

Washboarding of Gravel roads Explained

Corrugation: This problem, often called washboarding, can bring more complaints than any other. It is very annoying to motorists and when it becomes severe it can lead to loss of a vehicle's control. Figure 1 shows a typically corrugated gravel road. There are three primary causes: the driving habits of individuals, lack of moisture, and poor quality gravel. Driving habits are clearly evident when washboarding is present at intersections, going up or down steep hills, leading into or out of sharp curves, and sometimes even near driveways. In all these places motorists tend to accelerate hard or break aggressively. Lack of moisture will accelerate washboarding and prolonged dry weather can aggregate the problem. This is because the crust that forms on the surface of good gravel road will tend to loosen allowing fines to be air born under traffic action which leaves stone and sand-sized particles to float and the material then can easily align itself into a washboarding pattern. The aforementioned causes are out of the control of the operator. The third primary cause of the quality of the gravel is controlled by the agency's staff and therefore needs more attention. Good gravel must have the proper combination of stone, sand, and fines (Passing 200 sieve). The stone should be of the crushed type and the fines must have the binding characteristics, technically called plasticity. Materials must conform to specifications before it is used. With the best of maintenance, washboarding can never be eliminated. However, the key to reducing it is to obtain quality gravel with good binding property. Controlling speed can also reduce the potential for washboarding.



Figure 1: Corrugation or Washboarding