

# **EVALUATION OF THE SERVICE PERFORMANCE OF AN INNOVATIVE PRECAST PRESTRESSED CONCRETE PAVEMENT**

**Grant C. Luckenbill, E.I.**

**Dr. Vellore S. Gopalaratnam, Thesis Advisor**

## **ABSTRACT**

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Precast Prestressed Concrete Pavement (PPCP) is the product of an optimization of conventional materials coupled with economical fabrication and transportation means to create a product that exceeds the performance and implementation of current pavement rehabilitation methods. PPCP results in a more efficient, thinner section translating to material savings as well as improved long-term durability. Precast pavement allows faster replacement and rehabilitation of existing roadways as well as providing an economical alternative for new construction to minimize undesirable traffic congestion that causes increased fuel consumption and lost productivity. This project, near Sikeston, MO on Interstate 57, explored feasibility of current construction methods and service performance of precast roadway panels subjected to an adverse 'Midwest environment' (extreme temperatures in summer accompanying deicing salts in winter). Evaluation of results from the investigation include: (a) construction challenges that may affect long term durability (b) local and global prestress distributions within PPCP (c) traffic loadings (d) daily thermal loadings (e) weekly and seasonal temperature variations and corresponding pavement behavior. Visual performance surveys over the one year long evaluation period are discussed.