Project #11108 – Impact of Nighttime Construction on Work Quality

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There is an increasing demand among state and federal transportation agencies for scheduling roadway and highway work during nighttime to alleviate daytime traffic congestion. However, there is a lack of 1) empirical evidence to determine whether nighttime construction impacts the quality of the finished work, 2) comparison on the influence of different nighttime construction factors on quality as opposed to the comparison between nighttime and daytime construction, and 3) understanding of the influence of quality on long-term maintenance and repair costs. We propose an experimental design not only to compare nighttime to daytime quality but also to determine the influence of varying nighttime factors on the quality of the finished work. A set of quality parameters will be measured for up to 10 similar construction operations for both daytime and nighttime conditions. Data on the quality of the finished work and on nighttime factors influencing the quality of the finished work will be recorded. Then statistical methods will be utilized 1) to assess the differences between the nighttime and daytime construction on the quality of the finished work and 2) to correlate the influence of nighttime factors with the quality of the performed work.

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