

2016 INTERSTATE AND PARKWAY PAVEMENT CONDITION REPORT

Interstate and Parkway pavements are important for the economic well-being of Kentucky. These pavements carry vehicular traffic, commercial traffic and a large percentage of out of state visitors. Maintained pavements are important to tourism and industrial development, increase safety of our travelers, and reduce costs for our vehicles.

In early 2016 the newly created I-69 corridor shifted mileage from the Parkway system to the Interstate system. Currently, the Kentucky Transportation Cabinet (KYTC) maintains 4159 lane miles of Interstate pavement and 2161 lane miles of Parkway pavement.

The annual condition survey determines when a pavement is due for resurfacing or rehabilitation. Pavement distresses are quantified from visual observation and all lanes are tested for roughness. This data is used to express pavement condition as three performance measures: condition rating, average remaining service interval, and International Roughness Index (IRI).

Pavement Performance Measures

	2015 Lane Miles Evaluated	Condition Rating (%)			Average Remaining Service Interval		IRI (%)	
		Category	2015	2016	2015	2016	Category	
Interstate								
	AC 3179.8	Good	43	40	46%	43%	Good	88.0
	PCC 781.0	Fair	32	35			Fair	10.7
	All 3960.8	Poor	25	25			Poor	1.3
Parkway								
	AC 1931.7	Good	22	31	32%	31%	Good	88.9
	PCC 207.7	Fair	43	29			Fair	10.2
	All 2139.4	Poor	35	40			Poor	0.9

The purpose of a pavement is to provide a surface for vehicles to run over at appropriate speeds. A primary objective for ride quality testing is to gather information about the pavement that is sufficient to estimate the satisfaction of the traveling public. The International Roughness Index (IRI) is a measure of ride quality. The IRI classification used by KYTC is: Good 0-80, Fair 81-150, and Poor 151+.

On an average day, the total distance driven on Kentucky's entire state roadway network exceeds 100 million miles. Ideally, each of these miles would be driven on pavements in good condition. As a practical matter, however, priorities must be established which allow for the most efficient and flexible use of available resources. Since the ultimate purpose of Kentucky roadways is to serve the public, the KYTC places a higher emphasis on maintaining pavements with higher traffic volumes. To accomplish this, we use a sliding scale that holds high-traffic roadways to a higher standard of performance, rating the roadways as **good**, **fair** or **poor** depending upon the overall level of distress and the total traffic volume. A good pavement is smooth with few defects while a poor condition pavement is characterized by a rough ride and moderate to severe distresses.

Pavement Performance and Investment

In 2015, the KYTC let Interstate projects totaling \$42 million and Parkway projects totaling \$15 million. The spending will impact 241 lane miles of Interstate pavement and 60 lane miles of Parkway pavement. This represents nearly an 80% decrease in spending from the previous year. The loss of funding is expected to result in a decrease of pavement conditions within the next two years.

Multiple years of strong investments on the Interstate system have created a near steady system condition. Although spending totals were high, previous interstate spending focused heavily on rehabilitative treatments or structural overlays. These treatments are necessary for strategic goals, safety and improving pavement conditions. However, structural treatments have little impact on system condition because of the large expense to improve relatively few lane miles.

A strong preservation budget for treatments including concrete repair and diamond grinding, thin asphalt overlays and intermediate asphalt overlays is necessary to maintain and improve overall pavement conditions.

Two years of a preservation focused investment on the Parkways combined with the shift of Parkway mileage to the I-69 Interstate system have slightly improved the percentage of good pavement on the Parkway. However, the percentage of poor pavement has grown to 40%.

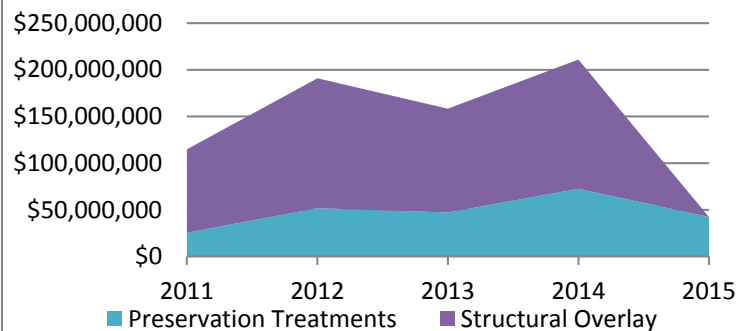
Today, nearly 50% of the Parkway system is on the three year needs list. The thin asphalt overlays recommended for the Parkway system alone will require over \$200 million by 2020.

Constrained budgets create an opportunity for KYTC to develop a full pavement preventive maintenance program to optimize system performance in a cost effective manner. Lower cost alternate treatments such as microsurface and asphalt thinlay can be used to address higher volumes of lane mileage. Creating a reliable and substantial preventive maintenance budget for Interstates and Parkways would have the potential to improve system conditions, decrease the burden of maintenance costs, and postpone more expensive treatments.

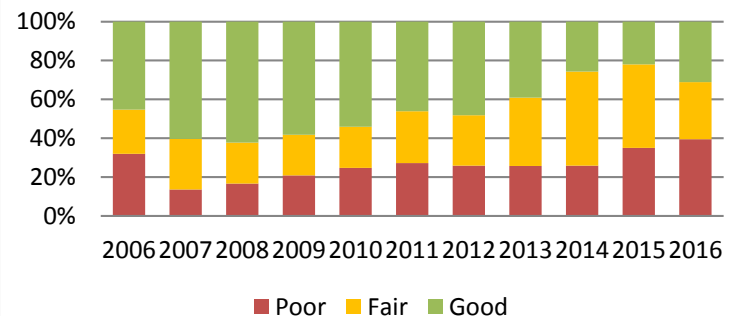
Interstate Condition Rating



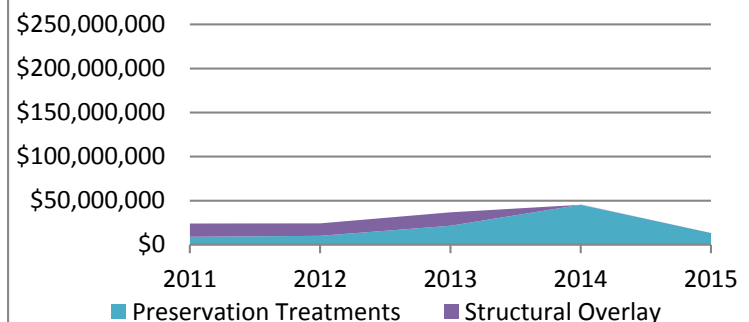
Interstate Spending



Parkway Condition Rating



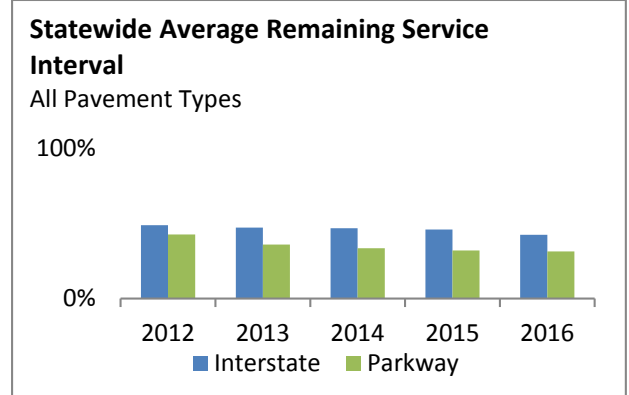
Parkway Spending



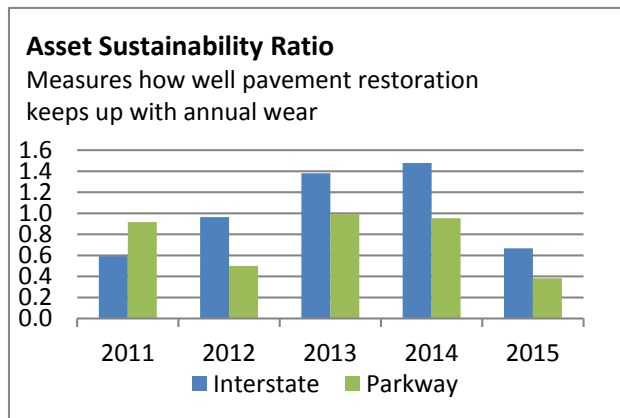
Remaining Service Interval

Remaining Service Interval (RSI) measures the number of years before treatment is required for any given pavement section. RSI is expressed as the average percentage of pavement life remaining.

The statewide average Remaining Service Interval is based on the most current condition evaluation and contracts let in the previous year. The RSI for Interstate pavement has remained near constant while the RSI for Parkway pavements continues to drop. Today, approximately 31% of the total pavement life remains for the Parkway system.



Asset Sustainability Ratio



The Asset Sustainability Ratio measures how well KYTC pavement preservation and rehabilitation keeps up with pavement wear. It explains how much life was put back into the pavement system during the year to restore the service consumed. The target for the Asset Sustainability Ratio is one, meaning KYTC is restoring the same amount of service life into the road network as it is consuming each year.

Using an ASR based on the most current average prices, the minimum budget to maintain current conditions is approximately \$70 million on the Interstates and \$45

million for Parkways. These numbers assume total investment in preservation with no structural overlays.

Past ASR showed growth of funding for the Interstates and unreliable investments for the Parkways. The most recent investment levels are well below the required funding to sustain system conditions.

Preservation Liability

Preservation liability is an estimate of the accumulated cost to fund the backlog of deferred pavement work.

Currently 1,804 lane miles of Interstate and Parkway pavement are identified as an immediate need. These projects total \$552 million.

Projecting the most current funding level of \$57 million forward, the liability for Interstates and Parkways is expected to near \$600 million by 2020.

