

## Office of the City Engineer

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**To:** Alderman McCarthy, Chairman  
Public Works & Services Committee

**From:** John C. Rooney, Asst. Commissioner of Public Works/City Engineer

**RE:** 1148-17  
2017 Pavement Management System Summary Report

This item pertains to the 2017 Pavement Management System Summary Report submitted to the City of Racine. AECOM Technical Services was hired by the City of Racine to perform this annual work. Inspections of roads functionally classified as Local occur every four years while roads functionally classified as Highway, Arterial, or Collector occur every two years. Approximately one-fourth (1/4) of the 176.0 miles of Local roads and one-half (1/2) of the 21.5 miles of Collector, 43.1 miles of Arterial, and 12.9 miles of Highway are inspected every year. The pavements are inventoried by pavement type and width, and estimated construction costs are compiled for several rehabilitation strategies used to determine how to best extend the useful life of the pavements. The pavements are also inspected for distresses in accordance with the APWA Pavement Condition Index (PCI) rating system. Current City of Racine policy considers highways, arterials or collectors with a PCI of 35 and locals with a PCI of 25 to be the minimum acceptable service levels.

Today the City of Racine pavement network has an approximate initial investment value (or replacement value) of almost \$307 million in 2017 dollars. This compares to \$303 million in 2016 dollars. The PCI rating is used to determine which types of rehabilitation strategies (resurfacing, crack filling, joint replacement, etc.) provides the most cost effective way to extend the useful life of pavements or determine when roads need to be reconstructed or resurfaced. The average PCI for the entire pavement network is currently about 69. The general trend in PCI rating over time has been slowly upward to a peak of 72 in 2007, and then has seen a slight decrease and then a plateau the last few years of around 69. This recent average hovers around the boundary of Very Good to Good pavement ranges. Because of good pavement management practices through maintenance or rehabilitation this is possible, and recent data shows that today similar aged pavements from 20 years ago have higher PCI values. Decreased maintenance will have an effect on average PCI. For example, the latest model shows concrete Collector streets with a useful life of 68 years, where back in 1996 the same pavement functional classification and material type had a predicted useful life of 60 years based on an a minimum acceptable PCI rating of 40. However, it should be noted that the yearly improvement in life appears to have reached a plateau in 2013, with a predicted useful life of 70 years. In my opinion, this is related to the reduction in maintenance actions dictated by recent budget constraints. This includes the elimination of concrete joint and slab replacement, in lieu of bitu-mastic applications that provide no useful extension of concrete service life.

Of the \$307 million in current replacement value, the remaining useful value is estimated at \$178 million. This is determined by 100 PCI minus its minimum acceptable PCI. This percentage of remaining value, or \$178 million, reveals a pavement system with significant remaining pavement value worth maintaining. Based on estimated deterioration rates of the age of the pavements, the pavements as a whole are losing about \$5.8 million in value per year. The City of Racine should be investing this amount annually, and this value should be compared with the annual investment consisting of all Capital Improvement Program. In the 2018 proposed budget the pavement investment is proposed at \$9.75 million, of which only \$4.37 million is GOB debt. The remaining is from WisDOT (\$3.6M), CDBG funds (\$0.38M), utility funds (\$0.5M) and assessments (\$0.9M). What is particularly interesting to note is only 5% of the City of Racine's lane miles are WisDOT connecting highways, yet WisDOT is funding nearly 37% of our capital paving next year. In previous years, the local share of pavement funding rarely matched the annual loss in pavement value. This is why every funding option (e.g. CDBG) is needed to maintain a PCI that keeps the pavement value loss from increasing. In addition, another huge component of pavement management that cannot be overlooked is an adequately funded Operations and Maintenance budget as well.

The report becomes a useful budgeting tool in managing the City of Racine pavement assets. The City of Racine's overall story based on historical PCI distribution is the following:

- Increasing numbers of high-performing pavements
- Addressing the backlog of low-performing pavements where feasible
- Preservation of high and mid-performing pavements.

This result is consistent with good asset management practices. It is my recommendation that the committee receives and file the report.