

# MXD Tool Factsheet

## Overview

The MXD modeling tool is used to estimate the number of vehicle trips generated by individual development sites from 2 to 5,000 acres. Traditionally, these estimates are calculated using the Institute of Transportation Engineers (ITE) *Trip Generation Handbook*. However, these ITE rates typically overstate the number of vehicle trips generated by types of Smart Growth development including mixed-use, infill and transit-oriented developments. The MXD tool more accurately captures the trip-reducing benefits of mixed-use development projects, and is used throughout the U.S. to help developers, agencies, and the public quantify these trip reductions.

MXD adjusts ITE or other “suburban” trip generation estimates downward to account for:

- Trips that remain within the development
- Trips that enter or leave via walk or bike modes

## Tool Development

The MXD method was developed by Fehr & Peers through a national study for the US EPA to more accurately predict vehicle trips by accounting for the Smart Growth (or “D”) characteristics of the development site and its surrounding built environment. These inputs include:

- Density
- Diversity (mix) of land uses
- Design/connectivity for pedestrians
- Destination accessibility
- Distance to transit
- Demographics
- Development scale

The method is based on household travel surveys from 239 mixed-use developments throughout the country, and has been validated at 25 sites, including sites in California. This extensive dataset results in more accurate predictions as shown in the graph to the right. On an accuracy scale of 100, MXD has a rating of 90, compared to 65 for ITE estimates, and 81 for ITE estimates plus adjustments per the *Trip Generation Handbook*. The method has been validated for sites from 5 – 2,000 acres.

## Other Benefits

More accurate trip generation forecasts result in:

- Reduced likelihood of overstating roadway impacts and need for roadway mitigation measures
- Reduced air quality impacts and mitigation measures
- More efficient use of transportation infrastructure dollars and impact fees for all modes

## Other Uses

The MXD tool can also be used to:

- Determine the optimal mix of uses to minimize external vehicle trips
- Develop more accurate Vehicle Miles of Travel (VMT) forecasts

