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Can't Hear the Train Comin': Passenger Exposure to Noise at Los Angeles Transit Platforms

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CAN'T HEAR THE TRAIN A COMIN'

Passenger Exposure to Noise at Los Angeles Transit Platforms

Alexander Schaffer - 2012

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RESEARCH TOPIC

There are 16 transit stations located inside highway medians in Los Angeles County, and passengers on these station platforms are subjected to high levels of noise produced by nearby highway traffic. Exposure to these elevated sound volumes makes waiting for a bus or train unpleasant at best, and potentially harmful to passengers' health. Researchers have shown a conclusive link between hearing loss and exposure to high ambient noise levels, and daily commuters, who use stations in noisy highway medians, over the course of many years may suffer from hearing loss and damage to circulatory systems.



This study examines the noise levels at these stations with three specific goals:

- **Determining which stations experience the most noise**
- **Identifying why noise levels vary from station to station**
- **Suggesting design features that could reduce noise levels**

RECOMMENDATIONS

Metro should consider installing sound walls, additional benches, and enclosed waiting areas at stations in highway medians, and it should prioritize stations along the Green Line. The results of this study should serve as a warning to Metro and other agencies that may wish to build new transit stations in highway medians: the apparent savings in construction costs may be offset by the loss of passengers put off by the unpleasant and potentially unhealthy waiting environment.



STUDY

We measured noise levels on all 16 highway-centered transit stations in the Los Angeles area, recording 560 individual readings over a period of three weeks in late 2011 and early 2012. We used a Quest NoisePro DLX dosimeter to take readings at different times of day and varied days of the week, and recorded noise levels at different locations on each platform.



MAIN FINDINGS

- **At the stations in the study area, average decibel readings ranged from the high 70's to high 80's**, the equivalent of standing close to a passing truck or a kitchen blender. The noise from freeway traffic travelling at high speeds is exacerbated by the presence of station features, such as concrete canopies, that reflect noise back onto the platform.
- **Much of the variation in noise levels is due to factors that cannot be controlled** by the design and layout of the station: the number, speed and type of vehicles traveling on the adjacent freeway lanes play a large role in the overall noise level at stations.
- **Results indicate that benches, walls, and canopies are the design features most responsible for influencing noise at stations.** In particular, concrete canopies that protect riders from the sun and rain actually create a marked increase in the noise level, while large benches and sound walls offer some relief from noise.
- **The feeling of annoyance from noise exposure is well established and warrants further study** in two key areas: (1) the health effects of exposure to noise on transit platforms and (2) mitigation methods that dampen or deflect noise in station areas.