



Your Road Commission of Kalamazoo County (RCKC)



CHANGING THE MINDSET ON CHIP SEAL

THE RCKC uses a variety of preventive maintenance techniques to preserve the condition of our roadways. A key preventative maintenance technique is a chip seal treatment. Chip seal is a preventative maintenance treatment in which the pavement is sprayed with asphalt emulsion, then immediately covered with aggregate and rolled (rotated) to its flattest side. The construction materials utilized in chip seal operations are the same materials used to construct hot mix asphalt (HMA) pavements. Chip seals are used to seal the wearing surface of an HMA pavement. A chip seal treatment preserves a pavement surface for up to a 10 year period as it prevents oxidization of the pavement surface and moisture infiltration, which reduces cracking and potholes.

Chip seal remains the most cost effective method to preserve our infrastructure. A chip seal treatment upon application, may appear to be a nuisance to the traveling public, but over time the treated surface improves; whereas a hot mix asphalt (HMA) treatment upon application is ideal, but then decreases rapidly in appearance and performance, without the use of preventative maintenance treatments.

The purpose of a chip seal treatment is to create a water proof membrane that protects the HMA surface from water infiltration and oxidization from the sun. The visual effects of surface deterioration is very evident and has been our determining factor leading to our 6 year chip seal cycle. New HMA surfaces that have aged to approximately 6 years show signs of minor surface voids (primarily caused by clay iron stone pops), minor transverse and longitudinal (primarily along the center construction joint) cracks, surface color fading (drying and aging of the asphalt cement) and exposed aggregate that was previously covered by "fines" (sand and asphalt cement).

Prior to 2016, the RCKC utilized a 6 year schedule to consistently perform chip seal treatments to our 449 miles of primary roads throughout Kalamazoo County. Our previous program incorporated a new HMA road surface in our chip seal plan to receive its first chip seal treatment on the 6th year after the road was improved with new HMA. This schedule delayed the first chip seal treatment until signs of surface deterioration were visually apparent. This has been an effective program overall, however experts suggest a change in application timing. By waiting 6 years to apply the first chip seal treatment, we allow the effects of the sun and water to deteriorate the top surface of the HMA.

In 2016, the RCKC will advance our chip seal program to a higher level by applying the first chip/fog seal treatment at the beginning stages of the HMA surface life (1-2 years after a new HMA surface is placed) for our primary road network. Performing earlier applications of chip seal will protect and preserve the new HMA surface and prevent the initial deterioration of an HMA surface, which will also extend the timeline for future

chip seal applications. Chip seal treatments performed at years 1-2 of age will also reduce the crack fill and HMA wedging costs due to improved surface condition and advanced preventive maintenance.

A fog seal treatment will also be applied with our 2016, primary road chip seal projects to assist in reducing loose stone and dust associated with a new chip seal treatment. A fog seal treatment is a light application of asphalt emulsion diluted with water applied to the surface of a bituminous pavement or recent chip seal. The fog seal treatment will create a black surface that appears to resemble new HMA. The black surface of a fog seal treatment also assists with pavement marking contrast and has value to RCKC's winter maintenance operations as the black surface absorbs heat and assists with the melting of snow and ice.

Together, we need to change the mindset of chip seals on our road network, both in timing and importance of this preventative maintenance tool. So this summer, when you see a chip seal treatment on a roadway, please think of it as a positive effort to effectively maintain our public road system, prolong future maintenance and capitalizing on our financial resources.

See our website page at www.kalamazoocountyroads.com for projects, chip seal brochure and service requests.

