

# Pavement Deterioration Due to Horizontal Hydraulic Fracturing and Wind Farm Development in Kansas

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## Introduction

The purpose of this research was to determine the impact on pavements and roadbeds due to the increase in truck traffic from oil and gas fracking activities, as well as from expansion of the wind energy industry, and estimate the resulting reduction in roadway service life for typical two-lane KDOT roadways. In addition to KDOT roadways, this research can also be used as a proxy for county-level or other local jurisdiction-level paved roadways.



*View of Smoky Hills Wind Farm in Ellsworth and Lincoln Counties*

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## Project Description

This research used the Mechanistic-Empirical Pavement Design Guide software to estimate the shortening of useful life of typical Kansas two-lane rural roadways using both the International Roughness Index (IRI) and total rutting as measures of deterioration. Five roadways from south central Kansas were modeled.

## Project Results

It was found that even for large increases in truck traffic, the IRI values only showed a reduction in service life of from 1 to 2 years. However, total rutting showed much larger reductions of from 9 to 19 years, which reflected a shortening of pavement life of from 35 to 50 percent.

## Project Information

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