



Project Summary

Texas Department of Transportation

0-6511: Evaluating the Impact of Transit Oriented Development

Background

Transit-oriented development (TOD) is seen as one way to address some of the negative effects of urban sprawl, declining urban cores, and roadway congestion in urban areas. This research examined the impact of residing in a TOD on resident travel behavior, and the role that transportation agencies in other states play in supporting TOD. Changes in TOD resident travel behavior potentially impacts TxDOT facility use and fuel tax revenues. For planning, roadway design, and budgeting purposes, it is important for TxDOT to: understand current and potential future impacts of TOD as the incidence of this type of development increases, and understand the role that state agencies can play in promoting TOD.

What the Researchers Did

To achieve the objectives of this study, researchers:

- Reviewed reports and consulted with professionals at transit agencies, local governments, and TOD sites to list all current TOD projects that include residential units served by Dallas Area Rapid Transit (DART), the Fort Worth T, and Austin Capital Metro.
- Conducted a literature review that focused on the impact of TOD living on transportation behavior. This search encompassed reports available in academic and professional literature.
- Conducted focus group interviews. Focus group members were chosen from TOD developments near three DART rail stations. Participants were then solicited via telephone, and a focus group meeting was held at or near each of the DART stations to elicit participants' insights into TOD living.
- Conducted surveys of TOD residents and a control group. Working with information drawn from the literature and focus groups, questions were developed for use in mail and telephone surveys. A sample of 3,000 TOD residents were surveyed in a four-wave mailing. A telephone survey of the control group was conducted to provide a broader understanding of transportation behavior. The control group was composed of 300 residents in Collin County and 300 residents in Dallas County.
- Calculated TOD impacts on TxDOT facilities use and revenues. Using data obtained during the mail and telephone surveys, calculations were made on changes in household vehicle miles traveled, number of gallons of fuel, and motor fuels tax revenue (state and federal) associated with moving into TOD residences. Projections of potential future impacts are provided based on assumed TOD growth.
- Identified state government/DOT roles in encouraging TOD. Internet searches of DOT websites, reviews of publications, and other sources provided insight into how other state DOTs, the federal DOT, and the District of Columbia DOT participate and/or support TOD projects.

Research Performed by:

The University of North Texas (UNT)
Texas Transportation Institute (TTI),
The Texas A&M University System
The University of Texas at Arlington
(UTA)

Research Supervisor:

Terry Clower, UNT

Researchers:

Paul Ruggiere, UNT
Jeffrey Arndt, TTI
John Overman, TTI
Jianling Li, UTA

Project Completed: 8-31-10

What They Found

Housing choice is influenced by factors associated with proximity to work and lifestyle choices (average importance rating on a scale of one to five, with five being very important):

- Closer to work (3.74)
- Urban lifestyle (3.54)
- Parking availability (3.44)
- Close to restaurants (3.33)
- Close to entertainment (3.31)
- Availability of shopping (3.02)
- Close to transit rail station (2.93)

TOD households change their travel behavior:

- average VMT reduced by about -3,505.6 (-15.1%)
 - highway: -2,728.8
 - non-highway: -776.9
- average VMT change by transit system
 - DART: -4,939.7
 - Fort Worth: -4,168.9
 - Austin: -1,442.8
- Based on the current inventory of 8,051 TOD residential units:
 - highway miles: -21,967,976
 - non-highway miles: -6,254,082
 - annual impact on motor fuel tax revenues: -\$199,906

While the total effects are comparatively small at this time, continued growth of TOD suggests that the attendant reduction in highway use and revenues will become meaningful over the next several years.

Transportation agencies in nine states, plus DC address issues dealing with the statutory and regulatory development environment for TOD, offering planning guidance to cities, MPOs, and others, and providing funding for planning and/or development activities. California and Florida engage in research and information sharing activities concerning the development of TOD projects.

What This Means

Researchers recommend:

TxDOT staff work closely with local transportation and planning authorities.

- Design TOD friendly zoning and overlay district design standards to achieve transportation efficiency.

Address safety issues in the TxDOT *Design Manual*.

- TOD brings pedestrians and bicyclists in closer proximity to vehicle traffic.
- Expansion of TOD could result in increased frequency of transit trains that could affect preferred design standards for rail-roadway intersections.

Explore ways for TxDOT to extract value from TOD projects.

Disseminate the findings of this research to TxDOT staff.

- Support improved understanding and decision making when including TOD properties in plans and interactions with local planners and private developers.
- Create a web document highlighting key findings of this research.
- Disseminate findings to relevant parties to improve traffic generation models accounting for TOD impacts.

For More Information:

Research Engineer - Duncan Stewart, TxDOT, 512-416-4730

Project Director - Ed Collins, TxDOT, 512-832-7041

Research Supervisor - Terry Clower, UNT, 940-565-4049

Technical reports when published are available at:

<http://library.ctr.utexas.edu/index.html>

www.txdot.gov

keyword: research



This research was performed in cooperation with the Texas Department of Transportation and the Federal Highway Administration. The contents of this report reflect the views of the authors, who are responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official view or policies of the FHWA or TxDOT. This report does not constitute a standard, specification, or regulation, nor is it intended for construction, bidding, or permit purposes. Trade names were used solely for information and not for product endorsement.