

Item	Firm A	Firm A	Firm B	Firm B Related Costs
KM Estimate	32000		12,000	
Cost Rate Value Used per Incident		\$250,000		\$250,000
Incidents Since 2004 Recorded by Canadian Transportation Safety Board (TSB)	15500		5500	
Km per incident based on TBS Data	2.06		2.18	
Cost of All Incidents Based on Average Cost Allowance Shown		\$3,875,000,000.00		\$1,375,000,000.00
Number of Main Line and Non Main Line Derail Events From TSB	5190		4067	
Percent of All Incidents for Firm representing embankment failure or hillside failure	6%		6%	
Failure Embankment Related Cost Assuming Only A percent of Derailments relate to Embankments		\$77,850,000.00		\$61,005,000.00
Number of Incidents Above involving Embankments based on Percent above	931		348	
Cost Estimated Embankment Involved		\$232,750,000.00		\$87,000,000.00
Percent Derail Incidentes From Settlement or movement	10%		10%	
Number Incidents due to settlement or movement of rail bed	520		407	
Cost Estimated Settlement Involved		\$130,000,000.00		\$101,750,000.00
Total Estimate Cost of Incidents Involving Soil, Rock, or Water since 2004		\$440,600,000.00		\$249,755,000.00
Total Soil Cost as Percent of total		11.4%		18.2%



The chart above, is an adaptation of rail statistics within a nation. Two example railways are analyzed using example values and estimates. The chart provide estimates on the numbers and costs of rail incidents that relate to soil, slope or embankment issues.

Note many incidents will have smaller costs (under say \$20,000 (2019 dollars)) but some incidents can cause impact exceeding \$500 million dollars.

Example Rail Incidents, different lengths and rates

Drawing 1