

**Interstate 30: US Highway 70 - Sevier Street
Pavement Condition Report
January 2013**

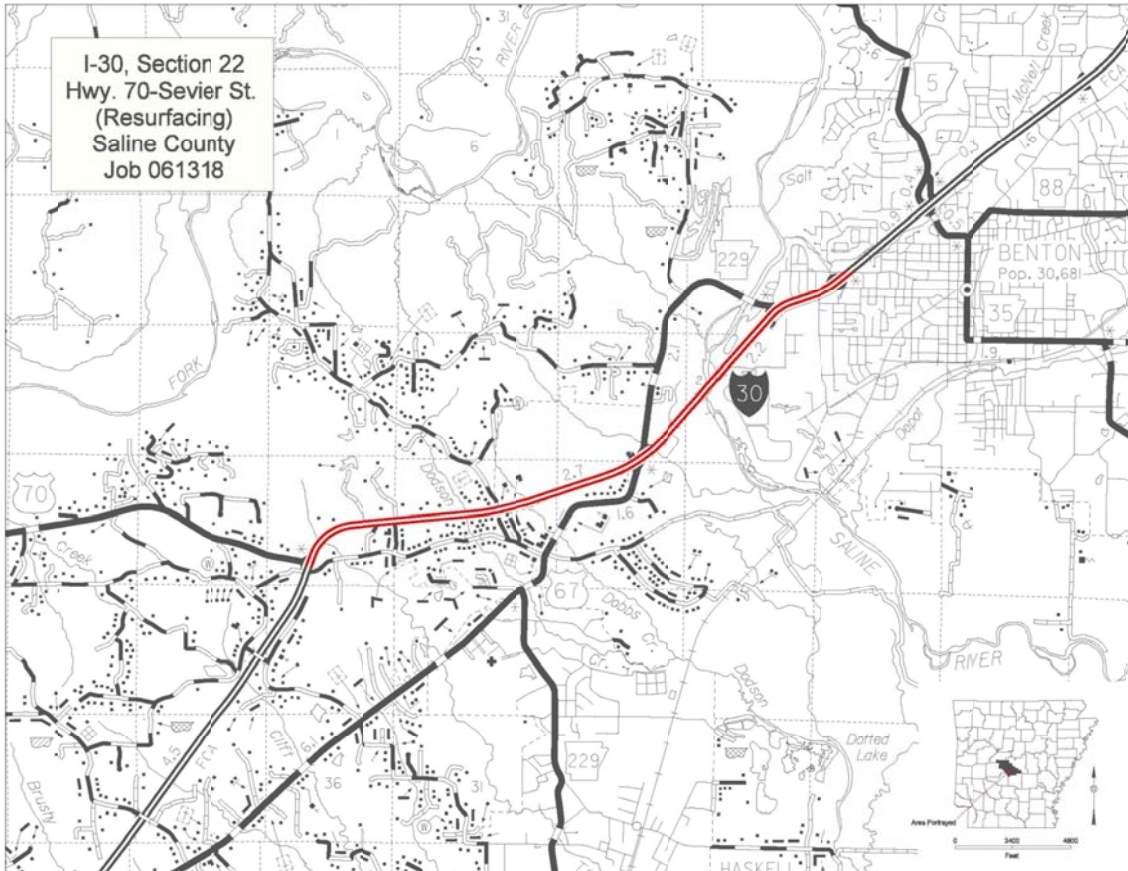


Figure 1. Location of the Project

The pavement system consists of a jointed concrete pavement of varying condition (mostly poor) with severely faulted and deteriorating joints and an overlay of varying condition that consists of asphalt layers showing signs of severe moisture damage (stripping). Prior to the selection of a rehabilitation strategy, data was collected with a falling weight deflectometer (FWD) to determine the overlay required to extend the life of the facility by 10 years. The joint load transfer efficiency and ΔD of the pavement was poor (see **Table 1**).

	Logmile	D1	D2	D3	D4	D5	D6	D7	D8	D9	Joint Eff (%)	ΔD (Mils)
West	115.68	10.52	8.73	2.48	6.86	6.18	4.98	4.04	3.23	2.51	23.57	8.04
	114.90	15.37	17.09	1.04	11.03	9.78	7.47	5.56	4.04	2.76	6.77	14.33
	114.29	18.74	20.54	5.70	14.74	13.54	11.24	9.04	7.18	5.40	30.42	13.04
	112.88	9.06	1.65	1.61	6.49	5.89	4.80	3.85	3.13	2.50	17.77	7.45
East	112.02	7.70	8.26	2.60	5.22	4.56	3.41	2.46	1.76	1.19	33.77	5.10
	113.68	20.78	5.69	1.96	12.65	10.36	6.16	2.58	2.07	3.60	9.43	18.82
	114.27	6.56	6.66	2.12	4.08	3.55	2.65	1.95	1.46	1.07	32.32	4.44
	114.80	11.09	5.31	1.35	7.26	6.42	5.05	3.87	2.99	2.19	12.17	9.74
	115.66	7.66	8.06	2.23	5.13	4.52	3.56	2.80	2.25	1.73	29.11	5.43

Table 1. FWD Data

Based on the data collected, an additional 10.5 inches of asphalt would be required to extend the service life of the pavement by 10 years. Since a 10.5-inch asphalt overlay was not a viable option, an alternative rehabilitation strategy was selected using a composite geosynthetic joint tape and a four-inch overlay.

Prior to rehabilitation, additional data collection was performed, including International Roughness Index (IRI), rutting, and pictures of the initial pavement condition. An Automatic Road Analyzer (ARAN) was used to collect IRI, rutting and pictures of the pavement. A lightweight profiler was also used to collect smoothness data on the pavement. The preconstruction IRI values ranged from 90 to 425 inches per mile (see **Figure 2** and **Figure 3**).

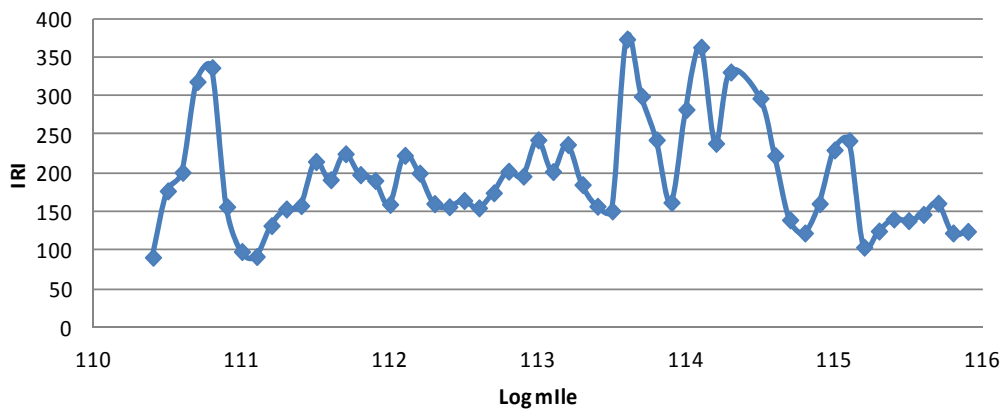


Figure 2. Eastbound IRI

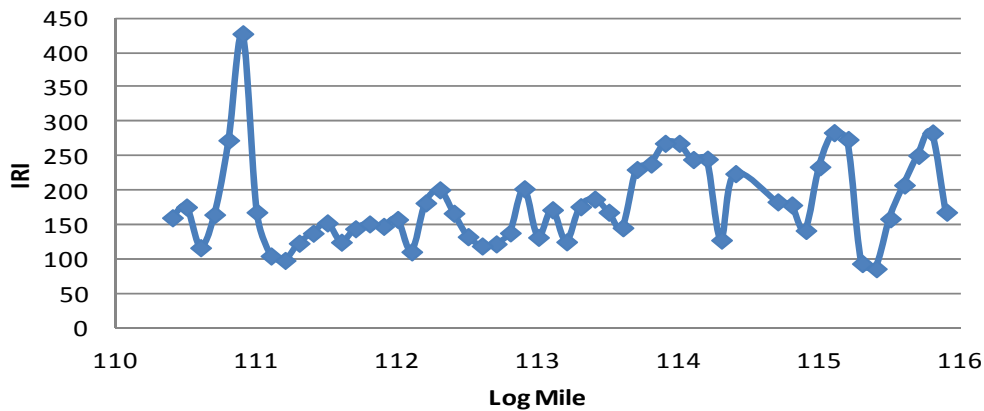


Figure 3. Westbound IRI

Rutting on the interstate ranged from 0.085 to 0.42 on an inch for the east and westbound lanes (**Figure 4** and **Figure 5**).

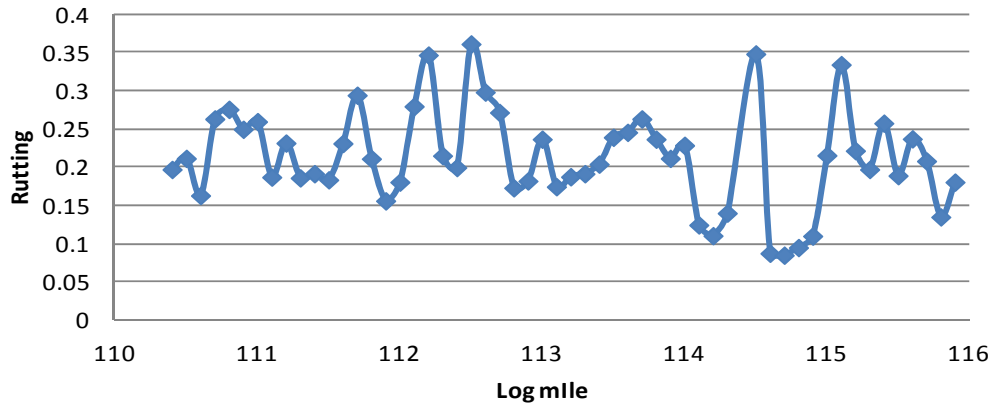


Figure 4. Eastbound Rutting

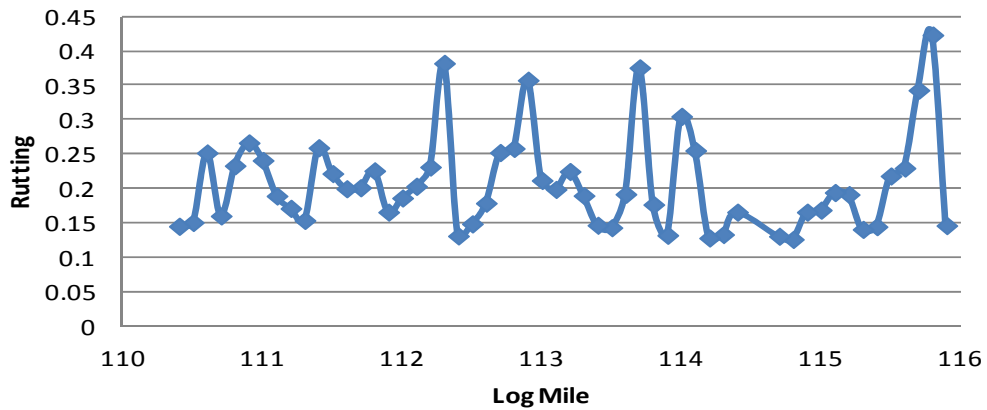


Figure 5. Westbound Rutting

The severe moisture damage at the joints has caused the joints to become wider than average reflection-crack joints. The joints ranged in width from one-half to three inches and many of the joints have been patched. Two examples of the pre-overlay joint condition can be seen in **Picture 1** and **Picture 2**.



Picture 1. Joint Condition



Picture 2. Joint Condition

Paving of the road began the night of July 11, 2012 and all paving was done at night due to the traffic on the Interstate. Paving was cancelled several nights due to rain. Overall construction of the overlay went well. There was an approximately half-mile section of joints that puffed up after paving. It was presumed that the puffy joints were caused by moisture in the joints from the rain.



Picture 3. Bump at Joint