~ **the City of Homer** [8]can identify what can and cannot be controlled, tackling potential problems with measured and appropriate action.
Assessing tsunami threats at a specific location **in Alaska** is difficult ~~because of~~ **some of the uncertainties include the following**[9] :

- Incomplete knowledge about past tsunamis, including their sources, characteristics, and frequencies
- Poorly understood details about near-field and far-field hazards that affect coastal communities[10]

[4] DA
[5] CV
[6] CV
[7] CV
[8] CV and CB recommended the word "one" in place of "you"
[9] DA
[10] CB – relates to local or distant tsunamis

- **Among the factors affecting tsunamis are**[11] The geology/geography of the area such as bathymetry, topography, potential for earthquakes and/or landslides and submarine slumps~~, the presence of rivers or estuaries that tsunamis can travel up~~[12]
- Uncertainty about future tsunami events
- ~~The time of day, whether it is high tide or low tide~~[13] [14]

~~Because~~ ~~w~~ **W**e cannot **exactly**[15]predict earthquakes or landslides, ~~there is no way to~~ **in the same way we cannot**[16] **it is difficult** [17]predict a tsunami. Once an earthquake occurs, our ability to detect and monitor tsunamis is still somewhat limited due to the scarcity of deep ocean sensors and tide gauges. Additionally, how high the waves will be once **the tsunami hits** ~~at~~ [18]the shore and what effects they will have are complicated questions influenced by a number of factors. We can confidently state that while the probability may appear low, the consequences and ramifications would be catastrophic should a tsunami event occur~~.~~**in Homer.**[19] **For example, the entire Spit and elevations up to 35 feet along the City shoreline could be flooded in certain tsunami scenarios.**[20]

PRIMARY **TSUNAMI** [21]IMPACTS

A main ~~source~~ **concern regarding** ~~of~~[22] tsunami impact is damage to structures and infrastructure from wave force, flooding and floating debris. Anything in the path of a tsunami such as docks, structures, vehicles, utility poles ~~have~~ **has** the potential to become a battering ram as the water repeatedly surges and retreats. The damage potential increases if the tsunami arrives during conditions that are already producing high water such as a high tide.

Even small tsunamis can induce strong currents in harbors and bays, alter channel depths or cause water to be more turbulent, which can compound an already dangerous situation. The landscape and **fresh (potable)** water supplies can be degraded due to salt water intrusion.

~~If a tsunami is caused by a local earthquake there may be two events or more due to the possible fires, chemical spills and/or the possibility of subsidence across the bay from the Spit which could cause damage beyond the Public Works Campus, making recovery and response even more difficult.~~[23]

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[11] CB
[12] CB – recommends deleting
[13] CV - recommended deleting
[14] CB – recommended inserting the words "of such an event" before the word "whether"
[15] CB
[16] CV
[17] CB – recommends this language
[18] CB
[19] CV
[20] CB
[21] DA
[22] CV
[23] CV - recommended deleting

SECONDARY **TSUNAMI**[24] IMPACTS

Secondary impacts of tsunamis ~~can~~ **may**[25] include:

- Hazardous spills
- Fires
- Large amounts of debris, which in addition to blocking access and being expensive to clean up can cause injuries during response and recovery
- Disease outbreaks
- Post-traumatic stress disorder (both short-term and long-term)
- Damage to the local economy (e.g. tourism, agriculture, fishing)
- Loss of equipment and supplies
- **Shortage of Personnel**
- **Destruction of critical infrastructure**[26]
- **Loss of critical infrastructure such as water/sewer utilities and roads**[27]

The Task Force considered the impact of a tsunami to the Public Works Campus by considering the resiliency of that existing infrastructure, how the loss of use of equipment and supplies would influence the ability to effect recovery and ~~determined the following~~ **identified**[28] risk and mitigation~~s~~[29]strategies. Please refer to attached **Exhibit A**[30]: *Risks Evaluation and Mitigation Spreadsheet.*

Member Aderhold recommended deleting the sections Protecting Buildings and Infrastructure and Recommendations and replacing them with the following:

PROTECTING ~~BUILDINGS AND INFRASTRUCTURE~~ **FACILITIES AT EXISTING PUBLIC WORKS CAMPUS**[31]

The ~~first obstacle~~ **risk**[32] is the ~~anticipated~~ **possible**[33] level of destruction ~~of~~ **to**[34] buildings and infrastructure within the **existing** [35]Public Works Campus. ~~The solutions considered to protecting them included:~~

The following mitigation strategies were considered:[36]

- Creating tsunami resistant seawalls or mounds:

[24] DA
[25] CV
[26] CB
[27] JK alternate verbiage
[28] JK delete and use "identified"
[29] JK delete the "s"
[30] JK Ref. Exhibit # or letter
[31] JK
[32] JK
[33] JK
[34] CV
[35] JK
[36] JK

This solution was tried in **Sendai-Tohoku**[37]**,** Japan, and it works provided that the wall is designed for the earthquake/tsunami that actually occurs. ~~The failure of these structures I~~ **I**[38]n the 2011 Tohoku earthquake and tsunami ~~was primarily due to their~~ **the walls** [39]~~having been designed for a smaller~~ **earthquake** [40]~~event.~~ **The seawall failed because it was designed for a smaller event**[41] **Larger earthquakes were not expected in this area.**[42]

- Constructing tsunami resistant buildings and infrastructure in the same location:

  This ~~type of~~ [43]solution is typically used for port facilities, roads and bridges. **The structures at the existing Public Works Campus are not so constructed and it is not feasible to retrofit them.** [44]It is very expensive and would be done in critical cases where other **less expensive**[45]options do not exist.

- Relocation:

  Relocating essential buildings and functions **critical infrastructure** [46]outside of the tsunami zone**,** ~~while inherently costly, is the best mitigation strategy.~~ [47]

PROTECTING MISSION CRITICAL OPERATIONS

The Public Works Department maintains and repairs the City's roads, drainage, water distribution, wastewater collection, buildings & facilities, and motor vehicles.
Public Works is responsible for the placement of utilities in street right-of-ways; works with developers in conjunction with the planning department on proposed subdivisions, land use variances, right-of-way vacations, zoning changes, and building site plans.
Public Works maintains records on all City facilities and issues all right-of-ways permits, including utility, driveway, and water/sewer permits. Public Works reviews all plats, storm water plans and oversees the construction of new subdivisions. This Department also manages the planning, design, permitting, and construction inspection of the City's capital projects.
If the Departments ability to continue mission critical operations is impaired, the City's Ability to recover will be impaired.

OTHER ISSUES[48]

The functionality of the existing Public Works Campus, besides the fact the facility is located in the Tsunami Inundation Zone, is problematic is a number of areas. Some of these are as follows and a more comprehensive explanation can be found in Exhibit ##:

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[37] CB – recommends specific identification and pronunciation
[38] JK
[39] CB
[40] CB
[41] JK
[42] CB
[43] JK
[44] JK
[45] CV
[46] CB
[47] JK
[48] JK

- **Mechanic Shop bays are too small**
  - **There are too few shop bays.**
- **Lack of dry, temperate storage for equipment and materials**
- **Lack of workshop space for small machine & equipment repairs.**
- **Lack of Administration/Office Space**[49]

~~RECOMMENDATIONS~~ MITIGATION STRATEGIES[50]

After considering the risks , consequences and other factors, the Task Force considered the following three mitigation strategies:[51]

Strategy #1 – The Limp Along Plan
- The City ~~continues as it has always done and~~[52] takes no action regarding the Public Works Campus.

Strategy #2 – Lock, Stock & Barrel
- Make the decision to relocate the Public Works Facility as a priority

Strategy #3 – Long Term Incremental
- Recognize that there is ~~an issue~~ **a real threat** [53]and phase the project **as follows:**[54]
  - Site Acquisition CV 2
  - Design CV 3
  - Funding CV 1
  - Construction in Phases - CV 4

After consider the risks, consequences and other factors, the Task Force recommends that mission critical functions of the Public Works Campus be relocation outside the Tsunami Inundation Zone, using Strategy #3 – the Long Term Incremental strategy. This strategy allows mission critical functions, including the Fueling depot, Mechanic's Shop and the Rolling stock, to be relocated out of danger, in an affordable manner, thereby preserving the department's ability to be part of the solution of repairing and rebuilding earthquake/Tsunami caused damage, rather than part of the problem. It would also enable other important, but less critical functions, to expand in the existing facility.

TASK FORCE EVALUATION & RECOMMENDATIONS

Goal 1

The first goal of the Task Force was to evaluate the risks of personal injury, property damage and loss of life in the event of a tsunami impacting the Public Works Campus. The Task Force reviewed the ADGGS tsunami

[49] JK
[50] JK
[51] JK
[52] CB
[53] CB
[54] CB

inundation maps and methodology report, interviewed authors of the maps and report, and discussed the potential risks of a tsunami to the environment, workers, City operations, and City equipment (please see the attached *Risks, Evaluation and Mitigation* spreadsheet).

Based on the ADGGS maps (please see the attached *Inundation Maps*), report and author interviews, the Task Force determined that, while the risk cannot be quantified because of limitations in available data for Alaska, the current location of the Public Works Campus is vulnerable to a tsunami. Based on the assessment evaluation and possible mitigation options, the Task Force determined that the greatest risk of a tsunami inundating the Public Works Campus would be the damage and loss of buildings, equipment, and materials, particularly equipment and materials that would be needed to help the city recover following the earthquake/tsunami event.

The Task Force discussed possible solutions to protect buildings, equipment and materials from tsunami inundation. The solutions and their potential pros and cons are summarized as follows:

- Create tsunami resistant seawalls or mounds on the perimeter of the Campus
    - This solution was tried in Japan and failed during the 2011 Tohoku earthquake and tsunami because the structures were designed for a smaller event than occurred. Because the structures were too small, the damage in some instances was greater than may have occurred without the structures in place.
    - Seawalls or mounds placed around the current location of the Public Works Campus would likely not be practicable because of the size of the infrastructure that would be needed and because the underlying fill material is not designed to resist the type of inundation that could occur and could fail.
- Construct tsunami resistant buildings and infrastructure in the same location
    - This type of solution is typically used for port facilities and roads and bridges that cannot be moved outside of a tsunami zone.
    - The option does not take into account the potential damage to equipment and materials unless tsunami resistant buildings were constructed to house all of it.
- Relocate the Campus
    - Important resources such as the city fueling station, rolling stock, piping, culverts, sand and gravel, motor pool shop and equipment, and other equipment and materials would no longer be vulnerable to loss or damage during a tsunami.
    - Relocating essential portions of the Campus outside the tsunami zone, while expensive, would allow Public Works Staff to focus on supporting earthquake/tsunami response and recovery efforts rather than focusing on lost and damage equipment and materials needed in the response.

Goal 1 Recommendation: The Public Works Campus and the critical nature of the equipment stored there should be relocated to the extent practicable (the sewer treatment plant cannot be relocated).

Goals 2 and 3

The second goal of the Task Force was to develop strategies of mitigating the identified risks. Based on the goal 1 recommendation to move the Public Works Campus outside the tsunami zone, the Task Force focused on strategies to address that recommendation. The third goal of the Task Force entailed developing a system for evaluating the strategies. Because these goals were interdependent the Task Force is presenting them together.

Incorporate Jan's memo and narrative here.

I. Issue: The Task Force's mission includes identifying risks related to tsunami inundation, identifying mitigation strategies and identifying criteria by which to evaluate those strategies. The purpose of this memo is to recommend relevant criteria.

II. Recommended Criteria:
Criteria should be (a) measurable and (b) easy to define.

Criterion #1: Cost/Benefit Analysis. It's not enough to compute the expected costs of a particular strategy. We must also quantify the expected benefits. It may be the costs are high but the benefits are higher.

Criterion #2: Public Works' Mission. The extent to which the strategy (a) preserves the ability of the Public Works Department to perform its essential mission(s) in emergencies; (b) supports the Department's ability to support the City's maintenance needs over the long term and (c) enables the Department to continue to serve as an integrated system; that is, the various functional units are housed on a single campus. A high score means the strategy allows the Department to efficiently and cost effectively fulfill its mission over the long term.

Criterion #3: Funding. The extent to which funding strategies are available to support a particular mitigation strategy. A high score means a reasonable source of funding is probably available.

Criterion #4: Phasing. This criterion relates to the extent to which the implementation of the mitigation strategy can be phased over time. A high score means the strategy can be phased in a feasible and affordable manner.

Criterion #5: Timeliness. This criterion relates to the extent to which taking action sooner rather than later would add value by generating benefits or avoid lost opportunity. A high score means taking action in a timely manner is important.

Criterion #6: Public perception. This criterion involves the strategy's ability to generate favorable public perception and support. A high score means the strategy can probably be designed to generate public support.

~~III. The Mitigation Strategies~~ III. The Three Tsunami Mitigation Strategies[55]

Strategy #1 – Limp Along. This is the "do nothing" strategy. We continue to operate how we've been operating; evacuating the equipment when a tsunami warning sounds and hope for the best.

Strategy #2 – Lock, Stock & Barrel. With this strategy, plan are put into motion to relocate the PW Campus as a priority.

[55] LS

Strategy #3 – Long Term Incremental. With this strategy, the risk to the PW Campus is acknowledged and a long term plan is put in place to relocate the campus incrementally; that is, property is purchased, a campus layout is designed, and the City seeks funding for the project costs, possibly, building features of the facility a step at a time.

~~IV. Ranking Scale~~ IV. Ranking Scale Part A Tsunami Mitigation Startegies

The criterion have been ranked according to the degree to which the mitigation strategy adds value to the Public Works Department and the Community. As an absurd illustration, adding a hot tub to the PW campus may add value to the Department's employees, but it does nothing to add value to the Community. Likewise, initiating a 7-12 working schedule, with no lunch break may add value to the Community, but it would create a hardship on employees.

Low –The mitigation strategy scores low for the criterion, meaning the strategy adds little value to the Department or the Community. This yields 0 points

Medium – The mitigation strategy scores in the middle of the range for the criterion, meaning while strategy may value to either the Department or the Community, it does not add value to both. This yields 50 points

High – The mitigation strategy scores high in the criterion, meaning the strategy adds high value to the Department and the Community. This yields 100 points.

Of the three mitigation strategies, the Long term Incremental Plan has the highest beneficial score. See page ## laying out the plans cost, estimated at $$ million.[56]

ADDITIONAL CONSIDERATIONS: OBSOLESCENCE PART B OF THE MITIGATION STRATEGY REPORT[57]

During the development of mitigation strategies and evaluation criteria, the Task Force identified functional inefficiencies of the existing Public Works Campus that we discussed and considered in the evaluation and development of final recommendations to the City Council. The functional inefficiencies are identified as follows:

The purpose of this Memorandum is to identify other issues related to the functionality of the existing Public Works Campus, besides the fact the facility is located in the Tsunami Inundation Zone. For context, consider the City's infrastructure has increase – every new subdivision adds roads, ditches, water/sewer lines, hydrants, manholes and other appurtenances, all of which need testing, preventive maintenance, and repair. In 2020, the City had the following infrastructure:

- 59 miles of water line, increase of 12 miles since 2016
- 63.5 miles of sewer line, increase of 7.5 miles since 2016
- 435 fire hydrants, increase of 66 hydrants since 2016

[56] LS
[57] LS

- 30 pressure reducing stations, increase of 6 stations since 2016
- 829 manholes
- 17.62 miles of gravel roads
- 29.02 miles of paved roads

Further, there have been over 100 new water/sewer connection permits as well as over 100 new driveway permits issued in the past two years. All of these new services require resources to support – staff time and supplies

1. The existing bays in the Mechanics' Shop are too small to accommodate the larger pieces of the City's rolling stock that we already own. For example, you cannot fit one of the Homer Volunteer Fire Department fire trucks in the Shop and close the door. Further, there is barely enough headroom for this vehicle. Fire trucks are getting bigger and as they do, working on them in the existing Shop becomes problematic. Also, while the Public Works Department's Vactor Truck[58] fits in the Shop, there is not enough room to walk around the vehicle to efficiently work on it. When two of the City's larger vehicles are in the Shop, the working space around them is so limited the working environmental is inefficient and cumbersome, which can create safety hazards.

   This problem will be exacerbated as we retire obsolete equipment and acquire replacements. This is because the modern equipment is simply larger than the older models. For example, we will be purchasing a new grader in 2021. The smallest new grader available on the market is larger than the biggest grader we already have. If we acquire a new grader model that is comparable in power and capability to the one we are retiring, which is what we need to do, the new model will not fit in the shop.

2. There are not enough working bays in the Shop. The industry standard is to have 1 ½ bays for every mechanic for safe, efficient working space. We have three mechanics, which, by this standard, means we should have 4½ bays. We have two. A typical day sees both bays occupied by equipment under repair. A complete repair could easily take multiple shifts, while the mechanics wait for parts or a diagnosis. This means the damaged vehicle is stuck in the shop taking up space, which adversely impacts efficiency. An extra bay would allow the mechanics to start working on other equipment, while they are waiting to finish the repairs on the one stuck in the shop.

[58] A Vactor Truck is like a wet-dry vacuum cleaner on wheels and steroids. It has a large on-board water reservoir and a pump, which allows it to either flush out sediments in a storm drain manhole or suck out waste water from a sewage lift station. It is the workhorse of the Department's Fleet, heavily used by the road crew and the water/sewer crew.

3. There is not enough room for dry, temperate storage in the winter. Some of the equipment, which is crucial for winter road and utility maintenance, needs to be stored where it doesn't freeze – such as the sand trucks and the Vactor Truck. If these units are left in the open, the sand on the sand trucks and the water in the Vactor truck freezes, making the equipment useless. The existing motor bay is too small to hold all of the equipment, which needs warm storage. So, the Mechanic's Shop is often used for this purpose, which means a piece of equipment needing repair must be hauled out of the Shops so a sanding truck can be stored there overnight. This is extremely inefficient and creates safety hazards.

4. The existing Public Works facility houses the Water/Sewer crew's shop. The W/S Technicians repair pumps, valves and other appurtenances in this space. This ability to make in-house repairs is critical to maintaining fully functioning systems. This space contains spare parts, work tables and tools. The City's water/sewer system has grown with new main extensions and new services, which has increased the need for inventory and work space. This is particularly true because much of Homer's water/sewer infrastructure has aged and needs regular maintenance/repair to keep it functional.

   If the mechanic shops and rolling stock were relocated to a higher elevation, we could expand the water/sewer shop space at the existing campus. We would keep an inventory of spare parts and critical materials at the higher elevation so we would have something to work with in the event of an emergency, but leave the lower value or more portable stuff at the existing campus. This would mitigate the risk of loss to our utility system, while still making beneficial use of our existing space.

5. Several Public Works functions are currently housed in both of the HERC buildings because there is no room for them at the Public Works Campus. Both Building Maintenance and Parks use space at the HERC buildings for office, workshop and storage space. At some point, the HERC buildings will be demolished and replaced with a Community Recreation Center. We don't know where we will transfer these functions to when the HERC site is no longer available.

   One option is to shift them to the existing Public Works campus, once the mechanic shops and rolling stock are relocated. We could use the existing space to store wood for picnic table repairs, landscaping materials, janitorial supplies, and the other stuff Building Maintenance and Parks need to do their work. While this stuff costs money, it does not have the same degree of high-value criticality as the tools and equipment in the mechanics' shops and is more portable.

6. The existing fueling depot serves all of the City's rolling stock with gasoline and diesel fuel. The depot consists of underground fuel storage tanks, which are equipped with

cathodic protection; that is, anodes to slow down the rate of corrosion on the tanks.[59] The facility is regulated by the AK Department of Environmental Conservation (ADEC) and one of the permit conditions is that the anodes must be inspected every three years by a 3rd party inspector. The inspector conducts a test to determine if the anodes are still working.[60] If we do not pass the test, the ADEC will void our permit.

The test was last performed June 24, 2021 and our anodes barely passed. The inspector did not recommend replacing the anodes because he believes the tanks are probably already corroded. He opined the fueling system needed to be replaced. Not only is corrosion probably present, the software system is no longer supported by any vendor. When it goes down, the system will not dispense fuel. We are being increasingly challenged to keep it operating. When it does dispense fuel, we aren't always sure whose account it's being charged to.

Funds, in the amount of $185,000, have been appropriated to design/construct a replacement fueling depot. The Fuel Island Replacement Project would involve above-ground fuel storage tanks, which would eliminate the potential for corrosion and soils contamination as well as enable the system to be relocated, in the event the Public Works campus was relocated outside the Tsunami Inundation Zone. Because the cost of the replacement fueling depot would be funded separately, the estimated cost of the new Public Works Facility does not include the cost of the fuel depot.

FINAL RECOMMENDATIONS

If the City Council determines that a viable future tsunami threat exists to Homer's Public Works Campus then the Task Force recommends the Long Term Incremental Plan (See Exhibit #) be adopted as best suited to serve the long term public maintenance needs of Homer.
Additionally, as a practicable matter, the Task Force recommends the City Councl review the pending obsolescence of the Campus Facilities and Maintenance assets. Obsolescence would also be best served by adopting the Long term Incremental Plan[61]

EXHIBITS

Memorandum to City Council dated April 22, 2021 re: Risk Catalogue and Evaluation
Risk, Evaluation and Mitigation Spreadsheet

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[59] The anodes are "sacrificial lambs". The idea is that the acidic soil corrodes the metal in the anodes instead of the tanks.

[60] The effectiveness of the anodes can be assessed by measuring the conductivity in the surrounding soil. Low conductivity readings mean the anodes have been corroded, meaning the metal in the tanks is vulnerable and have probably experienced corrosion.

[61] LS

Inundation Maps One & Two dated May 26, 2021
Capital Improvement Plan Project Page 2021-2026 (Updated)

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(f) 907-235-3145

Memorandum 20-194

TO: City Council

THROUGH: Rob Dumouchel, City Manager

FROM: Janette Keiser, Director of Public Works

DATE: November 16, 2020

SUBJECT: Public Works Campus Task Force

Issue: In 2019, the Alaska Division of Geological and Geophysical Surveys ("AK DGGS") published updated Tsunami Inundation Maps for Homer, showing that a landslide-generated tsunami could flood the existing Heath Street campus of the City's Public Works Department by as much as 16.4 – 32.8 feet. If this is true, risks of personal injury, property damage and even death are high. We are requesting that a Task Force be convened to deliberate on the risks, develop mitigation strategies and make recommendations for action.

Background: The DGGS updated its Tsunami Inundation Maps for Homer by numerically modeling worst-case scenarios of inundation from tsunami waves generated by earthquakes and submarine landslides, including local underwater slope failure scenarios for Kachemak Bay. The model computes not only the projected height of an earthquake- or landslide-triggered tsunami, but also the time of arrival. The DGGS studied multiple scenarios, using different variables such as distance of the earthquake/landslide from Homer, possible volume of rock/earth displacement, tides, etc. Under some scenarios, the first wave could appear within one hour after the earthquake. Further, waves generated from earthquake-induced landslides could hit low-lying areas while the ground was still shaking from the earthquake. The model projects the maximum landslide-generated tsunami could flood the existing Heath Street campus of the City's Public Works Department by as much as 16.4 – 32.8 feet.

Such flooding could heavily damage millions of dollars of buildings, heavy equipment, materials and supplies on the Public Works campus. Worse, substantial damage would undermine our ability to help the City recover after a tsunami event. Our heavy equipment could be ruined from salt water intrusion, stockpiled materials could be washed away, and our buildings could be rendered uninhabitable. Because of these risks, Public Works employees have a standard protocol when a Tsunami Warning is issued. All available personnel immediately deploy to the campus and begin evacuating major pieces of heavy machinery and other mobile equipment to higher ground. Currently, our evacuation site is on the west end of Heath Ave, behind Safeway. This site is above the Inundation Zone. The evacuation process takes at least forty-five minutes for the equipment alone.

Currently, we do not try to evacuate anything from the buildings – no tools, spare parts or anything from our extensive inventory of pipe, water meters, culverts, etc. Our fuel depot, which services all City rolling stock, consists of underground storage tanks with above-ground pumps and controls. This The fuel could become contaminated and the electronic elements could become inoperable. This means we would have little to work with in the event we would be called up to repair water line breaks, fix roads, or otherwise help the City recover from earthquake-induced damage.

We recently conducted an in-house round table to talk about this. We looked at what we would need to stay functional. We considered these questions:

- What would most likely happen in the way of damaged infrastructure?
- What would we need to do to restore functionality of damaged infrastructure?
- What would we need?

Our goal was to identify equipment, materials and supplies we could stash in some location off the Public Works Campus so we would have something to work with, in the event the worst-case scenario occurred. We concluded that it would cost hundreds of thousands, if not millions, of dollars to be properly prepared. And, worse, even if we created such stock piles, we would have no base of operations. We are the arms, legs and muscles of the City's emergency recovery response team and we would be, for all practical purposes, unable to function. We concluded that if the Inundation Maps are right, the risks of personal injury, property damage and even loss of life could be high, either during the tsunami event itself or during recovery. We need a better plan!

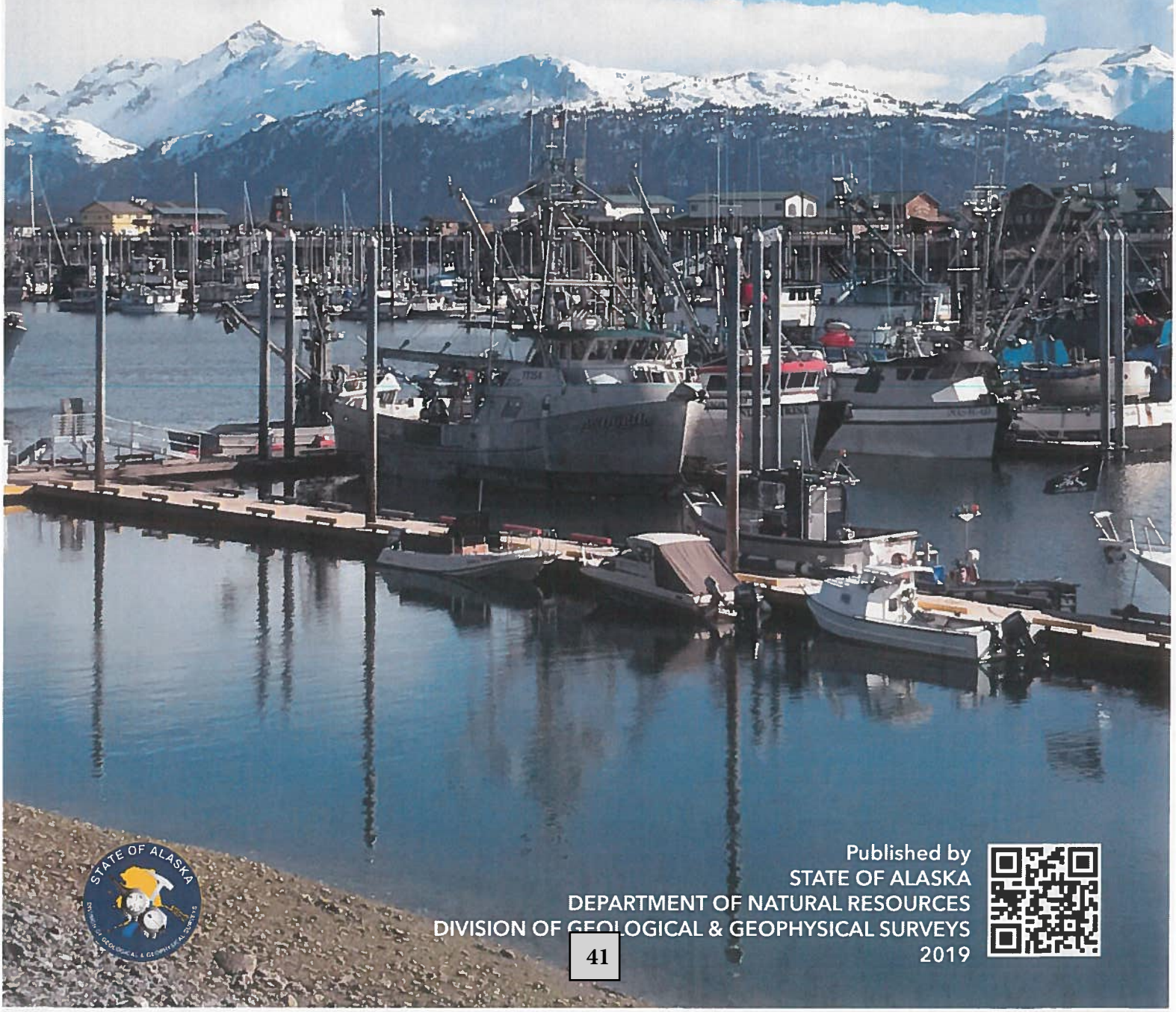
Action Recommended:

We propose that a Task Force be created to evaluate the risks, deliberate about mitigation strategies and make an action plan for addressing the risks of maintaining the status quo.

Report of Investigation 2018-5 v. 2

UPDATED TSUNAMI INUNDATION MAPS FOR HOMER AND SELDOVIA, ALASKA

E.N. Suleimani, D.J. Nicolsky, and J.B. Salisbury



Published by
STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
2019

41

to develop maps of composite flow depths. We superpose all scenarios by selecting the maximum computed flow depth value at each grid point. Figures 26 and 27 show the composite tectonic flow depths over dry land for the town of Homer and for Homer Spit, respectively. The residential areas north and south of the tidal flats, areas north of Beluga Lake, some airport facilities, and a section of Kachemak Drive are all inside the inundation zone, with flow depths ranging from 3 to 5 m (10 to 16 ft). Composite tectonic flow depths on Homer Spit reach 5 m (16 ft). Figure 28 shows the composite tectonic flow depths over dry land in Seldovia. A significant part of the waterfront and the airport area are inside the inundation zone, with flow depths ranging from 1 to 5 m (3.3 to 16 ft).

The numerical simulations reveal that, for some scenarios, the first wave could arrive at Homer and Seldovia within one hour after the earthquake. As demonstrated by the time series data shown in appendix figures A3 and B3, significant wave activity could continue in the area for at least 12 hours after the earthquake, and the predicted average time interval between successive waves is 45 minutes to 1.5 hours.

Landslide Scenarios

While tectonically generated waves may not inundate the coast of Kachemak Bay for up to an hour after an earthquake, landslide-generated waves could hit low-lying areas while the ground is still shaking (Coulter and Migliaccio, 1966; Wilson and Tørum, 1968). Additionally, some landslide-generated waves can occur without an earthquake and therefore without any warning. We assume that slide-prone unconsolidated deposits are initially at rest, and ground shaking triggers

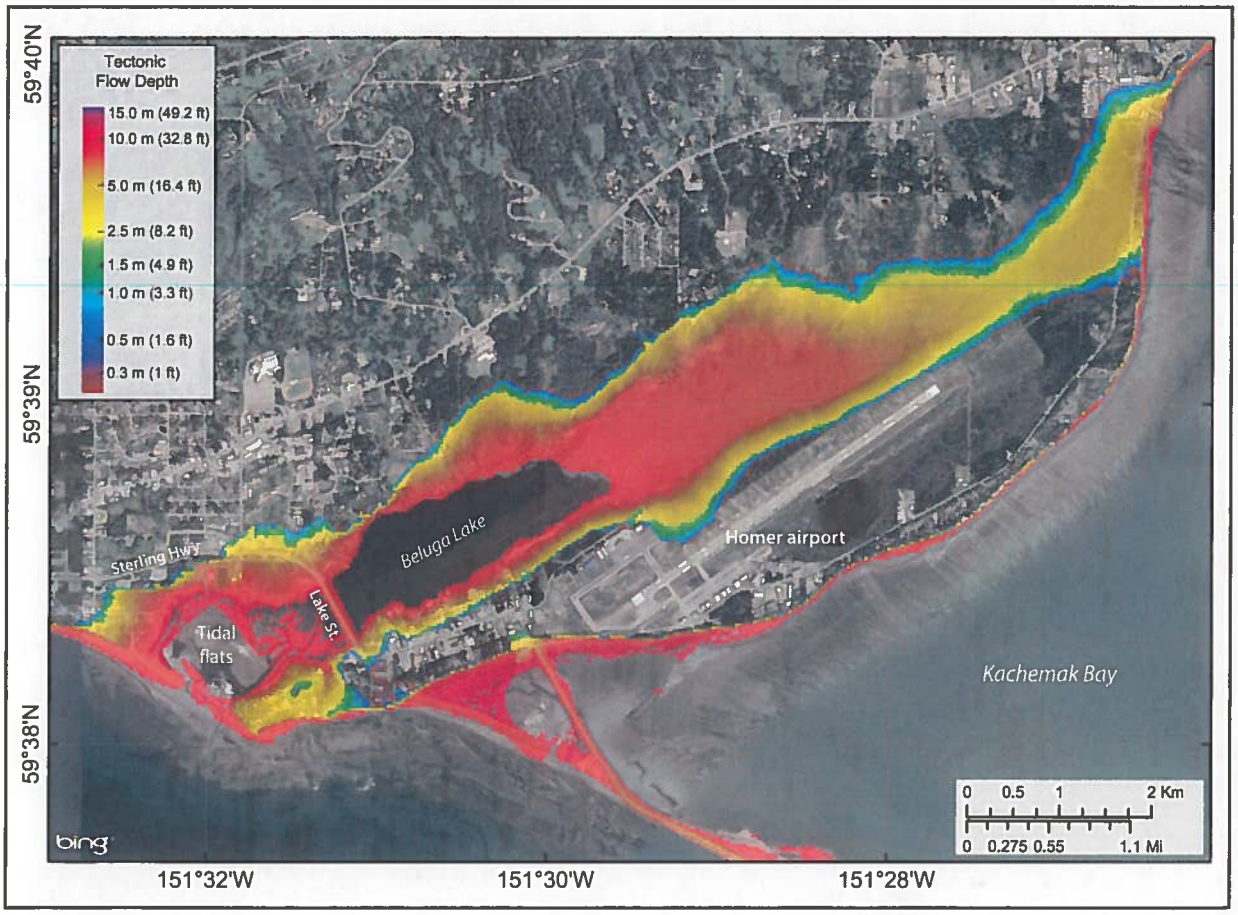


Figure 26. Modeled maximum composite flow depth over dry land for all tectonic scenarios for the town of Homer.

From: Janette Keiser
To: Robert Dumouchel; Melissa Jacobsen
Subject: FW: Equipment photo
Date: Tuesday, November 17, 2020 9:43:45 AM

Here's another photo of the evacuated equipment on Hazel Ave.

Cheers,
Jan

Sent from my T-Mobile 4G LTE Device
Get Outlook for Android

CITY OF HOMER
HOMER, ALASKA

City Manager/
Public Works Director

RESOLUTION 20-125

A RESOLUTION OF THE CITY COUNCIL OF HOMER, ALASKA, CREATING A PUBLIC WORKS CAMPUS TASK FORCE AND ESTABLISHING THE SCOPE OF WORK AND PARAMETERS UNDER WHICH THE TASK FORCE WILL CONDUCT ITS WORK.

WHEREAS, In 2019, the Alaska Division of Geological and Geophysical Surveys published updated Tsunami Inundation Maps for Homer; and

WHEREAS, The information for these maps was derived by numerically modeling worst-case scenarios of inundation from tsunami waves generated by earthquakes and submarine landslides, including local underwater slope failure scenarios for Kachemak Bay; and

WHEREAS, The maximum landslide-generated tsunami, as modeled, shows the existing Heath Street campus of the City's Public Works Department could be flooded by as much as 16.4 – 32.8 feet; and

WHEREAS, Under some scenarios, the first wave could appear within one hour after the earthquake and further, landslide-generated waves could hit low-lying areas while the ground was still shaking from an earthquake; and

WHEREAS, Currently, when a Tsunami Warning is issued, Public Works personnel immediately begin evacuating major pieces of heavy machinery and other mobile equipment from its campus to higher ground and the evacuation process takes at least forty-five minutes; and

WHEREAS, The Department does not currently evacuate materials and supplies, which would be needed in the event an earthquake or tsunami causes damage to the City's water, sewer or road infrastructure; and

WHEREAS, The estimated costs to properly prepare for such recovery, by creating stockpiles of necessary materials, supplies and equipment, would be substantial; and

WHEREAS, For these reasons, risks of personal injury, property damage and even loss of life could be high, either during the tsunami event itself or during recovery.

NOW, THEREFORE, BE IT RESOLVED that the City Council of Homer, Alaska, hereby creates the Public Works Campus Task Force for the following purposes:

1. Goal #1 – Evaluate the risks of personal injury, property damage and loss of life in the event a tsunami floods the Public Works Campus.
    a. Scope of Work –
        i. Review the findings of the 2019 Updated Maximum Estimated Tsunami Inundation report published by the Alaska Division of Geological & Geophysical Surveys
        ii. Develop system for evaluating risks
        iii. Catalog and evaluate risks
    b. Deliverables – Report of Findings of probable risks
    c. Timeframe – Report to be submitted by January 31, 2021
2. Goal #2 – Develop strategies for mitigating identified risks
    a. Scope of Work –
        i. For each risk identified under Goal #1, identify strategies for mitigation, including estimated short term and long term costs
    b. Deliverables – Report summarizing strategies and cost estimates
    c. Timeframe – Report to be submitted by February 28, 2021
3. Goal #3 – Make recommendations.
    a. Scope of Work –
        i. Develop system for evaluating strategies
        ii. Evaluate strategies
    b. Deliverables – Report summarizing evaluation process and identifying preferred options
    c. Timeframe – Report to be submitted by March 31, 2021

BE IT FURTHER RESOLVED the Public Works Campus Task Force will be made up of 7 members, with 3 City Residents, 2 Councilmembers, and 2 City Staff.

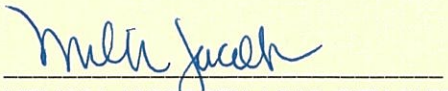
BE IT FURTHER RESOLVED, The Mayor will nominate appointees to the Task Force from a list of applicants; nominees must be approved by City Council. All appointees shall serve at the pleasure of the Council and may be removed from their position by a majority of the Council at any time without cause.

PASSED AND ADOPTED by the Homer City Council on this 23rd day of November, 2020.

CITY OF HOMER

KEN CASTNER, MAYOR

ATTEST:



MELISSA JACOBSEN, MMC, CITY CLERK

Fiscal Note: Staff time and advertising.

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Memorandum

TO: MAYOR CASTNER AND HOMER CITY COUNCIL

FROM: PUBLIC WORKS CAMPUS TASK FORCE

THROUGH: RENEE KRAUSE, MMC, DEPUTY CITY CLERK

DATE: MARCH 8, 2021

SUBJECT: REVISING SCOPE OF WORK TIMELINES

At the first meeting the Task Force determined that a twice monthly meeting on the 2nd and 4th Wednesday at 2:30 p.m. was appropriate with a worksession to be conducted on the third Wednesday of the month at 2:30 p.m. in order to get a good start on this project. However, due to advertising requirements the first Worksession was schedule for Thursday, February 18, 2021. At the regular meeting on February 24, 2021 a presentation was made by Barrett Salisbury with the State of Alaska Division of Geological and Geophysical Surveys and Elena Suleimani with the Alaska Earthquake Center regarding the 2018 Inundation Report.

The Task Force carefully reviewed and performed a brief analysis on the Scope of Work as outlined in Resolution 20-125 and has determined that a three month timeline is not feasible for the amount of work required to determine the best and most appropriate recommendations regarding the Public Works Campus.

The Task Force is recommending the following amended Scope of Work and Deliverable Timeline which reflects an amended timeframe of six months with the Final Report provided to City Council at the August 9, 2021 meeting.

Initial Report Date	Task	New Report Date	Meeting Dates
January 31, 2021	Report of Findings of Probable Risks - Catalog & Evaluate Risks - Develop System for Evaluating Risks - Review Findings	April 12, 2021	2/18/21 Worksession (WS) 2/24/21 Reg Mtg 3/10/21 Reg Mtg 3/17/21 WS 3/24/21 Reg Mtg
February 28, 2021	Report of Strategies including Cost Estimates - Identifying Strategies for Mitigation of Risks Identified o Short & Long Term Costs for mitigation strategies	May 10, 2021	4/14/21 Reg Mtg 4/28/21 Reg Mtg
March 31, 2021	Report on Evaluation Process and Identifying Preferred Options	August 9, 2021	5/12/21 Reg Mtg 5/26/21 Reg Mtg

	- Develop system for evaluating strategies - Evaluate strategies		6/09/21 Reg Mtg 6/23/21 Reg Mtg 7/14/21 Reg Mtg 7/28/21 Reg Mtg

Recommendation:

City Council approve the Public Works Campus Task Force amended Scope of Work and Deliverables Timeline as recommended.

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MEMORANDUM

To: Mayor Castner and the Homer City Council
From: Public Works Campus Task Force
RE: Risk Catalogue and Evaluation
Date: April 30, 2021

Introduction
Resolution 20-125 set out three goals for the task force to address and make recommendations to Council. To date, the group has held eight meetings. The purpose of this memo is to provide a report of our activities so far.

Goal #1: Evaluate the risks of personal injury, property damage and loss of life in the event a tsunami floods the Public Works Campus.

a. **Scope of work:**
   i. **Review the findings of the 2019 Updated Maximum Estimates Tsunami Inundation report published by the Alaska Division of Geological and Geophysical Surveys**
   ii. **Develop a system for evaluating risks**
   iii. **Catalogue and evaluate risks**
b. **Deliverable: Report of findings of probable Risks**

Tsunami Report Evaluation
The Task Force reviewed the Tsunami report, and then heard a presentation by Drs. Suleimani[1] and Salisbury, two of the report authors. The Task Force learned that even a low level of water can cause extreme damage. Unlike a typical wave, a Tsunami is like a fast flooding tide that continues for hours and hours. It carries an immense amount of debris, so between the strong flood and the amount of debris, it's very damaging. The report determined a number of tsunami scenarios that would cause catastrophic damage to coastal areas of Homer.

We quizzed Drs. Suleimani and Salisbury about the probability of the "worst case scenario" happening. They said it was impossible to say because the data in Alaska are not well enough developed to determine the probability of occurrence. This is why they use the "worst case scenario"

[1] Elena Suleimani, Ph.D.
Research Analyst & Tsunami Modeler
Alaska Earthquake Center, University of Alaska Fairbanks

Barrett Salisbury, Ph.D.
Neotectonic Geologist, Engineering Section
Division of Geological & Geophysical Surveys

approach. Dr. Suleimani said it's up to the communities to decide what to do with this information; that is, to decide (a) what would be at risk if the worst case scenario occurred and (b) what the community wanted to do to address the risks. For this reason, we focused on identifying the risks that may be suffered if the worst case scenario happened at the Public Works Campus.

The elevation of the Public Works parking lot is 30 feet. In the worst case scenario, the water could reach 50 feet high, leaving the campus inundated with 20 feet of water. In lesser scenarios, hours long fast moving flood waters could erode the fill that Public Works sits on, causing the loss of the parking lot and potentially threatening the structural stability of the buildings. Additional potential outcomes are discussed in the attached Risk Table.

Catalogue and Evaluate Risks

The Task Force developed a spreadsheet of risks by type of risk – environmental, harm to workers, harm to Public Works operations, and overall negative impacts to city services, in the event a tsunami flooded the Public Works Campus. The draft table is attached here. In addition to gathering input from task force members, we used the All Hazard Mitigation Plan to further consider risks to the facility. The risks evaluated are specific to the Public Works campus in case of tsunami - a regional earthquake will be felt city wide and the impacts are not specific to Public Works.

Another issue this process raised is opportunity cost. If Public Works personnel were not moving equipment during every tsunami warning, workers could be helping with the evacuation of people from low lying areas. In the event of a tsunami and damage to the campus, Public Works staff would be needed to respond to that facility, rather than taking part in the city wide response that will surely be needed. Rather than having the resources to participate in the city emergency response and recovery, the facility will require those resources and personnel to stabilize operations.

Conclusion of Goal 1 work:

The Public Works Campus is critical City infrastructure and lies within the maximum tsunami inundation zone. At an elevation of 30 feet, the campus is in a vulnerable location. Planning for the mitigation of a tsunami event can include short and long term strategies. The Task Force recommends, among other solutions, the long term replacement of the Public Works Campus at a higher elevation.

Next Steps

The Task Force will continue its work as outlined in Resolution 20-125. Risk mitigation strategies for short and long term implementation will be provided, with associated costs. The group intends to have the strategies and costs, a report on Goal 2 and deliverables, for a future Council meeting.

Attachments

1. **Map**
2. **Risks Spreadsheet**
3. **Resolution 20-125**

4/21/21 WS draft PWTF

Risks, Evaluation and Mitigation

	A	B	C	D
1	**Impacted Group**	**Potential Risk/Outcome**	**Evaluation**	**Mitigation Options**
2	**Environment**	Calcium Chloride storage	Flooding would have localized impact for 1 week to one month. CC Causes acute toxicity but would be quickly dispersed by a Tsunami	Store at a higher elevation (easy to replenish in a new location over time). Alternately, accept the loss of sand pile and lose the ability to provide sanding services.
3		Fueling depot for all city vehicles	Could cause a fuel spill	Move fuel depot
4		Toxicity to people and the environment from chemicals stored at PW, and potential impact on salmon, shorebirds and nearby area	Some oil and hydraulic fluids are stored at PW, but in relatively low quantities (its not a tank farm). Could have short term affect but not expected to cause long term damage. Tsunami would dissipate quickly.	None needed
5		RV holding tank storage	Loss of service	Create a new higher elevation RV dump location
6		Sewer treatment plant flooding and raw sewage escapement	Sewage spills, but cleanup of facility is possible	Facility can not be reasonably moved.
7				
8	**Workers**	All PW administration and mechanics are located on site	All administrative support and operations for PW would immediately need a new location, along with work stations, phones and IT capabilities	Remote work, or re-home administrative functions in other city facilities. Disruptive to PW and citywide operations.
9		Potential loss of life	Early Warning System provides warning, would take time for water to reach PW, and reach a flood elevation.	PW emergency operations protocol could better track who is on site or do a final sweep at evac. Threat is from the evacuation process, injury or accident during evacuation
10		All employees and rolling stock is evacuated during every Tsunami event warning. Takes about 45 minutes.	Staff could be helping with the effort to evacuate the public, freeing up other emergency responders.	In an emergency, injuries are likely and would pull emergency responders away from traffic control and evacuation efforts.

4/21/21 WS draft PWTF

Risks, Evaluation and Mitigation

	A	B	C	D
1	**Impacted Group**	**Potential Risk/Outcome**	**Evaluation**	**Mitigation Options**
11	**Workers**	Traffic risk for workers and the public as all the rolling stock is evacuated	PW is able to provide its own flagger and traffic control if needed. This is not a pinch point for evacuation operations for staff or the public.	Evacuation goes pretty well because we do it fairly often. Can provide a flagger if needed. Equipment evacuation is smooth; it's the pipes valves tools that cant be evacuated, along with frozen in equipment such as summer parks items. Have started some stashes of water valves etc. but don't have pipe storage, etc.
12		Opportunity Cost. How could PW staff be helping if they were not moving equipment? How could they be helping with response?	Could be providing traffic control! Monitoring water/sewer infrastructure, could be helping dispatch and other emergency responders. Could help evacuate low lying areas, or spit equipment. Could revise emergency management plan so PW is a resource, and better plan for utilities	
13				
14	**City operations**	Loss of fueling depot	Immediate need to switch to local service stations. Likely to have fuel shortages for our rolling stock, including ambulances and fire trucks.	Backup fuel storage in another location, move fuel island. Needed for all disasters and in case of supply chain disruptions
15		Loss of PW mechanic services due to loss of personal and city tools, parts, materials and shop space	There is substantial investment in the mechanic shop that would be difficult to replace on short notice	Hire out repair services (light vehicles only). Services may not be available or have the expertise needed for emergency vehicles. Short term solution only? No solution?
16		Disruption to sewer treatment operations	Cleanup would be required, but the facility could be repaired	Not looking to relocate because the alternatives are not feasible. The deep shafts would remain... may need repair/electric etc. but the concrete shafts are stable.

	A	B	C	D
1	**Impacted Group**	**Potential Risk/Outcome**	**Evaluation**	**Mitigation Options**
17	**City operations**	Loss of all PW administrative offices	Loss of historical files, including all city projects, paper plans are not replaceable… decades of projects…..	Scan plan sheets and institute electronic records management.
18		Radio and communication systems would be impacted	PRV stations/water system impacted. Reduction in city phone service redundancy which could affect non-emergency phone calls to dispatch	Losing electronics for PRV and lift stations means losing the ability to identify leaks, water breaks, and pump water and pump sewers. Would require people on the ground to do it manually.
19		Ability to supply bulk water at Public Works would be reduced	There are currently two private bulk water providers who could supply water trucks if the water system was functional.	If needed, water can be provided via fire hydrants or at the Water Treatment Plant, depending on the nature of the service disruption.
20		Loss of rolling stock	Higher value stock rolls first during an evacuation. Lower value stock does not moved - stuff on a trailer, or harder to move like the asphalt machine. Easy to move stuff goes, equipment that does not move does not get evacuated.	Quantify what is not rolling: 20-25% of equipment might not be moveable (repairs, etc.) A few supplies would be frozen in although most are under sheds
21		Parks equipment doesn't move in an evacuation. Loss of lawnmowers, brush cutters, snow blowers, bobcat, traffic signs etc.	We have learned from doing the vaccine events that having enough traffic control people and cones, signs etc. is critical to safe large scale operations.	Mobilize the cone and sign trailer as part of an evacuation. Consider storing some supplies off site.
22	**Equipment**	Loss of sand pile	Would not be able to sand roads. Use stockpile for road and water and sewer repairs, especially in winter. Would hinder repair capability.	Store sand pile in a different location
23		Loss of other equipment and materials	Loss of culverts and other materials used for repairs	Consider storing some items (say in a connex) on higher ground.

	A	B	C	D
1	**Impacted Group**	**Potential Risk/Outcome**	**Evaluation**	**Mitigation Options**
24		Loss of motor pool equipment shop	Elimination of capacity to fix police and fire vehicles, could lose whatever apparatus is currently under repaid such as an ambulance	
25		Leaving equipment in an unsecured area after evacuation leaves it vulnerable to vandalism	Currently there are people at PW most of the time, but the site is unsecured. Pipes etc. are more secured (connexes)	Currently the equipment is out of sight, out of mind, so people don't see the equipment. If its moved to Hazel, its much more visible to people. Emergencies bring out the best and worst in people.
26		After initial phase, could equipment go someplace else (mitigation) can we re-house it around the city? Effect on operations?	Fragmenting affect on operations during the response/recovery timeframe, until a new PW facility could be established.	
27				

Prioritized mitigation and costs

	A	B	C	D
1	**Potential Risk/Outcome**	**Mitigation Options**	**Timeframe- short term/long term**	**Cost**
2				
3	Loss of fueling depot	Move fuel island.	Short term opportunity	Fuel island is already under design for replacement? Status? I.e. are we already spending that $?
4	Loss of PW mechanic services due to loss of personal and city tools, parts, materials and shop space	Hire out repair services (light vehicles only). Services may not be available or have the expertise needed for emergency vehicles. Short term solution only? Move facility.	Long term cost	
5	Loss of all PW administrative records	Short term: Scan plan sheets and institute electronic records management.	Shorter term opportunity	e-document management program
6	Loss of PW administration office	Short term: Remote work, or re-home administrative functions in other city facilities. Long term: Move offices	Long term cost	
7	Radio and communication systems would be impacted	Would require people on the ground to do check infrastructure manually due to loss of communications infrastructure.	Long term cost	High cost. If the campus moves, and would be part of a larger communications package. Unlikely to be a standalone mitigation measure.
8	Loss of rolling stock	Higher value stock rolls first during an evacuation. Lower value stock does not moved - stuff on a trailer, or harder to move like the asphalt machine. Easy to move stuff goes, equipment that does not move does not get evacuated.	Long term cost	Quantify what is not rolling: 20-25% of equipment might not be moveable (repairs, etc.) A few supplies would be frozen in although most are under sheds
9	RV holding tank storage	Create a new higher elevation RV dump location	Long term cost	
10	Loss of signs, traffic cones, traffic control supplies	Mobilize the cone and sign trailer as part of an evacuation. Consider storing some supplies off site.		No cost? Operational change? Cut from this table?

	A	B	C	D
1	**Potential Risk/Outcome**	**Mitigation Options**	**Timeframe- short term/long term**	**Cost**
11	Parks equipment doesn't move in an evacuation. Loss of lawnmowers, brush cutters, snow blowers, bobcat, traffic signs etc.	Relocate parks equipment	Long term cost	
12	Loss of sand pile	Would not be able to sand roads. Use stockpile for road and water and sewer repairs, especially in winter. Would hinder repair capability. Or, accept the loss of the sand pile.		Store sand pile in a different location… maybe
13	Loss of other equipment and materials	Loss of culverts and other materials used for repairs. Consider storing some items (say in a connex) on higher ground.	Short term?	
14	Leaving equipment in an unsecured area after evacuation leaves it vulnerable to vandalism	Create secured area at a higher elevation	Short term?	
15	After initial phase, could equipment go someplace else (mitigation) can we re-house it around the city? Effect on operations?	Fragmenting affect on operations during the response/recovery timeframe, until a new PW facility could be established.	Long term cost	

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Memorandum

TO: Public Works Campus Task Force

FROM: Janette Keiser, PE, Public Works Director/ City Engineer

DATE: June 24, 2021

SUBJECT: Public Works Campus

The purpose of this Memorandum is to identify other issues related to the functionality of the existing Public Works Campus, besides the fact the facility is located in the Tsunami Inundation Zone. For context, consider the City's infrastructure has increase – every new subdivision adds roads, ditches, water/sewer lines, hydrants, manholes and other appurtenances, all of which need testing, preventive maintenance, and repair. In 2020, the City had the following infrastructure:

- 59 miles of water line, increase of 12 miles since 2016
- 63.5 miles of sewer line, increase of 7.5 miles since 2016
- 435 fire hydrants, increase of 66 hydrants since 2016
- 30 pressure reducing stations, increase of 6 stations since 2016
- 829 manholes
- 17.62 miles of gravel roads
- 29.02 miles of paved roads

Further, there have been over 100 new water/sewer connection permits as well as over 100 new driveway permits issued in the past two years. All of these new services require resources to support – staff time and supplies

1. The existing bays in the Mechanics' Shop are too small to accommodate the larger pieces of the City's rolling stock that we already own. For example, you cannot fit one of the Homer Volunteer Fire Department fire trucks in the Shop and close the door. Further, there is barely enough headroom for this vehicle. Fire trucks are getting bigger and as they do, working on them in the existing Shop becomes problematic. Also, while the Public Works Department's Vactor Truck[1] fits in the Shop, there is not enough room to walk around the vehicle to efficiently work on it. When two of the City's larger vehicles are in the Shop, the working space around them is so limited the working environmental is inefficient and cumbersome, which can create safety hazards.

[1] A Vactor Truck is like a wet-dry vacuum cleaner on wheels and steroids. It has a large on-board water reservoir and a pump, which allows it to either flush out sediments in a storm drain manhole or suck out waste water from a sewage lift station. It is the workhorse of the Department's Fleet, heavily used by the road crew and the water/sewer crew.

This problem will be exacerbated as we retire obsolete equipment and acquire replacements. This is because the modern equipment is simply larger than the older models. For example, we will be purchasing a new grader in 2021. The smallest new grader available on the market is larger than the biggest grader we already have. If we acquire a new grader model that is comparable in power and capability to the one we are retiring, which is what we need to do, the new model will not fit in the shop.

2. There are not enough working bays in the Shop. The industry standard is to have 1 ½ bays for every mechanic for safe, efficient working space. We have three mechanics, which, by this standard, means we should have 4½ bays. We have two. A typical day sees both bays occupied by equipment under repair. A complete repair could easily take multiple shifts, while the mechanics wait for parts or a diagnosis. This means the damaged vehicle is stuck in the shop taking up space, which adversely impacts efficiency. An extra bay would allow the mechanics to start working on other equipment, while they are waiting to finish the repairs on the one stuck in the shop.

3. There is not enough room for dry, temperate storage in the winter. Some of the equipment, which is crucial for winter road and utility maintenance, needs to be stored where it doesn't freeze – such as the sand trucks and the Vactor Truck. If these units are left in the open, the sand on the sand trucks and the water in the Vactor truck freezes, making the equipment useless. The existing motor bay is too small to hold all of the equipment, which needs warm storage. So, the Mechanic's Shop is often used for this purpose, which means a piece of equipment needing repair must be hauled out of the Shops so a sanding truck can be stored there overnight. This is extremely inefficient and creates safety hazards.

4. The existing Public Works facility houses the Water/Sewer crew's shop. The W/S Technicians repair pumps, valves and other appurtenances in this space. This ability to make in-house repairs is critical to maintaining fully functioning systems. This space contains spare parts, work tables and tools. The City's water/sewer system has grown with new main extensions and new services, which has increased the need for inventory and work space. This is particularly true because much of Homer's water/sewer infrastructure has aged and needs regular maintenance/repair to keep it functional.

   If the mechanic shops and rolling stock were relocated to a higher elevation, we could expand the water/sewer shop space at the existing campus. We would keep an inventory of spare parts and critical materials at the higher elevation so we would have something to work with in the event of an emergency, but leave the lower value or more portable stuff at the existing campus. This would mitigate the risk of loss to our utility system, while still making beneficial use of our existing space.

5. Several Public Works functions are currently housed in both of the HERC buildings because there is no room for them at the Public Works Campus. Both Building Maintenance and Parks use space at the HERC buildings for office, workshop and storage space. At some point, the

HERC buildings will be demolished and replaced with a Community Recreation Center. We don't know where we will transfer these functions to when the HERC site is no longer available.

One option is to shift them to the existing Public Works campus, once the mechanic shops and rolling stock are relocated. We could use the existing space to store wood for picnic table repairs, landscaping materials, janitorial supplies, and the other stuff Building Maintenance and Parks need to do their work. While this stuff costs money, it does not have the same degree of high-value criticality as the tools and equipment in the mechanics' shops and is more portable.

6. The existing fueling depot serves all of the City's rolling stock with gasoline and diesel fuel. The depot consists of underground fuel storage tanks, which are equipped with cathodic protection; that is, anodes to slow down the rate of corrosion on the tanks.[2] The facility is regulated by the AK Department of Environmental Conservation (ADEC) and one of the permit conditions is that the anodes must be inspected every three years by a 3rd party inspector. The inspector conducts a test to determine if the anodes are still working.[3] If we do not pass the test, the ADEC will void our permit.

   The test was last performed June 24, 2021 and our anodes barely passed. The inspector did not recommend replacing the anodes because he believes the tanks are probably already corroded. He opined the fueling system needed to be replaced. Not only is corrosion probably present, the software system is no longer supported by any vendor. When it goes down, the system will not dispense fuel. We are being increasingly challenged to keep it operating. When it does dispense fuel, we aren't always sure whose account it's being charged to.

   Funds, in the amount of $185,000, have been appropriated to design/construct a replacement fueling depot. The Fuel Island Replacement Project would involve above-ground fuel storage tanks, which would eliminate the potential for corrosion and soils contamination as well as enable the system to be relocated, in the event the Public Works campus was relocated outside the Tsunami Inundation Zone. Because the cost of the replacement fueling depot would be funded separately, the estimated cost of the new Public Works Facility does not include the cost of the fuel depot.

[2] The anodes are "sacrificial lambs". The idea is that the acidic soil corrodes the metal in the anodes instead of the tanks.

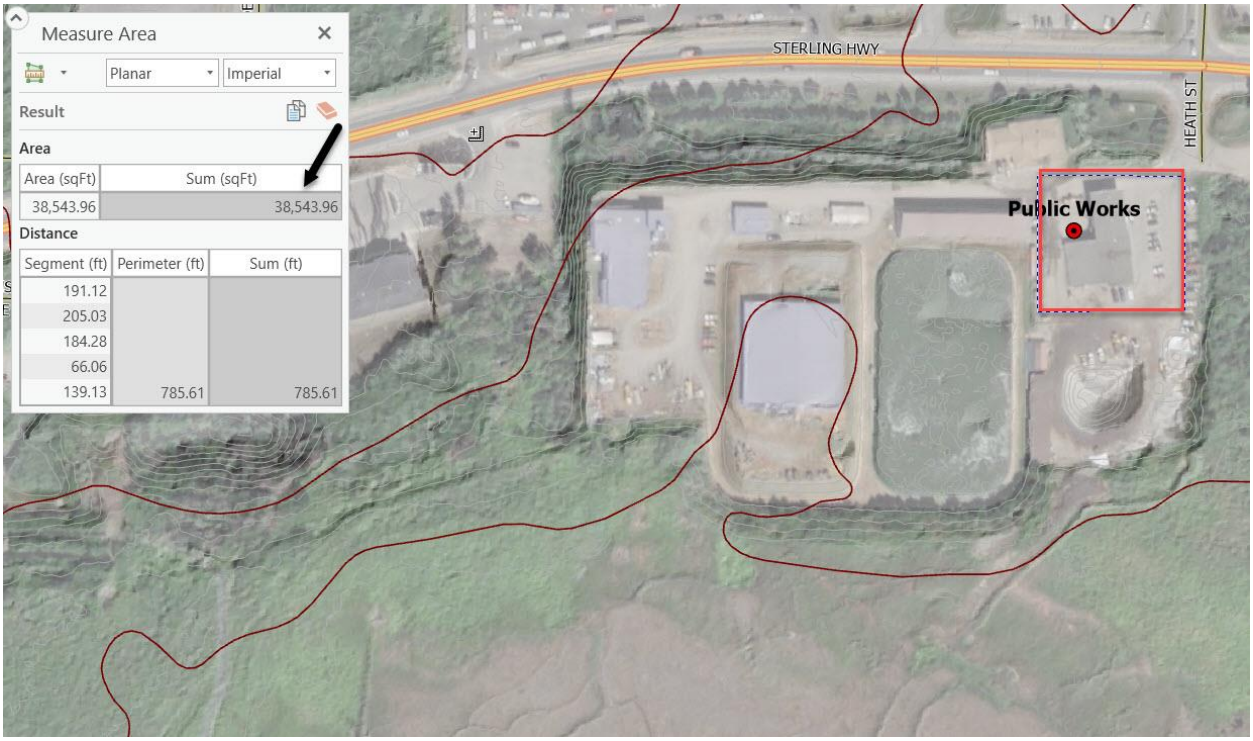
[3] The effectiveness of the anodes can be assessed by measuring the conductivity in the surrounding soil. Low conductivity readings mean the anodes have been corroded, meaning the metal in the tanks is vulnerable and have probably experienced corrosion.

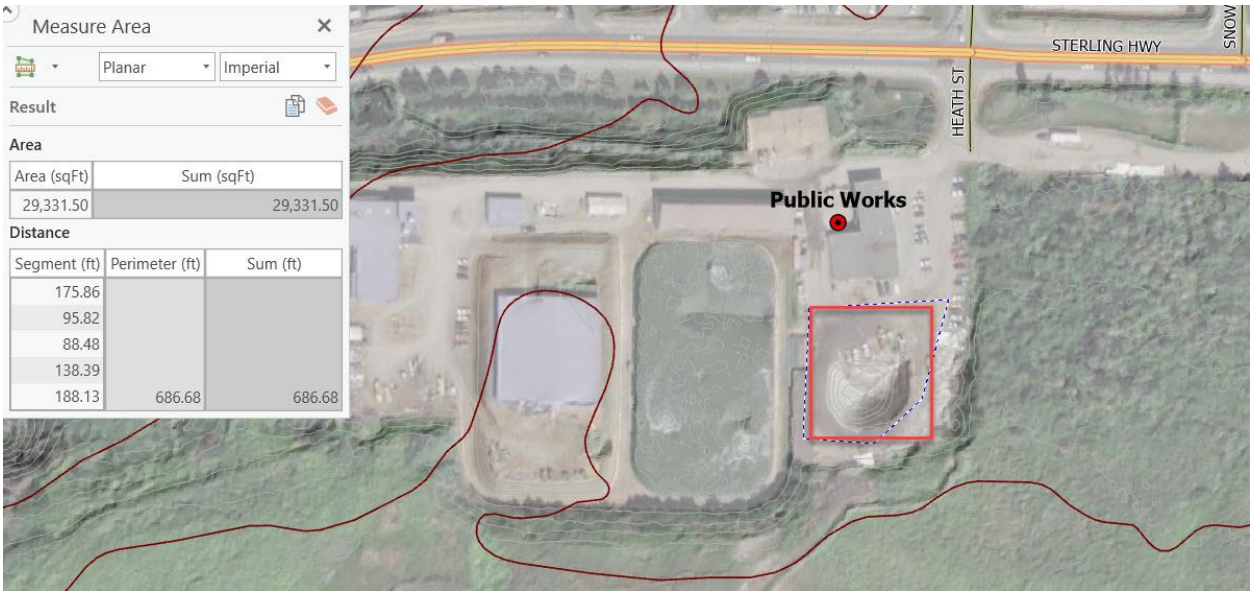
Measurements of COH PW Campus Footprints

Measured using ArcGIS Pro software

Measured by: C.Barnwell, Kinney Engineering

Date: 7/14/21

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Planar
Imperial
Result
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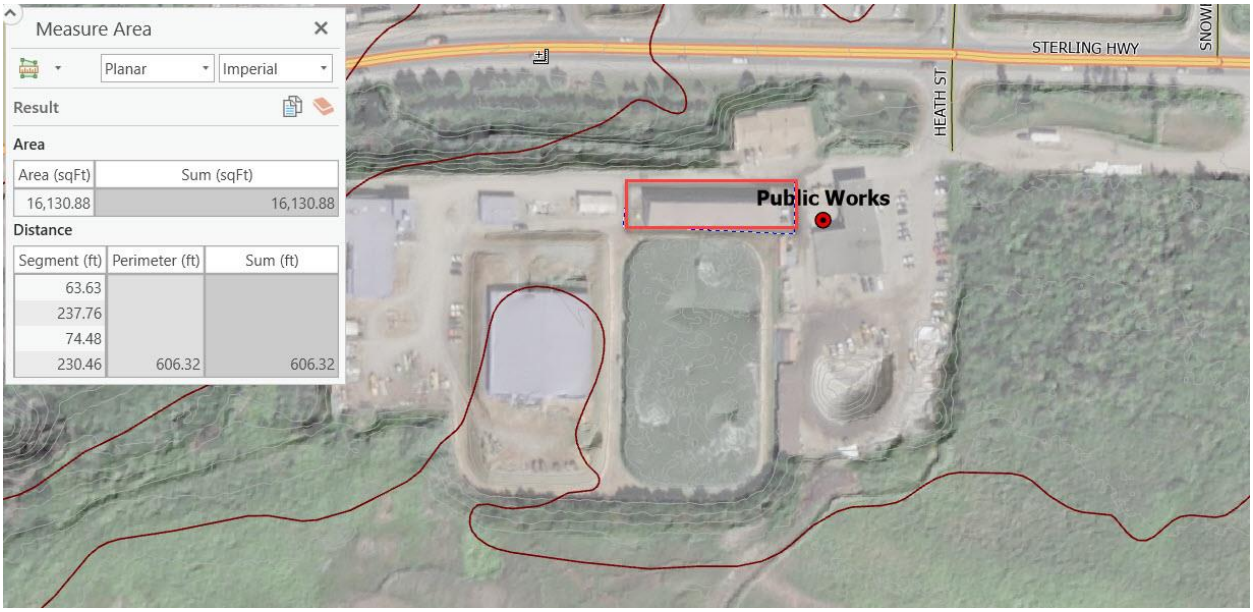
88.48
138.39
188.13 686.68 686.68
STERLING HWY
HEATH ST
Public Works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Planar
Imperial
Result
Area
Area (sqFt) Sum (sqFt)
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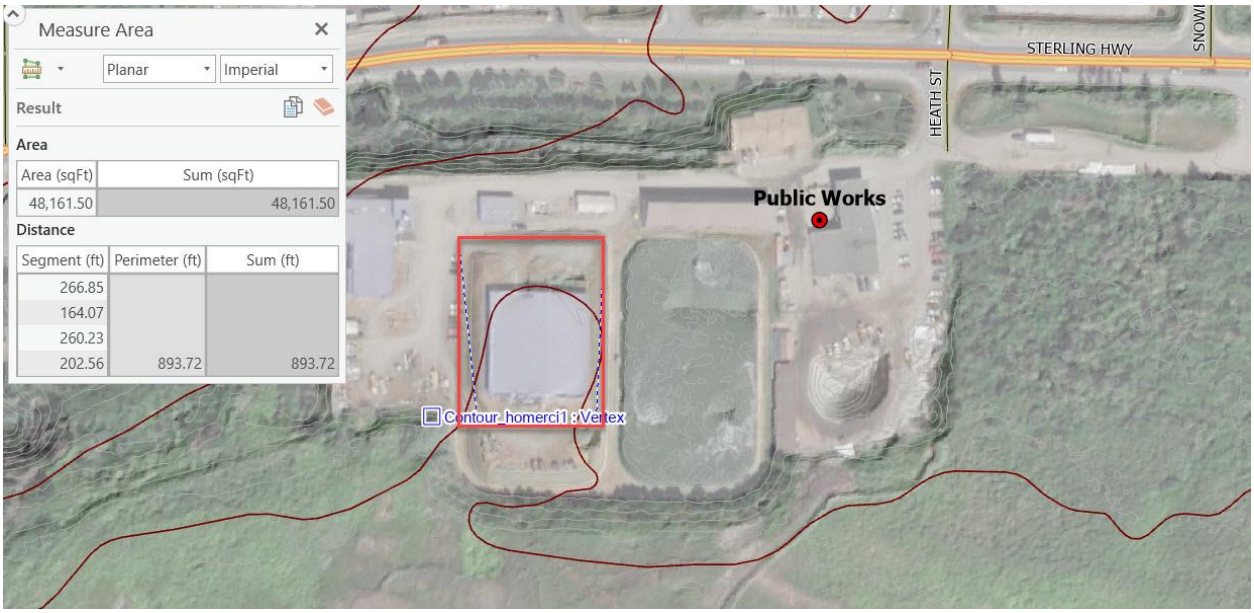
STERLING HWY
HEATH ST
Public Works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Planar
Imperial
Result
Area
Area (sqFt) Sum (sqFt)
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260.23
202.56 893.72 893.72
STERLING HWY
HEATH ST
Public Works
Contour_homerci1 :Vertex


Measure Area
Planar
Imperial
Result
Area
Area (sqFt) Sum (sqFt)
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Distance
Segment (ft) Perimeter (ft) Sum (ft)
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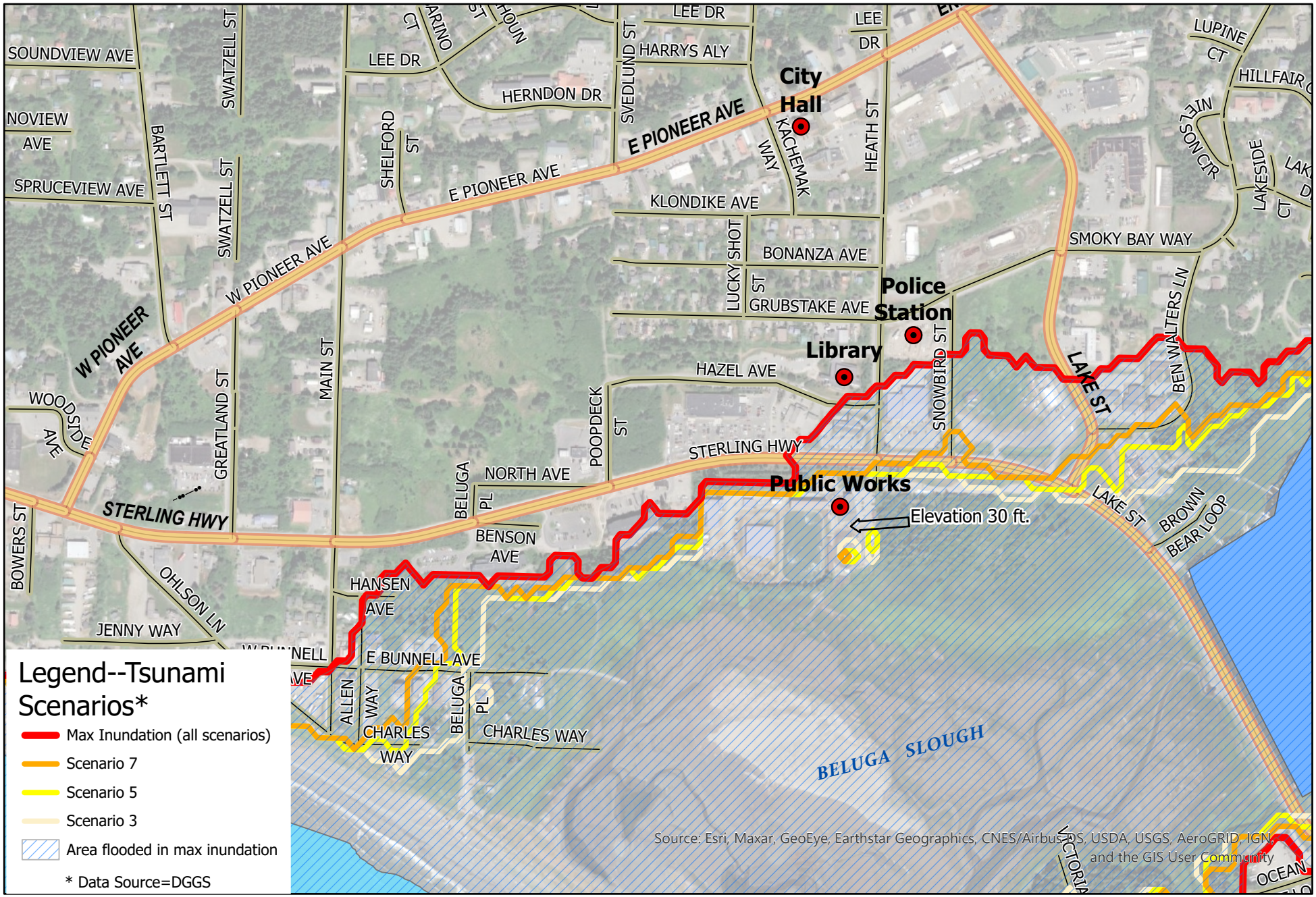
282.17
154.60 908.62 908.62
STERLING HWY
HEATH ST
Public Works



Map Date: 04/30/21
Data Sources: KPB, COH, DGGS (GIS data, elevation), Esri satellite imagery 2020.
Map by: C.E.Barnwell

Legend
Major Roads
Streets

N

0 300 600 1,200 Feet
0 65 130 260 Meters

63

City of Homer
PUBLIC WORKS CAMPUS TASK FORCE
MAP 1--TSUNAMI ZONES
& EXISTING PUBLIC WORKS

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MEMORANDUM

To: Public Works Task Force
From: Julie Engebretsen, TF member
RE: Site Selection Review
Date: May 12, 2021

Resolution Task Goal #3: Make Recommendations

- Develop system for evaluating strategies
- Evaluate strategies
- Deliverables: Report summarizing evaluation process and identifying preferred options

RECAP: At the last meeting, the task force moved that Public Works Director Kaiser and myself would provide an outline of what the requirements are for a suitable public works property, to be further supplemented by a GIS report.

Process

I began by researching properties for sale in Homer, and also used my knowledge of Homer properties to identify vacant lots or areas that could be re-developed. I based decisions on lot size, zoning, and if there property was or had been recently for sale. Attached is a map of preliminary potential sites.

Upon further analysis, some were too steep to be reasonably developed for a public works building. For example, there is a lot of vacant land on Greatland Street, but the slope would require a lot of dirt work and expense and the shape of the lots and the presence of a creek doesn't lend itself to easy development for our purposes. I walked parts of the CBD to look at property and determine which merited a field visit with Director Kaiser. I also visited property in the Commercial Park Subdivision, basically south of the Down East/Bayweld area out East End. While there is acreage with full utilities available, the roads are not paved, and it's a long way for equipment to travel to reach 'headquarters.' Seems like a lot of machine and employee time would be wasted if this location was used.

Meanwhile, Jan had an architect make a scale map of the site on Lake Street, and put the existing PW building on it. For reference, the existing PW administration building and mechanics area is about 17,000 square feet, similar to the Homer Public Library. Pole barns and equipment storage will take additional space, but it gave her a rough idea of what property is needed as a starting point for lot analysis. From the architect's analysis, the area of the current building would fit. She is now working on fitting the fuel island and equipment storage on that site.

Field Trip

Jan and I met on Thursday May 6th to conduct a field visit. During that time we determined the following site selection factors:

- Location outside the Tsunami Zone
- Location with good street access and not using Pioneer Ave as a main thoroughfare for all heavy equipment
- Centrally located in Homer/Central Business District zoning.
- Location with adjacent land uses that would not be unreasonably affected by having Public Works as a neighbor.
- Relatively flat land. All sites have some slope, some more than others.

We visited three locations.

1."Waddell property" at the intersections of Snowbird, Grubstake and Lake Street. Con: The property is right on the edge of the Tsunami Zone… It does not seem reasonable to move the campus for so little elevation gain.

2. "Lake Street Lot". This is the property proposed by Carey Meyer. The pros include most of the land is for sale, and it is big enough for a scaled down PW facility. To the south, the neighboring land use is Homer Electric Association's storage yard.

3. "Town Center North." This lot would have heavy equipment accessing Pioneer Avenue, which is not desirable, and would require purchasing additional land for a Main Street access. Additionally, the property has a fair amount of slope. It would be better suited to a land use that didn't require such a large, flat footprint. Last, this property is zoned Town Center, which does not allow a public works campus use. Changing the zoning would also entail changing the Comprehensive Plan. These are possible, but would likely meet public resistance.

We further discussed the land on Greatland Street (too sloped) and the HERC site. The HERC site was studied by the HERC Task Force. While it is a larger flat site, there are higher and better uses for this property. The pros and cons of the HERC site could be further discussed by the full Task Force.

Conclusions

- The sand pile at public works is a source of a lot of equipment noise, and takes a large flat area. Leaving the pile where it is may be a reasonable solution. Similarly, snow storage would remain at its current location. This would allow a new Public Works facility to be on a smaller lot, and have less impact on adjoining properties.
- If the old Public Works building remains in place, all the heavy equipment, repair shop, materials storage and offices could move 'up town.' Parks maintenance and building maintenance could remain or be re-located to the existing building. This would allow the City of move out of the HERC 2 building.
- The lot on Lake Street is for sale, and is the best fit for PW at this point. There are additional lots that are not for sale, but are not heavily developed. Perhaps the City could pursue a first right of refusal agreement on those lands.

Requested Action: What are the next steps the Task Force would like to take?

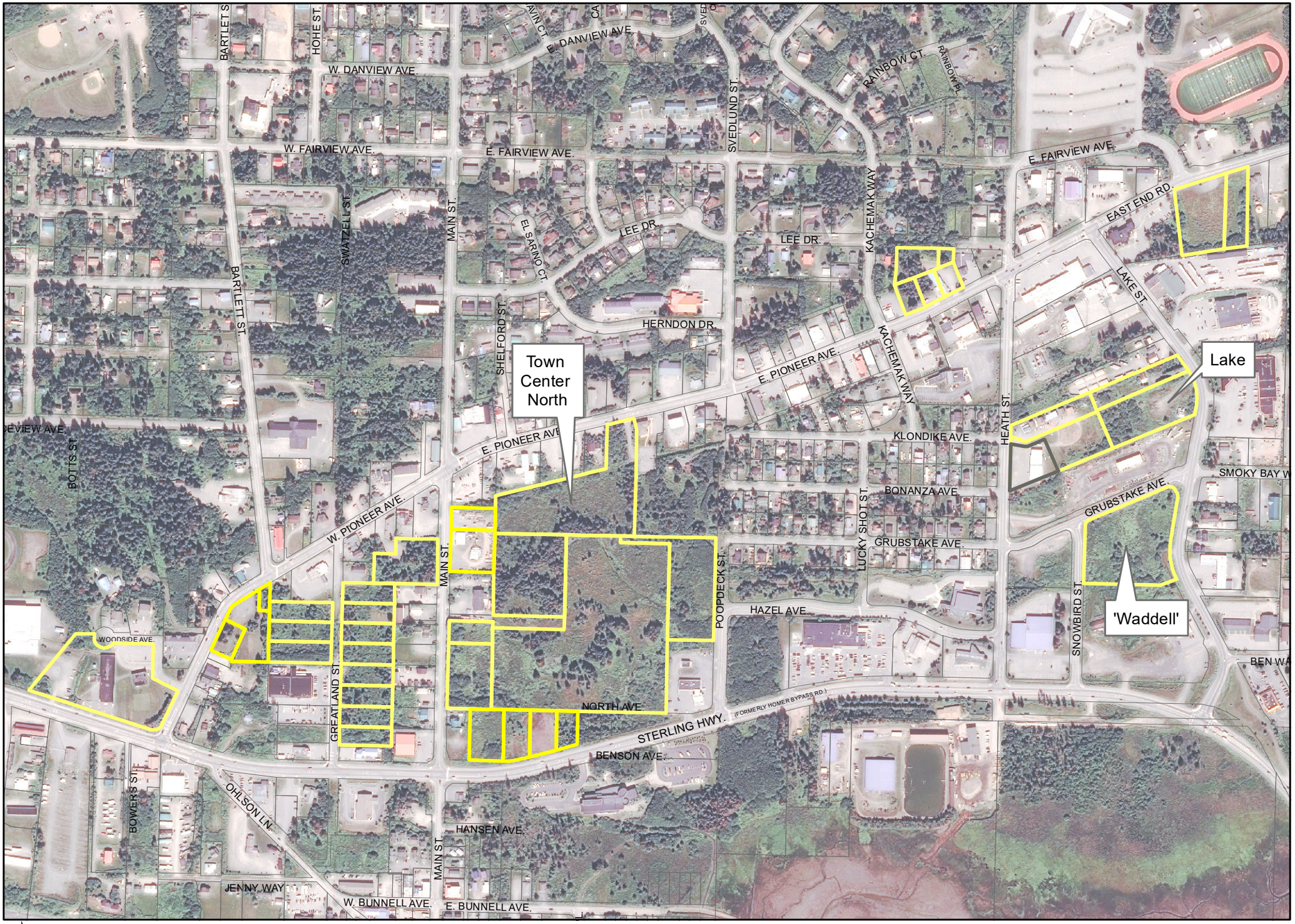
~Task Force members could visit these sites

~We can share observations at the next meeting.

~I can write a more fleshed out ‘report’ based on your observations and this memo, for a June agenda.

Attachments

1. Potential Sites Map
2. 5/3/21 Draft site plan/very basic space planning
3. Real Estate Listings


Town Center North
Lake
'Waddell'
BARTLETT ST.
HOHE ST.
W. DANVIEW AVE.
E. DANVIEW AVE.
SVEDLUND ST.
RAINBOW CT.
RAINBOW PL.
W. FAIRVIEW AVE.
E. FAIRVIEW AVE.
SWATZELL ST.
MAIN ST.
EL SARINO CT.
LEE DR.
KACHEMAK WAY
EAST END RD.
LAKE ST.
SHELFORD ST.
HERNDON DR.
E. PIONEER AVE.
HEATH ST.
KLONDIKE AVE.
BONANZA AVE.
GRUBSTAKE AVE.
LUCKY SHOT ST.
POOPDECK ST.
HAZEL AVE.
SNOWBIRD ST.
SMOKY BAY W
BOTTS ST.
WOODSIDE AVE.
GREATLAND ST.
NORTH AVE.
STERLING HWY.
(FORMERLY HOMER BYPASS RD.)
BENSON AVE.
BOWERS ST.
OHLSON LN.
HANSEN AVE.
JENNY WAY
W. BUNNELL AVE.
E. BUNNELL AVE.
N
0
0.25
0.5
67
Miles
Potential Site Selection 5/6/2021

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Memorandum

TO: PUBLIC WORKS CAMPUS TASK FORCE

FROM: JANETTE KEISER, PUBLIC WORKS DIRECTOR

DATE: JUNE 15, 2021

SUBJECT: CRITERIA FOR EVALUATING STRATEGIES

I. Issue: The Task Force's mission includes identifying risks related to tsunami inundation, identifying mitigation strategies and identifying criteria by which to evaluate those strategies. The purpose of this memo is to recommend relevant criteria.

II. Recommended Criteria:
Criteria should be (a) measurable and (b) easy to define.

Criterion #1: Cost/Benefit Analysis. It's not enough to compute the expected costs of a particular strategy. We must also quantify the expected benefits. It may be the costs are high but the benefits are higher.

Criterion #2: Public Works' Mission. The extent to which the strategy (a) preserves the ability of the Public Works Department to perform its essential mission(s) in emergencies; (b) supports the Department's ability to support the City's maintenance needs over the long term and (c) enables the Department to continue to serve as an integrated system; that is, the various functional units are housed on a single campus. A high score means the strategy allows the Department to efficiently and cost effectively fulfill its mission over the long term.

Criterion #3: Funding. The extent to which funding strategies are available to support a particular mitigation strategy. A high score means a reasonable source of funding is probably available.

Criterion #4: Phasing. This criterion relates to the extent to which the implementation of the mitigation strategy can be phased over time. A high score means the strategy can be phased in a feasible and affordable manner.

Criterion #5: Timeliness. This criterion relates to the extent to which taking action sooner rather than later would add value by generating benefits or avoid lost opportunity. A high score means taking action in a timely manner is important.

Criterion #6: Public perception. This criterion involves the strategy's ability to generate favorable public perception and support. A high score means the strategy can probably be designed to generate public support.

III. The Mitigation Strategies

Strategy #1 – Limp Along. This is the "do nothing" strategy. We continue to operate how we've been operating; evacuating the equipment when a tsunami warning sounds and hope for the best.

Strategy #2 – Lock, Stock & Barrel. With this strategy, plan are put into motion to relocate the PW Campus as a priority.

Strategy #3 – Long Term Incremental. With this strategy, the risk to the PW Campus is acknowledged and a long term plan is put in place to relocate the campus incrementally; that is, property is purchased, a campus layout is designed, and the City seeks funding for the project costs, possibly, building features of the facility a step at a time.

IV. Ranking Scale

The criterion have been ranked according to the degree to which the mitigation strategy adds value to the Public Works Department and the Community. As an absurd illustration, adding a hot tub to the PW campus may add value to the Department's employees, but it does nothing to add value to the Community. Likewise, initiating a 7-12 working schedule, with no lunch break may add value to the Community, but it would create a hardship on employees.

Low –The mitigation strategy scores low for the criterion, meaning the strategy adds little value to the Department or the Community. This yields 0 points

Medium – The mitigation strategy scores in the middle of the range for the criterion, meaning while strategy may value to either the Department or the Community, it does not add value to both. This yields 50 points

High – The mitigation strategy scores high in the criterion, meaning the strategy adds high value to the Department and the Community. This yields 100 points.

Attached: Criteria for Evaluating Strategies Scoresheet

Criteria for Evaluating Strategies				
Criterion		**Limp Along**	**Lock, Stock & Barrel**	**Long Term Incremental**
#1	Cost Benefit Analysis	low/0	medium/50	high/100
#2	Supports PW Mission	low/0	high/100	high/100
#3	Funding Available	high/100	low/0	medium/50
#4	Can be Phased	low/0	low/0	high/100
#5	Timeliness	low/0	high/100	high/100
#6	Would generate favorable public perception & support	medium/50	low/0	high/100
	Total Score:	**150**	**250**	**550**

New Public Works Facility

Project Description & Benefit: The Public Works Department, located at the bottom of Heath Street, has outgrown its facilities. Additionally, the new Tsunami Inundation map shows the potential for a 30' high wave moving through the complex. The Public Works facility and associated heavy equipment is critical infrastructure for response and recovery activities before, during and after a disaster. To be best prepared to safeguard public health and safety, a new site and administrative/maintenance support infrastructure for Public Works should be developed. Building maintenance (located in HERC 2) may soon need a new location as well.

Based on an evaluation of current and future needs (see table), it is expected that a new site containing all Public Works maintenance facilities would require 4.6 acres. Ideally, this site would be located outside the tsunami inundation zone, within or close to the Central Business District, and compatible with adjacent land uses. The facility will be sized to provide for current and future administrative and customer support personnel; road, drainage, building, water, sewer, motor pool maintenance activities; and equipment/materials storage

The existing Public Works site could be converted into public summer use open space (adjacent to the animal shelter, Beluga Slough, and conservation land) and provide space for environmentally sensitive snow storage in the winter.

Plans & Progress: This project will most likely be completed in three phases consisting of concept design and property acquisition, full design and construction. The proposed timeframe is to prepare a concept design in 2020/2021; purchase property in 2025; design facility in 2026/2027; begin construction in 2029, with a new facility ready in 2030. Availability of funding would change these time periods.

Total Project Cost: $12,027,750

2021-2022 (Concept Design):	$ 100,000
2026 (Purchase Property):	$1,150,000
2027-2028 (Facility Design):	$ 828,500
2030-2031 (Construction):	$9,949,250

Priority Level: 1

City of Homer existing Public Works facility.

Future Public Works Footprint/Cost Estimates

Use	SF	Constr. Cost
Building - Office	3,000	$ 1,200,000
Building - Motor Pool	4,500	$ 2,250,000
Building - Water/Sewer	3,000	$ 1,275,000
Building - Building Maintenance	2,500	$ 937,500
Building - Parks	1,500	$ 562,500
Building - Heated Vehicle Storage	3,000	$ 750,000
Total Building	17,500	$ 6,975,000
Parking - Customer & Employee	30,000	$ 450,000
Large Equipment Storage	20,000	$ 400,000
Small Equipment Storage	10,000	$ 250,000
Gravel Storage	7,500	$ 10,000
Sand Barn	5,000	$ 875,000
Material Storage	7,500	$ 75,000
Access Corridors	5,000	$ 150,000
Watering Point	1,000	$ 100,000
Total Parking/Storage/Missc	86,000	$ 2,310,000
Construction		$ 9,285,000
Design		$ 928,500
Inspection		$ 371,400
Furnishings		$ 200,000
1% for Art		$ 92,850
Total Design/Construction		$ 10,877,750
Land Purchase	4.6 acres	$ 1,150,000
Total Project Cost Estimate		$ 12,027,750