

## Lessons learned from dark fiber distributed arrays in a large urban campus

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We have deployed a distributed acoustic sensing (DAS) array using dark fiber across the urban campus of the University of Wisconsin-Madison. During two weeks, a Silixa iDAS interrogator was used to target campus traffic, railway activity, commercial movements across busy thoroughfares, sporting events, and a carillon concert. These events were captured on the DAS array and used to assess the performance of dark fiber for the deployment in city-wide and regional monitoring systems. This deployment faced challenges related to the mapping of the cable, the coupling of the optic fiber to conduits and near-surface ground, and multiple sources from different locations acting simultaneously. The lessons learned from these studies can be used to develop a better sensing array and make greater use of existing communication infrastructure.

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