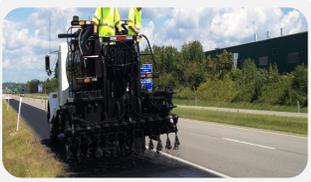


Ultra-thin Bonded Asphalt Surface (UBAS) - (Est \$682,000) - (Cont.)

has been used to help extend the life of many roads around the State of Kansas. It consists of a thin, coarse aggregate hot mix over a special asphalt membrane similar to a chip seal but placed in one pass with a spray paver. The membrane prevents water intrusion and provides a superior bond to the old asphalt. The overlay can disperse water quickly off the surface, which reduces roadway spray from vehicles and provides greater visibility in wet weather. UBAS can be installed quickly and asserts a longer life-span than micro-surfacing (10 years). This treatment cost is estimated at \$5.00 per square yard (2016), and 19.7 lane miles are proposed for 2017.

Mastic Surface Treatment (Est \$20,000)

This preventative thin surface maintenance tool is used to help extend the life of a road by placing a mixture of asphalt emulsion, fine aggregate, polymers and catalysts over an asphalt surface that is minimally distressed but shows signs of weathering. The theory is that rejuvenating the surface of an asphalt pavement earlier and at less cost with a very thin treatment may keep surface weathering and cracks from forming pre-maturely. Lower volume streets treated with mastic surface treatment should see similar life-span results as other surface treatments. This treatment cost is estimated at \$1.50 per square yard (2016), and 3.1 lane miles are proposed for 2017.



Major & Minor Concrete Rehab (Est \$430,000 and \$200,000)

The Concrete Pavement Rehabilitation projects include large scale depth removal and replacement (major) and smaller scale patching and localized repair (minor) of concrete pavements. This treatment cost is estimated at \$78.52 per square yard for the major project (2014), and 1.5 lane miles are proposed for 2017.



Brick Street Rehab (Est \$99,000)

This project also includes some work to repair heaved and settled brick pavement, curb and gutter, sidewalks and alley entrance pavement. This treatment cost is estimated at \$192.00 per square yard, and 517 square yards are proposed for 2017.

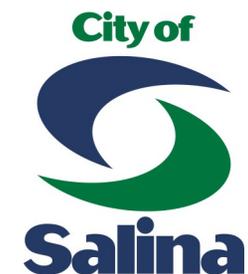
**Department of Public Works
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2017 Contract Street Maintenance



**DEPARTMENT OF
PUBLIC WORKS**

With the passage of the new sales tax, significant dollars will be dedicated to improving our City streets. The City has 733 lane miles (273 centerline miles) of roadway pavements to maintain. These new dollars are necessary to improve our street network and to try and “keep the good roads good” as better stated below. These funds will also be used to better repair neighborhood streets, perform heavier surfacing actions and ultimately complete more miles of work.

“Delayed and deferred maintenance leads to higher repair and reconstruction costs—pay me now or pay me more, lots more, later. Michigan DOT Director Kirk L. Steudle said, “It is important to slow the rate of decline in the good road so that it stays in good shape rather than slipping into fair or poor condition.” Spending \$1 to keep a road in good condition prevents spending \$7 to reconstruct it once it has fallen into poor condition, he added.” (Rough Roads Ahead – 2009 AASHTO)

Pavement Sealing (Est. \$400,000)

The annual crack sealing project is the most essential preventative maintenance component of our annual street repair program. A rubberized sealant is applied to cracks larger than one quarter inch on asphalt pavements. Loose debris and pavement material is typically removed with a high pressure blower prior to sealant installation. This prevents water and incompressible material from migrating into the pavement layer or sub-grade. City Public Works Streets staff perform wide crack repair for larger cracks over 1.5 inches in width. Arterial,



collector and local streets are estimated to be sealed on a 3, 4 and 5 year cycle respectively. Cost is \$1.05 per pound (2016), and 66 lane miles are proposed for 2017.

Mill & Inlay (Est. \$1,500,000)

This project is a major maintenance component of the 2017 Street Repair Program due to the much larger amount of money being dedicated to arterial, collector and local streets as well. The existing asphalt is milled a minimum of 1.5 inches and replaced with hot mix asphalt to rehabilitate and preserve the pavement section. This surface mill and inlay maintenance process, when used with periodic crack sealing and thin surface treatments, helps preserve and extend the life of asphalt streets. Arterial, collector and local streets are estimated for overlay on a 12, 24 and 34 year cycle respectively, while also taking pavement condition surveys into account. Cost is \$10.38 per square yard (2016), and 18.8 lane miles are proposed for 2017.



Chip Sealing (Est \$183,000)

This type of preventative maintenance treatment was restarted in Salina in 2015 as a more economical alternative attempting to complete more street sealing on an annual basis. A chip seal involves spraying an emulsified asphalt product onto an existing road, spreading clean graded aggregate over the oil, rolling over the combined product to embed the aggregate into the emulsified asphalt layer and then sweep-



ing and disposing of excess aggregate. This type of treatment is a very cost-effective method to provide pavement preservation of the underlying asphalt surface while improving skid resistance. Some drawbacks to chip seals are that they can create a rougher and noisier driving surface. Also, much care should be taken during the application process to avoid asphalt material tracking or getting onto cars, and the aggregate becoming loose to damage vehicles. These drawbacks are mitigated significantly when used on lower speed roads and in areas with less traffic congestion or driveways. Streets are estimated for chip seal or micro-surface on a 6 to 7 year cycle, while also considering pavement surveys. Cost is \$2.26 per square yard (2016), and 4.5 lane miles are proposed for 2017.

Micro-Surfacing (Est \$685,000)

Micro-surfacing is the most common street preservation treatment in Salina and consists of polymer modified asphalt slurry that coats the pavement surface and creates a smooth moisture-resistant barrier. It also increases ride-ability and seals smaller asphalt cracks. Combined with proper pavement sealing, micro-surfacing extends the service life of the roadway. Streets are estimated for micro-surface or chip seal on a 6 to 7 year cycle, while also considering pavement condition surveys. This treatment cost is estimated at \$2.55 per square yard (2016), and 29.4 lane miles are planned for 2017.



Ultra-thin Bonded Asphalt Surface (UBAS) - (Est \$682,000)

This type of preventative maintenance is new to Salina but