

Establishment of Local Trip Generation Rates or Equations for Mixed-Use Developments in Kansas

Report Number: K-TRAN: KU-11-7 • Publication Date: October 2012

Mehrdad Givechi, P.E., PTOE

George Sarkodee

The University of Kansas

Introduction

Currently, the trip generation rates and equations contained in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 8th Edition are based on the information collected at single-use, free-standing sites and cannot be directly applied to multiuse developments. Application of this data for multi-use development sites requires use of an adjustment factor called “internal capture rate”, which is expressed as a percent reduction to the trips generated by individual land uses. These reductions are applied externally to the site at the entrances, adjacent intersections and roadways. They are distinct and separate from “pass-by” and “diverted-link” trips and are applied before “pass-by” and “diverted-link” trip reductions are applied.

While the trip generation rates for individual uses on a multi-use development site may be the same or similar to what they are for free-standing sites, there is potential for interaction between among those uses within the site, particularly where the trip can be made by walking. As a result, the total generation of vehicle trips entering and exiting the multi-use site may be reduced from simply a sum of the individual, discrete trips generated by each land use. Because the development of mixed-use or multi-use sites is increasingly popular, ITE wishes to increase the database on multi-use developments in order to provide internal capture data for a broader range of land uses. ITE would appreciate additional data from analyses of such developments.

Project Objectives

The goal of this research project is to establish a local trip generation rate model for multi-use developments in state of Kansas, which can potentially be submitted to the ITE headquarter for inclusion in the national database as well. The primary objectives were to identify several appropriate multi-use development sites in the state and document vehicular trip data generated by each site in order to develop a trip generation model that can be used to better estimate trip numbers generated by such sites.

Project Description

A total of three sites were selected and studied for this project including “Mission Farms” and “Park Place” developments, both in Leawood, Kansas; and “Metcalf95 Complex” in Overland Park, Kansas.

Project Results

The results indicate that during both morning and afternoon peak-hours, using the ITE rates results in an overestimation of the trips for each of the subject sites. These overestimations can be interpreted in several ways and may be the result of one or combination of the following factors:

- Internal trips between various land use components of the multi-use development sites, resulting in a reduction in the trips on the offsite Streets.
- Normal variation of data presented in the ITE Trip Generation Manual can also result in either under- and/or overestimation of the trips for some or all land-use types.
- Selection of the most appropriate ITE Land-Use Code to represent various components of the multi-use developments.
- Other factors such as seasonal variation of traffic, possible offsite events, and potential for error in data collection procedure.

Project Information

For information on this report, please contact Mehrdad Givechi, the University of Kansas Transportation Center, Learned Hall, 1530 W 15th Street, Lawrence, KS 66045; 785.864.2593; mgivechi@ku.edu.

KDOT Research Reports Catalog

Search for:

Search In: Document Title Keyword
 Reference Number Reference Name(s)

Search Period:

Can't find it?? Check the [help](#) page for search tips.
Learn more about the catalog [here](#).

If you have questions or comments, please send an e-mail to: library@ksdot.org
[Help page for retrieval errors](#)

Directions for Downloading the Full Report

To download the full report, visit <http://www.ksdot.org/burmatres/kdotlib2.asp> and do the following:

1. Enter KU-11-7 in the search box.
2. Click the Search button to the right of the search box.
3. You may have to scroll to find the specific report.
4. To download the report, click on the title of the report to open the PDF file and save it to your hard drive.

If you have any questions, please email us at library@ksdot.org.