

Economic Impact of Access Management Treatments

Introduction

Access management is a form of traffic engineering utilized by transportation agencies to improve the safety and efficiency of traffic flow on, off, and between roadways. Access management applies a variety of construction interventions that manipulate how vehicles enter and exit roadways and access driveways or parking lots of homes and businesses. These roadway interventions have been shown to reduce crashes involving vehicles, cyclists, and pedestrians. However, there is sometimes concern or resistance towards these treatments from businesses located near the installation site. These concerns are often due to risk aversion; businesses fear that changing the flow of traffic will inconvenience their patrons, increasing travel distance and time to and from their location. This in turn may cause customers to switch to other businesses, negatively impacting the sales of businesses located closer to the access management treatment sites. This study investigates whether businesses' concerns over economic impact are valid by measuring the perception toward access management treatments over time, as well as analyzing the individual and aggregated sales behavior of businesses near the treatments.

Objective

This study's objective was to determine if access management treatments in Louisiana have an economic impact on roadside businesses. The specific access management treatments observed in this study are J-turns, right-in-right-out entrances, raised medians, raised curb channelization systems, and center turn lanes. The research focused on business sales and the perceptions of both businesses and customers towards access management treatments before, during, and after their construction. The findings from this study can inform communication strategies and outreach efforts directed at the general public and stakeholders to better address concerns regarding the economic effect of access management construction projects on nearby businesses.

Scope

The project's scope was two-part. The first was an analysis of monthly sales data of businesses located near access management treatments. This analysis covered three different time periods of monthly business sales: two years before construction, the years during which construction was ongoing, and two years following the completion of the access management treatment. The second portion of this study was a perception analysis of businesses and patrons at sites where an access management treatment was installed. Over-the-phone business perception surveys and in-person customer perception surveys were collected and analyzed to determine broad trends in attitudes toward the treatments.

Methodology

The economic impact analysis utilized data from the Louisiana Department of Revenue and regional economic indicators (e.g., unemployment rates, population estimates) from government sources, covering the years 2010 to 2022, to assess the effects of access management treatments on businesses. Business data were categorized based on site location and proximity to treatment, and economic indicators (unemployment rates, population estimates) were integrated from government sources using R programming software. Total monthly sales were calculated by adjusting sales tax collections to reflect actual sales, using tax rate changes from 2010 to 2022. APIs were used to collect demographic, economic, and labor statistics from the Census Bureau, Bureau of Economic Analysis, and Bureau of Labor Statistics.

Surveys were conducted using Qualtrics, targeting business owners and patrons to gather perceptions on access management treatments. The Google Places API facilitated the identification and selection of businesses for surveys. Both phone and in-person surveys were conducted, ensuring participant confidentiality and adherence to research protocols.

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Conclusions

This study's primary objective was to assess the economic impact of access management treatments on businesses located along specific corridors in Louisiana by analyzing sales tax data. A secondary goal was to gauge access-related concerns among businesses and their patrons near these treatments through surveys. The sales analysis revealed that there is little evidence to suggest a significant correlation between access management treatments and changes in aggregated business sales. This finding suggests that these treatments neither significantly boost nor harm business performance, as the data do not show substantial deviations in sales trends pre- and post-implementation. While individual businesses did experience varying changes over time, the overall economic effect appears negligible.

Perception survey results further support the notion that access management projects support regional economic development and that businesses and patrons exhibit resilience and adaptability to the changes brought about by access management projects. Although there were initial concerns and negative attitudes during the construction phase, these perceptions improved post-construction, indicating an acceptance of, adaptation to, and appreciation for new traffic configurations. The fundamental factors driving consumer behavior—product quality, price, and customer service—remained paramount, overshadowing concerns about ease of access and travel distance. This study suggests that while access management treatments may initially be met with resistance, their long-term impact on business performance and patron perception is minimal and perhaps positive, as these projects are often associated with general infrastructure investments to support economic development. Future research with larger sample sizes could provide more nuanced insights into these effects.

Recommendations

Long-term work to improve safety and efficiency in the movement of traffic has at times been met by opposition from the business community due to concerns about project impacts on economic activity. This study contributes to a growing body of evidence showing no pattern of negative impacts to business from the implementation of access management treatments. By examining a broader set of project types than had previously been studied in Louisiana, this study provides new evidence to reassure businesses about the typical impacts of access management treatments on economic activity.

The findings can be used by planners to engage the business community and general public to create a more collaborative environment for advancing projects that can improve safety and efficiency in the movement of traffic. Combined with prior research on J-turns in Louisiana, and findings from studies in other states, this information helps to reinforce a public benefit as well as address concerns about potential negative impacts to businesses before, during, and after their construction.

To ensure ongoing effectiveness and address lingering concerns from the business community about access management, DOTD could implement comprehensive data collection strategies for future research and monitoring activities related to access management treatments. This could include the use of traffic flow sensors, business performance surveys, and periodic safety audits. Engaging with local businesses to gather qualitative data on their experiences before, during, and after project implementation will also be valuable and

provide an opportunity to collect business data in real time, rather than relying solely on retrospective surveys. Additionally, leveraging modern data analytics and geographic information systems (GIS) can enhance the understanding of traffic patterns and economic impacts over time. This type of ongoing and proactive data collection and analysis would not only provide continuous feedback for improving access management strategies but also foster transparency and trust between the DOTD and the business community. Finally, Louisiana has recently established a new state data center known as LA FIRST, which contains longitudinal data including payroll information from employers. This may be a source of information for future studies to track changes in activity over time, thus providing more visibility into industry-specific trends within an area than can be gleaned through de-identified sales tax data.