

Whiteman Cove Restoration A&E Engineering Design Project

Evaluation Criteria and Preliminary Options

Purpose

A team of consultants led by Anchor QEA, LLC, has been contracted by the Washington Department of Natural Resources (DNR) to provide analysis, design, permitting, and outreach support for the Whiteman Cove Restoration Architecture and Engineering Design Project (Project) to re-establish fish passage between Whiteman Cove and Case Inlet in Puget Sound. The Anchor QEA team, which includes Blue Coast Engineering and KPFF Engineers, has collected and begun analyzing historical and newly collected data in and around the cove. In addition, the team has conducted outreach to stakeholders, including property owners of the cove and adjacent uplands, regulatory agency staff, and interested members of the public. Based upon the input we received, and in coordination with DNR, the team has identified evaluation criteria and preliminary concepts that will be used to conduct a screening-level feasibility study. The purpose of the screening-level feasibility study will be to assess how the four conceptual alternatives (from the four preliminary options outlined in this document) meet the criteria. This document outlines the preliminary options that will be considered in the screening-level feasibility study and the evaluation criteria that will be used to assess those concepts.

Location

Whiteman Cove is a historical barrier estuary, separated from Case Inlet by a natural spit formed by net littoral drift to the north and feeder bluffs to the south. It is part of the traditional lands of the Squawksin people (one of the bands that are part of the Squaxin Island Tribe.) The historical opening to the cove, located at the northern end of the spit, was closed in the late 1950s to create a perched brackish water lagoon that was intended for the rearing of juvenile salmon. Water levels in the cove are currently regulated by two gated culverts that are not operating as originally designed but are currently meeting the design intent of maintaining current water surface elevation in the lagoon. Minimal exchange occurs between the perched lagoon and Case Inlet. Freshwater input to the cove comes primarily from a small intermittent stream (Whiteman Creek) at the eastern end of the cove that drains the approximately 1.7-square-mile upland watershed. Properties adjacent to the cove include Joemma Beach State Park to the northwest, private properties inland along the cove's southern and northeastern shoreline, and private tidelands used for aquaculture in Case Inlet west of the historical tidal channel. Whiteman Cove itself includes DNR property along the northwest portion and YMCA Camp Colman south of the DNR parcel. The roadway berm, which separates Whiteman

Cove from Case Inlet, is managed by DNR at the north segment of Bay Road KP South and by Camp Colman along the southern segment of the access road, which leads to Camp Colman.

Evaluation Criteria

The screening-level feasibility study will evaluate four restoration options against the following evaluation criteria. Screening of proposed options will compare proposed options against each other. The evaluation criteria include the following:

- Will the option meet the requirements of the 2013 federal court injunction for fish passage?
 - “In order to pass all species of salmon at all life stages at all flows where the fish would naturally seek passage.” –United States v. Washington, No. C70-9213 (W.D. Wash. Mar. 29, 2013)
- What effect will the option have on lagoon water levels relative to existing conditions?
 - Will the changes affect recreational activities in the lagoon?
 - Will the changes alter the shoreline access or aesthetics for property owners on the lagoon?
- What effect will the option have on habitat in the lagoon relative to existing conditions?
 - Will the habitat change?
 - Habitats maintained/increased/decreased (lagoon, estuary, wetland)
 - Will the changes improve tidal flushing (improve water quality) in the lagoon?
- Level of improvements needed to provide unrestricted vehicular access to the YMCA Camp
- Permitting feasibility of the option
- Level of maintenance to maintain design function in the long-term (low, medium, high)
- What is the relative level of cost to construct the alternative (low, medium, high)?
- Level of impact to adjacent shellfish beds

Preliminary Options

The following options will be screened using the evaluation criteria listed above.

Option 1: New tide gate control structure at location of existing DNR control structure; some improvements to existing roadway to Camp Coleman (YMCA)

Construct a single or series of large culverts between Whiteman Cove and Case Inlet that are regulated by a hydraulic gate. The structure would be built in the current location of the DNR control structure. The gate would open to allow tidal exchange at higher tidal elevations, and close at lower tidal elevations to maintain a specific water surface elevation in the lagoon. This structure would also be able to close automatically or manually at extreme higher water levels to prevent flooding of

infrastructure in the lagoon (if any is found to occur). No bridge structure is required for this option because the tide gate control structure can be designed to support vehicular access.

Option 2: New weir control structure at historical opening to the north; some improvements to existing roadway to Camp Coleman (YMCA)

Construct a single or series of box culverts at the approximate location of the historical opening to the north. The invert elevation (bottom of the box culverts) would act as a weir that would maintain the water level at a set elevation in the lagoon and provide grade control for the outlet channel. The box culverts would allow some passage of sand and gravels through the opening depending on tidal flows and sediment supply. No bridge structure is required for this option because the culverts themselves can be designed to support vehicular access.

Option 3: Open channel at historical opening to the north; construct a bridge over the new opening to maintain vehicle access to Camp Coleman (YMCA)

Construct a broad, open channel connection between Whiteman Cove and Case Inlet with a natural (sand and gravel) bottom. The channel would be designed at the elevation of the historical channel, thought to be about 7 feet mean lower low water (MLLW). The elevation of the bottom of the channel would be allowed to fluctuate but is expected to remain stable within a range of a several feet over the long term. Water levels in the lagoon would be synchronized with Case Inlet, except when tides are below the elevation of the bottom of the channel. When tides are below the bottom elevation of the channel (about 7 feet MLLW), most of the lagoon would be dry. This alternative would require construction of a bridge over the open channel to maintain vehicle access to Camp Coleman along the existing roadway. The width of the channel would be limited by the bridge span, which is expected to be between 40 and 80 feet. This would be smaller than the width of the historical opening, which was between 100 and 120 feet wide.

Option 4: Open channel at historical opening to the north; construct a new road along existing, undeveloped County right-of-way from south into Camp Coleman (YMCA)

Construct a broad, open channel connection between Whiteman Cove and Case Inlet with a natural (sand and gravel) bottom. The channel would be designed at the elevation and width of the historical channel, thought to be about 100 to 120 feet wide at 7 feet MLLW. The elevation of the bottom of the channel would be allowed to fluctuate but is expected to remain stable within a range of a few feet over the long term. Water levels in the lagoon would be synchronized with Case Inlet, except when tides are below the elevation of the bottom of the channel. When tides are below the bottom elevation of the channel (about 7 feet MLLW), most of the lagoon would be dry. The location and

width of the channel would also be allowed to fluctuate over time but is not expected to migrate or expand significantly beyond its historical location. No bridge would be constructed over the opening and the access to YMCA Camp Coleman from the north along the coastal spit would be removed.

This alternative would therefore require construction of a new roadway meeting Pierce County standards through an existing but undeveloped County right-of-way from the current west terminus of Rouse Road SW north to Camp Coleman.