CMER Request

Proponent: Roads Project Team	**Date**: 22 Feb 2022
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Project Name/Issue: Road Prescription-Scale Effectiveness Monitoring Project	
Request: To include a graphic clearly labeled as "preliminary data" from the Project in a synthesis paper about how traffic affects forest road erosion.	
Funding Source: NA	**Urgency**: High

Request Description: The PI and other members of the Project Team, principally Ms. Manaster, a UW doctoral student, have written a synthesis paper otherwise not using project data. This synthesis paper looks at the current suite of forest road erosion literature and evaluates the gaps in knowledge surrounding traffic-induced forest road erosion. The paper also presents a framing for future research that considers forest road erosion through the lens of supply and energy limitations. The authors posit that the relationship between erosion, supply, and energy on forest roads can be described using the concept of limiting factors (conceptual diagram shown in Figure 1 below). Preliminary data from the first year of the Roads Project illustrate this relationship well. Including a graphic showing this relationship (Figure 2 below) will strengthen the paper. This paper will be submitted to Forest Ecology and Management.

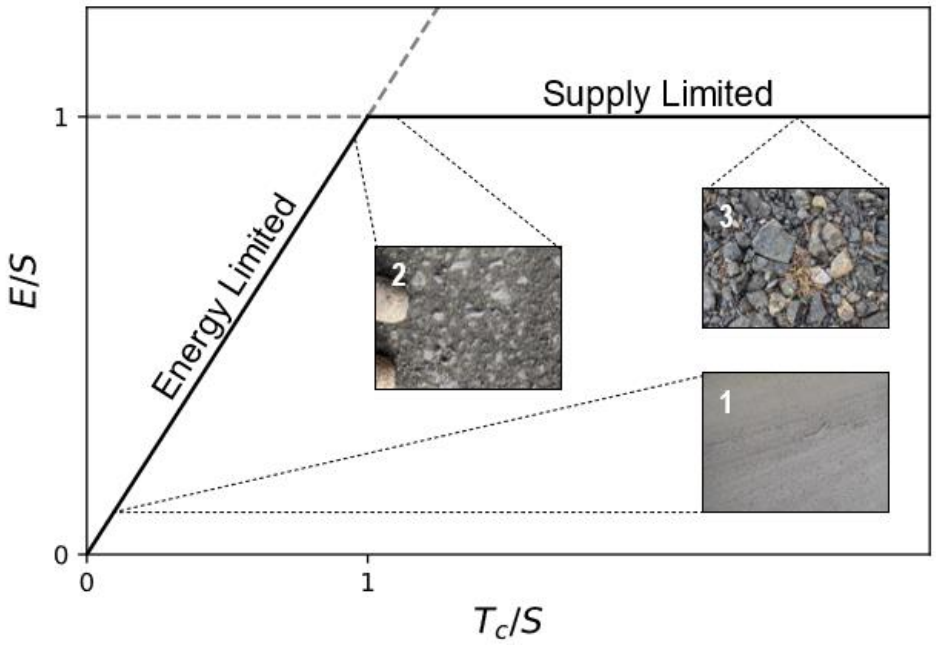

Figure 1. A limiting factor diagram for conceptualizing the relationship between erosion, energy, and supply. When the energy (Tc) is less than the supply (S), the erosion (E) is dependent on energy, and data would fall along the energy limited line. When Tc surpasses S, E is equal to the supply, and data would fall along the supply limited line. Three examples of a forest road in different states are shown: 1) An energy limited road surface; 2) a road surface that is on the cusp between energy and supply limited; and 3) a supply limited road surface.

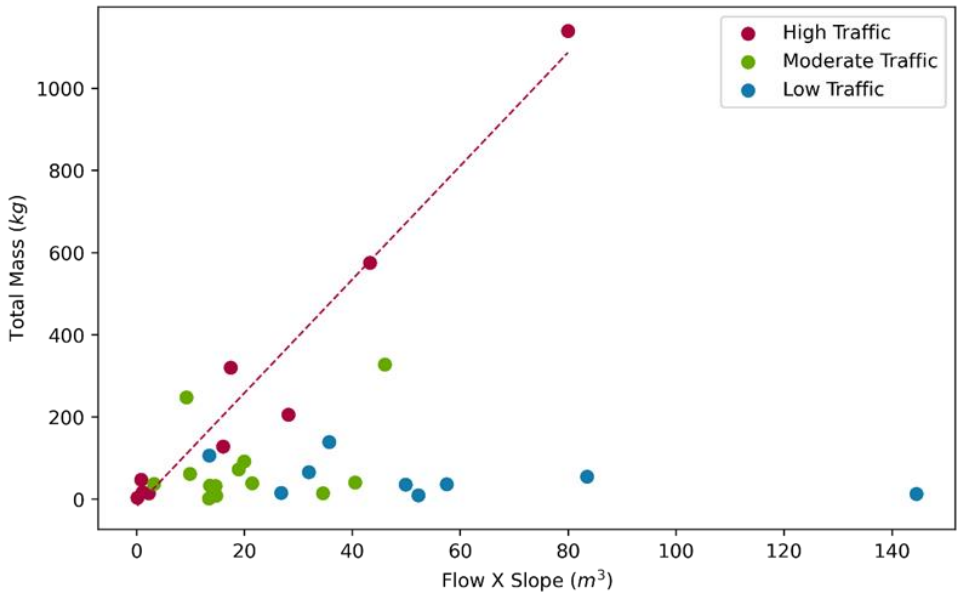

Figure 2. Preliminary data from western Washington field study showing total mass (kg) vs. flow x slope (m^3) delineated by traffic levels. These data show that for high traffic sites (i.e., high supply sites; pink marks in figure), total mass (surrogate for erosion) has a linearly increasing dependence on flow x slope (surrogate for transport capacity), whereas low traffic sites (i.e., low supply sites; blue marks in figure) show no significant dependence.

History and Context:				
X = Done @ = Request	Project Management Stage	Iteration #	X = Waived	Date Approved
	BAS/Alt Study Design			
X	TWIG Review			07/21/2015
X	CMER Review			01/15/2016
X	Final CMER Approval			01/26/2016
X	Policy Review			02/04/2016
X	Final Policy Approval			03/04/2016
	Study Plan			
X	CMER Review			02/28/2017
X	Peer Review			01/17/2018
X	Final CMER Approval			02/27/2018
	Implementation Plan			
X	CMER Approval			02/27/2018
@	Project Request			02/22/2022

(Add rows if needed)