UTC Project Information	
Project Title	The Long-Term Effect of Earthquakes: Using Geospatial Solutions to Evaluate Heightened Rockfall Activity on Critical Lifelines
University	University of Alaska Fairbanks
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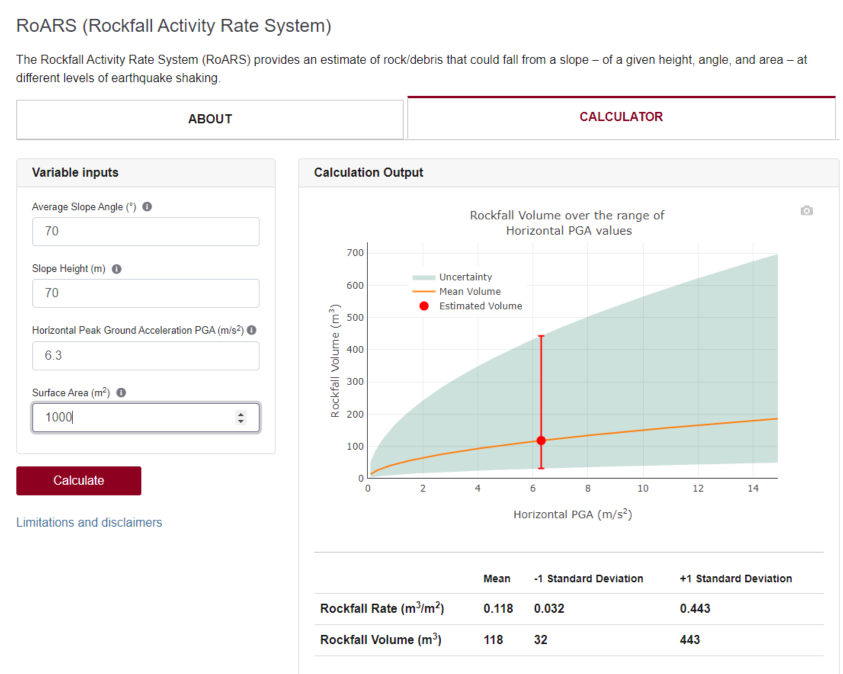
Funding Source(s) and Amounts Provided (by each agency or organization)	University of Washington PacTrans $180,000 University of Washington $60,000 Oregon State University $60,000 University of Alaska Fairbanks $60,000
Total Project Cost	$360,000
Agency ID or Contract Number	69A3551747110
Start and End Dates	September 01, 2020-December 31, 2022
Brief Description of Research Project	This PacTrans project analyzed the datasets collected from previous research efforts to answer the following research questions: (1) What was the "baseline" rockfall activity at the study sites, and how did this vary (if at all) with fluctuations in local climate conditions? (2) What are the mechanisms and factors that govern rockfall both during and after the event; how, if at all, do these vary from the pre-earthquake activity? (3) How soon after the earthquake does rockfall activity and magnitude return to baseline conditions? (4) How is this influenced by short-term local weather conditions during this period of "recovery"? *Answering these questions is critical for transportation agencies to plan for and allocate resources optimally to address maintenance needs for rock debris removal and slope mitigation, thus ensuring efficient mobility of the transportation network*.

Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	• GNS Science has created a beta web tool for ROARS that will soon be publicly available at their Endeavour Project Site https://slidenz.net/ The python scripts developed in this PacTrans project were provided to the GNS Science team as they started development. • The project team conducted a training workshop for Oregon DOT focused on the RAMBO software developed through several PacTrans and ODOT projects. Beyond several interactive training modules, the workshop included an implementation discussion on how the software could be integrated into different initiatives at ODOT. The software has also been utilized on several ODOT research projects. • The RAMBO software was used in several courses at OSU, including CE566 3D laser scanning and Imaging and CE562 Digital Terrain Modeling as well as graduate student research projects • A licensing agreement was formed between OSU and EzDataMD LLC to enable EzDataMD LLC to further develop, commercialize, and maintain the RAMBO software. • The RAMBO software is also being piloted at GNS Science and the Norwegian Geotechnical Institute. • A new research project was initiated by Oregon DOT focused on the effectiveness of rock slope modification which will leverage results from this PacTrans project.
	 Screenshot of the GNS Science Beta WebTool for computing ROARS for a site. (Courtesy of GNS Science)

Impacts/Benefits of Implementation (actual, or anticipated)	The Rockfall Impacts on Mobility (RIM) database, in combination with the tools developed through this research project, provide a means of creating first-order estimates for potential coseismic rockfall impacts for transportation planners.
Web Links • Reports • Project Website	https://depts.washington.edu/pactrans/research/projects/the-long-term-effect-of-earthquakes-using-geospatial-solutions-to-evaluate-heightened-rockfall-activity-on-critical-lifelines/