

Trip Generation Characteristics of North Texas Mixed-Use Developments

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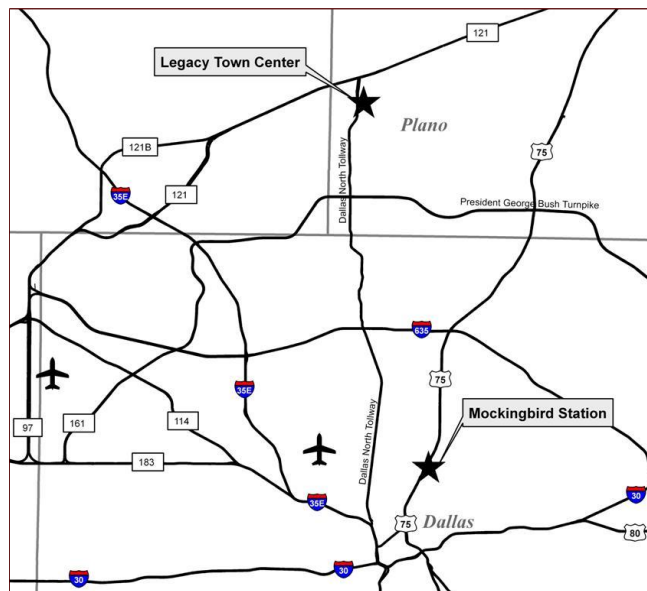
Basic Problem

- Popularity of Mixed-Use Developments (MXD):
 - TOD: Mockingbird Station, Others Coming Soon?
 - Suburban Infill: Southlake Town Center, Legacy T.C.
- Roles of Transportation Professionals:
 - Development of TIA for Proposed MXD Projects
 - Identification of Internal Trip Capture/External Travel
 - Recommendations for Mitigating Traffic Impacts
- Issues:
 - Little Data? (Land Uses, Time Periods)
 - Old Information?
 - Data from Florida?
 - Negotiations = Costly Delays for All Parties

TTI Research Projects

- On-Going MXD Research to Address Issues
- NCHRP 8-51
 - “Enhancing Internal Trip Capture Estimation for Mixed-Use Developments”
 - Funded Data Collection at 2 MXD Sites
- Texas Department of Transportation
 - “Mixed-Use Developments Internal Trip Capture Estimator”
 - Funded Additional Data Collection Site with NCHRP Methodology
- Both Projects Nearing Completion!

Study Sites



The site plan illustrates the layout of the University City area. It features a grid of streets including Tennessee Parkway, Bishop Road, Marinda Road, David Road, Harrell Road, Fenwick Road, and Marla Road. Key landmarks and buildings are labeled, such as Legacy II (9 Story Office), Legacy III (6 Story Office), Legacy I (6 Story Office), Robb & Stucky, Marriot Hotel, Bishop Park, Angela's Pizzeria & Cafe, Royal Restaurant, Robb's Steak, and Benchmark Bank. A north arrow is located in the upper right, and a scale bar at the bottom indicates distances from 0 to 1/2 mile.

Image Source: Trammel Crow Company

Data Collection – Details

- Identified Internal Travel via Survey
 - On-Site, Origin-Destination Intercept Survey
 - Designed as an Interview of Travelers Exiting Buildings
 - Morning and Afternoon Peak Periods
- Mockingbird Station
 - May 2006
 - 761 Total Interviews (14% Participation Rate)
- Legacy Town Center
 - May 2007
 - 846 Total Interviews (16% Participation Rate)

Total Internal Trip Capture-Comparison

Site	AM Period	PM Period
Legacy Town Center	13%	35%
Mockingbird Station	26%	37%

Note: Preliminary Findings. All percentages reported in person-trip ends.

Internal Trip Capture – Synergies

- LU Pairs with High Internal Trip Capture Rates
- Morning Peak Period
 - Office-Restaurant/Retail
 - Residential-Restaurant/Retail
- Afternoon Peak Period
 - Office-Restaurant
 - Residential-Retail
 - Restaurant-Retail
 - Restaurant-Cinema
- Actual Capture Rates Still in Draft Form

Improved Estimation Procedure

- Improvement to Existing ITE “Chapter 7” Method
- Developed Using These Data + Another Site
- Includes AM and PM Peak Period Data
- Internal Trip Capture Data For:
 - Office
 - Retail
 - Restaurant
 - Residential
 - Cinema
 - Hotel
- Spreadsheet Estimator Tool to be Released

Trip Generation – PM Comparison

Scenario (Vehicles per Hour)	Legacy	Mockingbird
Observed Count	1,888	720
Base Trip Generation (No Capture)	3,100 (+64.2%)	1,565 (+117.4%)
Current ITE Method (Handbook Ch. 7)	2,210 (+17.1%)	1,076 (+49.4%)
Proposed Method	1,769 (-6.3%)	988 (+37.2%)

Note: Base Trip Generation from *Trip Generation: Informational Report*, 8th Edition (ITE, 2008).

Questions???



Image Source: Researcher Photo