



Florida Department of Transportation Research Trip Internalization in Multi-Use Developments BDK84-977-10

Gas prices and fossil fuel concerns have promoted reduced car use. More people are seeking housing within a walk, bike, or shorter drive of important destinations, leading to more mixed use developments (MXD) with internal retail sites, reducing use of roads outside the MXD. In addition to fuel, environment, health, and convenience considerations of MXDs, traffic is reduced on local roads, making them safer and more efficient.

Internal trip capture (ITC) refers to the reduced trips to and from a development resulting from complementary land uses within it. Internal trips relieve traffic on roadways connecting the development with the transportation network. ITC rates improve trip generation estimates on MXDs by adjusting single land-use estimates, which tend to overestimate trip generation for MXDs, creating a need for more accurate ITC rates and methodologies. Nationwide, there have been efforts to enhance both data availability and methodologies to estimate ITC rates.

In this project, ITC data from four MXDs in Florida were collected using a recently-enhanced ITC methodology developed by the National Cooperative Highway Research Program (NCHRP). Results showed that the enhanced methodology produced generally more accurate estimates than those from the traditional ITC procedure.

Four MXDs were chosen for this research from candidates selected for their mix of interconnected land uses, such as offices, restaurants, residential, and retail. The four MXDs – Creekwood in Bradenton, South of Downtown Orlando (“SODO”) in Orlando, Lakeside Village in Lakeland, and Uptown Altamonte in Altamonte Springs – represented both traditional suburban developments with single-family detached homes as the main residential component with retail and services next to the major arterial serving the development and also compact MXDs having neo-traditional residential uses with ground-floor retail.



In this mixed use development, residents in the housing on the left can access the retail on the right without using external roads, reducing traffic on local roads and reducing exposure to traffic hazards.

The researchers developed a detailed data collection plan. On-site data collection included cordon vehicle counts, door counts, and brief interviews with people exiting commercial sites, providing estimates of trip rates between pairs of land use types. This required careful planning, interviewer training, and cooperation and communication with businesses to avoid violating company policies or disrupting business activities.

The researchers developed a series of prediction tests to assess the contribution of the ITC rates from this study to the accuracy of trip generation estimates. They found that combining study data and NCHRP data improved prediction of cordon counts for four out of nine retail test sites. Beyond ITC estimates, the study also collected transportation mode and internal trip length information. Guidance for improving data collection and estimation were also provided.

Understanding the transportation behavior of MXDs is critical to future planning, as more MXDs are added to Florida’s suburban areas. The information developed in this project adds both to the knowledge of transportation and MXDs and insights into planning tools and methodologies.

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For more information, visit <http://www.dot.state.fl.us/research-center>