Track Rehabilitation

Project Scope
The Alaska Railroad (ARRC) continues a track rehabilitation program in 2020 as an ongoing effort to upgrade the main line, sidings and yards from Seward to Fairbanks. The program calls for replacement of ties and ballast in areas of critical need. For engineering / maintenance purposes, ARRC divides the main line into three districts:

- MP 0 (Seward) to MP 117 (Anchorage Yard)
- MP 117 - MP 345 (north of Montana Siding and south of Denali Park)
- MP 345 - Eielson AFB

Project Cost and Funding
The 2020 capital track rehabilitation budget is approximately $12 million, with $10,815,000 funded by Federal Transit Administration grants (80% FTA and 20% ARRC), and with $1,185,000 from internal ARRC funds. Another $500,000 of ARRC funds is budgeted for rip-rap embankment and drainage improvements, $500,000 for yard/branch improvements, and $700,000 to rehabilitate and replace culverts. Funding supports:

- Replacing wood ties
- Track bed surfacing
- Yard improvements
- Drainage improvements (culvert repair)
- Embankment fortification
- Rail relay (replacing worn rail) and gauging rail
- Tie and rail pick-up and clean-up
- Shoulder ballast cleaning (contract)

Rail Program
Rail is replaced when it has worn away in curves, or become severely battered in tangent sections. The 2020 Rail Program consists of:

- replacing 17,500 feet (3.3 miles) of rail on the Fairbanks Airport Branch
- replacing 15,000 feet of rail on the main line in Districts 1 and 2
- gauging 18,750 feet of rail within District 2
- clean-up and pick-up from prior years.

Left: A tie crane operator positions a new tie during tie replacement operations. Right: Rail replacement operations. (Photos by Judy Patrick)
**Tie Program**

The 2020 Tie Program calls for installation of up to 20,000 wood cross ties on the main line track, on branch lines and within yards. The Alaska Railroad tracks include nearly 2 million ties. Since 1996, ARRC has replaced nearly 1 million ties — or nearly half — of all ties. Heavy tie renewals in the late 1990s resolved critical main track issues; however, the tie population is generally old, so continual renewals are needed to keep up with the ongoing loss of older ties.

**Ballast Surfacing**

The bed of a railroad track is comprised of several layers. The top layer is called ballast, which is made up of small, jagged rocks that fit snugly together, forming a stable bed that can withstand the tremendous weight of a train while still providing drainage. The 2020 Ballast and Surfacing Program calls for the use of about 37,000 tons of ballast rock. About 175 track miles of surfacing will occur in all districts, as needed, and follows tie replacement efforts.

**Shoulder and Embankment**

ARRC pursues shoulder maintenance to enhance track safety by providing embankment support. In areas susceptible to high water events, ARRC may fortify the embankment by installing rip-rap and armor rock. Culverts providing drainage from one side of the embankment to the other side are extended, repaired or replaced as needed. Another 12 to 15 culverts will be replaced along the system as resources allow.

Rip-rap and armor rock are placed along the Susitna River.

A tie remover/inserter has powerful mechanized arms (close-up, right) that can extract old, and install new, ties from either side.