

## Executive Summary

The City of Whittier (City) has contracted with CRW Engineering Group, LLC to provide professional services to prepare a Design Study Report for the Shotgun Cove Road Extension from its current constructed location near Second Salmon Run (Mile 2.0), to the U.S. Department of Agriculture Forest Service (U.S. Forest Service) land at Trinity Point (Mile 4.5). The land along the project corridor, and further east to Shotgun Cove, was transferred from the State of Alaska to the City in 1994, under the stipulation that the City would provide access and prepare adjacent lands for public sale. The City applied for funding from the Federal Land Access Program (FLAP) for permitting, design, and construction. The FLAP application identified two main objectives for this project: 1) increase resource access and 2) improve regional transportation systems.

A Draft Design Study Report was completed in August 2018, evaluating two alignment options, a Low Option and a High Option, prior to entering the detailed design phase. Both alternatives began at the existing Shotgun Cove Road terminus (Mile 2.0) and extended to City of Whittier land uphill of U.S. Forest Service land at Trinity Point (Mile 4.5). The evaluation of alternatives included a comparison of road profile, length of steep cuts and fills, mass haul, stream crossings, and construction costs. Additionally, conceptual parcel layouts were developed to evaluate how each alignment option could provide public access to the surrounding State and Federal lands, private access to developable properties, and where spur roads would be necessary. This information is summarized in the table below:

Considerations	Low Option	High Option
Length of Roadway	13,500 ft	13,000 ft
Maximum Elevation	160 ft	300 ft
Maximum Grade	9%	10%
Cut	230,800 CY	273,500 CY
Length of Rock Cut (0-20 ft)	3,750 ft	4,950 ft
Length of Rock Cut (> 20 ft)	2,275 ft	3,200 ft
Fill	233,500 CY	249,100 CY
Length of Steep Fill (< 1.5:1)	1,975 ft	2,075 ft
Stream Crossings	25	15
Configured Parcels	83	82
Configured Parcels (Acres)	147 acres	137 acres
Parcels Adjacent to Main Alignment	59	37
Parcels Adjacent to Spur Roads	24	45
Length of Spur Roads	10,550 ft	35,900 ft
Total Project Cost*	\$24,300,000	\$25,400,000
* Does not include cost for constructing spur roads		

The Draft DSR identified the Low Option as the recommended alignment option. Running roughly down the middle of the City-owned land, the Low Option had less change in elevation, fewer steep cuts and fills, but more stream crossings than the High Option. The conceptual parcel configuration for the Low Option had more parcels adjacent to the main road extension and required less spur roads than the High Option.

Following the completion of the Draft DSR, the alternative analysis was presented to the public for comment and the Low Option was advanced to the draft environmental assessment (EA) and detailed design. Identification of a preferred alignment allowed the project to gather more detailed information about the corridor: cultural resources, fish habitat, higher resolution topographic data, aerial imagery, and surface and subsurface geotechnical investigations. Presentation of a preferred alignment in conceptual form led to more concrete discussions with the City, funding agency, U.S. Forest Service, and public about the scope of improvements, identifying three changes: termination of the road on U.S. Forest Service land at Trinity Point with the possibility of water access; inclusion of access roads as part of the proposed action for improved coastal and land access; inclusion of viewpoints, trailheads, and improvement to remaining sections of trail to offset impacts to the Emerald Cove Trail. As the Low Option was advanced to detailed design, a number of design criteria were also refined: lane and shoulder widths, minimum radii and superelevation, rock cut design, culvert and ditch design, fish passage structures, MSE walls, and muck disposal.

This Final DSR presents the changes that have been made through the EA and 95% Design phases, showing the evolution of the preferred option, and providing a clearer view of the proposed action. This report does not rewrite the analysis of the Draft DSR, or apply the additional information, changes in scope, and refined design criteria to the Low and High Options. The analysis of the two alternatives based on the assumptions at the time were adequate and are still representative of route selection criteria.