



## McHenry County Division of Transportation *Celebrating 100 Years, 1913-2013*

Each month this year, a new article celebrating the 100 year anniversary of the McHenry County Division of Transportation will be featured in the Northwest Herald. The fourth article, printed on May 1st, covered the MCDOT pavement management system. Watch for the fifth article on the Adopt a Highway program to be published at the end of May.



Example of Crack Sealing Treatment

### McHenry County Proactive in Preserving our Pavement

When the need to pave roads began over 100 years ago in Illinois, little thought given to how they would eventually be maintained after we would get “out of the mud”. We’ll take a look this month about how we maintain our roads today making them last as long as possible.

Around 1900, oil lamps were still being used everywhere as electricity had yet to go mainstream. When the lamp oil was refined making kerosene, a by-product was created. This “useless” byproduct, gasoline, was thought useless as being too explosive and was disposed of until the internal combustion engine opened new doors. Now with the oil being refined further to get more gasoline, a new byproduct was created. This black stuff, asphalt, again wasn’t thought of to have much use. Being relatively sticky and gooey, it started being applied to dirt and gravel roads to keep the dust down. However, that method had little to do with adding strength to the road.

With the car becoming used more, the call from the masses was to “get out of the mud” and make the roads stronger. To build an asphalt road, you need the right mix of asphalt with rocks. Not just any rocks. The makeup of the rocks (aggregate) has to be precise for it all to work. Different amounts of sand, gravel and stone are needed to make asphalt the effective “glue” making it all stick together creating strength. Concrete is used in the same manner with the “glue” part being cement but is generally more expensive. In the US today, over 95% of the roads are paved with asphalt.

In spite of asphalt’s usefulness, it is still susceptible to environmental conditions such as aging, freeze-thaw cycles, and structural damage resulting from heavy traffic.

Fast forward to more recent history; through the 1990’s the McHenry County Division of Transportation (MCDOT) was able to resurface each County Highway once every ten years. Unfortunately, with over 225 centerline miles of County maintained highways, economic conditions within the transportation industry prevented this from continuing as construction costs (specifically, the cost of asphalt) rose dramatically in the early 2000’s.

In response, the MCDOT devised a plan and initiated its first pavement preservation program in 2006. Pavement preservation applies specific treatments to extend the life of pavements at the right time. The premise is to maintain good pavements in good condition for longer periods of time while poorer pavements may be deferred to eventual reconstruction. At the basic level, pavement preservation applies the right treatment, to the right road, at the right time.

The first treatment to a new road is typically crack sealing. This relatively inexpensive treatment is applied early and possibly multiple times throughout a pavement’s lifespan to reduce water infiltration below the surface. Crack sealed roads throughout the County can easily be recognized by the tell-tale black lines running along and across the road surface.

As a pavement ages further with at least one round of crack sealing, a more complex treatment is used. The MCDOT will look to apply an intermediate treatment such as a Thin Lift Overlay or Micro-surfacing to protect and extend the life of the surface.

In spite of the MCDOT’s best efforts to preserve and prolong the road, it inevitably deteriorates to a point where more extensive treatments are required to restore the pavement. In such cases, the County employs its tried and true process of milling and resurfacing. Here, roughly 4 inches of asphalt are milled away and replaced with new asphalt surface. The goal with this treatment is to provide a 20-year pavement surface life before major reconstruction is necessary.

Ultimately, the pavement deteriorates to a point where the above methods are of little use. Why does this happen? Over the years, water infiltrating the pavement does damage below the surface that we can’t see. Those roads with countless potholes or those that make you feel like you’re driving on endless rumble strips are usually those due for an overhaul, top to bottom.

Part of the MCDOT’s pavement preservation program is the use of a computerized pavement management system (PMS). This innovative system allows the MCDOT to make well informed decisions about its roads. In fact, McHenry County is among only a handful of local transportation agencies within Illinois committed to such a proactive solution to pavement management and preservation.

The MCDOT contracts out special vehicles with onboard computers, sensors, and cameras looking at the distresses in the pavement. Pavement cores are also collected showing us the makeup of the pavement top to bottom. This data is then analyzed and a historical record of what past treatment has been done on the roads allows engineers to better predict how long the roads will last.

All this is done to make sure the County Highways last as long as possible getting people and goods safely and efficiently around McHenry County at the lowest taxpayer cost as possible.

To find out where the MCDOT is preserving pavement this summer, visit the MCDOT’s website for an interactive map. You can also follow our progress on our construction projects through Facebook. Visit [www.McHenryCountyDOT.org](http://www.McHenryCountyDOT.org) to learn more. Happy and Safe travels!



Thin Lift Overlay on Charles Road

The McHenry County Division of Transportation is now on Facebook!

Visit [McHenryCountyDOT.org](http://McHenryCountyDOT.org) for more information.

