

UTC Project Information	
Project Title	MPC 441 – Developing a Pavement Management System for Small Communities
University	University of Wisconsin-Milwaukee
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Funding Agencies	USDOT, Research and Innovative Technology Administration
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Project Cost	\$85,000
Start and End Dates	January 1, 2014- June 30, 2016
Project Duration	2.5 Year
Brief Description of Research Project	<p>Transportation infrastructure (such as road, bridges, bicycle path, and pedestrian walks) plays a big role in the city public works since it is directly related to community planning and public safety. There is an obvious need that an efficient management tool should be developed for resource allocating, decision making and long-range planning. Significant advances have been made during the last decade in developing infrastructure asset management systems. However, municipal cities have difficulties in implementing asset management systems for various reasons, including inadequate staff and limited usage of condition and inventory data, a lack of training, and others. A small city, for example, might have a limited budget for infrastructure maintenance and a shortage of manpower and technical resources. Therefore, research is needed to review the current practice on transportation asset management at county and municipal levels and provide useful recommendations to local government agencies.</p> <p>Pavement management is a concept that involves the coordination, scheduling, and accomplishment of all activities performed by a</p>

	<p>highway agency in the process of providing adequate pavements for the public. The system approach to pavement management is a rational, highly structured process that attempts to achieve the best value possible for the public funds expended to provide pavements. Of course, management decisions are made each day in the course of normal operations of highway agencies. The purpose of a pavement management system (PMS) is to improve the efficiency of this decision-making process, expand its scope, provide feedback regarding the consequences of decisions and the results of activities, and ensure the consistency of decisions made at different levels within the same organization.</p> <p>A major objective of a pavement management system (PMS) is to assist highway engineers in making consistent and cost-effective decisions related to maintenance and rehabilitation of pavement. The effective pavement management system comprises four distinct but interrelated components: database, pavement rating system, prediction model, and ranking method for selection of annual maintenance and rehabilitation (M&R) program</p> <p>Research Objectives: The goal of this project is to provide the City of Madison with a Pavement Management System that is capable to carry the following specific objectives:</p> <ul style="list-style-type: none"> • Build a city-wide PMS database from historic data and field survey • Identify feasible pavement rehabilitation strategies for the City roads • Recommend multi-year rehabilitation plans for different budget scenarios
<p>Describe Implementation of Research Outcomes (or why not implemented)</p> <p>Place Any Photos Here</p>	<p>Based on the road condition survey in 2014, nearly 60% of the current pavement in Madison, SD, can be considered as good (PCI>70). The most common pavement distress types for asphalt pavement are longitudinal cracking, rutting, block cracking, and alligator cracking; and linear cracking, large patch/utility cut for concrete pavement. Analysis shows that pavement maintenance in Madison is underfunded. Required funding for backlog elimination by the end of 2020 is about 2.90 million/year, which is far more than city's current budget. The current budget cannot even maintain the same level of pavement performance by 2020. Hence, additional funding is recommended for pavement maintenance and repair. Within the projected city budget for road repair, two plans were recommended among a range of M&R plans for their better pavement performance after optimizing major repair sequence and selecting appropriate preventive M&R strategies.</p>

<p>Impacts/Benefits of Implementation (actual, not anticipated)</p>	<p>This study presents the flexible and practical process of implementing a PMS in a small community, Madison, SD. The solutions and strategies used during the implementation can be transferred and applied to other small communities with similar issues and circumstances. The intent is to advance knowledge of preserving pavement and promote the use of PMS at small communities.</p>
<p>Web Links</p> <ul style="list-style-type: none">• Reports• Project Website	<p>http://www.ugpti.org/resources/reports/details.php?id=861</p>