

Alaska Railroad Corporation Vegetation Control Cost Overview – March 2011

Compiled by Tom Brooks, Alaska Railroad Chief Engineer

Cost Comparison: Herbicide vs. Manual/Mechanical Methods

The Alaska Railroad Corporation (ARRC) has used a combination of mechanical methods (using heavy equipment such as a brush cutter and ballast regulator) and manual methods (workers using weed-eaters, small mowers, hand-pulling, etc.) to control vegetation since the early 1980s. In 2010, ARRC included chemicals in the mix, having obtained a permit to apply herbicides in the Seward Rail Yard and along about 30 miles of the track between Seward and Indian. Herbicides are not appropriate for all vegetation control situations, and the railroad will always need to employ a combination of mechanical, manual and chemical methods to adequately control vegetation.



A Railroad track maintenance worker manually controls weeds in the Seward yard. Herbicides are far more effective for controlling vegetation within the rail yards.



A brushcutter provides mechanical vegetation control along the track and shoulder. Vegetation in this area is more effectively controlled with herbicides.



The herbicide AquaMaster is applied by a licensed contractor using a low-volume, low-pressure equipment to direct the herbicide only where it is intended.

If ARRC were able to increase the use of herbicides in appropriate areas, safety improvements could be realized at substantially lower cost. The following comparison takes into account the costs of vegetation control such as track crew labor, equipment use (fuel/maintenance), herbicide contractor fees, etc. It does not include regulatory costs, such as herbicide permitting expenses, regulatory fines, etc.

The Alaska Railroad's Engineering and Maintenance of Way departments estimate the railroad could save more than \$250,000 per year – or nearly a quarter (24%) of the vegetation control budget – by increasing its use of herbicides from 7% of the budget to 14% of the total.

Final 2011 Vegetation Control Program – Actual Budget and Plan (Without Permitting Costs)

Cost Area	Method Employed	2011 Budget	% of Budget
Brush further than 12 ft from tracks	Manual & Mechanical	\$ 492,000	47 %
Track and Shoulder Vegetation	Mechanical	\$ 282,000	27 %
Track and Shoulder Vegetation	Manual	\$ 200,000	19 %
Track and Shoulder Vegetation	Chemical	\$ 75,000	7 %
Total		\$ 1,049,000	100 %

***Hypothetical 2011 Program
(Increased Chemical Control, Estimated):***

Cost Area	Method Employed	2011 Budget	% of Budget
Brush more than 12' from tracks	Manual & Mechanical	\$ 492,000	47 %
Track and Shoulder Veg	Mechanical	\$ 100,000	10 %
Track and Shoulder Veg	Manual	\$ 50,000	5 %
Track and Shoulder Veg	Chemical	\$ 150,000	14 %
Savings **		\$ 257,000	24 %
Total		1,049,000	100 %

** Estimated savings does not include favorable cost results from increased effectiveness of chemical control, including savings from safer railroad operations and reduced regulatory fines from the Federal Railroad Administration.

Herbicide Permitting Costs

The cost to obtain an herbicide permit from the Alaska Department of Environmental Conservation (ADEC) is substantial in terms of money spent and staff resources dedicated to the task. During previous unsuccessful attempts at obtaining a permit – most recently in 2006 – the public and agencies requested research be conducted to determine how herbicides behave in Alaska’s environment. In response, in 2008 the Alaska Railroad commissioned a multi-year herbicide study conducted by the University of Alaska Fairbanks (UAF) Alaska University Transportation Center (AUTC).

With research underway, the Alaska Railroad has since applied for three herbicide permits:

1. **Seward Yard** and 30 miles along the track from Seward to Indian — Permit process began in 2009, with ADEC approving a 2-year permit in 2010.
2. **Anchorage Yard** — Permit process began in late 2010. A public hearing took place February 18, 2011, and the public comment deadline was March 16, 2011.
3. **Fairbanks & Healy Yards** and nearby branch tracks — Permit process began in late 2010. A public hearing took place February 22, 2011, and the public comment deadline ws March 16, 2011.

Herbicide Permit Cost Summary (2008 to present):

UAF Study to Evaluate Use of Herbicides in Alaska	\$ 189,000
Legal Fees to Defend 2009 ADEC Permit (ongoing ¹)	87,000
Expert in Toxicology	46,000
ADEC Permit Public Hearing Related Costs ²	<u>12,000</u>
Total Herbicide Permit Costs, to date:	\$ 334,000

¹ Environmental groups continue to litigate the permit issued to ARRC in 2010 based on procedural arguments.

² Hearing costs include advertisements, facility rental and catering, court reporter, etc.

Time spent by Alaska Railroad staff is not included, only third-party costs. However, ARRC staff time has been considerable. For example, ARRC personnel have collectively spent hundreds of hours to compile and submit the permit application, organize and publicize public hearings, oversee and respond to agency requirements, create public information materials and dedicated web site section, respond to public and media inquiries, document the permit process, etc.

Federal Regulatory Agency Warning and Action

The Federal Railroad Administration (FRA) is the federal agency with authority to regulate the safety of railroads operating within the United States. Annually, FRA regulators inspect ARRC tracks to identify any non-compliance

Federal Railroad Administration Assessment and Warning

In April 2009, the FRA notified ARRC that its vegetation control was inadequate. The FRA's Chief Safety Officer Jo Strang said:

Persistent vegetation on and around the track structure presents a recognized safety risk. Overgrown vegetation can brush the sides of rolling stock, obstruct the visibility of railroad signs and signals, and interfere with railroad employees performing normal trackside duties. Plant roots growing under the tracks can also undermine the rail bed by preventing proper drainage.

Particularly troublesome is the fact that overgrown vegetation can hinder railroad employees from visually inspecting crossties, fasteners, tie plates, rail bolts and other parts of the track structure. This can lead to track defects that go undetected and result in accidents. Considering that ARRC transports over a half million passengers and 30,000 freight cars containing hazardous materials each year, an accident on the railroad could be catastrophic. Proper track inspections are essential, particularly during the summer months when ARRC's passenger travel is at its peak, and the vegetation problem is at its worst.

Since 1997, FRA has written 947 defects and 74 violations for vegetation safety issues and concerns against the ARRC. However, recent FRA observations have confirmed that the growth rate and location of vegetation along the 500 miles of ARRC track continue to get worse, despite these enforcement actions.

ARRC should be aware that continued violation of FRA requirements will result in significantly increased civil penalties. More violations and defects will likely be taken, and civil penalties may be assessed at the maximum level of \$16,000 per violation. If ARRC's vegetation management problems persists or worsens, FRA may use additional enforcement tools... These tools could include the following: ... speed restrictions... An emergency order removing affected track from service.

These comments were excerpted from a written warning letter dated April 15, 2009. The entire letter is available on the Alaska Railroad's website, www.AlaskaRailroad.com (click on Environmental, then Vegetation Management).

Federal Railroad Administration Fines for Inadequate Control, 2009 and 2010

Annually, FRA regulators inspect ARRC tracks to identify any non-compliance with federal regulations and recommend civil penalties.

Year	Total Non-compliant Vegetation Defects	Recommended for Civil Penalty
2009	728 locations	97
2010	299 locations	24

Between 2000 and 2008, the ARRC paid about \$50,000 in FRA fines for vegetation. Within its April 2009 letter of warning, the FRA indicated that ARRC could expect greater levels of enforcement. During 2009 and 2010, enforcement levels were indeed greatly increased. To date, the ARRC and FRA have not settled the amounts of 2009 or 2010 fines that will ultimately be paid. In 2010, the FRA did favorably note the increase in ARRC control efforts including the use of herbicides. The FRA has put the 2009 fines on hold pending further efforts and evaluation. ARRC estimates the fines for 2009 alone, if enforced, would be between \$100,000 and \$2 million.



Track is quickly covered with fast-growing weeds during Alaska's long summer days.



The herbicide works effectively on weeds between the ties, without migrating or lingering in the soil.