

## Addressing Rail Noise and Vibration Concerns in Downtown Areas near Historic Properties

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Impacts from rail noise and vibration are commonly one of the biggest environmental concerns for projects located in downtown areas. The presentation will discuss some of the typical concerns and challenges in assessing noise and vibration for these types of projects, as well as specific issues encountered on a recent study. The example project involved evaluating potential increases in passenger rail service for a 5-mile long, single track corridor with existing passenger and freight rail. The rail corridor runs through a downtown area with numerous at-grade crossings and nearby residential and commercial land use. A noise and vibration impact assessment was completed following Federal Transit Administration (FTA) methods. Because the project area would be exposed to noise from both future passenger and freight rail, one of the challenges was to clearly separate and evaluate noise associated with the proposed passenger rail project from noise due to potential future increases in freight rail activities. To mitigate expected project noise impacts, measures such as noise barriers and the implementation of a quiet zone were considered. In addition, a historically significant building designed by Frank Lloyd Wright was located immediately adjacent to the rail track. There were concerns that increased rail service could damage the structure or adversely affect the interior use of the building. To assess these concerns, a site-specific noise and vibration study was completed for the house and results were evaluated against criteria guideline limits for human annoyance and property damage intended to protect historic sites.