

**Project Information Form**

Project Title:	The Application of Permeable Pavement with Emphasis on Successful Design, Water Quality Benefits, and Identification of Knowledge and Data Gaps
University:	University of California, Davis
Principal Investigator:	Masoud Kayhanian
PI Contact Information:	Phone: 530-752-8957 Email: mdkayhanian@ucdavis.edu
Funding Source(s) and Amounts Provided (by each agency or organization):	California Department of Transportation (Caltrans) - \$29,006.57
Total Project Cost:	\$29,006.57
Agency ID or Contract Number:	UCD-CT-TO-008 Caltrans 65A0527 Task Order 008
Start and End Dates:	October 1, 2014 – September 30, 2015
Brief Description of Research Project:	<p>Currently, the majority of the successful permeable pavement installations are related to parking lots and other commercial areas with low speed and light traffic load. During the past two decades tremendous progress has been made with regards to the application of permeable pavements with issues related to structural design, hydrologic design, water quality, and surface clogging. However, several important research questions remain unresolved and must be addressed before permeable pavements are fully integrated and implemented in urban roads; especially in highways with higher speeds and loads.</p> <p>This paper focuses on successful application of permeable pavement design and performance with special emphasis on stormwater management, water quality benefits, and identification of knowledge and data gaps. The paper provides a summary of the current practice and design methods, discusses the potential application of permeable pavement for highway environment, summarizes the research progress documented in the literature related to mixed design, hydrologic performance, maintenance, water quality benefits, identifies knowledge gaps and unresolved issues, and explores the future direction in permeable pavement application.</p>
Describe Implementation of Research Outcomes (or why not implemented): Place any photos here	Permeable pavement is considered as an alternative low impact development (LID) method to manage stormwater runoff and the associated pollutants from urban areas. Numerous permeable pavement designs have been installed in parking lots, commercial areas, sidewalks,



## National Center for Sustainable Transportation

	<p>and residential roads in the U.S. and elsewhere in the world. The application of permeable pavement in highways is more challenging due to heavy load and high speed. However, Caltrans and other DOTs are seriously considering implementing fully permeable pavement shoulder design that will act as a best management practice (BMP) to retain stormwater and prevent discharge of pollution to the environment during storms.</p>
Impacts/Benefits of Implementation (actual, not anticipated):	
Web Links <ul style="list-style-type: none"><li>• Reports</li><li>• Project website</li></ul>	<p><a href="https://ncst.ucdavis.edu/project/ucd-ct-to-008/">https://ncst.ucdavis.edu/project/ucd-ct-to-008/</a></p>