Understanding how Sealcoating works... & How it can Save you Money.

Research has demonstrated that properly applied (& properly timed) Sealcoat can save the owner of a property $100,000 or more —
over the life of a hot mix asphalt pavement.

But what does Seal-Coat actually do that results in this Substantial Savings?

To understand how sealcoating works, it is necessary to understand the nature of the asphalt pavement itself. Because of its excellent waterproofing, flexibility, & adhesive properties to bind & hold the aggregates in the pavement, asphalt has been used extensively for paving & road construction. Prior to the advent of asphalt as a paving material, roads were constructed by spreading graded aggregates over a road bed. These roads worked well as long as the stones remained in place & stayed dry. Naturally, these roads needed constant repair. Stone would shift under the traffic & the road's load carrying capacity was severely damaged when it rained. The stone would absorb water, swell & lose its strength. But spraying asphalt on the surface overcame this problem somewhat. Asphalt paving technology gradually evolved & today the vast majority of all roads are constructed using asphalt as the binding material for the aggregates. Due to its waterproofing properties, asphalt protects the aggregates from absorbing water, thus preserving their strength & load-carrying capacities. Today's asphalt pavement is a mixture of stone aggregate & mineral filler combined with 4.5% to 12% (average of 6%) asphaltic binder (asphalt cement). The strength of an asphalt pavement is directly related to the pavement design from the ground up. The asphalt pavement people see is only the "roof," so to speak, of the entire pavement. This "roof" covers a bed of graded stone aggregates of varying depths according to ground conditions as well as traffic requirements. This base of aggregate is what really carries the load of the traffic. The same theory applies to off-street parking lots or drive-ways. A firm resilient surface that provides a roof over the stone base will keep the pavement bed dry. It is important to have an elastic characteristic in this pavement so that it can expand & contract & still remain intact.

Why Seal Asphalt?

In spite of its excellent adhesive & waterproofing properties, asphalt has some serious drawbacks that relate to its chemical makeup. Asphalt is a very complex mixture of thousands of chemicals which are predominantly open chain (aliphatic) in structure with a considerable degree of un-saturation within their molecular structure. The open chain provides easy access to weather, salts, & chemicals to attack & disintegrate the asphaltic molecules. As the asphaltic molecules disintegrate, the asphalt in the pavement loses much of its original properties, such as binding & waterproofing. The first visual sign of this phenomenon is a progressive change in the color of asphalt pavement from rich black to brown to gray. Furthermore, asphalt, being a byproduct of the petroleum distillation process, is easily dissolved by other products that also are derived from petroleum, such as oils, fats, grease, mineral spirits etc. The reason is quite logical: As petroleum, these various products existed together for millions of years. It is only through the petroleum refining process that they are separated for various uses. Because these individual products come from the same source, they have a natural affinity for one another & when put in contact with each other will try to join together again. So when automotive oil or gasoline — both petroleum distillates — leak onto an asphalt pavement, they will work to easily dissolve the similar chemicals in asphalt. These problems are associated primarily with off-street pavements such as parking lots, minor streets, airport aprons or runways, service stations, & home driveways, which carry low levels of traffic.

Roads, having the advantage of continuously rolling traffic, do not need protection because the rolling action of the traffic steadily brings the lower layers, rich in asphalt, to the surface & "kneads" the oxidized surface layers back into the pavement. Eventually all the asphalt binder is exhausted & the aggregates begin to unravel due to the absence of the binding cement. This happens to all pavement including roads. The rate of pavement deterioration depends upon the traffic volume as well as climatic conditions. The next step is the development of minor cracks which widen & deepen with time. If the cracks are not repaired at this stage, water seeps into the base courses & damages the pavement's load bearing capacity. It is evidenced by rutting, shifting, & serious alligatoring. The pavement then must be either overlaid or completely removed & reinstalled, depending on the condition. Off-street pavements do not have the advantage of this "kneading" action. The surface layers of off-road pavements are under continuous attack from the weather & other destructive elements, eventually developing minor surface cracks. Again, aggregates start unraveling producing minor cracks which widen & deepen with time. The damage will continue if proper protective actions are not taken. So it would be logical to conclude that off-street pavements can be preserved by a "protective coating" that resists attack by the elements that destroy the asphalt in the first place.

Sealcoating can Save Real Dollars for pavement owners.
Unsealed pavements will require repairs starting with the 2nd year & could require a 1" overlay as often as every seven years.Cost savings will be a substantial 65% if the pavement is maintained regularly. Estimated savings for a 10,000-sq.-yd. asphalt pavement are **$147,000** over 15 years.