

## The Impacts of Highway Relief Routes on Small Towns in Texas

### Introduction

Highway relief routes may have a variety of impacts on small- and medium-size communities, both positive and negative. On the positive side, communities benefit from a reduction in traffic through the heart of the community and the negative impacts such traffic brings, including noise, emissions, and safety concerns. However, the reduction in through traffic may also have negative impacts on businesses in the community, particularly highway-oriented businesses located along the old route that are dependent on pass-by traffic. The negative impacts on local businesses may be partly offset by new development occurring along the highway relief route. How these impacts play out in a particular community depends on the characteristics of the community and the new relief route, as well as larger economic and industry trends. The purpose of this research was to identify and understand the various factors that influence the economic impacts of highway relief routes on small- and medium-size communities.

### What We Did...

The research project consisted of four phases: review of the literature and identification of issues; econometric models of the economic impacts of relief routes in Texas; case studies of the impacts of relief routes in selected towns in Texas; and an overview of planning strategies to maximize the positive impacts and minimize the negative impacts of relief routes. These two complementary research methods—econometric modeling and case studies—together provided a more comprehensive

understanding of the impacts of relief routes on small- and medium-size communities. The results suggest that most of the changes in these communities have been the result of factors other than the relief route but that the relief route tends to amplify trends in the community, either positive or negative. Larger communities located close to metropolitan areas or that serve as natural stopping points are in a better position to take advantage of the opportunities created by the relief route.

### What We Found...

#### Econometric Models

The second phase of the research consisted of an effort to quantitatively assess the economic impacts of highway relief routes and the relative importance of a variety of factors in explaining those impacts (Research Report 1843-2). Using a pooled panel data set for 23 small- and medium-size communities in Texas with relief routes, plus a sample of 19 control cities without relief routes, this research used econometric modeling techniques to estimate the impacts of the relief route on sales and establishments for the city as a whole. Four industrial sectors were considered: all retail businesses, gasoline service stations, eating and drinking places, and service industries.

For each of these sectors, three measures were considered: sales per

capita, total sales, and number of establishments. Twenty-one independent variables were defined to reflect regional trends, city demographics, location and traffic, and relief route characteristics. For each of the 42 cities, nine years of data (in years falling between 1954 and 1992) were compiled, resulting in a pooled sample of 378 data points.

In all, twelve final models were estimated, one for each of the dependent variables. To interpret the results, two hypothetical cities were defined, one small and one medium, and were assigned average characteristics for cities below or above the median size in the data set in 1992. The models were then used to estimate sales or establishments in each sector for the hypothetical city with and without the relief route. The difference between these estimates gives an indication of the impact of the relief route on the local economy (Table 1). The models show that relief routes have both positive and negative impacts on these sectors of the economy. For small cities, the impacts are mostly

Table 1: Estimates of Relief Route Impacts for Average Cities

	Retail	Gasoline	Eat/Drink	Service
<b>Small City (4,864 population)</b>				
Per Capita Sales	-17.6%	-47.6%	-3.7%	9.9%
No. of Establishments	-7.4%	-5.2%	-26.4%	-3.4%
Total Sales	-11.1%	-21.4%	-31.0%	-22.1%
<b>Medium City (12,773 population)</b>				
Per Capita Sales	-10.0%	-32.3%	24.3%	17.3%
No. of Establishments	25.6%	-18.6%	-4.6%	47.0%
Total Sales	-1.9%	-62.7%	0.9%	-0.6%



negative, but for medium cities, the results are more mixed.

Several caveats about the models should be noted, however. The models focused on those sectors of the local economy most dependent on traffic levels and thus potentially most impacted by the shift in traffic that results from the opening of a relief route. The models evaluated net changes in these sectors but did not assess underlying changes, such as geographic shifts, changes in ownership, or openings and closings in the local business community. The models also did not assess the net impact of relief routes on the total economies of these communities. In addition, the models did not capture all of the factors that influence the economies of these communities and thus did not fully explain the variations in the data set. Nevertheless, they provide important insights that may help to guide the planning and design of relief routes in small- and medium-size cities in Texas.

### Case Studies

The goal of the case studies was to explore in more depth the impacts of relief routes within small- and medium-size communities and the factors contributing to those impacts (Research Report 1843-3). The case studies allowed for a qualitative analysis of changes to the local economy, including the demise of businesses along the old route, the relocation of existing businesses from the old route to the relief route, and the development of new businesses along the relief route. In addition, the case studies allowed for an assessment of the overall impact on quality of life for the community, taking into account not only economic changes but also the more intangible benefits of a reduction in traffic through the community. The factors contributing to those impacts were identified and analyzed for each community.

Out of the fourteen case studies completed, ten with relief routes and four without, several important patterns emerged that suggest the conditions under which relief routes will have greater impacts and the actions that TxDOT and local communities can take to manage those impacts. In most of the case study communities, significant changes have occurred in the downtown business districts and in highway-oriented businesses along the old route in recent decades, but many factors other than the relief route help to explain those changes (Table 2). At the same time, development

along the relief routes has been more limited than expected in most communities.

### In Downtown:

Whether or not a relief route was built, most downtowns experienced a significant decline in traditional businesses that provide for the basic needs of local residents. Many of the county seats saw an increase in businesses related to the courthouse, and a few communities benefited from an increase in tourism-related businesses downtown. The decline in downtown businesses is largely a result of changes in the retail industry nationwide, particularly the emergence of large discount stores, such as Wal-Mart. The retirement of local business owners was also a factor. Where the demand for courthouse-related services was strong, these businesses naturally moved into the vacant spaces in downtown. Antique shops also found a home downtown, particularly in communities with a growing tourism industry. Although many communities look to tourism as a source of growth for their economies, not all communities can make it work: the most successful not only have a historic downtown but are also located on a heavily-traveled route between metropolitan areas and have actively worked to encourage tourism, for example, through a Main Street Program. The decline in traffic through town after the construction of the relief route can benefit an already strong tourism industry.

### On the Old Route:

In most communities, businesses along the old route have declined significantly. A few communities have seen little change along the old route. A few others have seen considerable growth in retail businesses along the old route. Although the obvious explanation for the decline in businesses along the old route is the decline in traffic, other factors have also been important. Local gas stations, restaurants, and motels have all been affected by increased competition from national chains. Even towns without relief routes have seen a noticeable decline in locally owned businesses catering to through traffic. A few communities have seen little change in businesses along the old route, mostly because these businesses depended more on local customers than on through traffic. A handful of communities have seen considerable growth in retail businesses along the old route despite the opening of the relief route. In these cases, the community has remained important as a commercial center for the surrounding region, and the location of the Wal-Mart on the old route has attracted other businesses to the area.

### On the Relief Route:

Although many city leaders hope that a relief route will bring new development, the process is a slow one. In most communities, the amount of development along the relief route did not live up to local expectations. At the same time, a

Table 2: Summary of Changes and Key Factors

Case Study	Changes in Downtown Business	Development on Relief Route	Net change in Highway-Related Businesses	Near Metro Areas	Near Other Towns	Stopping Point	Traffic Levels	Alignment	Visibility	Annexation/Utilities	Local Programs	Land Owners	Unique Factor
Bastrop	change	lots	increase	+									uncontrolled access
Bowie	change	slow	decline	+	-						+		
Cleveland	decline	slow	decline	+									
Edinburg	change	slow	no change		-							+	
Fort Stockton	decline	slow	increase			+	-						
Gatesville	change	slow	no change							-		-	prisons
La Grange	increase	slow	increase				+				+		Main St. Program lake
Livingston	change	lots	increase	+		+	+	-		+			
Smithville	change	slow	decline	+	-			-	-			-	
Stamford	decline	slow	decline	-	-			-	-				dry county
Anson	decline	n/a	decline	-	-								
Dayton	decline	n/a	decline	-	-								
Giddings	decline	n/a	increase	+			+						
Haskell	decline	n/a	decline	-	-		-						

\* - negative impact on community, + positive impact on community



few communities have seen significant development along the relief route. In all cases, however, few existing businesses have relocated to the relief route. The net result is mostly not an increase in retail activity in town but rather a shift of activity from downtown and the old route to the relief route and a shift from local businesses to chains.

A variety of factors explain the limited amount of development along most relief routes. In some communities, the alignment of the relief route is beyond city limits, meaning that the properties along the relief route are not served by city utilities. In others, existing zoning discouraged development, and in some, existing land uses provided a deterrent. Land owners can also be an impediment to development if they choose not to sell their land or develop it themselves. Topography, rail lines, and other geographic features can also hinder development. In a few cases, poor visibility from the relief route and the placement of the exits may have helped to limit development as well. But frontage roads are mostly not a factor, because development occurs mostly just at the interchanges.

A few communities have seen extensive development along the relief route, mostly thanks to geographical features. Being close—but not too close—to a metropolitan area can increase the demand for services on the highway. Being a natural stopping point—either

because of distance to other towns and/or turn off point for travelers—can also increase the demand. The provision of city utilities to the properties along the relief route combined with permissive zoning is not enough to ensure new development. At the same time, few local businesses have the resources to relocate to the relief route.

### Summary of Relief Route Impacts

The case studies cannot be used to predict what will happen in communities where relief routes are proposed, but they do provide an indication of what factors might come into play and what kinds of impacts a small- or medium-size community might experience. Although the case study communities have changed in significant ways in recent decades, most of these changes can be attributed to factors other than the relief route. Some of the impacts commonly attributed to the relief route can be explained by structural factors relating to trends in the national economy and demographic patterns, including the decline of rural populations and growth of metropolitan areas, and changes in retail sectors. A variety of local factors shape the impact of the highway relief route on the local community: geographic factors, facility characteristics, and local policies. The relative importance of these factors varies across communities, but it appears that geographic factors have the most significant

impact, followed by facility characteristics, then followed by local policies. Unfortunately, there isn't much that a community can do about its geography. A community can, however, influence facility characteristics by working with TxDOT on decisions about alignment and access, and it can adopt policies that will help to mitigate possible negative impacts of the relief route. The case studies thus provide some direction for both TxDOT and local communities regarding what they can do to minimize the negative impacts of the relief route and maximize the positive impacts.

### The Researchers Recommend...

Planning for the impacts of relief routes, both to minimize the negative impacts and to maximize the positive impacts, is a relatively undeveloped practice. Several promising ideas have emerged from studies of the impacts of highway relief routes, but little effort has yet gone into evaluating the effectiveness of those ideas. In general, the strategies are aimed at one or more objectives: preserving downtown businesses, protecting existing highway-oriented businesses, or encouraging (or discouraging) new development. Table 3 provides a summary of strategies that TxDOT and local communities can consider as they plan for the impacts of relief routes in order to achieve these objectives.

However, research suggests that success requires a collaborative approach on the part of both TxDOT and the local community that includes partnership, communication, and visioning. Further research is needed on the effectiveness of strategies to plan for the economic impacts, both positive and negative, of relief routes.

Table 3: Summary of Potential Planning Strategies by Objective

	<b>Preserve Downtown Businesses</b>	<b>Protect Existing Highway-Oriented Businesses</b>	<b>Encourage (Discourage) New Development</b>
<b>TxDOT Strategies</b>			
Alignment	X	X	X
Access to town	X	X	
Access along route			X
Visibility	X	X	X
Signage	X	X	
Amenities			X
Local Involvement	X	X	X
<b>Local Strategies</b>			
Annexation			X
Zoning	X	X	X
Infrastructure	X	X	X
Advertising/Marketing	X	X	
Business Retention	X	X	
Main Street Program	X		
Tax Incentives	X	X	X
Visioning/Planning	X	X	X



## For More Details...

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The research is documented in the following reports:

- 1843-1 Economic Effects of Highway Relief Routes on Small- and Medium-Size Communities:  
Literature Review and Identification of Issues. April 2000
- 1843-2 Economic Effects of Highway Relief Routes on Small- and Medium-Size Communities:  
An Econometric Analysis. September 2000, Revised May 2001
- 1843-3 Economic Impacts of Highway Relief Routes on Small- and Medium-Size Communities:  
Case Studies. March 2000, Revised September 2001
- 1843-4 Planning for the Impacts of Highway Relief Routes on Small- and Medium-Size Communities.  
March 2001

To obtain copies of a report: CTR Library, Center for Transportation Research,  
(512) 232-3138, email: ctrlib@uts.cc.utexas.edu

## TxDOT Implementation Status December 2001

Two products were developed in this research for use by TxDOT staff in their interactions with the community: 1.) Question and answer pamphlet and booklet summarizing the research results 2.) Powerpoint presentation summarizing the research results. Both have been submitted and approved for implementation. An implementation project is being proposed to conduct a workshop for TxDOT staff and consultants, and to refine the list of resources available to communities. For more information, please contact Bill Knowles, P.E., RTI Research Engineer, (512) 465-7648, or email at wknowle@dot.state.tx.us.

**Your Involvement Is Welcome!**

## Disclaimer

This research was performed in cooperation with the Texas Department of Transportation and the U. S. Department of Transportation, Federal Highway Administration. The content of this report reflects 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. The Research Supervisor was Dr. Susan Handy.



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