

## **Copper River Highway, Cordova Airport to Flag Point, Drainage Improvements Approximately Mile 11 to 27**

The section of Copper River Highway from the Cordova Airport (~11 Mile) to Flag Point (~27 Mile) is in critical need of drainage improvements, due to the presence of culverts that have far exceeded their design life. There has been a recent push to replace the fish passage culverts in the most critical condition, on an individual basis, but that effort has been costly in terms of both dollars and contractor learning curve.

Individual culvert projects do not take advantage of the economies of scale gained from a single project mobilization and demobilization, shipping culverts, processing borrow and riprap, and experience gained by individuals on the contractor's crew with successive installations.

There are galvanized, steel culverts at the beginning of this project (Mile 11 to Mile 18) that are 50 to 55 years old, which have inverts that are completely rusted away. Some of these culverts were extended with aluminum pipes in 1965, occasionally with different diameter pipes.

The stretch of road from MP 18 to 21 was designed in 1952, and it is unclear when the culverts were installed, but judging from culvert condition, it is conceivable that they were installed in the 1950's or early 1960's.

Only Stage I of the "Copper River Highway, M.P. 18-27" was built in 1986. That project only included replacing the bridge at Alaganik River, at Mile 22.2, ("O"224+81 to "O"260+00) with another bridge, and replacing the bridge at Salmon Creek, at Mile 22.8, ("O" 311+00 to "O" 323+00) with two 120"x 92' Structural Plate Pipe (SPP) culverts.

In the section of road between MP 18 and 27 (Stage II), many culverts were designed, but not installed, at new locations where no pipes existed. These culverts are included in the spreadsheet as proposed. There was also a proposed realignment designed in the 1983 plan set: Alternate "C".

The attached spreadsheet is a combination of the original DOT/F&G Copper River Rapid Assessment Survey, DOT As-builts, and culvert data from the Copper River Watershed Project (CRWP). There are discrepancies between these records, which will have to be rectified during the design process.

Of the total of 95 culverts, 43 are 48-inch diameter or larger, and 48 are on documented fish streams. Only 3 are approach pipes. One fish stream culvert was replaced last year and another is to be replaced in the near future. Another 29 culverts were proposed on the 1983 plans and aerial photography shows there are probably additional locations that would benefit from new culvert installations.

M&O has replaced some of the culverts, but the replacement pipes were not hydraulically sized, or designed for fish passage. Potential new culvert sites should be visited with M&O personnel.

Mile Posts are not in the field for MP 20, and MP 23, and there is more than a 10,560-foot separation between the existing Mile Posts. Culvert locations in these sections are measured as distance from smaller existing milepost.

Due to the scope of this project and the relatively high cost of fish-passage culverts, this project will likely have to be constructed in several phases.

**References** (not all in EDocs)

Section B – Grading and Bridges, Copper River Highway, Cordova Airport – Alaganik, 1952 (~MP13 – MP21)

Copper River Highway, Mile 12-14, Airport Bypass, Grading and Drainage & Paving, S0851(31), 1968

Copper River Highway, Mile 15 to Mile 18, Grade, Drainage, & Bridge, S-0851(28), 1967, As-Builts 1968

Copper River Highway, MP 18-27, Location/Design Study Report, Project NO. RS-0851(40), 1983.

Copper River Highway, MP 18-27, Grade, Drainage & Alaganik Slough Bridge Construction, RS – 0851 (40)/B-63852, 1983. (only Salmon Creek culverts, and Alaganik Slough Bridge & reroute constructed in 1986

Copper River Highway, MP 18-27, Stage I, Alaganik River Bridge Construction, Salmon Creek Bridge Replacement & Approaches, RS – 0851 (40)/53175, 1986. NOT CONSTRUCTED

Copper River Highway Mi. 25.9 to Mi. 27.9, Grading, Drainage, & Bridges, ER-38(1), 1969 (1972 As-builts)

Copper River Watershed Mapper [http://www.crks.org/CRWP\\_CulvertMapper/](http://www.crks.org/CRWP_CulvertMapper/)

Copper River Watershed Database

[https://docs.google.com/spreadsheets/d/16EMvCtoNFdYrRs9pT1iImYmcafPx\\_UgXFXHo7VlrF5o/edit#gid=0](https://docs.google.com/spreadsheets/d/16EMvCtoNFdYrRs9pT1iImYmcafPx_UgXFXHo7VlrF5o/edit#gid=0)