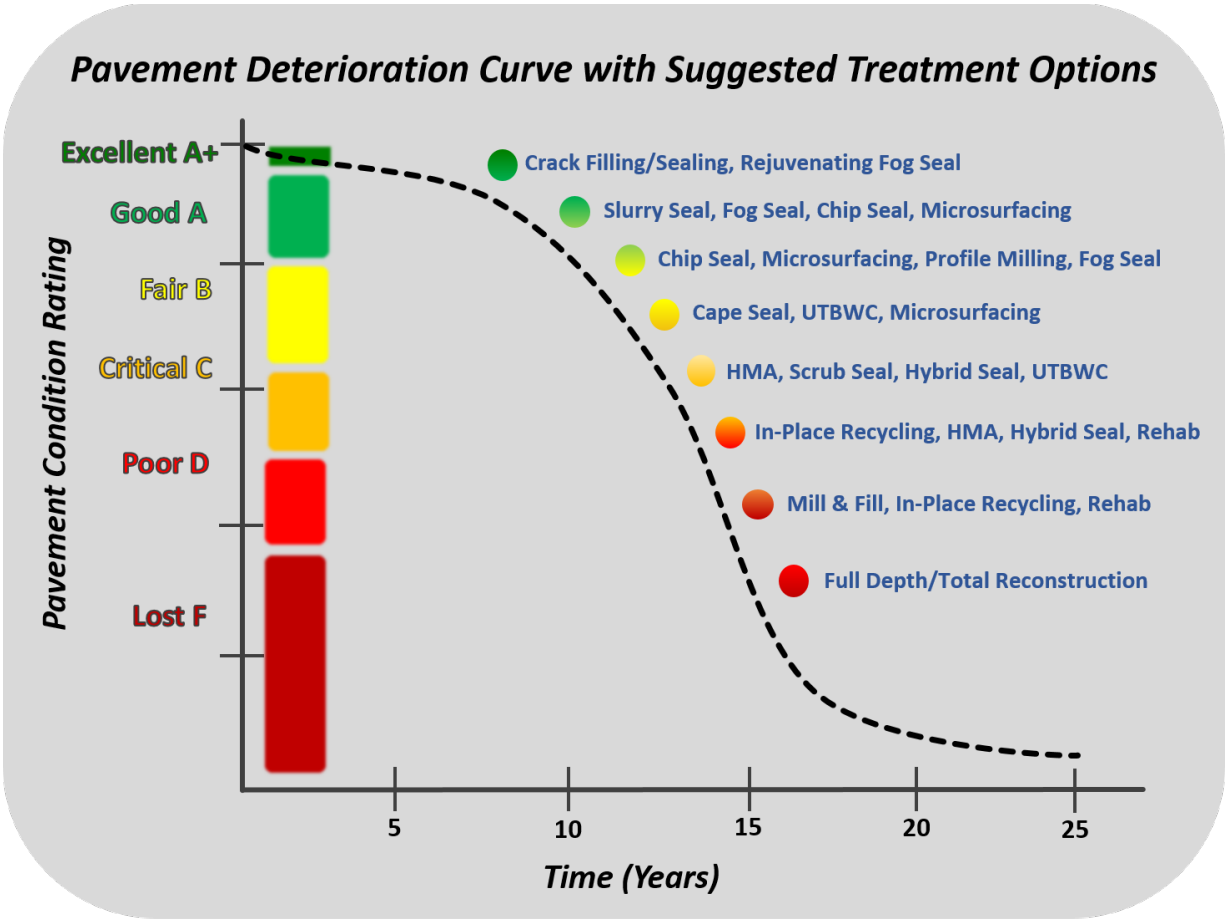
DETERIORATION CURVES

A discussion of features and factors affecting the condition of pavements over time.

There is nothing quite like the satisfaction of opening a newly constructed asphalt pavement to traffic. While the sense of accomplishment is great, it is important to remember that the roadway will deteriorate. . . every day. . . every month. . . every year. Even as you read this, your pavements are deteriorating. Thus, it is critical to have a maintenance plan for all pavements – not just the ones with severe signs of distress.

Deterioration Curves: When a pavement is new, it's condition is (or should be) excellent, but over time the condition begins to decline. The changes happen slowly at first, and accelerates as time goes on. The relationship of pavement condition over time can be described by a regression relationship and associated regression curve. The rate of deterioration is indicated by the slope of the line. As shown in the graph below, the beginning of the line is relatively flat, but then becomes steeper as time increases.



Deterioration Rate is Affected By:

Traffic
Weather
Subgrade Soil Stiffness
Construction Quality
Drainage Issues
Proactive Maintenance Practices

CAUTION: True regression curves can be difficult to define, and often vary. When traffic exceeds the design level for a roadway, or it is left in service beyond its design life, the pavement structure can become fatigued and fail. Conversely, a mild winter or limited rainfall can cause deterioration rates to slow, extending the effective life of the pavement. While general deterioration curves exist for given pavement types, actual deterioration rates will vary based on conditions experienced by each individual pavement structure.