

## Comparative Evaluation of Deflection and Wave Propagation NDT Methods Pavements

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In New York City, as in other highly urbanized areas, a number of factors make it too difficult to apply pavement management systems methodology in the traditional way:

- the existence of underground utilities and utility cuts
- the potential of future patching which affects pavement performance
- the fact that more than 70 % of NYC pavements are composite pavements, which are not suited for Non-Destructive Testing (NDT) analysis techniques.

The objective of this project is to develop a NDT-based framework to effectively manage urban pavements at the project level. This framework incorporates the conditions of underground utilities, type of pavement, existing patches and future patching into the decision making process. In order to accomplish this objective, a three-stage plan was designed. The first two stages have been executed in this Phase I, while the third one will be performed in the next phase.



In stage 1, a variety of NDT techniques in the urban environment were examined. The objective of this stage was to develop a better understanding of the capabilities of some NDT techniques, namely, Falling Weight Deflectometer (FWD) and Spectral Analysis of Surface Waves (SASW), and to identify the areas of strength and weakness of each technique. In stage 2, an NDT-based framework was developed to effectively manage urban pavements at the project level. In stage 3, the proposed framework will be evaluated and validated by applying it in a NYC street.

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