



Project Summary Report 3904-5

Project 7-3904: Economic Impact of Median Design

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A Methodology for Determining the Economic Impacts of Raised Medians: Final Project Results

Recent experiences by transportation officials show adjacent land owners are increasingly concerned by the effects raised medians might have on their businesses and property values. These same transportation officials are proposing to install raised medians because there is abundant research showing the operational and safety benefits of this type of increased access management. However, this research does not address a business owner's concerns that s/he may lose money if a customer cannot make a left turn directly into his/her property.

As traffic volumes grow on urban arterial roads, designers

look for ways to make sure local access requirements do not hamper the true purpose of these facilities, which is carrying traffic. The raised median is an excellent tool for this. However, public involvement during urban project development would be easier if there were some answers to the questions about the economic impact of raised medians. There has not been a way to study or evaluate any economic impacts to adjacent properties and businesses. By using this methodology, designers could be better informed of the possible overall economic impact of a raised median on adjacent businesses

and properties. The trends discovered through research using this method would provide the information the public and transportation officials seek.

What We Did . . .

In the first year of this four-year project, researchers developed and tested a methodology on one case study location in College Station, Texas. The team interviewed business owners along this corridor before and during a construction project with a raised median.

In the second year of the project, the research team sought additional case study locations. It identified and collected data in the following cities: College Station, McKinney, Longview, Wichita Falls, Odessa, Houston, Port Arthur and Amarillo. During this year the team tried both personal interviews and mail-out surveys.

In the third year of the project, the researchers studied data obtained in the second year. In the fourth and final year of the project, the team went back and collected after-construction data along the College Station corridor.

Figure 1 shows the College Station corridor after construction of the widening



Figure 1. Raised median treatment along Texas Avenue in College Station, Texas



project with a raised median. To compare customer perceptions to those of business owners, the researchers surveyed customers along the College Station corridor. For further comparisons, the team conducted interviews with business owners in Amarillo, Texas, at locations where raised medians were removed at intersections because of the concerns of those same businesses.

The final recommended methodology developed and tested throughout the project includes the following steps:

1. *Identify Sites (Cities) with Potential Corridors:* Find test corridors where a raised median was installed in the last six years. For comparison, two case study corridors (Port Arthur and Amarillo) were located where a raised median was removed.
2. *Identify Corridor Characteristics:* Investigate site characteristics such as construction time periods, types of abutting development, amount of abutting undeveloped land, and roadway geometry for site selection.
3. *Contact Sources of Information:* Local appraisal districts were contacted for information regarding property value trends. The Chamber of Commerce or neighborhood associations not only provided information, but also helped the researchers make contact with the businesses through letters of support for the research effort. This improved sample sizes.
4. *Inventory Businesses and Establishments along the Subject Corridor:* A windshield survey was performed in which contact information for the business owners along the corridor was recorded. Corridor and business details such as parcel location, site circulation, driveway locations, and median opening locations were also noted.
5. *Obtain Non-Survey Information*

about Businesses: Trends in property values were collected from the appraisal district. Employment trend data were collected from the Texas Workforce Commission (TWC) while property value and gross sales information were collected from the Texas Comptroller of Public Accounts to compare corridor trends with trends in the city, county, and state.

6. *Prioritize Businesses to be Surveyed:* Businesses to be surveyed were identified. Business parcels which were less retail-oriented were not surveyed (e.g., city office buildings, churches).
7. *Collect Survey Data:* The researchers performed scheduled personal interviews with business owners. Some mail-out surveys were performed at selected corridors in an effort to provide additional sample size without a significant added cost. Customer surveys were also performed in the fourth year of the project.
8. *Analyze and Summarize Data:* Researchers analyzed collected data.

What We Found . . .

One of the greatest challenges to Texas Department of Transportation (TxDOT) staff has been responding to business managers and property owners regarding potential economic

impacts of raised medians. This research provided many findings that may help alleviate concerns regarding raised median installation. Key points include the following:

- When asked to rank factors that affect customers frequenting their businesses, business owners generally ranked “accessibility to store” below customer service, product quality, and product price. According to business owners, the most important elements used by customers when deciding where to shop or eat are factors controlled by the business owners themselves. In surveys of customers at five selected businesses along the Texas Avenue corridor in College Station, customers ranked “accessibility to store” in much the same way as the business owners.
- When combining all business types together, the research found that business owners who were present before, during, and after the median installation felt that their regular customers would be likely to continue to use their businesses. In contrast, those businesses that were interviewed prior to the installation of the raised median thought their customers would be less likely to continue to use their businesses. Therefore, for the case studies investigated in this project, the

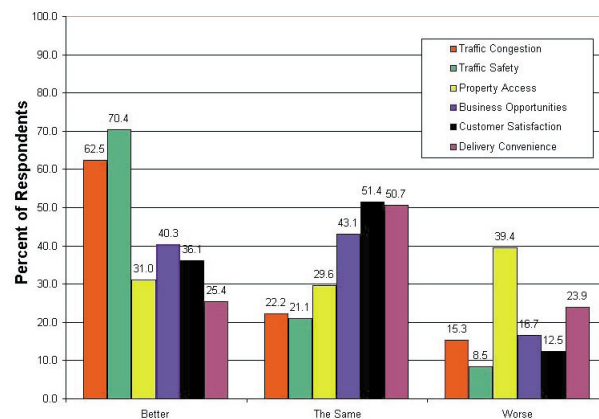


Figure 2. Raised median impacts of interest for businesses present before, during, and after median installation



perceptions appear to be worse than reality. A similar question was posed to customers in College Station, and the customer survey responses seemed to match the business owner's/manager's opinions. Generally, customers indicated construction was a greater factor in deciding where to shop than the existence of the raised median.

- A majority of customers indicated that while the raised median made access more difficult, they would still frequent the five businesses where customer surveys were performed.
- The research found that business owners generally did not reduce their workforces after the raised median installation and even during the construction phase of the project when business was the most difficult.
- Business owners present before, during, and after the raised median installation indicated property values increased, while business owners interviewed before construction expected they would decrease.
- Figure 2 and Figure 3 further show the difference in perceived impacts from those business owners present before, during, and after the raised median installation (Figure 2) compared to those that were interviewed prior to the median construction (Figure 3). Perceptions of business owners summarized in Figure 3 were generally “worse” than those businesses in Figure 2. In particular, property access was “worse” in Figure 3 at a higher rate than in Figure 2. Similar results were also found for business opportunities, customer satisfaction, and delivery convenience.
- The construction phase seemed to impact customers per day and gross sales. After the construction of the projects with a raised median, business types such as durables

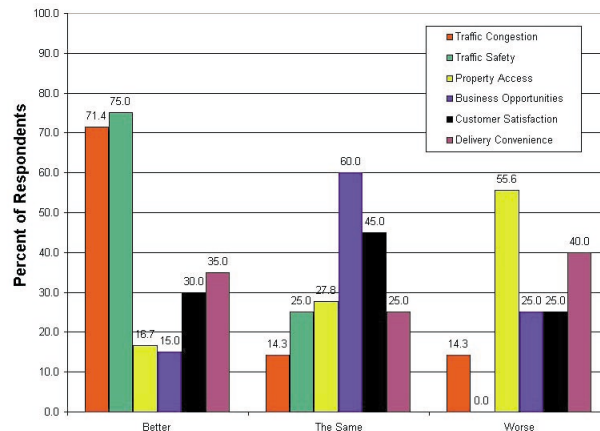


Figure 3. Raised median impacts of interest for businesses interviewed before construction

retail, specialty retail, fast-food restaurants, and sit-down restaurants indicated increasing customers per day, gross sales, and property values. Gas stations, auto repair, and other service businesses indicated decreasing customers per day and gross sales after the raised median was installed.

- Overall, 61.5 percent of respondents indicated they had low public involvement in project development. This response indicates that there is a majority of business owners and/or managers that are not attending the public meetings for raised median projects.
- The personal interviews appear to have provided more reliable data than the mail-out surveys, and survey respondents appreciated the face-to-face opportunity to have their opinions heard. The average response rate for the personal interviews was higher (55 percent) than the response rate for the mail-out surveys (9 percent).

The Researchers Recommend . . .

Project results generally indicate that prior perceptions are harsher than the impacts indicated by business owners and managers after construction. This information could be presented to concerned business owners and managers before

construction of the raised median to alleviate concerns.

The construction phase appears to have the most detrimental impacts on businesses. Suggestions to alleviate these impacts include 1) ensuring adequate and highly visible access to businesses during construction, 2) reducing construction time, and 3) performing the construction in smaller roadway segments (phases).

“Open house” formats for public meetings for raised median installation projects may provide a means to facilitate communication of these research results through one-on-one discussion and handouts to concerned citizens.

The methodology developed for this research effort provides a logical sequence that can be used by TxDOT personnel and others interested in researching economic impacts of future raised median projects. The methodology includes performing surveys with materials and administration procedures developed in this research project. The surveys provide insight into perceptions of business owners and customers regarding raised median installation impacts.



For More Details . . .

The research is documented in the following reports:

- Report 3904-1 *A Methodology for Determining Economic Impacts of Raised Medians: Initial Development.* October 1997.
- Report 3904-2 *A Methodology for Determining Economic Impacts of Raised Medians: Data Collection for Additional Case Studies.* October 1998.
- Report 3904-3 *A Methodology for Determining Economic Impacts of Raised Medians: Data Analysis on Additional Case Studies.* October 1999.
- Report 3904-4 *A Methodology for Determining Economic Impacts of Raised Medians: Final Project Results.* October 2000.

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To obtain copies of the report, contact Dolores Hott, Texas Transportation Institute, Information & Technology Exchange Center, (979) 845-4853, or e-mail d-hott@tamu.edu. See our online catalog at <http://tti.tamu.edu>.

TxDOT Implementation Status March 2001

There was one product identified for this project.

Product 1: Assessment of economic impacts at select raised median installations in Texas and development of recommended methodology for economic impacts estimation.

Status: The methodology provided is a research workplan, and not a tool for estimating economic impacts in general. The findings found specific applications in the Bryan and Tyler districts in preparing for public involvement on raised median projects. Because the results are not generalizable, no further implementation is planned.

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YOUR INVOLVEMENT IS WELCOME!

This research was performed in cooperation with the Texas Department of Transportation (TxDOT) and the U.S. Department of Transportation, Federal Highway Administration (FHWA). 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 TxDOT or the FHWA. This report does not constitute a standard, specification, or regulation, nor is it intended for construction, bidding, or permit purposes. Trade names are used solely for information, not for product endorsement. The researchers in charge of this project were William L. Eisele (PE# 85445) and William E. Frawley.