



CASE STUDY

Quantify Mixed-Use Development Trip Generation

CHALLENGE

The MXD Travel model is a tool for assessing trip generation, mode split and vehicle miles traveled (VMT) for mixed use development. Research done by Fehr & Peers, an innovative Transportation Planning consulting firm, along with the EPA and others has shown that a mix of uses within close proximity to one another can induce shorter trips, and allows residents and employees of an area to drive significantly less if they choose.

SOLUTION

Research consistently shows that neighborhoods that mix land uses, are near other development, and make walking safe and convenient allow residents and workers to drive significantly less, if they choose. In fact, in the most centrally located, well-designed neighborhoods, residents drive as little as half as much as residents of outlying areas.

Fehr & Peer's MXD+ tool utilizes research from two major studies to more accurately predict vehicle trip generation from MXDs. These studies identify key relationships between the mode of travel and the built environment.

VESTRA was contracted by Fehr & Peers to develop a web-based version of their MXD+ application. MXD+ is used to quantify Mixed-Use Development Trip Generation, and is based on Fehr & Peers' unique approach to accurately identify key relationships between the mode of travel and the build environment.

Working in close collaboration with the Fehr & Peers project team, VESTRA designed the technical platform for MXD+ and developed the application. The deployed solution includes dynamic mapping capabilities using Esri's ArcGIS software, coupled with an intuitive, multi-step workflow that walks end-users through the MXD+ modeling process.

The tool uses Esri's ArcGIS for Server, ArcGIS API for JavaScript, and Python scripting for geoprocessing. The math for the tool that was once done in Excel is now done through geoprocessing services.

BENEFIT

The MXD trip generation method, recommended by the United States Environmental Protection Agency (EPA), has been used in traffic impact reports in certified environmental documents, and has been adopted by organizations such as the San Diego Association of Governments (SANDAG) as a recommended resource for trip generation of smart growth developments.