Block 18 “NATURE OF ACTIVITY (DESCRIPTION OF PROJECT, INCLUDE ALL FEATURES)

PROJECT BACKGROUND AND SITE HISTORY

This application encompasses two projects that are physically connected and will be constructed in the same contract. Each has a different funding source and a distinct project history and evolution.

1. Seawalk – Bridge Park to Gold Creek: Funded by Marine Passenger Fees, planning began in 2008. The Seawalk portion of this project will be the sixth segment constructed along the downtown waterfront. The Seawalk plan was outlined in the 2004 Long Range Waterfront Plan (LRWP) to extend as a continuous, linear walkway from Douglas Bridge to the AJ Dock at the Rock Dump. There will be small gathering areas and lookouts along a boardwalk and pathway. In a future phase the seawalk will continue along the shoreline to the subport area to connect with other seawalk sections. See Attachment A for excerpts from the LRWP and Attachment B for a map of current and previous seawalk phases.

2. Bridge Park – Open and Recreational Waterfront Space: Funded by private entities and CBJ Sales Tax, planning began in 2009. The Bridge Park plan was outlined in the 2004 Long Range Waterfront Plan as public open space at the beginning of the seawalk. It was programmed as mixed-use development, open space, recreation and a gateway feature. The proposed plan is comprised of upland park area, a building housing a maritime museum, office space and public restrooms, a parking area, bus pullout and drop off, stair access to fishing areas, shelter, landscaping, a 28 foot bronze whale sculpture and infinity pool with fountains around the sculpture (gateway feature). The pool and fountain are proposed to be constructed on fill.

The project process and design is based on studies, scientific observation and inventory taken over the past year at the site to understand the current conditions, restoration and enhancement potential of the site. Scientific data that was collected includes:

1. Biological data taken by Pat Harris in her report “Biological Inventory: Habitats, Fish Use, Pond Water Quality Gold Creek Delta, Juneau, Alaska” June-July 2013.
2. A report by Catherine Pohl, “Preliminary Summary of Bird Survey Results: Juneau Seawalk Project Area”, May 2013; and additional vegetation analysis by Koren Bosworth.
3. A functional lift analysis was performed by Hans Ehlert/CH2MHILL, “Assessment of Functions and Compensation for the Proposed Seawalk Habitat Island near Gold Creek, Juneau, Alaska” February 2014.
4. Engineering data that was collected includes a technical memorandum by Coast and Harbor Engineering, “Gold Creek Seawalk Project- Basis of Coastal Engineering Design” December 2013.
6. Engineering analysis and design performed by Tetra Tech, Inc.
7. Landscape architectural services performed by JA Brennan Associates.

These reports and memoranda are attached to this application. This information was used for the design of the project and the enhancement/restoration proposal as well as the functional lift analysis performed by Hans Ehlert, CH2M Hill.

The intent of the project is to restore and enhance coastal shoreline, provide safe access to the water and downtown for commuters, and to create educative and interpretive elements on the waterfront. To do this, this project proposes to construct a park that is partially on fill, and a pile and fill supported seawalk that works to restore and enhance the shoreline to its condition prior to development. However, because the entire project area has been filled in the last century and now supports residential neighborhoods, commercial areas, a highway, bridge abutment, civic structures and parks, the fill cannot be removed. The project proposes to restore the shoreline in its new location and create additional shoreline to offset the loss of habitat from fill. The following is a brief description of the history of the land in this area in the past 100 years. It is important to understand the history of the filling of the shoreline to understand how the restoration and enhancement of this area will be accomplished. A historical photo report by Richard Carstensen illustrates the history of this land and will be referred to in this project description. See Attachment C for the report.

At the turn of the twentieth century, during the Gold Rush, the project area was the delta at the mouth of Gold Creek. Gold Creek was a dynamic stream system affected by landslides, mudslides and avalanches. The 1899 photo shows this alluvial fan created by Gold Creek that covers a good part of what is now called the Federal Flats and the project area by the Douglas Bridge. The fan was deforested at the beginning of the century and was most likely a spruce – hemlock forest with cottonwoods and alders in areas where the creek was actively moving.

With the intense mining activity at the beginning of the century, Perseverance Valley was deforested, roads were built in the valley along the creek and there was severe erosion and increased sediment transport down Gold Creek. The mining began a century long process of filling in the tidelands at the mouth of Gold Creek in the project area. The photos in the Carstensen report show the Gold Rush era shoreline at Willoughby Street back against the bluffs where the Governor’s Mansion and the State Office Building currently sit.

By 1929, the photos show Gold Creek channelized in its current location and the filling of the tidelands for development in the Douglas Bridge area. Most likely, waste rock from mining was used partially for fill in the project area. In the 1948 photo, the spit is visible and was potentially formed by tides and filling of this area. An area was dredged along the shoreline where the land turns west from Egan Drive towards the spit. It is believed that gravels were extracted for further infill in this area.

Today, the shoreline in this area is composed of riprap, chunks of concrete slabs, metal debris, and rock from snow hauling and disposal from city streets. This project aims to restore and enhance 1765 linear feet (LF) of the shoreline to a condition similar to the pre-Gold Rush
riparian and tideland composition: creating habitat for native species and providing water quality filtration functions and erosion control. This would consist of enhancements to 830 LF of existing shoreline and 935 LF related to the new Habitat Island at the 20.8-foot high tide line.

Existing Shoreline at Bridge Park

DESIGN PROGRAM AND DETAILS

1. Program

The design program was initially established by the Long Range Waterfront Plan (LRWP), which was adopted in 2004. See Attachment A. The development of the design program from the basic planning directives in the LRWP include various elements:

   a. Enhance and restore shoreline habitat  
   b. Increase vegetative areas for habitat, stormwater treatment and erosion control  
   c. Create a natural, scenic and accessible gateway to Juneau and the Seawalk  
   d. Improve pedestrian safety and movement into and out of the downtown area  
   e. Create areas for active and passive recreation and viewing  
   f. Improve access to existing fishing areas per the Alaska Department of Fish and Game request  
   g. Improve vehicular flow in the area, create parking and universal access  
   h. Provide interpretive elements pertaining to the restoration and enhancement of shoreline habitat

2. Shoreline (Non-Island) Riparian Design, +20 feet elevation and above

The existing slopes consist of concrete chunks, scrap metal, and riprap. The proposed design will regrade 830 LF of the existing slopes, removing concrete and metal waste material.
Additional riprap will be placed if needed for erosion control and slope stability when clean-up is completed. The slopes will then be covered with a mix of small cobbles, gravel and topsoil at a depth of 24 to 36 inches to allow for revegetation (see Planting Design Item 6 below).

3. **Habitat Island Design, +9 to +25 feet elevation**

The Habitat Island was created to increase valuable shoreline habitat for fish and wildlife both at the perimeter of the Island and along the mainland shore. The island also manages human impact by directing the seawalk and creates a viewing point for users of the seawalk. The grades of the slopes were designed to balance the goals of providing maximum habitat value for ecological lift, creating a naturalistic and beautiful shoreline, and minimizing the fill footprint. Surface materials are sized to increase habitat value while also maintaining a stable slope with minimal maintenance given the tidal conditions. The Habitat Island creates 935 LF of enhanced shoreline at the +20.8 foot high tide line.

The island will be constructed with shot rock imported to the site, see the table below for material fill quantities. On top of this shot rock core, a 2’ – 3’ layer (depending on slope condition) of variable, naturally rounded aggregate will be placed. Areas to be planted will be top dressed with a mix of cobble, gravel and soil. This gravel/soil mix will be partially created using surface material that is removed when creating the island. It will be mixed with additional imported rock and topsoil.

The design waves at the island were determined to be 3.8’ in height with a 5-second period. With this data, slopes were designed at primarily 7:1 on the protected side and 5:1 with some toe areas at 3:1 on the exposed channel side. Some portions of the protected side are steepened to 5:1 to add diversity and minimize the footprint of the island.

Following the wetlands inventory, the island footprint was modified to avoid vegetated tidal wetlands. Protected areas of wetland vegetation, primarily alkali grass, will be delineated and avoided during construction. Other areas of alkali grass that cannot be avoided will be transplanted within the impacted project area. Other enhancements include placement of root wads, logs, snags and boulders, the creation of tide pools and the placement of shell hash substrate. The previously dredged area will be preserved and a sheltered area for species diversity will be created by the island. The island has been shifted away from the previously dredged area to allow for better shorebird habitat and to increase shoreline buffering and riparian development. The planting plan is discussed below.

a. **Island, Exposed Side/Channel Side**
   i. **Elevation +10 to +13:** The toe slope of the island will be constructed at a 3:1 grade with 2’-3’ layer of rounded boulders 24’’ - 38’’ diameter.
   ii. **Elevation +12:** A habitat bench will be created with a slope of 10:1 to 12:1 and a width of 5’-50’ wide. A 12’’ thick layer of small cobble, gravel and topsoil will be placed. Soil pockets will be incorporated for alkali grass and similar species plantings. Boulders will be installed on the exposed side of the bench to protect the substrate.
iii. Elevation +13 to +20: A 5:1 slope will be created using 24” – 30” rounded boulders. On the surface a 6” thick layer of small cobble, gravel and topsoil mix will be placed.
iv. Elevation +20 to +25: On top of the shot rock core, 24” – 30” large boulders will be placed. A 3’ layer of small cobble, gravel and topsoil mix will be added to allow for a diverse riparian environment.

b. Island, Protected Side
i. Elevation +9 to +20: The slopes on the lee side range from 7:1 to 5:1 to allow for habitat diversity and aesthetics. Place a 12” thick layer of small cobble, gravel and topsoil mix over the shot rock core.
ii. Elevation +20 to +25: The slopes on the lee side range from 7:1 to 5:1 to allow for habitat diversity and aesthetics. Add a 3’ thick layer of small cobble, gravel and topsoil mix.

4. Bridge Park Shoreline Design

The majority of the park will be constructed on existing uplands. The whale sculpture and infinity pool will be constructed on a fill pad. A concrete slab will support the pool and the whale sculpture will have a concrete foundation. The structures shall be supported by shot rock core, 12” minus. A layer of armor rock will be placed on the outer edge of the fill pad for slope stability; the rock shall have an approximate diameter of 24” – 38”. See the table below for fill quantities.

5. Seawalk Design

The proposed seawalk will construct approximately 1800 LF of walkway from the bridge to Gold Creek. The first section will be an upland walkway through the park, approximately 495’ long, then the seawalk will continue 625 LF on a pile supported boardwalk approximately 16’ wide along the shoreline, across a habitat island constructed on fill for 355’ and connecting back to the sidewalk along Egan Drive on a pile supported boardwalk for 325’. The pile-supported length of the boardwalk is a total of 950 linear feet. There will be two pile supported viewing platforms, one at the existing spit, and one at Gold Creek. 80 steel piles with a diameter of 14” to 16” will support the structures. Sixty-five piles will be placed below +15.4’.

6. Planting Design

All plantings will be native to the Gastineau Channel coastal area and selections will be based on observations at this site and similar reference sites around Juneau. The species chosen will be appropriate for the planting elevation based on the Pat Harris report (see Attachment D). Plantings will be seeds, transplanted or purchased plugs or transplanted or purchased container plants. Where possible given availability and access, transplanted or locally sourced plants will be used at the site. In each zone, care will be taken not to transplant any invasive plants and invasive plants found in these areas will be removed.
Most of these plants have been transplanted successfully in many projects in Southeast Alaska. However, transplanting alkali grass has occurred less frequently. In 2013, a project on Prince of Wales Island, designed by CH2M Hill, successfully transplanted alkali grass. This project will be monitored this growing season to see how the transplants overwintered. The ‘Alaska Coastal Revegetation & Erosion Control Guide’ by the State of Alaska Plant Materials Center describes the successful transplanting of alkali grass in the Anchorage Coastal Mudflats Restoration Project. This project worked with Puccinellia phryganodes, a similar variety to the Puccinellia nutkaensis present at the project site. The restoration of these mudflats in Knik Arm of Cook Inlet began in 1999. It was found that seeding alkali grass was not very successful in some areas, but transplanting of plugs proved successful. The report can be found at http://plants.alaska.gov/reveg/coastal.htm. Based on findings from the Anchorage and Prince of Wales sites, slow release fertilizer may be used during the transplanting. Cobble mulch and/or jute netting or coir fabric will be used in some areas to prevent surface erosion from wave run-up and spray.

CONSTRUCTION

The site will be accessed from the shore for most of the construction. However to drive piles for some of the boardwalk leading to the island, water access may be necessary. A barge could be utilized for equipment staging. To place the fill material for the habitat island, a reinforced path will be created from the upland area between Egan Drive and the Department of Labor building leading down the slope to the island footprint. This will be done by carefully removing the top layer of surface material and removing it to an offsite permitted location. The reinforced road would be created with 30” of 12” minus shot rock with a cap of 4” of 2” minus shot rock. After construction a top layer of 6” of clean sand will be placed over the shot rock. The path will be delineated during construction with markers that will be removed after construction is
completed. A similar construction method was used for the sewer main work on the beach at North Douglas, Gastineau Channel and the path was quickly covered with seaweed within a few tide cycles and remains unnoticeable.

Throughout the site, the project area will be carefully delineated to ensure that vegetation outside of the project area is not disturbed.

Erosion and sediment control will consist of appropriate “Best Management Practices” such as filter rock strips, catch basin inserts, check dams, silt fences, and other measures as appropriate. In water work such as driving piles and placing fill material will be contained using silt curtains. Construction is planned to begin in spring or summer of 2015 and be completed in 2016. The contractor will coordinate with the CBJ to sequence the construction activities to minimize disturbance and erosion and to allow for efficiency of construction tasks.
Block 19 - PROJECT PURPOSE

In 2004, the adoption of the Long Range Waterfront Plan (LRWP) by the City and Borough of Juneau Assembly made the construction of a seawalk and Bridge Park a priority for the community. The seawalk is a public use, linear walkway along the downtown waterfront extending from Douglas Bridge to the Rock Dump. The purpose of the seawalk is to bring the public to the water’s edge. Bridge Park is a public open space at the starting point of the seawalk that will offer the community a place for various types of recreation and easy access to the water. These projects were developed in the LRWP through a lengthy public process that brought together public and private interests to give the city a unified vision for the development of the downtown waterfront. Since its adoption, the CBJ has been allocating funds from marine passenger fees for the construction of the proposed seawalk extending from the Douglas Bridge to the AJ Cruise Ship Dock at the Rock Dump. The LRWP can be found at: [http://www.juneau.org/plancomm/Final_LRWP_112204.php](http://www.juneau.org/plancomm/Final_LRWP_112204.php). Relevant excerpts from the plan are in Attachment A. The proposed project areas are identified in the LRWP as Area A and various goals are listed for this area:

- Tideland and Gold Creek Protection Zone Enhancements
- Open Space and Recreation
- Improve visual character of upland parcels
- Artistic Gateway
- Traffic Calming Features
- Commencement of Downtown Seawalk

The general goals have been refined for the project to create a design program for both the seawalk and Bridge Park. The design program is listed in the Project Description section of the application. The goals and program can be distilled to three main elements that demonstrate the purpose and need of this project.

1. **Habitat Restoration And Enhancement**

The LRWP designates this area for environmental enhancement. The site sits on a fill pad that has its roots in the mining days in the early part of the century. During that time, the natural shoreline was developed and filled, destroying habitat and leaving the remnants of a hodgepodge of development and industry. This can be seen in the armored slopes, concrete and asphalt slabs and metal debris on the site’s shoreline. The project cannot restore the shoreline to its original location, but it can restore the quality of the shoreline and enhance it to increase habitat, scenic and experiential value. Currently, diverse bird species already use the area as well as various species of anadromous fish. Increasing vegetation along the shoreline, modifying slopes, and adding structural elements such as woody debris, snags, and tide pools will enhance habitat for wildlife. As is often the case, enhancing habitat value often coincides with improving recreational value such as bird watching and other wildlife viewing, fishing, walking, and biking.

2. **Public Access, Safety And Transportation**
With the whale sculpture and pool being located at this site, a maritime museum, two large state office buildings adjacent to the park, and the seawalk connection to Douglas Bridge and the Federal Flats residential areas, the park will become not only a destination, but a gateway for commuters to access downtown. The alternatives analysis discusses the need for the fill pad for the whale and pool to accommodate large numbers of park and seawalk users and allow for safe movement and emergency response.

Access is a key component of the proposed project. This includes access to the waterfront, environmental enhancements, viewpoints, and interpretive elements that comply with ADA regulations. This section of the seawalk and Bridge Park represents the only beach and coastal habitat that is available to the community in downtown Juneau. Other areas are too close to Egan Drive, the slope is too steep, composed of rip rap, privately owned, covered by decking, or unsafe due to boat traffic. Improved access at the site will be provided to the beach and to existing fishing and other recreational activities on the waterfront through stairs.

The seawalk extends from the Douglas Bridge to the Gold Creek area and future phases will create a continuous transportation corridor along the downtown waterfront to the AJ Dock at the Rock Dump. This corridor pulls people off Egan Drive and busier roads and is a safer route for non-motorized commuters.

3. Education And Interpretation

The project area is within walking distance of Juneau Douglas High School, Harborview Elementary School, Montessori School, and residential areas. With a design intent of habitat restoration and enhancement, the site offers a perfect opportunity to bring the community and visitors to Juneau to a coastal environment and create access to the beach and water. People from cruise ships can actually touch the saltwater and students can observe migratory birds and set traps to study juvenile fish in the proposed tidal pond.

The life size bronze breaching whale sculpture and infinity pool with fountains is the artistic gateway element that the CBJ Assembly, the Long Range Waterfront Plan and the public have requested for the downtown Juneau waterfront. The whale sculpture will be the most apparent interpretive waterfront element, but the maritime museum, the Coastal Interpretive Area and interpretive signage will also contribute to the educational value of the proposed project.
Block 20 - REASONS FOR DISCHARGE

- **Shot Rock Core**- The shot rock will ensure the Island has structural stability and serves as the foundation.

- **Armor Rock Slope Protection**- Armor rock will help prevent erosion due to wave action. The angular shape of these quarry rocks will help hold finer surface materials in place.

- **Large Boulder Slope Protection**- The larger boulders provide erosion control, habitat perches, and areas for finer material to congregate.

- **Large Cobble Habitat Slopes**- Large cobble habitat slopes provide another variety of shape and size of material for habitat diversity, while protecting the sand/ gravel/ topsoil mix.

- **Small Cobble Habitat Slopes**- Small cobble habitat slopes place the smallest possible size of cobble material on the slope that will be stable to maximize habitat diversity.

- **Sand and Gravel Beach Habitat**- The mix, which includes topsoil, provides nutrients in order to facilitate plant growth. The mix will settle in around larger gravel to help stabilize the slopes.

- **Stepping Stones**- The stepping stones provide safe access across variable native material. The stepping stones help direct pedestrian traffic in order to minimize the disturbed area. The stepping stones also provide a more accessible surface than the surrounding native cobbles.

- **Shot Rock With Cap of Clean Sand**- This fill is for the construction access pad. We will remove the top 3’ of native material and place 30’’ of shot rock as a base. Then we will cap the shot rock with smaller shot rock and clean sand. This access path will create a stable path for vehicles during construction but will have little visual or habitat impact.

- **Piles**- 14-16” steel piles to support the seawalk and minimize fill footprint.

- **Large Woody Debris and Snags**- Native material to create habitat features.
### Summary of Proposed Fill

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<th>Project Location</th>
<th>Total Fill &lt;=+20.8 [cy]</th>
<th>Type of Fill</th>
<th>Fill Volume by Type [cy]</th>
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<td>21,300&lt;br&gt;1,500&lt;br&gt;1,800&lt;br&gt;2,500&lt;br&gt;2,200&lt;br&gt;700</td>
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<td>Existing Slopes</td>
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<td>Stepping Stones</td>
<td>127</td>
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<tr>
<td>Construction Access Pad</td>
<td>360</td>
<td>Shot rock (12” minus) with cap of 2” minus and clean sand</td>
<td>360</td>
</tr>
</tbody>
</table>

14-16” Steel Piles- 65 below +15.4
Block 22 - *SURFACE AREA IN ACRES OF WETLANDS OR OTHER WATERS FILLED*

**Fill Impacts Total- 3.5 Acres**

- Habitat Island: 2.69 Acres
- Existing Slope Enhancement: .1 Acre
- Bridge Park: .58 Acre
- Stepping Stones: .05 Acre
- Access Path: .07 Acre
- Piles: .01 Acre

Material to be excavated and placed by backhoe.

Shoreline Impact- 830 Linear Feet

Vegetated Tidal Impact (Alkali Grass)- .12 Acre

Non-Vegetated Tidal Impact- 3.38 Acre
Block 23 - DESCRIPTION OF AVOIDANCE, MINIMIZATION, AND COMPENSATION

Throughout the planning and design of the Downtown Seawalk – Bridge to Gold Creek, the City and Borough of Juneau (CBJ) considered ways to avoid impacts to waters of the U.S. by considering alternative design approaches and alternative locations for elements. Where avoidance is not possible, the impacts are minimized through design strategies and for the unavoidable impacts compensatory mitigation is proposed.

1. Avoid And Minimize– Alternatives Analysis And Design Process

In 2004, the Long Range Waterfront Plan (LRWP) presented a series of alternatives for the proposed project area, Area A. This effort represents a first attempt at comprehensive planning of this area that was developed through multiple public meetings. The LRWP divides the downtown area into 6 sections: Areas A-F. Each of these sections is meant to house a different theme and has unique design guidelines. The area of this project, Area A, was set to incorporate a Gateway Feature, Redevelopment/ Mixed use, and Environmental Enhancement/ Open Space/ Recreation. See Attachment A for excerpts from the LRWP.

The LRWP shows 3 alternatives, ranging from simple upland intervention schemes (Alt A1) to progressively more sophisticated mixed-use upland and waterside approaches (Alt A2 & A3). Each Alternative contemplated the relocation of the CBJ Streets Downtown Maintenance Shop (demolished in 2012) and the expansion of the park and recreation areas along and adjacent to the water’s edge. One option in the LRWP for Area A (Alt 3) did have a marina as part of the plan. Note the early concepts presented extend the seawalk to the Subport area. This application limits the project area from the Douglas Bridge to Gold Creek due to funding limitations and lack of a plan for development of the Subport property.

In early 2010, a decision to build a new CBJ shop off site and abandon the existing shop triggered a series of meetings to discuss the future of the site. This began a design process to shape a vision of the old city shop site and seawalk from the Juneau Douglas Bridge to the Subport. Using the alternatives from the LRWP as a starting point, three layout alternatives were created for the park, seawalk and vehicular movement through the neighborhood, and the project site.
With these preliminary layouts, public meetings were held to gauge public opinion and direct the design process. Comments received indicated that Option 2 was preferred. The consultant Tetra Tech, Inc. and the sub consultant J.A. Brennan Associates were hired to further refine the alternatives and assist in the public process. Please see the three alternatives below provided by the consultant.
These concepts were presented at a public meeting and posted to the CBJ website with a request for comments. The CBJ received a significant amount of comments and there was widespread interest from the public and organizations in Juneau. Alternative 1 was selected as the preferred alternative. Below is a summary of public comments:

- There was significant public outreach during the formation of the LRWP. There was a lot of thought put into the development of this area. Use the LRWP as a guideline.

- LRWP calls for this area to be an Environmental Enhancement Area.

- The site is the beginning of the seawalk and should have a grand gesture or gateway feature to ground it as such.

- This is the one area of the downtown waterfront where access to the water is possible. It should be designed in a way that reflects its uniqueness.

- The site is used for fishing, especially on the “spit”. Maintain fishing areas and provide safer access down the currently treacherous slopes to the water.

- Alternative 3 pushed the seawalk too far from land. This limits the amount of connections from surrounding paths and could cause a sense of isolation and being trapped.

- Alternative 2 kept seawalk patrons too close to Egan Drive. People wanted to get away from traffic noise and the splashing from vehicles.

- Alternative 1 was the compromise solution that would get users away from Egan Drive but allowed for more connections to paths and Egan.

- The Island in Alternative 1 was encouraged, as there is little or no natural shoreline in downtown Juneau. The Island would give a sense of grounding to the seawalk and allow users to feel closer to the water.

- Creating an environmental enhancement area was seen as a great tool for education- both for the nearby schools and also for visitors.

With the basic layout established, the design team focused on the design of the park area. Concurrent with the seawalk and park design was a process to locate a 28’ lifesize bronze whale sculpture and infinity pool with fountains along the downtown Juneau waterfront and to locate a building housing a maritime museum, the marine exchange center, CBJ offices and public bathrooms at the site. The process of locating the whale sculpture and pool will be discussed in more detail below. The design team incorporated the whale and Maritime Center into five design alternatives to study the layout and programming of the park and uplands area.
The alternatives went for public review and comments are listed below:

- A park by itself could lead to increased use by inebriates and otherwise undesirable visitors. The space needs a bigger draw to bring people to the site, which will help discourage undesirable activities.

- This is a good spot for a maritime museum/ Marine Exchange. If the Marine Exchange is on site, then there is 24 hour a day 7 day a week presence in the park.

- The seawalk typical section was designed with biking in mind. There is a bike shop a block away for the proposed park location and interest in utilizing the seawalk for bike tours. The site must accommodate the loading/ unloading of passengers, bikes, and gathering space for multiple groups.

- Keep the site as open as possible to allow flexibility of use

- The Whale Committee has designed the whale to have an infinity pool. The infinity pool only works when the pool is adjacent to the water.

- The site needs plenty of gathering space/ open plaza area. The site will need to accommodate tourists arriving by bus, van, taxi, biking, and walking. The site should allow for other events to take place there as well.

From this review, the final design was created.
The preferred alternative meets the purpose and need of creating a habitat island to perform environmental enhancement and provide a showcase project for education and interpretation of the tidal area. The routing of the seawalk allows creates multiple connections for safe access to the mainland as well as safe access to the beach and fishing areas. The lifesize whale sculpture and infinity pool with fountains is water dependent and so it is placed along the edge of the park and the park area is opened up for safe passage and movement of seawalk and park users.

In an attempt to further minimize and avoid impacts, the following strategies were employed during design development of the preferred alternative:

- Project design minimizes excavated area to the minimum amount necessary to build construction access.
- Impacts to the previously dredged area (proposed tidal pond) and associated outlet channel were avoided because the area was identified by members of the project team to provide unique habitat functions and wildlife use.
- Impacts to the existing spit near the ADFG parking lot were avoided because it includes estuarine wetlands, offers unique habitat functions and wildlife use, and provides recreation for fishing.
- The overall fill footprint (below the high tide line, HTL) for the Habitat Island was kept
to a minimum (2.69 acres). The island slopes were steepened where possible to minimize fill while also allowing for diversity of habitats and slope stability.

- The Habitat Island will be created with fill to realize the many environmental benefits including increased shoreline and diversity of habitat along the slopes such as woody debris, tide pools, and increased vegetation. However, the geometry and location of the habitat island was shifted to minimize impacts to wetlands (0.12 acre) and to avoid impacts to the remaining 0.7-acre of mapped estuarine wetlands at the site.

- The overall fill footprint (below HTL) for the whale sculpture at Bridge Park was kept to minimum (0.58 acre)

- The seawalk and viewing area along the shoreline will be supported by 14”-16” piles to minimize fill and extend 950 linear feet. Approximately 3/4 of the overwater seawalk will be supported by piles.

As mentioned above, a concurrent analysis of the location of the whale sculpture was being performed by a local volunteer group called the Whale Committee. The sculpture, by Skip Wallen, is a replica in size and detail of a breaching humpback whale. The Whale Committee looked at several different sites for the whale, fountain, and pool. The committee requires a downtown site that is adjacent to the water, as the design of the whale pool is an infinity pool. They also looked for a site large enough to safely handle the large crowds of visitors with proximity to development and infrastructure. An infinity pool as seen by a viewer shows a pool of water stretching to the horizon, the viewer does not see the edge of the pool, only the continuation of the water in the ocean beyond. It is critical to the effect and function of the pool that it be located on the edge of the water. The infinity pool and fountain around the whale is sized to allow for spray and splashing around the whale to create a dynamic breaching effect and to create the ‘infinity’ effect of the pool edge. Reducing the size of the sculpture and pool would not allow for the artistic intent of a life size breaching experience. For more information on the Whale Committee process and history see www.alaskawhaleproject.org.

In the alternatives analysis, the first site considered was Marine Park. The Committee liked the central location and visibility the site offered. However, upon further analysis it became apparent that Marine Park was too small of an area to house the whale and plaza space required for the amount of people already using the site, let alone additional traffic generated by the whale and pool. Extending the pool out over the water was an option, but due to the close proximity of the new Cruise Ship dock and Wings Airways, it was determined to be unsafe and possibly limited by navigational regulations.

The second location considered was the subport area, owned by Alaska Mental Health Trust. The Mental Health Trust had no formal proposals to develop the property and therefore could not commit to locating the whale on site. The Whale Committee looked at moving the whale onto property adjacent to the Mental Health Trust property but this site was too isolated from downtown development.

The committee ultimately settled on Bridge Park for the location of the whale and the pool as it
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has more room for visitors to the site than other sites previously considered, vehicles and buses to arrive and drop off visitors, close proximity to existing development, and satisfies the need for a gateway feature called for in the LRWP and public comment.

The current proposal for the location of the whale sculpture and pool, supported by the whale committee, the public and CBJ, is the Bridge Park location. For this location, an alternative was considered to locate the whale on the existing uplands. However, with the maritime building, parking and bus drop off necessary to accommodate the park needs, there would not be enough space to ensure the safety of the estimated number of visitors. The CBJ Parks and Recreation Department and the Docks and Harbors Department estimate 250 users could visit the park on a midweek day at the lunch hour in the summer. This number is based on adjacent professional offices, tourism visitation, users of the seawalk as a linear transportation route (bikers, strollers, joggers) and estimates of park visitation at other Douglas and Downtown parks. If the whale were located entirely on uplands, the available space in the park per person would be a 5.2’ diameter circle. With bicycle use and the need for emergency response, this would create an unsafe situation and the park would not be built. The “Pedestrian Facilities Guidebook” by the Washington Department of Transportation, indicates that a 6’ diameter circle for personal space is the lowest end of the comfort level often found at public events. For pleasurable walking, at the other end of the spectrum, a 35’ diameter circle is preferred.

To increase the space for users for public safety, an alternative was considered to extend the plaza area and place the whale and pool on pilings. However, for structural stability of the site, this approach is problematic. Along the entire downtown waterfront, wherever a pile structure is connected to the uplands there is a transition joint. There is always differential settlement occurring at this joint as the uplands settles and moves at a different rate than the piles. In some areas downtown, CBJ has seen differential settlement of up to 1-2 inches per year at the transition joint. At Bridge Park, the transition joint would extend approximately 140’ across the middle of the plaza and at the edge of the infinity pool. A significant safety hazard would be created.

With the safety and structural limitations, the current proposal is to construct the whale sculpture and pool on a fill pad. This approach allows for minimal space for the safe movement and flow of people arriving to the site as a destination as well as users of the seawalk moving through the site as a linear transportation route. At peak user times, there is approximately a 6.3’ diameter circle of personal space per person. This barely meets public event criteria for personal space according to the Washington Department of Transportation publication, however, to minimize additional fill at the site, the minimal fill pad is being proposed.

From a funding perspective, the fill pad is less expensive than a pile supported structure. From an environmental analysis, the shoreline and tidelands to be filled is low functional quality as discussed in the scientific and environmental reports by Ehlert that are attached to this application.

Other strategies to minimize impact to the waters of the U.S. include the following:

- Consult with NOAA to plan construction of in water work outside of any fish migration
windows.

• Utilize a silt curtain to contain any sediment during filling and pile driving operations.
• Utilize other best management practices (BMP’s) such as silt fence, wattles, catch basin inserts, etc. during and after construction to minimize transport of sediment from the upland areas and slopes to Gastineau Channel.
• Prepare a spill control plan, keep spill clean up equipment on site during construction and perform daily inspections of equipment for fuel and fluid leakages.
• Staging areas and construction access points will be located away from the channel.

2. Compensate

The CBJ proposes onsite, in kind, permittee responsible mitigation for the unavoidable impacts to the project area. The mitigation is located on public land. The proposed project as described in the application is self-compensating and is based on the restoration and enhancement of shoreline and intertidal areas. The construction work for the mitigation aspects of the proposal will happen concurrently with all other proposed work. The mitigation plan is included in the project design drawings. The need for diversity of habitats and intertidal zones is evident by the lack of any diverse habitat structure from the Douglas Bridge to the Rock Dump. Along the downtown waterfront, there is no natural shoreline; it is entirely composed of riprap and imported fill. The impacts are classified by the USFWS Cowardin class as marine, intertidal and the project includes some areas in the hydrogeomorphic class tidal fringe/estuarine.

As a self-compensating project, the seawalk and bridge park proposal represents an overall ecological benefit, because equal or greater ecological functions and values are anticipated to result from the project than will be impacted. The increased area and functions of wetlands resulting from the creation of the Habitat Island will compensate for the unavoidable impact to 0.12 acre of estuarine emergent wetland and for the fill at Bridge Park. The existing wetland at the project site near Gold Creek was assessed as having low overall functions (see discussion provided in Technical Memorandum by Hans Ehlert/CH2MHILL dated February 2014, Attachment C).

According to the 2009 U.S. Army Corps of Engineers (USACE) Alaska District Regulatory Guidance Letter (RGL) 09-01 (USACE 2009), a sample ratio of 1:1 would be needed to compensate for impacts to wetlands with low functions using restoration and/or enhancement. Therefore, to compensate for 0.12 acre of unavoidable permanent impact to low function wetland, the CBJ proposes to reestablish or restore 0.12 acre of lower low marsh wetland on the Habitat Island by salvaging the 0.12 acre of marsh vegetation that will be impacted and transplant it to areas onsite and within the same elevation zone.

Furthermore to compensate for the loss of low intertidal habitat from the fill at Bridge Park and at the Habitat Island, the CBJ proposes to:

• Re-establish a diversity of intertidal and upland habitats at the Habitat Island by creating an additional 1.19 acre of marsh that consists of the following planting areas:
- Re-establish or enhance a 2.25 - acre sheltered intertidal habitat area behind the Habitat Island that includes the previously dredged area and outlet channel.

- Enhance 830 linear feet of existing rock revetment shoreline by removing concrete and metal debris, adding soil between the rocks, and establishing riparian plantings.

Upland riparian and intertidal wetland functions will increase as a result of implementing the Seawalk Habitat Island near Gold Creek. Primarily water quality and habitat functions are expected to increase substantially following wetland and riparian re-establishment and enhancement at the Seawalk Habitat Island near Gold Creek. As presented in Table 1 below, the pre-and post-construction wetland function attributes were compared to demonstrate the anticipated functional “lift”.

In summary, creation of the Habitat Island near Gold Creek will improve topographic variation and hydrologic regimes, diversify vegetation communities, add habitat structures (habitat logs and snags, and boulders), increase the number of vegetation classes and wetland size, and increase the diversity of substrates. Table 1 summarizes the existing and proposed wetland function attributes at the proposed Habitat Island near Gold Creek and Bridge Park.

The restoration/enhancement project area is owned by the CBJ and will be designated by the City and Borough of Juneau as park land and maintained and protected in a similar manner that other park land and the seawalk is throughout CBJ.
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<table>
<thead>
<tr>
<th>Function attribute</th>
<th>Existing Condition</th>
<th>Proposed Habitat Restoration</th>
<th>Resulting Condition</th>
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</thead>
<tbody>
<tr>
<td><strong>WATER QUALITY FUNCTION ATTRIBUTES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vegetation classes and vegetation area</td>
<td>One vegetation class is present (emergent, approximately 0.87 acre). The existing emergent vegetation class will be enhanced and expanded, which will become approximately 1.19 acre. The vegetation classes will be modified to add riparian shrub and forest on the habitat island (approximately 0.93 acre) as well as enhancement of vegetation on portions of the existing rock revetment.</td>
<td>Overall emergent wetland vegetation area will increase by 23 percent (0.82 to 1.19 acre). New riparian forest and shrub vegetation classes will increase by 25 percent (0 to 0.93 acre).</td>
<td>Water quality will substantially improve by removing potential sources and enhancing conditions across approximately 43 percent of the existing shoreline.</td>
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</table>

| **HABITAT FUNCTION ATTRIBUTES** | | | |
| Vegetated shoreline buffer ( riparian) | The condition of the shoreline buffer allows the ability of the tidal to provide appropriate habitat for a wide range of aquatic-dependent and aquatic-associated species. | Vegetated shoreline buffer along the 1,396 linear feet of shoreline is relatively narrow and disturbed. Includes stream revetments consisting of riparian, concrete, and asphalt chalets, large metal debris. | Riparian planting will substantially improve the vegetation, habitat condition, and aesthetics of the shoreline. The vegetated shoreline buffer will substantially improve by enhancing vegetation along approximately 43 percent of the existing shoreline. |

| Length of shoreline edge ( riparian) | The length of the shoreline edge is a direct measure of the number of potential ecological niches. As the length of shoreline increases, so does the number of niches. | The existing length of shoreline at the 20.8 foot high tide line is 1,396 linear feet. | A nearly 50% increase in the length of shoreline edge is a substantial increase that will result from creation of the habitat island. This underpins the fact that the shoreline habitat will have a nearly continuous vegetated riparian edge (unlike the existing shoreline), and the gentler slopes on the habitat island will result in an increasingly greater edge of available functional intertidal habitat as water levels ebb from the high tide line. |

| Interspersion of habitats ( riparian) | Interspersion of habitats among different physical structures (e.g., open water, island, and shoreline) and types of vegetation emergence and riparian tree/shrub/brush increases the suitability for some wildlife by increasing the number of ecological niches. | By creating the Habitat Island, the proposed length of shoreline at 20.8 foot high tide line is approximately 2,532 (linear feet). This results in an interspersion index of 1.8 (2,532 divided by 1,396). | This translates to a corresponding increase in sand habitat interspersion with structurally complex boundaries by creating intertidal marsh vegetation to establish. |

| Number of habitats ( riparian) | Diversity of substrates ( riparian) | The existing substrates are dominated by intertidal habitat consisting of sand and gravel with occasional cobbles. There is a relatively homogeneous intertidal habitat. | The diversity of substrates will substantially improve by wildlife, provide a greater opportunity for plants and animals to colonize the habitats, and improve aesthetics. |

| Number of vegetation strata ( riparian) | There is currently no habitat strata along the shoreline, and none within the intertidal area where the Habitat Island is proposed. | There are currently no habitat strata along the shoreline, and none within the intertidal area where the Habitat Island is proposed. | There are currently no habitat strata along the shoreline, and none within the intertidal area where the Habitat Island is proposed. |

| Number of habitat types ( riparian) | There are currently two habitat types along the shoreline, and none within the intertidal area where the Habitat Island is proposed. | There are currently two habitat types along the shoreline, and none within the intertidal area where the Habitat Island is proposed. | There are currently two habitat types along the shoreline, and none within the intertidal area where the Habitat Island is proposed. |

| Species richness ( riparian) | Approx. 15 native plant species are present, depending on area. No carrion are present. | Plant at least 10 additional native species in riparian areas. | Native species richness will increase. |

| Non-invasive vegetation ( riparian) | Existing riparian areas include weeds such as European mountain ash (Sorbus aucuparia), creeping buttercup (Ranunculus repens), and common dandelion (Taraxacum officinale). Weeds will be removed from within the project area, and remove potential for use to be disturbed by wind and wildlife. | Wood removal will improve the shoreline buffer habitat condition and remove the potential for weeds to spread. |

| Public access and recreation ( riparian) | Public access for recreation (bird watching, dog walking) will be from ADEQ parking lot and near Dept. of Labor (shopping store). Public access to the intertidal area from the habitat island will be limited for dogs. | Enhanced public access and recreation opportunities. | |

| Education ( riparian) | Few existing interpretive signs | New interpretive gathering areas, additional interpretive signs, access to intertidal area from Habitat Island for education. Greater ecological diversity and tide pools. | Increased education opportunities from the habitat island. |
Mitigation Plan for Permittee Responsible Mitigation

1. Objectives:
   a. Method of compensation is restoration/enhancement.
   b. Description of resource types USFWS Cowardin Class is marine, intertidal and the project has some areas of hydrogeomorphic class tidal fringe/estuarine.
   c. Total Gold Creek tidal flats area is 24 acres, total project impact to this area is 3.5 acres.
   d. Yes, the project addresses the needs of the area. The land in this area was filled over the last century for development, the natural shoreline habitat was eliminated and this project proposes restoring and enhancing the shoreline habitat to improve riparian and tidal wetland functions at the location of the new shoreline.

2. Site Selection:
   a. Yes, the project is self-sustaining. Maintenance and monitoring will occur to ensure project success in the first critical years of establishment. The enhancement/restoration portion of the project is designed to be self-sustaining in the long term.
   b. Yes, the proposed mitigation is onsite.
   c. Yes, watershed needs were considered as described in 1d.

3. Site Protection Instrument:
   a. The mitigation work will all be onsite on CBJ owned land. This land is designated as park and seawalk land in the Long Range Waterfront Plan adopted by the CBJ Assembly in 2004.

4. Baseline Information:
   a. This information is provided in the Harris and Pohl reports.
   b. This information is provided in the Golder and Coast and Harbor reports.
   c. This information is provided in the plan drawings, the project is self mitigating.
   d. This information is provided in the plan drawings.

5. Determination of Credits:
   a. This information is provided in the Ehlert/CH2MHill report.

6. Mitigation Work Plan:
   a. This project is self mitigating, the project description, question 18, describes in detail the construction methods, plant community design and establishment, invasive species control, soil management and erosion control measures, the project plans show geographic boundaries, sources of water (Gastineau Channel and Gold Creek).

7. Maintenance Plan:
   a. The Parks and Recreation Department (P&R) will take over management of the project area and perform daily visits, trash removal, safety inspections, structural, architectural, and landscape maintenance. During the growing season, P&R will water and weed vegetation and replace plants that do not survive over time.

8. Performance Standards:
a. Within three years, the performance standard is that 100% of the planted vegetation (aerial) has survived or been replaced with similar native colonizers. It is expected that some vegetation will self select according to habitat preference and so exact location of planted species will not be a factor in measuring success. Regarding slope stability, within one to three years, the slope is expected to retain its grade and location. Some mobility of finer materials is expected and natural in a tidal environment.

9. Monitoring Requirements:
   a. After construction of the project is completed, the habitat enhancement and restoration portions will be monitored by a member of the design science team or another qualified individual contracted by the CBJ. Monitoring parameters will include slope stability and vegetation survival in the various zones.

10. Long Term Management Plan:
    a. The CBJ will be responsible for funding the management, monitoring work and any additional maintenance required through existing budgets for Parks and Recreation land.

11. Adaptive Management Plan:
    a. If the performance measures are not met, the CBJ will analyze the results, develop a revegetation plan or slope stability plan through adaptive management strategies and perform the work as needed with necessary permits.

12. Financial Assurances:
    a. The CBJ is financially responsible for all construction, management, maintenance and monitoring on CBJ Park land.
ATTACHMENTS:

A. Excerpts from the Long Range Waterfront Plan
B. Seawalk Construction Timeline
C. “Historical Series for Gold Creek Delta Project Area” by Richard Carstensen of Discovery Southeast, July 2013
D. “Biological Inventory: Habitats, Fish Use, Pond Water Quality Gold Creek Delta, Juneau, Alaska” by Pat Harris, June-July 2013
E. “Preliminary Summary of Bird Survey Results: Juneau Seawalk Project Area”, by Catherine Pohl, May 2013
F. “Assessment of Functions and Compensation for the Proposed Seawalk Habitat Island near Gold Creek, Juneau, Alaska” by Hans Ehlert/CH2MILL, February 2014
G. “Gold Creek Seawalk Project- Basis of Coastal Engineering Design” by Coast and Harbor Engineering, December 2013
H. “Geotechnical Findings and Recommendations: Juneau Seawalk Upgrades” by Golder Associates Inc., 2013