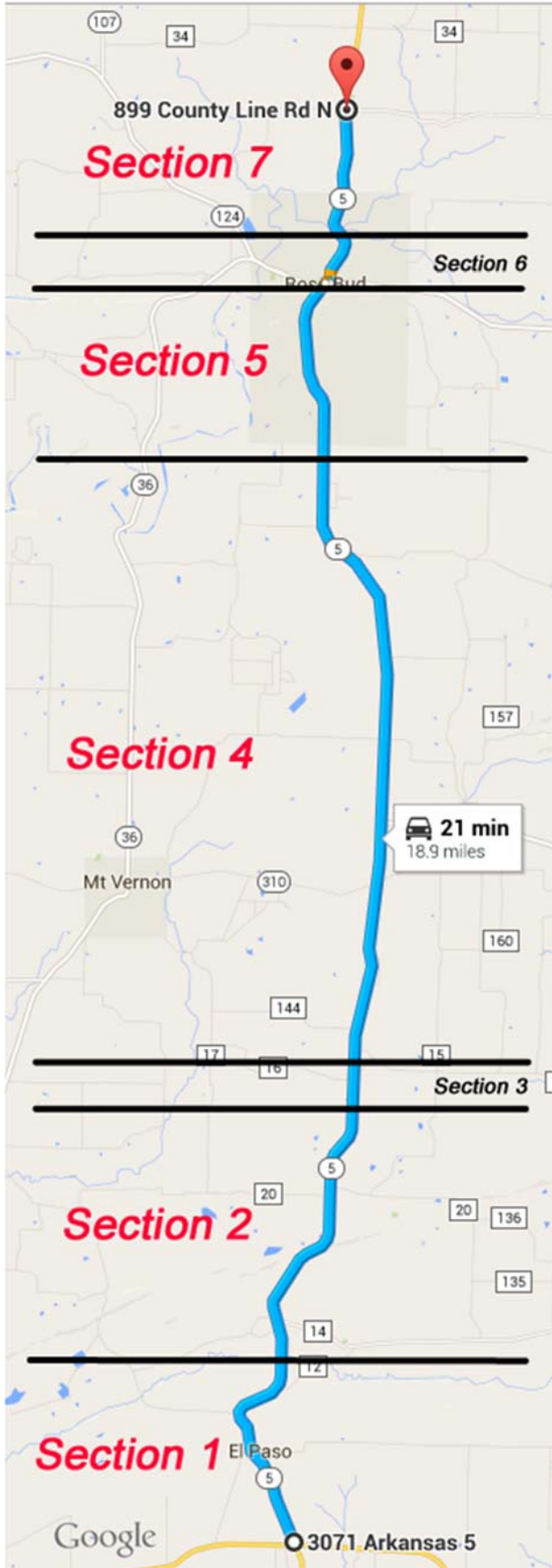


# RoadBump Performance Results



RoadBump is an inexpensive tool for road maintenance and engineering professionals to get estimated IRI information that previously was available only through very high cost laser profilers.

RoadBump uses your Android device's GPS and accelerometer to measure the roughness of a road. It displays a map of the road that was measured, and graphs estimated IRI for any section of the road.

RoadBump was tested over a 19 mile section of road in central Arkansas. The state highway department provided left and right wheel path IRI results from their ARAN van that measured the same section of road a couple of months before the RoadBump test. The "True" column in the table below is the average of the left and right wheel paths measured by the state's ARAN van. The road was driven at the posted speed limit of 55 mph.

Section	Miles	IRI as inches/mile		Error
		True	Road Bump	
1	2.669	135.24	145.13	7.3%
2	3.308	140.34	138.54	-1.3%
4	7.705	118.38	114.46	-3.3%
5	2.165	118.42	110.36	-6.8%
7	1.479	105.84	106.56	0.7%
Weighted Average		124.06	122.57	-1.2%

Over each of the 5 sections, RoadBump's IRI averages were always within 7.5% of the true IRI.

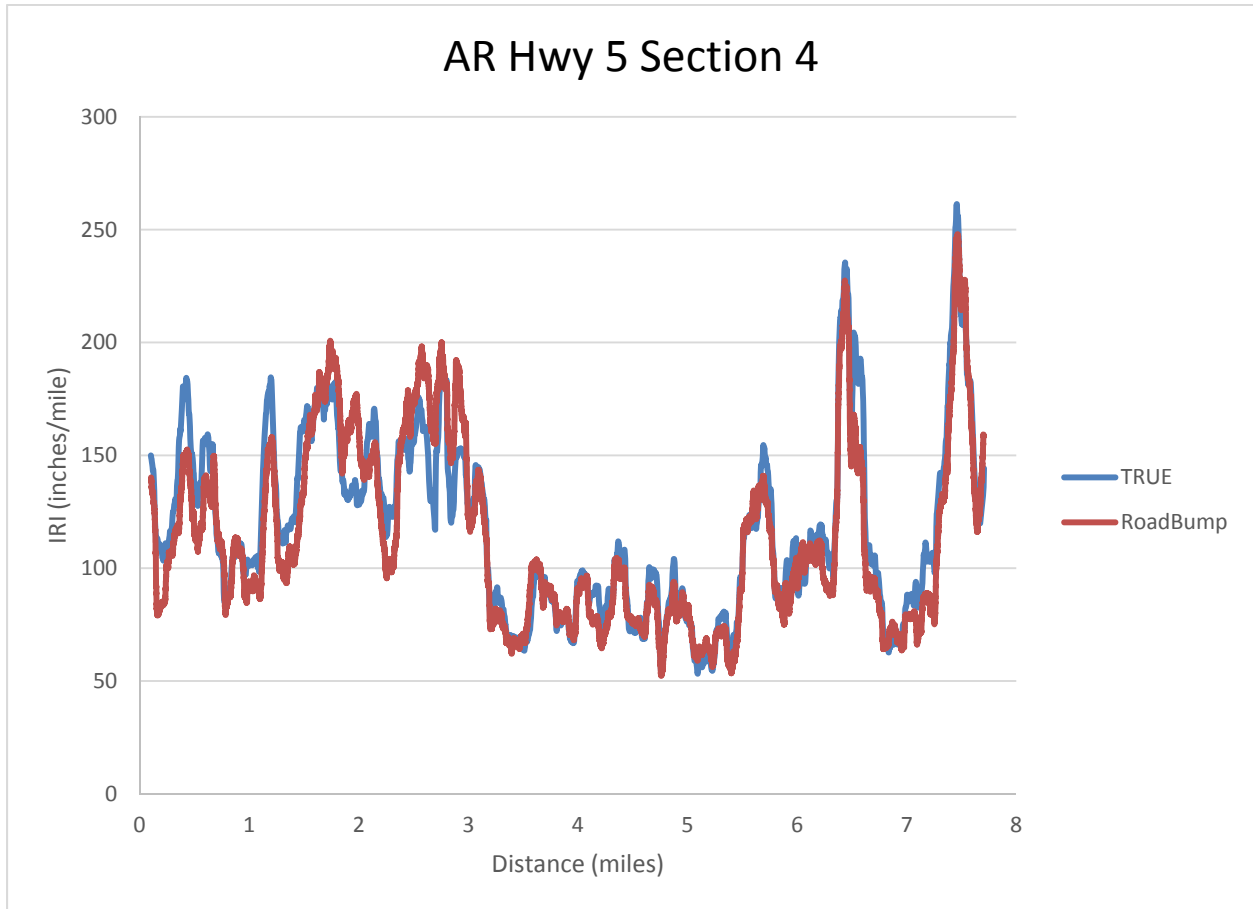
The measurements from the AHD did not cover bridges. RoadBump's data was broken into sections to skip the bridges. Sections 3 and 6 are too short to provide meaningful comparisons.

RoadBump is available through the Google Play Store.



# RoadBump Performance Results

Moving average IRI results for the state of Arkansas (True) and RoadBump's data are shown in the graph below for section 4, a 7.705 mile section of the measured path. RoadBump's moving average graph closely matches that produced by the state's inertial profiler. Comparisons of the other sections show a similar tight fit.

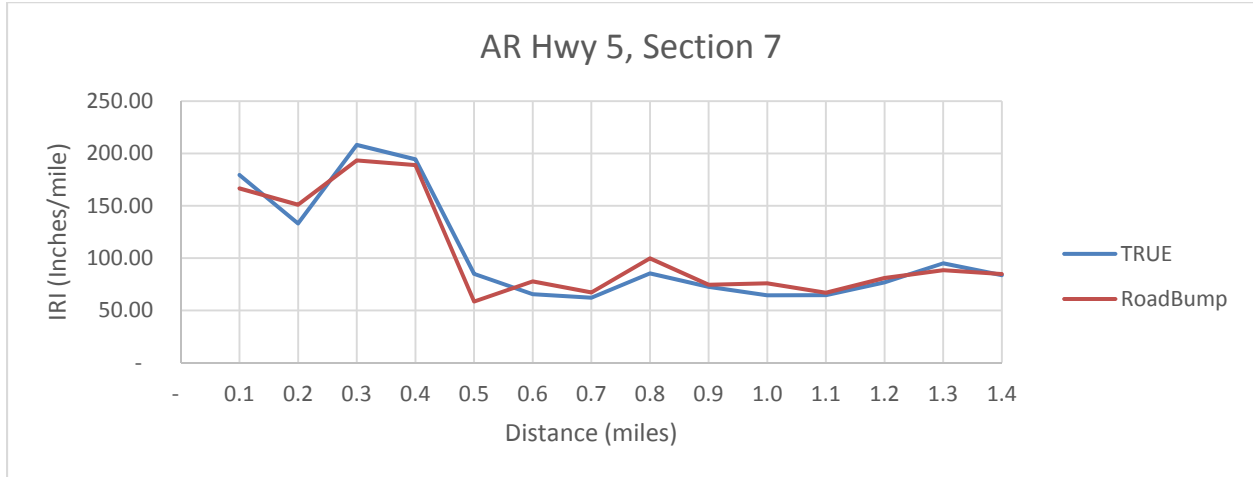


Each series is a moving average covering 570 feet.



# RoadBump Performance Results

Looking at IRI averages for each tenth mile for section 7, RoadBump continues to show very good results. The results from Section 7 (a 1.4 mile section) are shown below with IRI averages plotted for each tenth mile.



The graph below show how RoadBump varied from the True IRI over each tenth mile increment.

