# IMPACT OF BY-PASS HIGHWAYS TO OHIO COMMUNITIES UNDER 35,000 POPULATION

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June 2001

Prepared in cooperation with the Ohio Department of Transportation and the U. S. Department of Transportation, Federal Highway Administration.

# EXECUTIVE SUMMARY

"Impacts of By-Passes to Ohio Communities Under 35,000 Population"

FHWA/HWY Report No: 2001/09
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Ohio Department of Transportation State Job No: 14724(O)

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This report covers the results of a triad of research methods to ascertain the impacts of by-pass highway construction on Ohio communities with a population under 35,000.

A review of all documents relating to prior research on the topic, located in all Ohio libraries, was conducted. This concluded that while no study could claim direct causation, most presented some evidence that the construction of a by-pass was a positive factor in the community's economic development.

Site visits were made to eleven (11) Ohio communities. The central business districts and strip malls along major highways were photographed. Local officials and economic development professionals were interviewed. This revealed all cities, except one, had a strip mall outside of town whether they were by-passed or not. These strip-malls have had a greater effect on the central business district, moving the first tier of retailing activities to the mall and bringing a second tier of retailing to the CBD, than has the by-pass highway. The city with two (2) by-passes had the most prosperous CBD, and the city with the most depressed CBD had no by-pass. Thus the conclusion from the bibliographic research was upheld, with Ohio communities being impacted even more positively by a by-pass highway than was indicated in the bibliographic research.

An analysis of data from the Census of Business, U. S. Census Bureau, Department of Commerce for 1958 (prior to construction of by-passes) and 1997 (latest data after completion of by-passes) was conducted. This demonstrated that cities with a by-pass had a greater increase in retail sales, hotel/motels, and eating and drinking establishments than cities without a by-pass. Only the number of gasoline service stations showed a decrease in the by-pass cities as compared to the non-by-pass cities. The "remainder of county" data for those counties containing a by-pass city indicated a larger number of manufacturing establishments with larger employment than those counties without a by-pass. This again substantiated the conclusions from the first two methods.

CONCLUSION: Overall economic development receives a positive impact from the construction of a by-pass highway, while certain narrow sectors, such as gasoline service stations, might be negatively effected.

| 1. Report No. | 2. Government Accession No. | 3. Recipient's Catalog No. |
|---|---|---|
| FHWA/HWY-2001/09 | | |

| 4. Title and SubtitleL | 5. Report Date |
|---|---|
| Impact of By-Passes to Ohio Communities Under 35,000 Population | June, 2001 |
| | 6. Performing Organization Code |
| | 8. Performing Organization Report No. |
| 7. Author(s) | |
| John E. Kleymeyer, AICP | 10. Work Unit No. (TRAIS) |
| 9. Performing Organization Name and Address | 11. Contract or Grant No. |
| John E. Kleymeyer & Associates<br>748 Sunglow Drive<br>Villa Hills, KY 41017-1127 | State Job No. 14724 |
| | 13. Type of Report and Period Covered |
| | Final Report |
| 12. Sponsoring Agency Name and Address | 14. Sponsoring Agency Code |
| Ohio Department of Transportation<br>1980 W Broad Street<br>Columbus, OH 43223 | |

15. Supplementary Notes

16. Abstract

A complete bibliographic search and review of all publications on the topic of: "By-Pass Highways" was performed; comparisons of eleven (11) cities in Ohio, some with a by-pass, and some without, were made through on-site visits; and data from the Census of Business, U.S. Census Bureau, Department of Commerce, was gathered for these cities. The analysis determined that by-pass highways do not negatively effect total retail sales of a community, and while a direct causal effect cannot definitely be stated, the evidence suggests that the construction of a by-pass highway may be a positive variable in sales increases. At the same time, the evidence is that the by-pass highway may be a factor in the dislocation of gasoline service stations.

| 17. Key Words | 18. Distribution Statement |
|---|---|
| | No Restrictions. This document is available to the public through the National Technical Information Service, Springfield, Virginia 22161 |

| 19. Security Classif. (of this report) | 20. Security Classif. (of this page) | 21. No. of Pages | 22. Price |
|---|---|---|---|
| Unclassified | Unclassified | | |

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# INTRODUCTION

## PROBLEM

The Ohio Department of Transportation receives many requests from local units of government to construct by-pass-highways around city centers. The primary reason for said requests are to remove through truck traffic from local roadways and to spur economic development. Previous research on this topic presents different and sometimes contradictory results. Transportation funds are finite and must be used in the most efficient manner. By-pass highway construction is expensive and, it is suspected that for certain cities, it may have a negative effect on the center city that is by-passed. Therefore, John E. Kleymeyer & Associates prepared this study of Ohio cities with a population under 35,000 for the Ohio Department of Transportation (ODOT).

## OBJECTIVES OF THE STUDY

1. A literature search for common qualitative conclusions, common quantitative conclusions, and/or cost/benefit analysis of by-pass-highway; or documentation of a lack thereof.
2. Field research of six Ohio communities under 35,000 population in three pairs, chosen by population and geography, one community having a by-pass-highway for at least five to ten years and the sister city not having a by-pass-highway.
3. A statistical analysis to measure change in economic activity of the paired communities over the period of time in which the by-pass-highways were constructed.
4. Recommendations derived from the above research.

## RESEARCH METHODOLOGY

John E. Kleymeyer & Associates utilized the services of a Graduate Assistant from the University of Cincinnati School of Planning to assist in the literature research. An Internet on-line search was conducted to locate any and all documents on the subject of "by-pass-highways." All documents so found were obtained on loan from various libraries, reviewed, and the results of this review are presented in PART I, *Bibliographic Search.* Site visits were made to the six cities, and five additional cities selected by the ODOT liaison to this project. The central business districts and suburban shopping areas were observed and photographed. Interviews were conducted with city planners, city and county administrators, and economic development agency personnel. The results of this research are presented in PART II, *Experiential Analysis.* Variables depicting economic activity change between 1958 and 1997 from the Census of Business, U. S. Bureau of the Census, Department of Commerce were obtained and are presented in PART III, *Statistical Analysis.* The conclusions drawn from these analyses are presented in PART IV, *Conclusions.*

# PART I
# BIBLIOGRAPHIC SEARCH

## Introduction

> Thus the Project's most earnestly sought information has answered unequivocally the question of the likely effect of a by-pass highway on retail business.... it has refuted most emphatically the oft-heard allegation that a by-pass will "kill" business in any small town. [Faville 1960, 143]

> This banding together is absolutely necessary. A by-pass could kill any community if you let it! We are determined that we will not let it happen here. [Highway By-passes: Wisconsin Communities Share Their Experiences 1988, 7]

Communities in the United States often react to the news of a proposed highway by-pass around their community with some measure of relief mixed with anxiety, trepidation and, in some cases, a sense of impending doom. Although most community members may welcome the opportunity to rid themselves of through traffic, particularly tractor trailers and the accompanying noise and congestion, plans for by-passes often face opposition from business owners on the route that would by-passed. In many cases that route is the community's central business district. Opponents often claim that a by-pass highway will seriously damage the retailing sector of the local economy by draining away through traffic and prospective customers. In some cases, local business owners may raise the specter of the by-pass highway "killing" the downtown or other business district, as referenced in the quotations above.

Studies of the impacts of by-pass highways, however, seldom paint such bleak images. In most cases, such studies conclude that a by-pass has relatively little effect on the overall economic functioning of the by-passed community; in many cases, by-pass highways bring significant benefits that may accrue to community businesses, residents, and visitors. Such benefits, however, have unevenly distributed spatial and functional patterns; by-pass highways that have economic benefits for the community as a whole may simultaneously result in significant negative impacts for individual businesses or groups of businesses. Moreover, the nature of the overall impact of a by-pass depends largely on the details and characteristics of the community and its surrounding context. Factors that may affect the economic impact of a by-pass include:

- community size;
- the retail sectors' level of reliance on through traffic;
- the degree to which tourism plays a role in the community's economic base, and the details of the types of tourism activities being pursued;

- the proximity of the by-pass to the downtown area;
- the nature of the highway improvement project being proposed; and
- the regional economic context in which the community being by-passed is located.

As one may expect given this range of variables, the nature and significance of impacts vary widely between communities, even between communities that appear similar.

It should be noted that most of the literature reviewed for this report focuses on a relatively narrow range of potential impacts that may result from by-pass highway construction. Like most large transportation projects, by-pass highways are designed primarily to address transportation needs. Goals for individual by-pass projects vary somewhat, but are generally chosen from a relatively narrow list that includes: improving through traffic volumes and speeds; improving route safety; and reducing the effects of congestion, noise, exhaust, and other deleterious products of heavy traffic volumes on the by-passed community. All available information indicates that by-pass highways, by and large, meet these needs, and that providing these benefits to the by-passed community is often a significant aspect of the community's overall assessment of the by-pass. Similarly, most by-pass highways benefit local industry by improving export routes and thus decreasing transportation costs. Locations of by-pass highways are often chosen explicitly to aid existing industrial business areas or to encourage new industry to locate to a community. These benefits will not be questioned in this report. By-pass highways also have the potential to impact the visual appearance, social structure, and other intangible factors of a community; these aspects were not satisfactorily addressed by most of the studies examined for this report and are outside the scope of this project.

The studies reviewed for this report focused primarily on one portion of what are often termed the "secondary" impacts of by-pass highway construction, most notably the impact on the retail and service sectors of the economy. The geographic extents of those sectors varied according to community configuration and the definition of the "community" involved. In studies where a spatial differentiation was made, the majority of concerned businesses were located in the central business district or along major arteries leading into the central business district. Finally, the term "community" is used throughout this report to define a wide range and type of local places. Although most of the studies cited in this report examined cities and villages ranging in population from a few hundred to several thousand, some examined unincorporated settlements that function economically in much the same manner as small villages, but lack formal designation, boundaries, and other defining characteristics.

## Background: Evolution and Methodologies

Although some communities built by-pass highways before the enactment of the Interstate Highway Act of 1956, by-pass construction began in earnest because of that federal undertaking.

- Incomplete data or considerable massaging of data categories in order not to reveal individual businesses' information due to the small numbers of such businesses in communities.

- Reliance on sales tax data, thus excluding changes in the service component of a business sector's activity.

- Inability or lack of any attempt to definitively sort out the effects of the by-pass from that of other contemporaneous developments, such as non-highway suburban commercial development, general economic downturns, and gradual decline in the agricultural economy.

- Idiosyncratic data problems, such as missing data, the effect of which are amplified by the small samples of data available to most studies.

Several studies start from the assumption that only "traffic-oriented" businesses in the community will be impacted; although this supposition initially appears unfounded, the studies that do include data from all segments of the economy appear to bear this out. Although all of the studies separate "highway-oriented" businesses (such as, gas stations, cafes and restaurants and hotels/motels) from other business sector activities, the analysis varies in terms of the businesses outside of the highway-oriented categories. Additionally, many of the early studies only examine the overall effect on the community business sector as a whole; few address the spatial differentiation affects of the by-pass, which, as will be noted in this report, are often significant.

Between 1975 and 1985 only a few by-pass studies were completed in the United States. The period from 1985 to the present provides a significantly higher number of such studies. Most of the latter period are the work of states' departments of transportation, and vary in quality from highly useful to questionable in a manner similar to the earlier state studies cited previously. Although many studies in this period continue to rely on quantitative data (similar to that discussed previously), several studies used business owner surveys, expert panel forecasts, and other qualitative techniques to provide a significantly different, and in many respects, more detailed, examination of by-pass highway impacts. Because of the more relaxed data requirements of qualitative methods, the results appear somewhat more universally reliable, although their wider application outside of the particular situation is generally limited. Those studies and study components range from structured surveys to informal, amateur-administered interviews.

Beginning in the mid-1960s and continuing into the 1990s, a small subset of highway by-pass impact examinations attempted to rely on sophisticated multiple-regression techniques that required elaborate arrangements of dummy variables and result in inconclusive findings. A few studies, that do provide some measure of conclusive results from regression analysis, fail to account for the fact that the coefficients used as the bases for their recommendations only account

for overall effects and do not address the essential distributive element of the impacts. One particularly disturbing project in Wichita Falls, Texas drew conclusions that appear to rely exclusively on regression analysis, and used that data to recommend an alternative that directly contradicts the survey and interview results, which are also included in the report.

Finally, one additional factor that complicates attempts to compare by-pass impact studies is the fact that in both eras some by-pass projects are constructed as strictly a local rerouting of an existing highway, while others are part of a new regional or statewide highway. Whether a given by-pass is of one type or the other has a substantial impact on the degree to which the by-pass changes consumers' regional travel habits. By-pass highways that are a part of a larger highway project may help change the balance of competition between local businesses and more distant shopping and service centers, as will be discussed in greater detail below.

## Conclusions from Studies

### *Short-Term Effects*

Most of the studies examined focus on long-term effects on the local economy, although as previously noted there are some problems with the time frame some studies use to define that period. Because many studies define the "long-term" period as commencing as early as the year following construction of the by-pass, the occasional data provided pertaining to "short-term" impacts is generally confined to the year in which the by-pass is constructed. Therefore, the short-term impact of the by-pass is generally dependent upon two factors:

- the degree to which by-pass construction impairs access to the existing business districts; and

- the degree to which local businesses are able to capitalize on the needs of the construction crews.

Although some by-pass highway studies show existing businesses as being seriously negatively impacted by by-pass construction, presumably because construction activities made it more difficult for people to get to the business district, others show marked increased in retail sales and other highly sensitive measures as a result of the increased numbers of workers and machinery needing lodging, food, gasoline and other services. As may be noted, these business sectors are also the ones that are most likely to be impacted by the by-pass on a long-term basis, as a result spikes in sales may exaggerate the degree of change in business following completion of the by-pass highway.

***Overall Effects***

> Although it can be said that certain business establishments lost some trade in association with the by-pass facility, it appears that the bulk of the retailers along the old route...were unaffected or affected positively; that is, some businesses must have benefited from the highway relocation to offset the losses by the first named group [Long Term Economic Effects of Highway S.D. 37 By-pass on Tripp, South Dakota 1968, 1]
>
> The comments of local residents, supported by statistics on sales, indicate that in most cases effects on otherwise viable by-passed communities appear to have been largely recouped by improved ambiance for patrons and residents in a community, although individual businesses may suffer when a new by-pass is opened. [Effects of Highway By-passes on Rural Communities and Small Urban Areas 1996, 7]

As the above quotations indicate, by-pass construction seldom has a highly significant overall effect on a community's economic structure. In cases where predicted losses are compared to post-by-pass data, impacts are generally far less than anticipated. Most of the studies reviewed begin their summaries with a statement to this effect; Burress' 1996 study of Kansas towns, for example, found that, at a high level of confidence, he could reject the claim that by-pass impacts would be catastrophic [Burress 1996, 53]. Similarly, an Iowa DOT interview project with residents of Independence, Iowa, found that most people perceived that the by-pass had resulted in no significant impact on business closings, relocations, or levels of buyer interest in properties on the old route [Iowa DOT 1992,3]. Another study by Otto and Anderson found no statistical difference in total retail sales between cities with and without new by-pass highways [Otto 1995, 16]. Finally, a North Carolina study by Blackburn and Clay found that, while 28 percent of businesses had expected to reduce their employment as a result of the by-pass, only 5 percent actually had to take such steps. [Blackburn 1991, 42]

Assessments of the overall economic impact of a by-pass also generally find increases in a variety of measures of community economic health; this statement holds for both quantitative measurements and more qualitative indicators. For example, Blackburn and Clay found that survey data indicated a general increase in business in the communities they studied after the by-pass route opened. Although traffic counts on the affected routes, decreased, this did not seem to affect average business incomes overall [Blackburn 1991, iii-iv]. Henderson's examination of the Interstate-71 corridor in north central Ohio also found a generally positive net economic impact [Henderson 1973, 4], and most other studies drew similar conclusions. This consensus appears to stem from two primary factors:

(1) the preponderance of non-traveler oriented retail and services in most communities;

(2) the by-pass' effect on the experience and perceptions of the areas containing these businesses, and

(3) changes in the characteristics of the downtown shopping environment resulting from the previously cited factors.

Those studies that include qualitative data from business owners best illuminate the reasons behind this common experience: most assert that the general environment of the business district is more conducive to shoppers as a result of the by-pass and its rerouting of through traffic. Several case studies cite the by-pass as making the business district safer for pedestrians, who can cross streets more safely because of lower volumes of traffic. Removing semi-truck traffic is frequently considered a particularly great boon to retail and service business, especially in the central business district (CBD), where the noise, fumes, vibrations and increased street congestion, both absolute and perceived, had a significant effect on the desirability of being in the business district. This positive effect is cited with a high level of uniformity by business owners, business district patrons and the researchers alike.

Although the volume of traffic passing the front doors of businesses on by-passed routes usually decreased after the construction of a by-pass, this drop in traffic counts did not have the overall deleterious effect business owners and early highway analysts had often anticipated. In most cases, the percentage of purchases attributed to through travelers turned out to be a minuscule portion of the total sales in the district. A study of Litchfield, Minnesota, for example, found that 98 percent of sales in the downtown and outlying commercial development areas went to local residents; the construction of a by-pass was expected to cost the community 1.2 percent of total sales [HNTB 1993, 8]. Additionally, removing through traffic from business districts made such districts more accessible to local residents, as well as to customers from outside the local area seeking specialized goods and services available in the business district. As one business owner in Mt. Horeb, a small city in Wisconsin, stated: "People who come into our store now come to buy. We don't have the impulse shoppers....the quality of our customers has increased because they must now travel out of the way to get here, so they're willing to make more purchases." [Wisconsin DOT 1988, 6-7]. Similarly, restaurant proprietors in Tomahawk, Wisconsin, claimed that they gained business as result of tourists stopping in the town intentionally and local residents being more willing to patronize the business district during the heavy-traffic tourist season [Wisconsin DOT 1988, 13]. Elkhader, Iowa respondents also felt that the by-pass had helped their local businesses because residents of neighboring towns could come into the commercial district more easily, presumably as a result of both the by-pass itself and the decreased congestion in the business district [Iowa DOT 1992, 10]. It should be noted that in the examples cited above, the increase in business is attributed to increases in both export and service category transactions in terms of sales to both tourists and local residents. Therefore, a portion of the overall increase in business may represent new exports, and a portion may represent redistribution of existing service or may represent recapture of former leakages.

As noted previously, however, not all by-passed communities experience overall positive impacts. Although many factors play a role in determining the effect of a by-pass on a local economy, one of the most significant determinants of the nature of the impact is the size of the community being by-passed. In general, larger communities fare better than smaller communities, different studies designate differing breaking points, although any such division is necessarily arbitrary. The Iowa literature review found that cities with populations greater than 2,000 were likely to have more benefits and less negative impacts from the by-pass; that communities with populations less than 500 were most likely to face negative impacts, and that impacts on towns of between 500 and 2000 population depended on a variety of local and regional characteristics, including traffic mix, isolation, and location of retail establishments [Iowa DOT 1992, 40]. A national literature review found that the majority of communities cited as having experienced negative impacts had populations of less than 5,000, although it also noted that the total of negatively-impacted communities were a small percentage of communities in this size range studied [NCHRP 1996, 7].

In broad terms, this distribution of impacts may be understood in terms of simple economic base theory: smaller communities need a higher ratio of export to service industry business volume in order to support a local economy. Smaller communities are likely to rely more heavily on through traffic to patronize their local businesses because the amount of customer support needed to support the existing local business community is more than can be supplied by the local population. Seen in another light, smaller communities are more likely to have local economies that are larger than the community in isolation would require. As a result, the removal of through traffic from smaller towns is likely to have a more adverse impact on the existing business sector, since the available pool of local consumption is too small to make up for the loss of exports to through traffic. A good case study of these phenomena comes from the Henderson (1973) research in north central Ohio. In comparing gasoline sales between the relatively large city of Mansfield (population 50,500 in 1965) and the nearby hamlet of Loudonville (population 2,720), Henderson found that, while Mansfield lost higher gross amounts of gasoline sales between 1958 and 1965, Loudonville's losses constituted a higher percentage of its total pre-by-pass gasoline sales. Because of the by-pass, Mansfield lost 7 percent of its gas sales, while Loudonville lost 40 percent [Henderson 1973, 40]. Although, as will be shown below, gasoline sales are often particularly susceptible to by-pass impacts, this proportion is illustrative, especially in light of the fact that a smaller community is likely to have a higher proportion of its business sector involved in highway-oriented trade sectors as a result of the reliance on its export economy, as described above.

A community's susceptibility to adverse economic impact from a by-pass is similarly influenced by the degree and nature of the community's reliance on tourism traffic. Whether the community is a tourist destination, a supply center for nearby tourist destinations, or a point through which tourist traffic passes on the way to destinations elsewhere, tourist expenditures are likely to constitute a significant element of such a community's economic base, and again may have resulted in a business sector larger than the community's population alone can support. The degree to which a by-pass highway affects the tourist-oriented segment of the local economy, however, is dependent

upon the structure of the tourism economy for that location. Regardless of year-round population size, communities that function as tourist destinations are most likely to see their overall business sector enhanced as a result of the lessening of traffic congestion and the removal of the noxious effects of though traffic. Communities that function as supply depots may or may not see their tourist sales impacted; this will depend to a great extent on the degree to which the by-pass makes it easier for tourists to go elsewhere, as will be discussed in the section on outlying development impacts below. Towns that have functioned as service sectors on a route to a tourist destination are likely to experience the most adverse effects on this portion of the local economy as a result of the loss of a significant portion of through tourist traffic. One Scotland study provides a good summary of these tourism effects: of the six communities studied, the three that functioned most as tourism destinations maintained or improved their overall economic situation, while a nearby town that had served as a service center for travelers destined for the tourist destinations experienced significant adverse effects. [Highlands 1979, 13]. The fact that two of the three tourist destination towns are among the larger towns in the study provides some potential complication to these conclusions, but it should be noted that all of the towns are relatively small, ranging in population from approximately 600 to 4000 people.

In summary, construction of a by-pass is likely to have small effects on a community's retail and service economic health; for the majority of businesses in the by-passed community, the effects of a by-pass are likely to result in positive impacts. Such positive impacts may include readily-quantifiable measures of business robustness, such as percentage growth in total sales or rate of stock turnover; but less-quantifiable effects on a business district's accessibility and desirability may also play a significant role in the business sector's post-by-pass operation. Although the by-pass is highly likely to change the composition of the customer mix available to the business owner, such a change may prove to significantly benefit the business owner. Moreover, smaller and more tourist-oriented communities are more likely to experience adverse impacts due to the degree of their economy's reliance on through traffic sales. As will be seen below, however, such benefits are not evenly distributed, and may include hidden costs that are seldom accounted in by-pass studies to date.

### *Distribution of Effects*

As noted previously, not all businesses benefit equally from the by-pass, and some may suffer significant losses because of the diversion of through traffic. Most studies to date indicate that negative impacts are most likely to accrue to businesses that draw the majority of their sales from travelers passing through the community; these business categories are most commonly defined as service stations, lodging, and eating places. Definitions of businesses falling into these categories can be problematic: for example, the lodging places category may occasionally include resorts, bed-and-breakfasts and other businesses that cater to destination travelers rather than travelers passing through the community on the way elsewhere. Eating and drinking places tend to be particularly problematic for researchers; depending on the data used and the data collection method employed by the responsible government agency, it may be difficult to sort out eating

places that cater to though traffic (due to the age of most of these studies, these are commonly classified as "cafes") from locally-oriented businesses, such as taverns and fine restaurants. Most of the studies cited in this report are able to make some distinction between these

The consensus of the by-pass studies examined indicates that, all other factors being equal, gas stations are more likely to experience adverse impacts as a result of their route being by-passed than are eating places and lodging facilities; however, several studies cite no difference in overall gasoline sales. The studies that do evidence a decline tend to be those that differentiate between gas stations on the by-pass and gas stations on the old routes; the significance of this distinction will be discussed in greater detail below. In most cases, these losses, whether expressed as a percentage of total gasoline, as a number of gas stations closed, or in other terms, represent very small amounts. Faville and Goldschmidt, in their detailed studies of six Michigan communities, found that gas sales were impacted in some communities, although not in all. In the city of Adrian, for example, total gasoline sales in the five years following the by-pass has increased less slowly than the county and state [Faville 1960, 21]; in Tripp, South Dakota, gasoline sales declined over five years to approximately 85 percent of their pre-by-pass high mark but subsequently stabilized [South Dakota 1967, 9]. Both of the above studies, however, go on to indicate that, while gasoline sales may have dropped, total sales for these businesses generally increased. This apparent dichotomy stems from an inherent aspect of these studies: they and most other pre-1975 studies rely on data reflecting total sales of gasoline, rather than the sales tax data used to assess other business sectors, as a result of the lack of sales tax data for this category. Studies that include information on total sales, including automobile service and other sales, often find that gains in overall income from auto services and non-gasoline sales offset losses in gasoline sales. It should be noted, however, that the communities for which such impacts are evident are likely to be quite small, and the loss of a single business or a portion of a single business' income often represents a proportionately more significant effect than would be the case in a larger community.

Another significant aspect of the impact of by-pass construction on the highway-oriented segments of the local economy stems from such impacts' spatial differentiation within the community. Unfortunately, many studies ignore this dimension, providing only evidence of overall economic trends and assuming that growth is evenly distributed. The studies that do address spatial impacts demonstrate significant location variances in by-pass impact. This impact, summarized by Wells (1967) in his study of Mississippi towns, comprehensively addressed the spatial differentiation issue: "the aggregate figures conceal some real hardships suffered by marginal firms." Wells found that the increase in total gasoline sales he had noted in the aggregate of gasoline sales in five communities resulted solely from the sales of a single new station located on the by-pass; the remainder of the stations on the by-passed route had lost significant amounts of gasoline sales since the by-pass had opened [Wells 1967, iv]. Faville and Goldschmidt found similar impacts on at least two of their Michigan towns; gas stations in the CBD of Holland were the only ones in the city to not recover previous gasoline sales levels within four years of the by-pass' construction, and taxable sales along by-passed routes in Niles in the

two years following the by-pass were down 15 percent despite increases in gasoline sales across the city [Faville 1960, 64 and 77]. Wells also found similar distributional effects on eating and lodging businesses, although these impacts were generally less severe, a difference that he attributed to both the lesser dependency of restaurants in these locations on through traffic customers and the fact that restaurants and lodging facilities tend to represent higher levels of owner investment than did gas stations, which he found changed ownership much more frequently. As a result Wells inferred that the greater staying power of restaurants and motels stemmed from the fact that the owners were less able to sell and leave the business and thus had to commit more to improving business via other methods [Wells 1967, vi].

Wells' study also provides the clearest examination of another dimension of differentiation in by-pass impacts: in all three highway oriented categories, Wells found that the by-pass resulted in a consolidation of local market share in the largest of the businesses in each category. In examining annual sales data, Wells found that eating and lodging places with over $25,000 in annual sales in the 1960 to 1964 period accounted for a larger percentage of the area's total sales at the end of the study period than they did at the beginning, and that this trend was even more pronounced for businesses along the by-passed route than it was for the communities' business environment as a whole [Wells 1967, 33]. In the non-by-passed control towns that Wells had selected, an opposing trend in favor of smaller businesses had developed over the same period. Wells further concluded that the critical difference between larger and smaller establishments in this setting did not stem from the larger businesses being more successful, which he found was not the case, but that the larger businesses were more stable in terms of ownership due to the level of owner investment in the property. This difference in impact according to size of establishment was summarized as follows:

> [t]he impact of Interstate 55 [the by-pass route] was quite damaging to the three firms that had fallen into the marginal category between 1960 and 1964. It is unlikely that any of the three will survive the working lives of their owners because all three represent an immobile capital investment at places where demand for their respective services has dramatically declined" [Wells 1967, 36].

Of course, the quotation above also indicates one of the significant shortcoming of many by-pass studies, including well-designed and executed projects such as Wells': since one is examining a small portion of a very small local economy, the gross numbers of highway-oriented businesses in most of the communities studied are small enough that one must be wary that any single business that varies for reasons unrelated to the by-pass can significantly affect any group totals or change measurements. Given that caveat, however, the Wells study does appear to corroborate the more limited data of many of the other studies that indicate that by-pass impacts may be unevenly distributed according to factors that include business location and size of operation.

***Regional Competition Impacts***

At least one other area of potential impact merits consideration: despite considerable evidence of the importance of changes in the regional competition to a community to be by-passed, none of the known by-pass studies to date directly addresses this area of concern. Highway by-passes, and indeed any highway improvement, will impact the local business sectors' relationship with other business centers, since improvements in transportation will decrease the friction of distance between two locations. As a result, larger centers that were previously considered too distant to provide direct competition to the by-passed community may, as a result of the by-pass, become a more desirable location for local shoppers as the retail gravity equation is altered. Additionally, by-pass highways often play a role in encouraging the development of business centers on the outskirts of the community, where the improved accessibility provided by the by-pass, coupled with the large tracts of green fields made more amenable to development as a result of the sites' improved accessibility, may provide intense competition for the older, by-passed business districts, which lack these benefits and have lost their former highly visible locations. This research oversight is somewhat bewildering, particularly in the later studies, by which time such effects may be assumed to have become manifest. They appear, however, to stem from an overly rigid definition of the area of study and, in some cases, from a persistence of the assumption that the primary purpose of a by-pass highway is to move vehicles from outside of the by-passed area through that area as quickly as possible. Local use of the by-pass does not appear to enter the equation for most of the studies examined.

In cases where new outlying, or newly accessible, commercial centers are noted, they tend to be met with either confusion or with a rationale for discounting this effect as not stemming from the by-pass itself. Henderson, for example, finds that changes in overall highway retail resulted from newer shopping centers in the outlying areas around Mansfield, "even though the highway undoubtedly made it easier to get downtown" (Henderson 1973, 33). Laypersons also struggle with sorting out the effects of the by-pass from the effects of new development on the by-pass; residents of both Rice Lake and Sturgeon Bay, Wisconsin, blamed the decline of their downtown business environment on new suburban development rather than on the by-pass. The fact that, in both cases, the new development is located on previously unimproved land adjacent to the by-pass is nowhere addressed [Wisconsin DOT 1988, 8 and 15]. In another Wisconsin community, the decline in the town's business activity was attributed to a regional mall over forty miles away although the by-pass' impact on the relative accessibility of that mall to local residents was apparently not considered [Wisconsin DOT 1988, 17]. In the Scotland communities discussed previously, however, the negative impacts of the by-pass on the local economy were blamed with little equivocation on the fact that local residents could shop with greater ease in the larger communities of the region [Highlands 1979, 40]. Additional anecdotal evidence comes from the Iowa studies, in which at least one local hardware store employer claimed to have lost business as a result of local people using the by-pass to travel to larger centers for shopping. [Iowa DOT 1992, 11]

It should be noted that the degree to which a by-pass increases the accessibility of a distant business center depends in part upon whether the actual highway improvement being considered is

a single highway segment designed to by-pass a community, or is being constructed as part of a larger highway route that replaces an older highway passing through several communities. If the project under consideration is simply one by-pass, as is often the case in rural areas where the route that runs through the community is still the primary highway for the area, the impact on the accessibility of distant markets is likely to be less than in cases where a completely new highway is under construction. Depending on the spatial characteristics of the community, a single by-pass may increase the accessibility of the distant center, particularly for those that live on the opposite side of the community, but the impact is not likely to be as momentous as if an entirely new highway had been constructed. Either scenario, however, appears increasingly likely to lead to the construction of outlying commercial centers that will directly compete with existing commercial centers. This is clearly an aspect of the economic impact of by-pass construction that merits a great deal more attention than it has received to date, as it has a profound potential to not only affect existing business centers, but the land use and spatial characteristics of large areas of suburban development.

### *Conclusions*

A review of studies of the economic impact of highway by-passes clearly leaves a variety of questions unanswered or unsatisfactorily answered; it is possible, however, to draw some useful conclusions. In general, most by-pass highways will have relatively minor effects on the economic structure and health of their communities, and for many community businesses and residents, most of the effects will be a least mildly positive. Smaller communities are likely to be more reliant on through traffic and thus may experience a higher level of overall adverse impacts; communities in which tourist expenditures are a significant part of the economic base may experience more severe impacts depending on the nature of the tourists' use of the community. Individual businesses that derive a higher proportion of their income from through traffic are more likely to be adversely affected by a by-pass; such impacts for an individual business may range from the loss of a small percentage of total sales to the closing of the operation. Businesses in older centers, particularly those in the CBD or on the by-passed route, are likely to experience significant impacts, and there is some evidence that smaller firms are more likely to close or scale back operations as a result of these impacts. Finally, it has been noted, although not adequately documented in known by-pass studies to date, that the construction of a by-pass may impact existing business centers by forcing them to compete with new business centers constructed on or near the by-pass and with larger business centers that previously experienced too much friction of distance to provide effective competition to the by-passed communities' businesses. As a result of all these factors, no two communities will experience the same set of impacts from the construction of a by-pass; some will find that the by-pass greatly improved the economic health of the community, while a few will experience significant adverse impacts and many will notice only relatively minor impacts of any type.

With the above conclusions in mind, it does appear that there are steps that communities can take, and that individual businesses can be encouraged to take, that will lessen the negative effects and

may turn some negative impacts into assets. First, at the community level, community marketing efforts have the potential to significantly affect the overall impacts of the by-pass, particularly for communities that have relied on tourist through traffic. By establishing the community as a potential destination, rather than simply a basic service center, travelers may be induced to stop and make purchases in the community despite its being out of their way. An excellent example of community marketing is Mt. Horeb, Wisconsin, a small bedroom community outside of Madison that has relied on through traffic to other tourist destinations in the region for much of its recent history. Construction of a by-pass around Mt. Horeb threatened the tourist element of the local economy; the community responded with the formation of a variety of initiatives intended to capitalize upon the Mt. Horeb's history and ethnic heritage. The goal of these efforts was to recast Mt. Horeb as a destination, albeit a minor one, for tourists in the region. The resulting image of Mt. Horeb as the "Troll Capitol" of Wisconsin has been marketed in much the same manner as an individual business might be marketed: via print and electronic media, through promotional events, and using other methods. In Mt. Horeb, however, the coordinated nature of these promotional efforts has outstripped what any of the local small businesses could have achieved independently.

Highway signs are particularly significant elements of community response to a by-pass, both for aggressive marketers like Mt. Horeb and for communities with more modest aspirations. Directional signage on the by-pass route appears to be a point of particular interest for businesses in by-passed communities; those studies that include such data often indicate a great deal of frustration over state highway department signs that are inconspicuous, sometimes poorly placed, and which fail to tell the traveler anything about the community other than its existence. Evidence that the by-passed town offers a unique experience, or at least offers goods and services that may be of use to the traveler, are a requirement of signage that benefits the by-passed elements of the local business community.

Finally, many individual businesses will most likely need to change aspects of their operation in order to function in the post-by-pass community. Depending on the characteristics of the individual business and the local economic structure, it may be possible for the business to recoup at least part of its losses by adapting its offerings to the needs of the local populace, thus substituting service sector income for the base sector income lost to the by-pass. Although replacing base income with service sector income may make some analysts nervous, there is considerable evidence that in all but the smallest communities, such substitution has no adverse effects on the business or, to the extent known, on the economic health of the community. The fact that such businesses can find enough local support to survive appears to indicate that the service sector of the local economy is sufficiently strong to absorb this new business. The studies cited include several examples of adversely impacted businesses shifting their focus to serving local customers; as Wells concluded with regard to gas stations, "even very successful stations on the old road suffered losses of gallonage, although their service work from local customers seemed to keep them as prosperous as before." [Wells 1967, 56] In these and other similar cases cited in several of the studies, gas stations facing decreasing amounts of gasoline sales due to the

loss of through traffic made up for this loss by providing additional automotive services, selling groceries and convenience items, and pursuing other activities that provided augmented services to local customers. This strategy, however, may be of limited use in extremely small communities. Another means of adapting to the change in the retail environment that may be available to some businesses is to change product offerings to better suit destination travelers; this approach was best exemplified by the Mt. Horeb business owner quoted on page 5, who intentionally changed the product lines offered from those that appealed to impulse shoppers to those that were of a sufficiently high order to induce shoppers to intentionally travel to this store for the purpose of buying these goods.

Adaptations such as these may appear simple and logical to one removed from the situation, but for the individual business owner struggling with declining sales as a result of a fundamental change in the business' environment, it may be extraordinarily difficult to think in such terms. Contemplating a fundamental shift in business operations at a time of financial distress may represent more of a risk than the business owner is willing to take, and a lack of information as to the precise reasons for the change in the business environment, as well as examples of how others have dealt with similar situations, may paralyze the business owner. Local economic development organizations, therefore, must provide the business owner with information that he or she is not likely to access independently, including an explanation of why the by-pass is having a given effect on the business, and examples of how other businesses in similar situations have effectively dealt with similar changing situations. Providing such information may help enable the business owner to make the appropriate changes; other assistance that may help the business owner navigate the change may include technical consulting on issues unfamiliar to the business owner, such as new lines of products, and seed grants or low-interest loans to support building improvements or the purchase of new inventory.

## Predictive Methodologies

A second purpose of this literature review was to examine methods for predicting economic impacts from highway by-passes, particularly to determine whether a given by-pass should be constructed or not. Unfortunately, the number of studies that attempt to forecast economic impacts in any substantial manner are quite small, and the degree of predictive systematic analysis of by-pass economic impacts are minimal at best.

Although a section regarding "economic impacts" is sometimes included in more recent Environmental Assessments (EA) and Environmental Impact Statements (EIS), these types of studies made little attempt to comprehensively examine the economic aspects of by-pass highway impacts. Unlike the pages of quantitative data and survey forms used to substantiate conclusions regarding environmental, historic resources, and other impacts, economic impacts frequently receive only a few pages consideration, and generally lack quantitative or systematic qualitative data. Many of the EIS and EA reports provide only general "gut impression" data, noting, for example, that a town has a lot of truck-dependent businesses and that a by-pass would probably

boost these businesses, or that through travelers are probably not going through a business district because of reliance on another route. Serious, comprehensive analysis of even overall impacts on highway-oriented businesses, one of the simplest means of framing the issue, is largely absent from most of the by-pass forecasting reports examined.

A second group of predictive studies, originating predominately in Texas, relies upon detailed statistical modeling and elaborate multiple regressions to attempt to draw conclusions as to the potential overall impacts of different routes upon the community examined. In many cases, the results drawn are inconclusive, as the regression coefficients fail to indicate any noteworthy correlation. Given the extraordinary complexity of community economies and individual by-pass scenarios, developing sufficient dummy variables and otherwise adequately accounting for all of the possible factors in a potential by-pass' economic impact appears to be impossible in any but a crude overall manner. Although such modeling may work well in traditional transportation planning, the applications examined for this report appear less than convincing; such results rely on the assumption that all aspects of a community's economic environment can be accurately quantified, a conclusion that does not appear to be substantiated. Multiple regression methods also do not appear to work well in determining the distribution of impacts, again presumably due to the unwieldy number of variables and permutations involved. Moreover, in at least one case such statistical conclusions appear to have influenced the incorrect interpretation of survey results as supporting a particular highway route, as discussed previously.

One individual study and one set of studies reviewed for this report made a more comprehensive attempt to outline potential economic impacts, although both are problematic. A study of St. George, Utah, in 1965 relied upon simple economic base theory to determine the potential scope of impact of a single by-pass proposal for this small regional hub [Evans, Lueck, and Thompson 1965]. The authors enlisted the aid of at least a substantial proportion of St. George retail business proprietors, and on specified days these individuals kept a running tally of persons coming into the business who were local residents or who were traveling through the area. Differentiating between the two was at the discretion of the business operator, who apparently relied upon his or her familiarity with the local populace. Non-retail businesses, including government offices and other non-private employers, were asked to estimate the proportion of their business deriving from local and non-local clients. This information was supplemented by a traffic stop survey of originations and destinations; the non- St. George proportions of all of the above were used to estimate the proportion of city employment directly and, via a multiplier, indirectly attributable to through traffic. This data was then used to predict a range of possible impacts depending on the degree to which through travelers might discontinue use of St. George businesses. It was also hypothesized that increases in speed would lessen travelers' overall need to stop and probably further impact St. George businesses, but no predictive attempt was made. The methodology of this study appears among the most likely to produce reliable predictive information, but it does so at the cost of an extensive data-gathering system that is probably not possible with a larger community or without extensive local and Department of Transportation assistance.

The set of studies cited previously was conducted in Wisconsin in 1988, and is highly non-quantitative in nature. Each of these studies pursued the identical methodology, which relied upon selection of a group of local "experts," which generally included government administrators and officials, local planners, small business owners, large business administrators, professors, farmers, and other active local citizens. Regional planning or transportation agency staff primarily did the selection of panel members. The panel's input was sought through a three-step identification and consensus-building process: panel members first individually completed a questionnaire and colored a map that indicated where and to what extent they thought different types of impacts would occur given a particular by-pass configuration. The second step involved repeating the identical process, but after reviewing a compilation of all of the panel members' answers from the first round; the purpose of this step was to build consensus and narrow the range of answers. The third step brought all of the panel members together, divided them into small groups, and requested each group to jointly color a single map to indicate what changes they thought would occur in their community as a result of any given by-pass configuration.

Although this process did result in a consensus of opinion at least part of the time, the process did face numerous obstacles, in terms of both design assumptions and implementation. First, the process assumed that all of the panel members had sufficient experience, not only with their community but also with by-pass highways in general, to make confident predictions. This assumption is potentially undermined by the fact that the three communities to which the process was applied are all relatively isolated and generally stable in terms of population; it is likely that at least some of the panel members had only limited experience with by-pass highways upon which to base their conclusions. Second, the consensus-building process appears problematic because of the likelihood that panel members may change their answers in the second round to more closely approximate those given as the norm because of a lack of confidence in their own conclusions, rather than a measured reconsidering of their earlier positions. The experts in each panel ranged widely in terms of educational level and degree of experiences with such matters; although the anonymity of the consensus process was intended to avoid intimidation, the possibility that the agreements obtained were to some degree coerced cannot be entirely discounted. A similar pitfall is apparent in the third step, which assumes that all voices in such a small group will be equally considered and that members with less community status will be accorded the same weight as the "professionals." Pragmatically, the process was only completed in one of the three communities. In one, only five of the 30 questions had developed consensus after the second round; the process was not adequately flexible to accommodate a situation in which positions were divergent and more strongly held, and as a result the strength of the conclusions was significantly compromised. In the second community, process administrators were unable to get enough of the panel members to return their surveys, and were forced to attempt to complete the process with very limited participation and accordingly could develop only weak conclusions. Although the Wisconsin process does indicate a noteworthy effort to accommodate non-quantifiable dimensions of the experience via the input of local residents, the process employed clearly faces significant limitations.

Finally, three reports lay out potential methodologies for conducting studies of by-pass economic impacts; two of the three may have some potential for applicability. The oldest study, originating in the Engineering Research Division of Washington State University (1968), develops an elaborate process of quantifying the desirability or undesirability of various potential impacts for short-, medium-, or long-range time intervals by scoring each on a scale of 1 to 10 for each period considered. A process for weighting the resulting raw scores is used to determine a total score for each scenario, which can then be compared to scores for other alternatives. However, this process necessarily requires a great deal of arbitrary selection of values, both with regard to the raw rankings and the weighting; the complexity of the process also makes it unlikely that it could be completed without considerable subjective input from planning staff itself, thus removing the possibility that the rankings could be done by area residents, which would make the arbitrariness of the process more palatable.

The other two methodological studies present less of a system and more of a process for determining impacts. The study of beltway impacts by Payne-Maxie consultants (1980) includes a five-step analysis process:

1) defining local conditions and establishing framework for analysis, with an emphasis on the local political environment and previous controversies;
2) identifying "realistic" transportation and land use policy options;
3) evaluating the likely consequences of each option in comparison to the option of doing nothing;
4) determining the potential scope of complementary or mitigating measures; and
5) preparing a recommendation that includes an evaluation of positive and negative impacts and their distribution.

A similar method, but one emphasizing a maximum of community input, is outlined by the Federal Highway Administration's Office of Environment and Planning. Its five-step process proceeds as follows:

1) define project and study area;
2) develop community profile, including an exploration of community history, social subgroups and their geographic limits, and an examination of the community in the context of similar others;
3) analyze the potential impacts according to scale, severity, duration and reversibility;
4) identify potential solutions and address adverse impacts; and
5) document findings.

Both of the above processes appear to offer the rough outlines of a process that would comprehensively examine the possible impacts of a by-pass; the fact that so few of the studies examined have approached this level of comprehensiveness raises the question of the degree to which such outlines may be applicable to real-life scenarios. These proposals, however, do not provide a blueprint for pursuing a by-pass economic impact study; what they provide is merely a sketch map of the scope of the work required.

## Conclusion

All of the forty-one studies reviewed in this section demonstrated weaknesses in data collection due to incomplete data by classification over time, unreported data due to confidentiality restrictions on small samples of individual types of economic activity, among other problems. None of the processes utilized were successful in predicting, or even directly demonstrating, a cause/effect relationship of an economic change due to a by-pass-highway construction, due to the multiplicity of factors such as change in marketing techniques, demographic changes, among others, community or merchant activities, among others No cost/benefit studies were found among them.

While no study could claim direct causation, most presented some evidence that the construction of a by-pass-highway was a positive factor in the community's economic development. Therefore, it should be noted again, that a highway by-pass is not likely to "kill" a community's economy, and the by-pass may result in improvements to the business environment that significantly improve the community's overall economic health. It is likely, however, that at least some businesses will be adversely impacted; these businesses are likely to fall into relatively narrow categories. Otto and Anderson (1995) provide an excellent summarizing perspective:

> The experiences of this sample of by-passed communities suggest that a new by-pass is not a catastrophic event for their retailing sector. As with most change, there are opportunities as well as threats. With an awareness of the process as well as possible impacts, communities in rural transportation corridors can work to adjust and take advantage of by-pass situations [Otto 1995, 18].

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# PART II
# EXPERIENTIAL ANALYSIS

Six cities with populations under 35,000 were selected for on-site visits. Those cities were selected as three sets of city-pairs and all six cities are County Seats. One city in each pair has a by-pass highway and the other does not. The three city-pairs are: (1) Eaton and Greenville located in the southwest corner of the state, (2) Kenton and Upper Sandusky, located in the northern part of the state, and (3) Wooster and Mt. Vernon, located in the central part of the state and northeast of Columbus.

Both Eaton (No. 1 on Locator Map) and Greenville (No. 2 on Locator Map) are bisected in an east/west manner by US 127, which runs to the north/south. (The Locator Map is provided at the end of Part II.) US 127, the by-pass highway around Greenville to the east, was constructed in 1967-68. Eaton has no by-pass highway. The second city-pair, Kenton (No. 3 on Locator Map) and Upper Sandusky (No. 4 on Locator Map), has a total of 11 major routes transversing the cities. Kenton has six major routes converging through the city without a by-pass highway. Upper Sandusky has five major routes through town with a by-passed highway, US 23, which was constructed in 1962-63. The third city-pair, Wooster (No. 5 on Locator Map) and Mt. Vernon (No. 6 on Locator Map), are college towns. The College of Wooster is located in the heart of Wooster, and approximately seven miles southwest of Mt. Vernon is Kenyon College, located in Gambier, Ohio. Wooster has six major routes passing through its environs and two by-pass highways: an east/west by-pass on US 30 to the south of town and a north/south by-pass on State Route 83 to the east of town. The State Route 83 by-pass was constructed between 1972 and 1976. Mt. Vernon does not have a by-pass highway.

In the summer of 2000, a one-to-two-day on-site visit was made to each city. The central business district (CBD) of each town was observed and photographed, in addition to any other existing nodes of retail development. Interviews were conducted with community leaders in each city. These community leaders included mayors, city managers or other city officials, county officials, administrators or planners, Chambers of Commerce directors, and/or area economic development officials.

## EATON-GREENVILLE

***Retailing:*** The CBDs of both cities appeared to be relatively prosperous with a secondary tier of retailing. This includes small specialty shops; family operated restaurants, and office activities. Greenville had a one hundred percent occupancy rate of a four-block CBD (Picture 3, page II-13) on Main Street running east/west and intersecting US127. Eaton has a similarly located three block CBD (Picture 1, page II-12) with one vacant storefront. Both cities also had a scattering of retail and service along US 127 for several blocks north and south of Main Street. Both cities have a strip-mall anchored by Wal-Mart and Krogers along US127 several miles north of their

CBDs in addition to fast-food restaurants such as McDonalds, and Burger King (Picture 2, page II-12 & Picture 4, page II-13) . Greenville has a second strip-mall anchored by J.C. Penney. The CBD in both cities were photographed around 3:00 p.m. and show that the majority of parking spaces are occupied. Therefore, it is concluded that business is thriving in the city core.

***Lodging:*** Eaton has one motel, an Econo-lodge, located approximately five miles north of the city. It is an old concrete-block structure, circa 1940. It appears to have been constructed to serve travelers from the original US 40 rather than the city of Eaton. It now serves the traffic exiting from the US 127 interchange with Interstate-70. The only other accommodation in Eaton is a boarding house located downtown that had no vacancies. Greenville has two motels. One, an older one-story structure is located a half-mile to the east of town on State Route 571 (SR 571). The other is a new modern style multi-story unit of the Comfort Inn chain. This modern motel, complete with indoor swimming pool, is located adjacent to the intersection of Kruckeberg Road and old US 127. Kruckeberg Road runs easterly and has an interchange on the US 127 by-pass.

***Manufacturing:*** Eaton is the county seat of Preble County. The County has 30 major manufacturing plants employing 3,689 persons according to the Preble County Area Community Improvement Corporation. Greenville is the county seat of Darke County. Darke County has 25 major manufacturing plants employing 4,609 persons according to the Darke County Chamber of Commerce.

***Interviews:*** Interviews were held in Eaton with the Assistant City Manager, City Engineer, Assistant County Administrator, and the Director of the Chamber of Commerce. All persons interviewed were positive in their responses. They all agreed that the downtown saw a change in occupants when the K-Mart and Kroger strip malls were built north of town, but that it is still viable. The merchants complain that there is insufficient parking. They also complained about the heavy truck traffic passing through town on US 127. A committee has been formed to study the possibility of requesting a by-pass highway, but it has just begun to meet.

Interviews were held in Greenville with the mayor, administrative assistant to the county commissioners, president of the Chamber of Commerce and Director of the Economic Development Department. Visits were also made to the local newspaper, *Daily Advocate,* and the Garst Historical Museum. All comments were again positive. The only negative reported was a story told by the mayor about representatives of a Japanese manufacturing firm who visited the town after obtaining an air photograph of the city. This photo showed the by-pass highway running edge-to-edge of the print and they assumed it was a four-lane divided highway connecting the city to other locations. When they saw it was a by-pass highway ending into a two-lane highway both north and south of the city they were disappointed and left. It was agreed that the CBD never suffered from the by-pass construction but prospered when the heavy truck traffic was eliminated from the city's core. The CBD had a change in occupants when K-Mart, Kroger, Wal-Mart, and J.C. Penney built strip centers north of town.

A cursory scan through the *Daily Advocate's* microfilm and a loose-leaf binder of clippings at the Garst Historical Museum uncovered mostly the reporting of facts about the construction of the by-pass highway. There appeared to be more concern about the new retailing along old US 127 then about the new by-pass US 127. One typical article stated "Old US 27 (Wagner Road) growing as the ever expanding fast-food retailing and shopping creates traffic jams." While having a hair cut at a (there are three of them) downtown barbershop the interviewer was regaled with stories of how horrible the truck traffic was before the by-pass highway was built. The proprietor stated that the by-pass highway had no effect on his business. His biggest problem was not enough parking around his shop.

***Conclusions:*** Contrary to the popularly held thesis that a by-pass highway diverts traffic from the central part of a city and destroys retailing activities located there, the opposite appears to have happened in Greenville, Ohio. If any causal effect can be attributed to the by-pass highway, it must be a positive one. Compared to Eaton, without a by-pass highway, Greenville has complete occupancy of its CBD retail space, while Eaton had one vacant storefront. Greenville has a modern motel, while Eaton has an antiquated one located five miles out of town. Both cities have suburban style strip malls located in a similar pattern north of town with Greenville having the larger amount of space. Darke County, of which Greenville is the county seat, has 25 percent higher manufacturing employment than Preble County with Eaton as its county seat. Community leaders in Greenville are pleased with the by-pass highway having removed the heavy truck traffic from downtown and the Eaton community leaders have formed a committee to study a possible request for a by-pass. It would appear that the change in tenancy of the CBD was caused by the new suburban style strip malls in both communities. Both communities appear to be similar in development pattern, with Greenville having slightly more of everything when compared to Eaton. Therefore, it can be concluded that the by-pass highway in Greenville brought no negative effects, but only positive ones.

## KENTON - UPPER SANDUSKY

***Retailing:*** The CBD of Kenton was the most distressed of all six cities. The Hardin County courthouse occupies a full city block in the center of town with the four block faces fronting on it constituting the CBD. The southern block now contains a new Kenton City Hall and County Administration Building. The eastern block (Picture 5, page II-14)face is completely vacant and the street in front of the vacant stores is blocked to traffic for repair. The northern block face is 50 percent vacant, with only the western block face completely occupied. Thus, the current CBD is less than 50 percent of its original state. State Routes 68, 31, 309, 67, and 53 all converge around the courthouse square. With the road on the east side of the courthouse closed, all traffic must circle around the other three sides of the courthouse. During the site visit, a constant stream of heavy truck traffic was observed circling the courthouse throughout the day. Parking is extremely difficult to find. While diagonal parking was found in most other CBDs, Kenton has parallel parking on the opposite sides of the street from the Court-House, and restricted parking

in front of the City Hall and County Administration Building. Krogers and K-Mart anchor strip malls along Route 67 to the northeast of town (Picture 6, page II-14).

Upper Sandusky enjoys a very prosperous CBD, recently obtaining several State grants for street furniture and refurbishment of the CBD through a very active "Main Street" program (Picture 7, page II-15). The CBD contains a super-market and a two-story department store. The CBD vacancy rate was estimated by the Chamber of Commerce Director to be less than 10 percent. It is also the only city, of the six examined that did not have a Kroger; K-Mart, Wal-Mart or other anchor stores in a suburban type strip shopping mall. The mayor stated that these phenomena came about do to the strong influence of a "Zero-Growth" constituency in the community. He further stated that approximately five years ago K-Mart optioned a tract of land north of the city on Route 68, but never exercised the option after a popular vote on their development was defeated by 60 percent of the voters. There are persistent rumors that Wal-Mart is looking at a tract of land on US 30, east of town, but these rumors have never been confirmed and there has been no activity. The only other cluster of commercial activity is located on US 30 to the east of town in adjacency to the interchange with By-pass Highway US 23. This cluster consists of two motels, several fast-food restaurants, several gasoline service stations, and a small four-store strip-mall of convenience stores. The CBD was photographed around 3:00 p.m. showing that at least 75 percent of the parking spaces were being utilized by shoppers.

***Lodging:*** Kenton has one motel, a unit of the Ameri-Host chain, located across from the strip-malls on US 67 northeast of town. Upper Sandusky has two motels, a unit of the Comfort Inn chain and a unit of the Ameri-Host chain. They are both located immediately adjacent to the route 30 interchange with the Route 23 by-pass highway.

***Manufacturing:*** Kenton is the county seat of Hardin County. The county has 39 major manufacturing plants employing 2,698 persons according to the Hardin County Economic Development Council. Upper Sandusky is the county seat of Wyandot County. Wyandot County has 52 major manufacturing establishments with 5,439 employees according to the Upper Sandusky Area Chamber of Commerce.

***Interviews:*** Interviews in Kenton were conducted with the director of the City Department of Safety & Health, the County Community Service Coordinator, the director of the Economic Development Department, and the director of Regional Planning. Interviews in Upper Sandusky were held with the mayor, county director of economic development, secretary to the Board of County Commissioners, and the director of the Upper Sandusky Area Chamber of Commerce.

In Kenton, the most telling comments came from the director of the Regional Planning Commission. He stated that the main reason for the horrible plight of downtown is due to the ownership of the property by a very few merchants who attempted to control business by limiting or not renting to competition and outsmarted themselves. Limited parking space and the presence

of heavy truck traffic add to the problem so that shopping is almost non-existent in the CBD, with the strip malls northeast of town enjoying the market. The Planning Director sees the need for a by-pass highway, but stated there is no unified effort in the town or county to lobby for one.

In Upper Sandusky, the mayor is very pleased with "his-town." He has been mayor for five terms. The City has a new city building, a new fire station, a new police station, new street furniture, new street lights in the CBD, and newly renovated building facades. It appears to be an extremely clean and prosperous community. The mayor gives credit to the "Zero-Growth" people for keeping Wal-Mart, K-Mart, Krogers, and other chains out of town. He is very pleased with the US Route 23 by-pass that keeps heavy truck traffic out of town. He is also pleased with the hotels and fast food restaurants "out by the-by-pass," but is concerned over the future of the land along US Route 30 that runs from town out to the interchange. The Director of the Chamber of Commerce echoed the mayor's comments and gave credit to the town's merchants for there efforts in the Main Street Program, but pointed out that there is a Wal-Mart located just 25 miles away in every direction. Thus, Wal-Mart may not feel a need to locate in Upper Sandusky. All seemed pleased with the combination of a strong downtown, by-pass to keep the heavy traffic out of downtown, and an absence of suburban strip malls.

***Conclusions:*** The comparison of Kenton and Upper Sandusky provides the same conclusion as the Eaton and Greenville comparison but to a much stronger degree. The city with the by-pass highway is enjoying prosperity to a much higher degree, while the city without a by-pass highway has a withering central business district. Once again disproving the hypothesis that a by-pass highway harms the city's central business district. Wyandot County with a by passed city has two hundred and three percent higher manufacturing employment than Hardin County which contains a non by-passed city. There is no doubt that Upper Sandusky and Wyandot County is enjoying much greater economic prosperity than Kenton and Hardin County. If any causal effects can be attributed to the by-pass highway's existence, it must be a positive effect, even though Kenton might be an anomaly due to its intransigent merchant land-lords, and Upper Sandusky might also be an anomaly due to its united front on no growth.

## WOOSTER-MT. VERNON

***Retailing:*** Of the six cities, Wooster, a city by-passed on the east by SR 83 and on the south by SR 30 has the most prosperous CBD by far of any of the six cities visited. Downtown Wooster has a four-story department store operated by the Freedlander family (Picture 8, page II-16). It has a full-scale food super-market, outlet stores for Rubbermaid products and RevereWare. It has a unit of McDonalds and Burger-King, a full line hardware store, several restaurants, an automobile dealership and a variety of specialty shops. The Center of the CBD contains two off-street parking lots, street furniture, and contemporary street lighting. Wooster's CBD has a six percent vacancy rate according to the Wayne County Chamber of Commerce. In addition, Wooster has a large suburban retail complex northwest of the city on SR 83. Anchor stores include Elder Beerman, J.C. Penney, Wal-Mart, and K-Mart. National chain stores such as

Staples, Radio Shack, and Blockbusters are also represented (Picture 9, page II-9). A four-screen movie theater and units of fast-food chains complete the complex. Thus, McDonalds and Burger King are located in both the CBD and the suburban shopping complex.

Mt. Vernon, without a by-pass has a CBD that pales by comparisons. The Mt. Vernon CBD (Picture 10, page II-17) stretches south from the central monument square for three tree lined and landscaped blocks. It is obvious that a recent revitalization effort was carried out in the CBD, but a vacant theater building and several vacant storefronts account for an approximate 15 to 20 percent vacancy rate. A much larger shopping area (Picture 11, page II-11) is located along Route 36 to the northeast out of town. There are four separate strip malls anchored by Krogers, Wal-Mart, K-Mart, containing Staples, Radio Shack, other specialty stores, and rounded out with fast-food units of national chains. The oldest of the strip centers is undergoing renovation for a new list of tenants. This area also includes an automobile dealership, full-line hardware and Lowes home improvement store. The area also contains several medium price restaurants, and a four screen movie theater This is clearly a case of where the bulk of retailing has shifted from the CBD to the suburban area, leaving the former CBD with restaurants and services rather than retailing.

***Lodging:*** Wooster has four modern motels. There is an Amerihost Inn south-east of town on Route 30 in immediate adjacency to the Route 83 by-pass highway interchange; and another Amerihost Inn north-west of town on Route 3 next to the by-pass highway 83 interchange. There is an Econolodge located next to the southeastern Amerihost, and the Best Western. Wooster Plaza is located downtown. Mt. Vernon has an older motor inn, the Dan Emmett House, located just west of the CBD on Howard St. and two modern motels, Super 8 and Holiday Inn Express, located in the suburban shopping strip northeast of the city.

***Manufacturing:*** Wayne County, of which Wooster is the county seat, has 30 major manufacturing establishments employing 14,900 employees according to the Wayne Development Council, Inc. Knox County, of which Mt. Vernon is the county seat, has 19 major manufacturing plants that employ 6,068 persons according to the Mt. Vernon Area Development Foundation, Inc.

***Institutions of Higher Education*:** Wooster College, a liberal arts school is located in the north central portion of the city of Wooster. The college's Summer Light Opera season attracts tourists to the town from a regional market. Nazarene College, a very conservative church related college is located northeast of Mt. Vernon on Route 3. Kenyon College, a very liberal institution is located in Gambier seven miles to the east of Mt. Vernon. The road to Gambier is the same route upon which the suburban strip malls are located, and provides the nearest shopping area for the Kenyon College faculty and students.

***Interviews:*** Interviews were held in Wooster with the city engineer, county planning director, director of the Wooster Chamber of Commerce and the director of the Wayne Development Council, Inc. and the Wayne County staff planner. Interviews in Mt. Vernon were held with the mayor, vice president of the Mt. Vernon-Knox County Chamber of Commerce, president of the Area Development Foundation, Inc. and the Knox County director of planning.

All community leaders in Wooster agree that the by-pass highway to the South and the one to the East have removed all heavy truck traffic from the downtown area and have permitted consumers to travel freely to the suburban shopping district to the North-West. They credit the Freedlander Department Store, and outlet units of "Rubbermaid" and "Revere" for anchoring the CBD, and keeping it an active shopping destination even after the opening of the suburban shopping area to the North-West of town. The CBD merchants' organization is responsible for the installation of the downtown off-street parking, and the sponsorship of a series of activities (the USAF Singing Sgts. were scheduled for a concert during the site visit) to attract people downtown. Wooster College faculty and students provide an academic year market, and the College's "Ohio Light Opera" brings tourists to the city in the summer.

In Mt. Vernon, the County Planning Director stated that the City and the County plus the Area Development Foundation jointly funded a Knox County Comprehensive Plan prepared by the consulting firm Poggemeyer Design Group, Inc. The Master Plan proposes a by-pass highway to the East of town, and/or a system of widened roads to connect the major routes to the West of town. Route 36 to the northeast of town not only connects Mt. Vernon to Gambier with Kenyon College, but is also the route to Apple Valley. Apple Valley originally planned as a summer community around a large lake, has become the year around residence of some 1,500 homes, and is anticipated to grow to 4,000 units. A large number of these residents commute daily to the Columbus Ohio area (35 miles) for employment.

All also agreed that the CBD has suffered since the suburban style strip centers located along Route 36 to the northeast of town. Renovation of the street lights, façade treatments, tree plantings, off-set parking, etc. have improved the appearance of South Main Street in the CBD, but the vacant store fronts and the vacant movie theater attest to the CBD's declining state.

## SUMMARY OF CONCLUSIONS

1. The three cities with a by-pass have prosperous Central Business Districts.

2. The city with two by-pass highways has the most prosperous Central Business District.

3. Two of the three cities without a by-pass have declining Central Business Districts.

4. Five of the six cities have suburban style strip shopping centers along existing major routes to the north-east or north-west of the cities

5. The counties that contained a county seat with a by-pass highway contained a larger number of manufacturing establishments employing a larger number of persons than did the three counties where the county seat did not have a by-pass route.

## THEREFORE:

1. It would appear that the existence of suburban style strip malls on the periphery of town is a blighting influence on a city's central business district, while the existence of a by-pass highway produces a positive effect on the central business district.

2. The existence of a by-pass highway around the county seat has a positive impact on the location of industrial activity within the county

The above data was presented as a preliminary report at the regional conference of the Ohio, Kentucky, and Indiana Chapters of the American Planning Association in Columbus, Ohio on September 21, 2000. It was favorably received by an audience of city planners. Following this, the data was presented at a "Project Review Meeting" at the headquarters of the Ohio Department of Transportation in Columbus, Ohio.

During the project review, the fact that all six cities visited were County Seats was noted. "Could it be that the existence of the court house is responsible for attracting a sufficient number of persons to maintain the viability of the central business districts in the cities?" Thus, it was decided to visit an additional five cities that were not county seats. In addition, Steubenville, a city with a known distressed CBD, was included. Following is a report of these additional visits:

## DELPHOS

Delphos (No. 7 on Locator Map)is located in the northwestern corner of the State of Ohio. It lies equally distant from Van Wert and Lima. It is by-passed by U.S. Route 30 two miles to the north. It is not only, not a county seat, but lies at the intersection of Allen, Putnam, & Van Wert Counties. Delphos was originally settled by German immigrants as the center of a farming community along the Miami-Erie Canal. The right-of-way of the canal remains within the city and is used to promote the city to tourists (Picture 12, page II-18). It is also the site of "Canal Days" an annual summer festival. According to the local Chamber of Commerce, the Delphos CBD still serves the needs of the farming area and also contains a number of specialty shops oriented to its Germanic heritage. A large regional shopping mall in Van Wert and a like mall in Lima provide first line shopping for the local residents. The Chamber estimates the vacancy rate of the CBD to be under 10 percent. Both the Chamber staff and the City Clerk credit the Route 30 by-pass for assistance in bringing customers to the specialty shops within Delphos and for providing an easy

access to the two malls in Lima and Van Wert for the inhabitants of Delphos. During the site visit to the CBD, it appeared to be viable, street parking was occupied, the restaurant was crowded at lunchtime, and the only motel (eight units) was full.

## SALEM

Salem (No. 8 on Locator Map) lies in the northeast corner of the State of Ohio and like Delphos is not a county seat. The Northern half of Salem is located in Mahoning County and the Southern half in Columbiana County. The town was originally settled by members of the Society of Friends that migrated from Maryland, New Jersey and Pennsylvania. According to the Director of Planning, Salem has not changed much since the end of World War II. The city has lost a little population while Perry Township, which encompasses the city, has gained slightly in population thus keeping the region at approximately 17,000 population. The city continues to serve as an employment, health, educational, and shopping center for its region. The Salem central business district (Picture 13, page II-19) has less than a 10-percent vacancy rate, while supporting three strip shopping malls on its periphery (Picture 14, page II-19). In the opinion of the city's Planning Director, the US62-SR45 by-pass has benefited the community by assisting the Salem City Industrial Park and the construction of the first new residential subdivision in the past ten years. Neither he nor the staff planner could identify any negative effect of the by-pass construction on the town. A majority of the downtown free parking spaces was filled during the site visit when observed in both the morning and the afternoon, and there were few vacant tables during lunch at the downtown café while eating lunch. The clerk at the Chamber of Commerce, the only person available for an interview that day, echoed the Planning Director's opinion on the by-pass highway. She stated that the Chamber President gives the by-pass credit for the operation of the industrial park, and would like to see a by-pass on the east side of town as well.

## MT. ORAB

Mt. Orab (No. 9 on Locator Map) is situated in the Southwestern area of the State of Ohio. It lies in Brown County, approximately 40 miles east of Cincinnati and one mile south of State Route 32, the Appalachian Highway. The population of Mt. Orab is slightly under 2,000. It originated as a crossroad town on the rail-line where the railroad intersected SR 68.and still serves as a center of commerce for its hinterlands. An observation of the town's business district (Picture 15, page II-20)revealed that all storefronts are occupied with one exception and that contained a sing indicating it had been a drug store. The city clerk confirmed that the town drug store closed when the Kroger store out by the Highway opened a drug store inside the grocery store. The town does not have a Chamber of Commerce, or an Economic Development Agency, thus the town clerk was the only official available. She further stated that the town had remained the same throughout her lifetime with some "new" people moving in to work at the automotive automatic transmission plant located in Clermont County to the west along SR 32. She also stated that the folks consider themselves to be a suburb of Cincinnati and refer to shopping in the

Eastgate area of Cincinnati, intersection of SR 32 and Interstate-275, as "going to town." While SR 32, a four lane divided highway linking Cincinnati with the Bellpre, Ohio/Parkersburg, West Virginia area, has been in existence for several decades, it has been only in the past several years that commercial activity has taken place on SR 68 at the intersection with SR 32 one mile north of Mt. Orab. To date a Krogers grocery store, a motel, a fast-food restaurant, a gasoline service station, and a diner have located at this intersection, yet the only casualty in Mt. Orab is the drug store.

## PEEBLES

Peebles (No. 10 on Locator Map)is a town similar to Mt. Orab, forty miles farther to the east, one mile North of SR 32 on SR 41, in Adams County. Its population is also slightly under 2,000 population. All storefronts in Peebles are occupied (Picture 16, page II-21), with the only vacancy being a large structure that had been an automobile dealership. This dealership now resides in a brand-new facility located at the intersection of SR 41 and SR 32. The move was made due to a dictate from the Chrysler Corporation for a modern sales and service facility in order to maintain the franchise. Once again, the town is too small for a Chamber of Commerce, or economic development agency, and the town clerk was the only official available for an interview. During that interview the town clerk indicated that the town had not changed much in her lifetime, and that the residents do not consider themselves a suburb of anything, but as a farming center. In addition to the car dealership, there are two fast-food restaurants and a gasoline service station at the intersection of SR 41 and SR 32. However, it was observed during the site visit that even with the two fast food locations, the three in-town restaurants were completely filled at noon. Once again, even though the Appalachian Highway has been in existence for several decades, it does not appear to have adversely affected the town of Peebles. The gas station and fast-food locations serve the transients on the highway, and the car-dealer relocated due to company pressure.

## STEUBENVILLE

Steubenville (No. 11 on Locator Map) lies on the Western shore of the Ohio River directly across from Weirton, West Virginia. By-pass SR 22 and a new bridge connect the two towns over the Ohio River. Over 90 percent of the storefronts in Steubenville's central business district are vacant. The reason for this, according to the City Planning Director, is the automation of the steel industry, and the demise of the coal industry, in the decades of the 1960s and the 1970s. These two factors reduced the job opportunities in the region and caused the population of Steubenville to fall from approximately 40,000 to approximately 20,000. Thus, the market for retailing was cut in half. The situation was exacerbated by the construction of two suburban shopping malls along SR 43 to the west, during the decade of the 1970s. This has resulted in the relocation of all retail activity from the former central business district to the two malls and a continuous strip of retailing along SR 43. This is not an uncommon phenomenon. Most American cities of this size

have experienced a similar shift in retailing from the central business district to the newer suburban style shopping center with free parking and other amenities. It is primarily due to the efforts of the merchants to respond to the "new" consumer who wishes to conduct their shopping with their automobile, rather than walk through a downtown. Steubenville's downtown demise was the result of this new style of shopping and the negative employment experience of the coal and steel industry and thus effected more strongly than most other cities. By-pass SR 22 was constructed in 1993-94, 10 to 20 years after the facts that caused the central business decline and cannot be assumed to be the cause of that decline.

The above description was corroborated by the Executive Director of the "Alliance," the Economic Development Agency for Steubenville and Jefferson County. He provided information as to the current efforts to revitalize the central business district with different land uses to replace the lost retailing. Three new high-rise office structures have been constructed and are over 90 percent occupied with tenants affiliated with health care provision. Some of the former retail space has been converted to office space for Internet sales and services, catalogue sales of semiconductors, electronic circuitry, and internet tech support and programming. He also pointed out that the construction of by-pass SR 22, and the new bridge connecting Steubenville with West Virginia has increased retail business along SR 43 from West Virginia customers who come there to make their tax free food purchases in Ohio. The new bridge and by-pass highway have now brought downtown Pittsburgh within a 30-minute commute from Steubenville. Alliance now markets Steubenville as a "suburb" of Pittsburgh. The Alliance is lobbying for additional upgrading of SR 22 to the West between Cambridge and Steubenville to make it an alternate route from Columbus to Pittsburgh in addition to Interstate 70/79. They regard by-pass SR 22 as a blessing to the community, and in no way a negative.

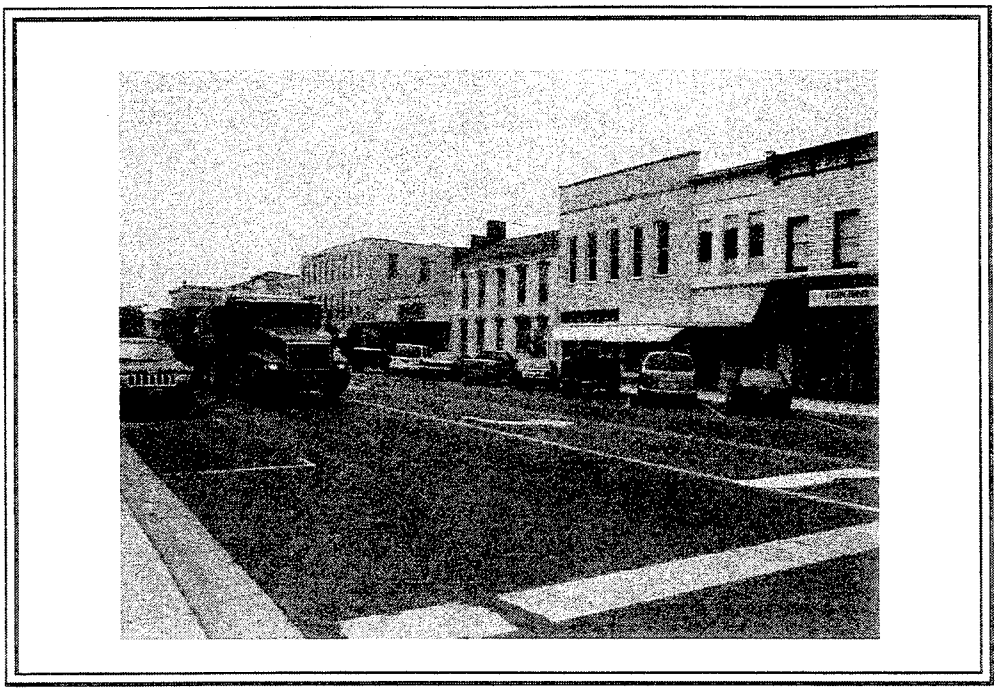
## SUMMARY OF CONCLUSIONS

1. The non-county-seat cities exhibited the same characteristics as the county-seat cities.

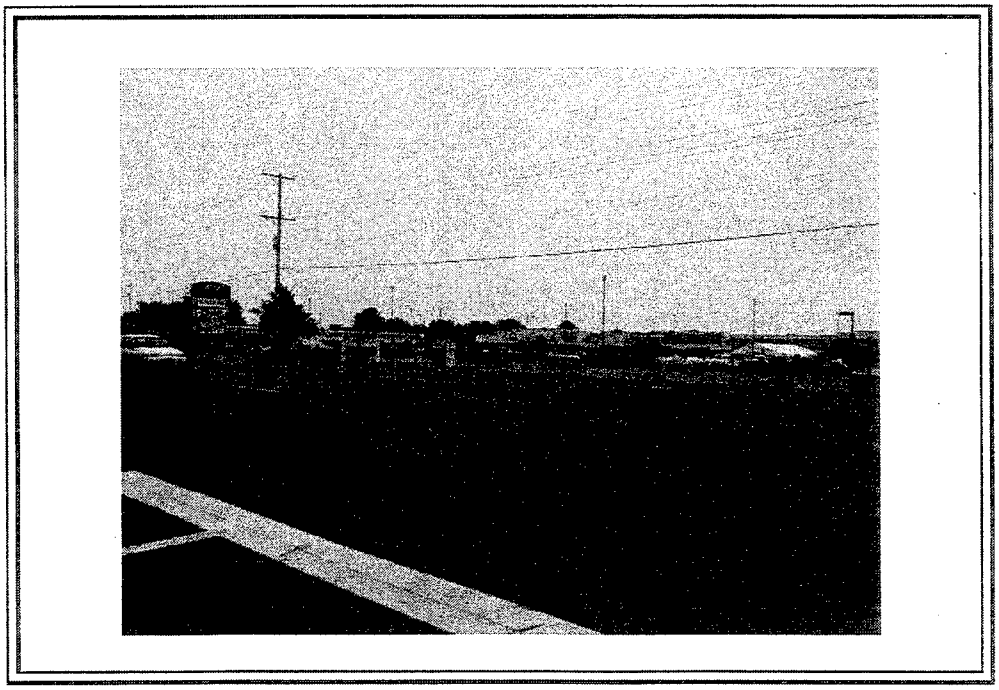
2. The creation of suburban style regional shopping centers and the strip retail centers are the cause of the shift of first tier retailing from the former central business districts whether or not a by-pass highway exists.

3. Central business districts can remain viable with second tier retailing or other readaptive land uses.

# Eaton, Ohio

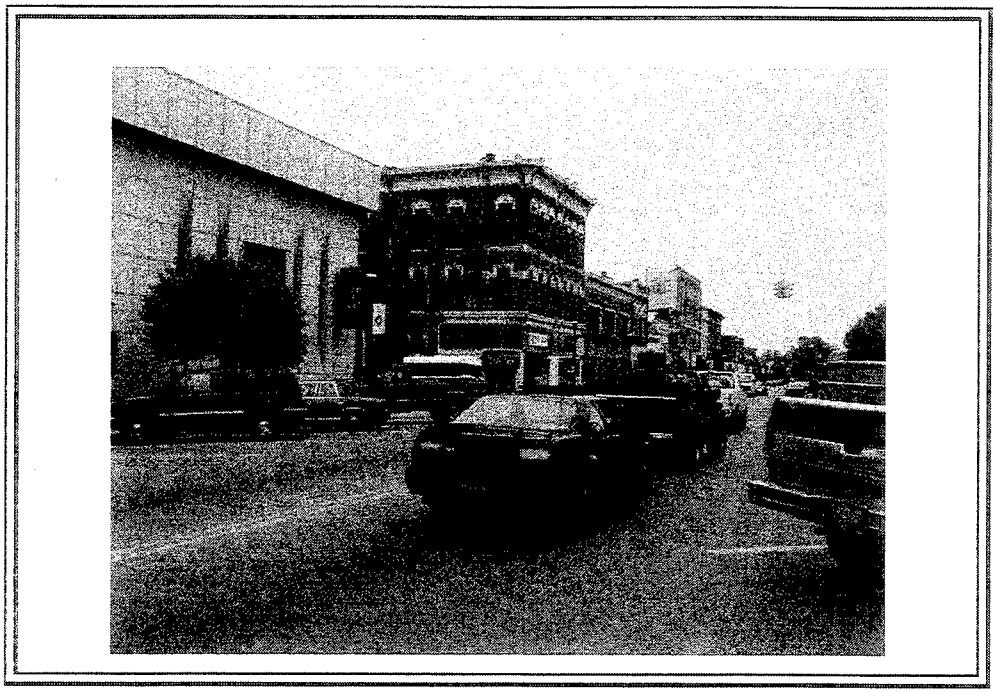


**Picture 1** **Central Business District**



**Picture 2** **Strip Mall**

## Greenville, Ohio



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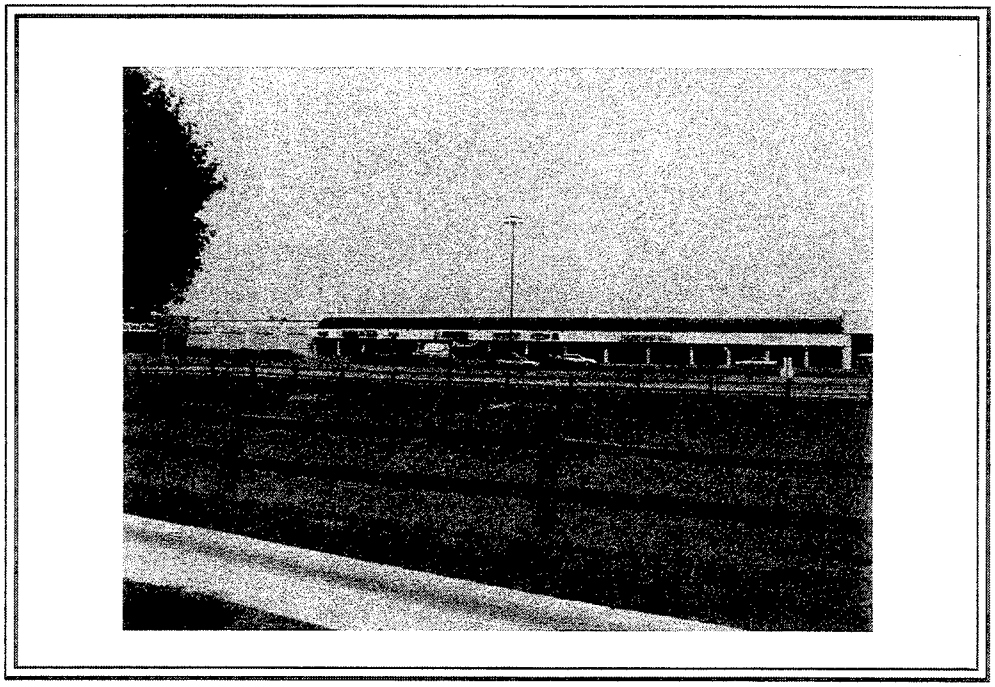
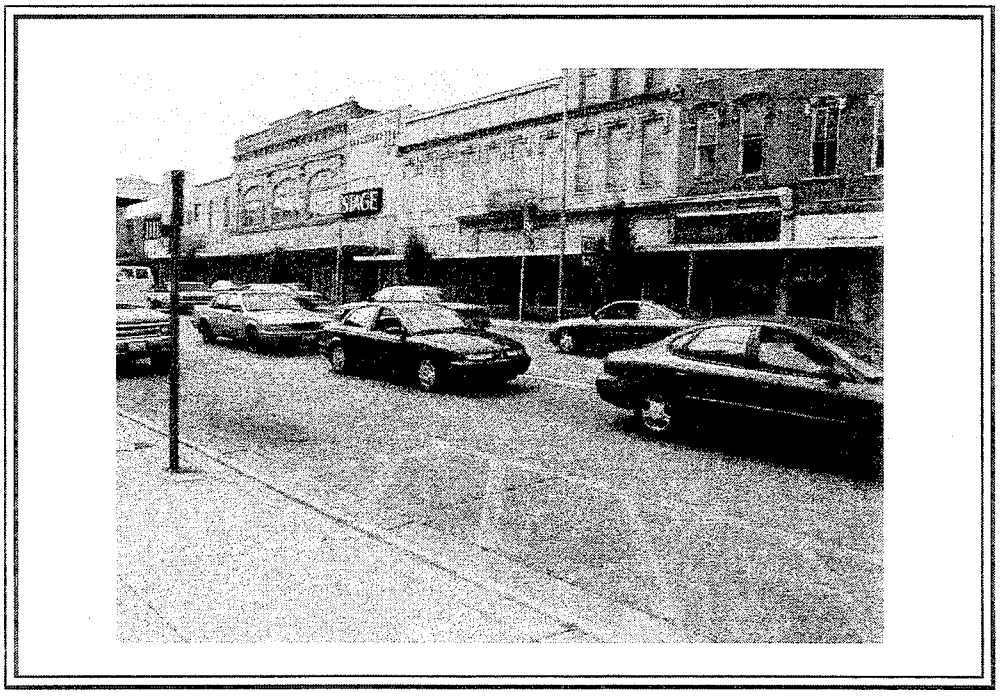
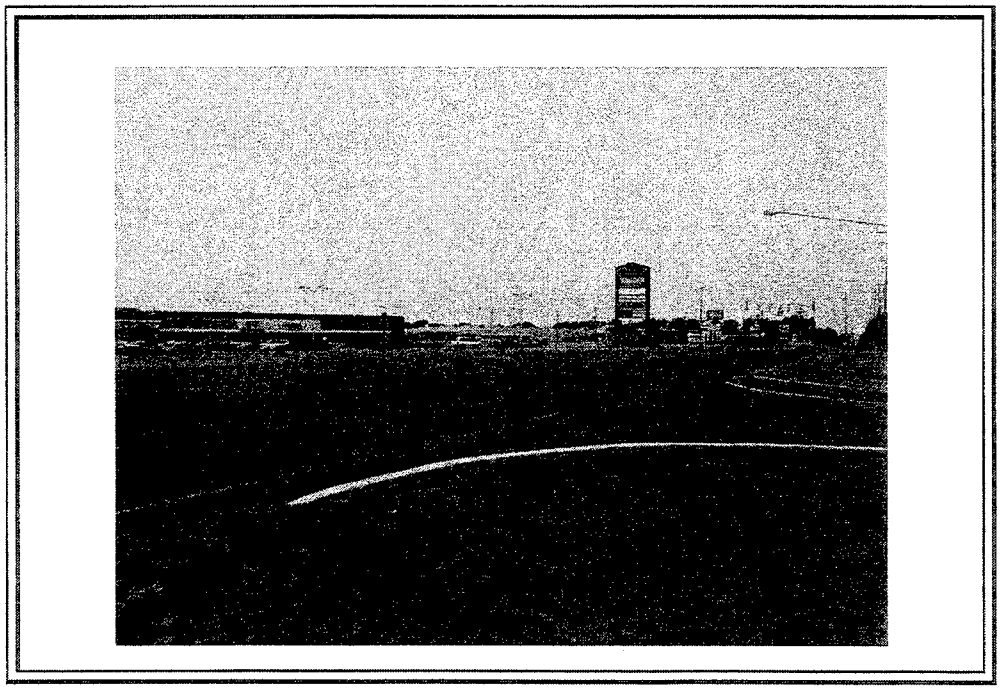


**Picture 4** **Strip Mall**

## Kenton, Ohio

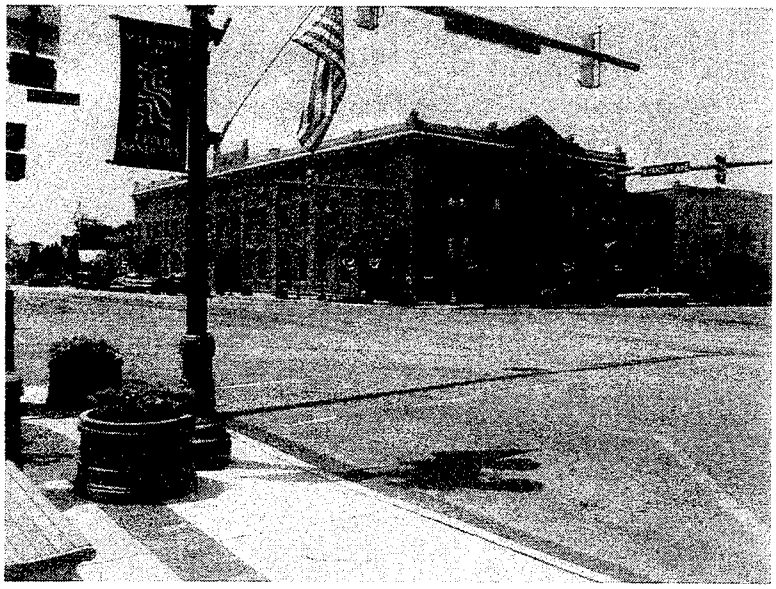


**Picture 5** **Central Business District**



**Picture 6** **Strip Mall**

## Upper Sandusky, Ohio



**Picture 7** **Central Business District**

## Wooster, Ohio

**Picture 8** **Central Business District**

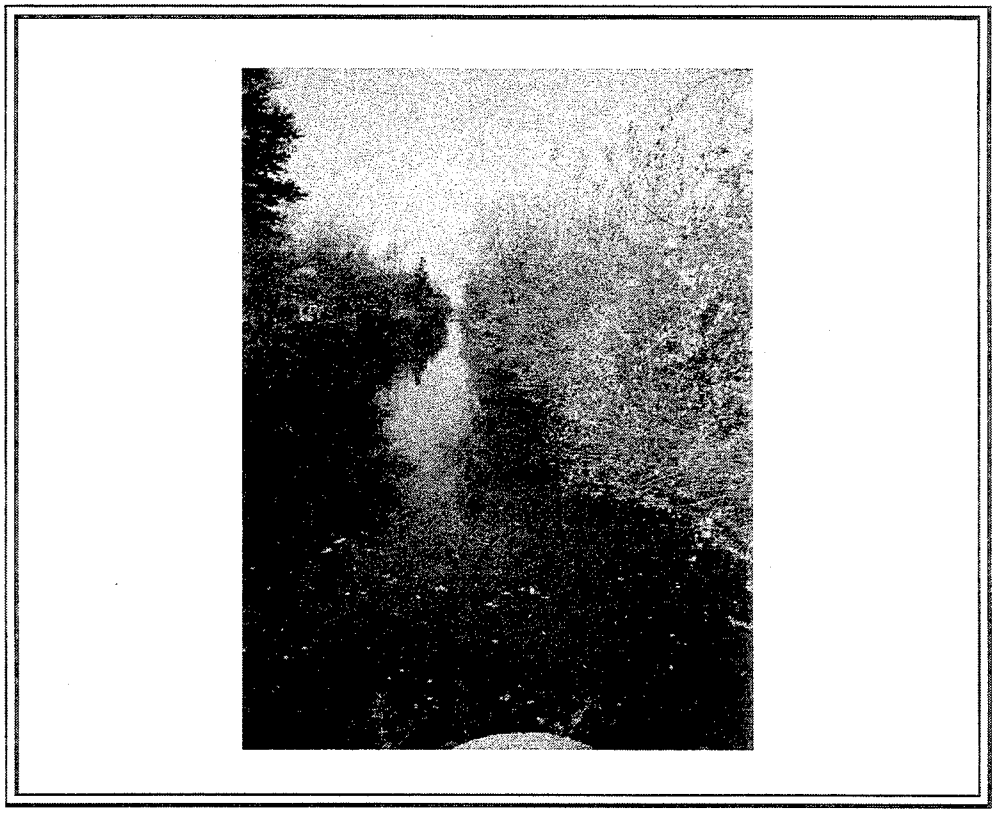

**Picture 9** **Strip Mall**

## Mt. Vernon, Ohio

**Picture 10** **Central Business District**

**Picture 11** **Strip Mall**

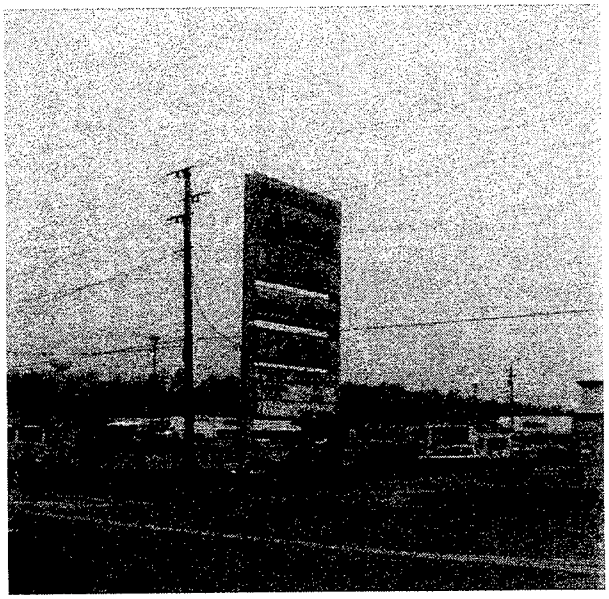
## Delphos, Ohio



**Picture 12** **Miami-Erie Canal Right-of-Way**

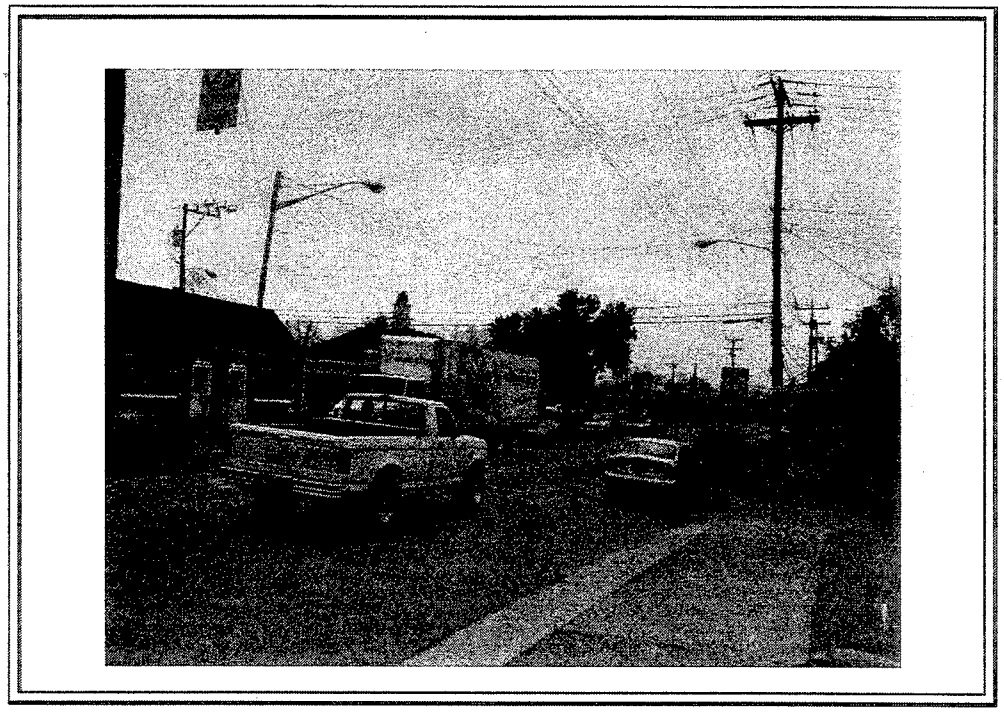
## Salem, Ohio


**Picture 13** **Central Business District**



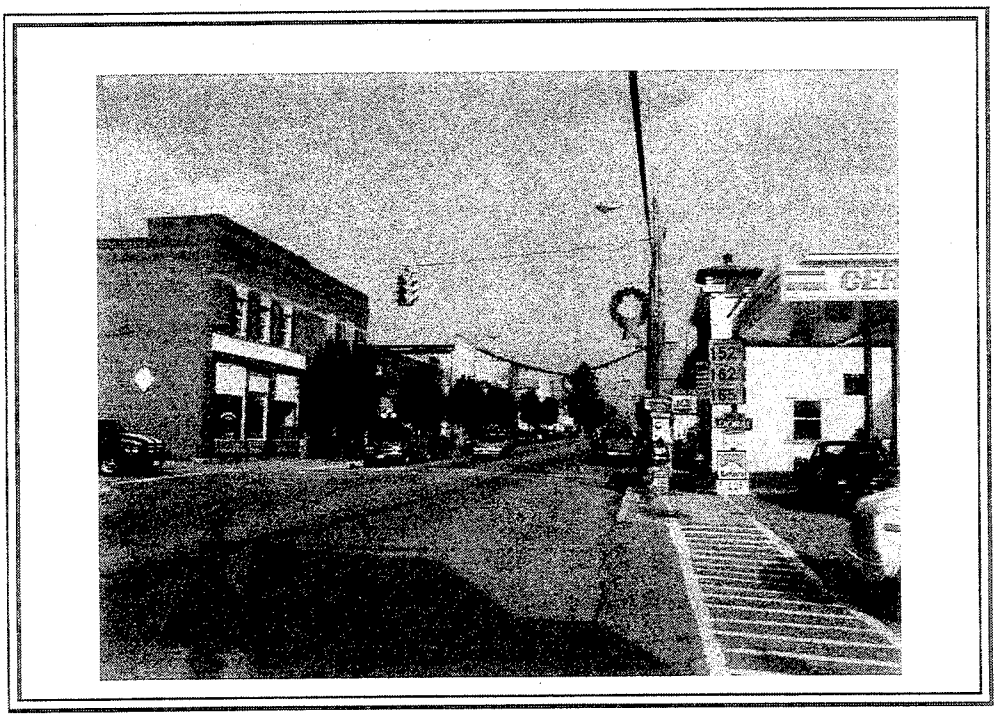
**Picture 14** **Strip Mall**

## Mt. Orab, Ohio



**Picture 15** **Central Business District**

# Peebles, Ohio



**Picture 16** **Central Business District**

# LOCATOR MAP

1. Eaton
2. Greenville
3. Kenton
4. Upper Sandusky
5. Wooster
6. Mt. Vernon
7. Delphos
8. Salem
9. Mt. Orab
10. Peebles
11. Steubenville


JULY 1999
PREPARED BY THE OHIO DEPARTMENT OF TRANSPORTATION
OFFICE OF TECHNICAL SERVICES
GIS/MAPPING SECTION

# PART III
# STATISTICAL ANALYSIS

This section presents statistical data from the U. S. Census of Business for the years of 1958 and 1997 and the percent of change between those two years. The 1997 Census of Business is the most current available. The 1958 Census predates the construction of By-pass Highways in any and all of the six cities in the original list of cities utilized in the Experiential Analysis, Part II. Thus we have a beginning point and an ending point to measure change in economic activity over the time span during which by-pass highways were constructed in half of the communities, and to compare that change to changes in the other communities without a by-pass over the same period of time.

The tables present the data for each of the two years for each city, and the remainder of the county in which the city is located. The locations are grouped by: "by-pass" and "without by-pass," and a total for each grouping is provided. The percent of change is then presented for each location and for the total of each category.

It is not the individual data sets, which cover a period of 39 years, and are influenced by many variables: inflation, market change, change in retailing methods, population demographics, etc., that are of interest; but the patterns of change rates over time between the "by-pass" vs. the 'Non-by-pass" areas that are germane

Table III-1, (next page) Change in Total Retail Sales (next page) shows that cities without a by-pass had an increase of 572 percent, while cities with a by-pass rose 680 percent. Thus, we demonstrate that cities with a by-pass had a larger increase in total retail sales in comparison with cities without a by-pass. Thus while we cannot positively state that a by-pass increases retail sales, we can certainly rule out that the presence of a by-pass highway is a negative influence on retail sales. The difference in the rates of change in retailing in the remainder of the county, 498 percent in non-by-pass areas, and 489 percent in by-pass areas, is too small to call for a judgement.

The overall conclusions that one can draw is that retailing grew at a higher rate in by-pass cities compared to non-by-pass cities, while the surrounding counties grew at essentially the same rate. Thus the original hypothesis: "by-pass-highways harm retailing in the cities they by-pass" must be rejected. The assumption that by-pass highways have a positive effect on retailing can by accepted.

## TABLE III-1
## PERCENT CHANGE IN TOTAL RETAIL SALES 1958 TO 1997

**CITY:**

| **Cities without a By-Pass Highway:** | | | |
|---|---|---|---|
| **CITY** | **1958 ($,000)** | **1997** | **% Change** |
| Eaton | 10,634 | 83,934 | 789 |
| Kenton | 16,163 | 72,492 | 448 |
| Mt. Vernon | 27,897 | 156,590 | 561 |
| **Total:** | **54,694** | **313,016** | **572** |
| **Cities with a By-Pass Highway:** | | | |
| **CITY** | **1958 ($,000)** | **1997** | **% Change** |
| Greenville | 22,363 | 179,765 | 803 |
| Upper Sandusky | 11,535 | 54,409 | 471 |
| Wooster | 39,305 | 263,249 | 669 |
| **Total:** | **73,203** | **497,423** | **680** |

**REMAINDER OF COUNTY:**

| **Remainder of Counties Without a By-Pass Highway:** | | | |
|---|---|---|---|
| **COUNTY** | **1958 ($,000)** | **1997** | **% Change** |
| Preble | 15,022 | 37,521 | 249 |
| Hardin | 11,228 | 40.099 | 357 |
| Knox | 14,248 | 124,197 | 871 |
| **Total:** | **40,498** | **201,817** | **498** |
| **Remainder of Counties With a By-Pass Highway:** | | | |
| **COUNTY** | **1958 ($,000)** | **1997** | **% Change** |
| Darke | 24,468 | 110,199 | 450 |
| Wyandot | 12,145 | 37,663 | 310 |
| Wayne | 39,124 | 223,018 | 570 |
| **Total:** | **75,737** | **370,880** | **489** |

SOURCE: U. S. Department of Commerce, Bureau of the Census, Census of Business, 1958 and 1997.

Table III-2 (next page) presents data on the change in the number of gasoline service establishments in the same format as the previous table. The original attempt to obtain the sales of gasoline service stations failed due to lack of complete comparable data for all locations. This was due to changes in reporting requirements. Therefore, the number of establishments was substituted.

The table shows a decrease in number of establishments in all locations. This is primarily due to governmental environmental regulations concerning underground storage tanks. The regulations required the replacing of older metal tanks that leak and pollute the ground with new tanks of different materials that do not rust and leak. This replacement is quite expensive and beyond the economic capability of most small operators. Thus most small owner operated combination gasoline service and auto repair facilities have closed in favor of larger company operated gasoline service only and food sales combination operations.

This table demonstrates that the number of establishments in communities with a by-pass decreased to a larger degree than in those communities without a by-pass. The non-by-pass cities decreased by 44 percent, while the by-passed cities decreased by 54 percent. This pattern is further reinforced by results published in other studies included in Part I, Bibliographic Review, of this report. Those studies indicate that gasoline service stations may be impacted by the construction of a by-pass highway. Once again, the change in the remainder of county data is basically similar in both the by-passed cities and the non-by-passed cities. This pattern is further substantiated in the experiential analysis provided in Part II, of this report. The majority of the by-passed cities visited had newer style gasoline only service station and combined food sales establishments located at the intersections of the major city connecting roads to the by-pass.

Once again it cannot be stated with absolute certainty that a by-pass highway is the direct cause of the closing of gasoline service establishments, due to the multiplicity of factors involved: governmental environmental regulations, change in marketing techniques, demographic changes, etc. It can be assumed from the evidence that the construction of a by-pass highway does have some negative effect in this arena.

## TABLE III-2
## PERCENT CHANGE IN GASOLINE SERVICE ESTABLISHMENTS 1958 TO 1997

**CITY:**

| **Cities without a By-Pass Highway:** | | | |
|---|---|---|---|
| **CITY** | **1958** | **1997** | **% Change** |
| Eaton | 14 | 7 | -50 |
| Kenton | 23 | 13 | -43 |
| Mt. Vernon | 17 | 10 | -41 |
| **Total:** | **54** | **30** | **-44** |
| **Cities with a By-Pass Highway:** | | | |
| **CITY** | **1958** | **1997** | **% Change** |
| Greenville | 22 | 13 | -41 |
| Upper Sandusky | 10 | 7 | -33 |
| Wooster | 36 | 11 | -69 |
| **Total:** | **68** | **31** | **-54** |

**REMAINDER OF COUNTY:**

| **Remainder of Counties Without a By-Pass Highway:** | | | |
|---|---|---|---|
| **COUNTY** | **1958** | **1997** | **% Change** |
| Preble | 27 | 11 | -59 |
| Hardin | 21 | 8 | -61 |
| Knox | 37 | 12 | -67 |
| **Total:** | **85** | **31** | **-64** |
| **Remainder of Counties With a By-Pass Highway:** | | | |
| **COUNTY** | **1958** | **1997** | **% Change** |
| Darke | 26 | 13 | -50 |
| Wyandot | 20 | 5 | -75 |
| Wayne | 64 | 25 | -61 |
| **Total:** | **110** | **43** | **-61** |

SOURCE: U. S. Department of Commerce, Bureau of the Census, Census of Business, 1958 and 1997.

Table III-3 (next page) is constructed in the same format as the previous tables and depicts the change in the number of hotels-motels between 1958 and 1997. Once again, the number of establishments in this industry has experienced a decrease. This is attributed to the demise of the individual or family operated hotel-motel in favor of the nationally franchised and larger motels

As can be seen from the data, there appears to be no difference in the percentage of decrease between the by-pass cities and the non-by-pass cities, -46 percent and -47 percent respectively. The percentage change in both remainder of county data is also too close, -57 percent for non-by-pass areas, and -60 percent for by-pass areas, to provide any meaningful assumptions.

Therefore, the only conclusion that can be reached is that the motel-hotel industry will find a proper location regardless of the existence or non-existence of a by-pass highway.

## TABLE III-3
## PERCENT CHANGE IN HOTEL-MOTEL 1958 TO 1997

**CITY:**

| **Cities without a By-Pass Highway:** | | | |
|---|---|---|---|
| **CITY** | **1958** | **1997** | **% Change** |
| Eaton | 1 | 1 | 0 |
| Kenton | 3 | 1 | -66 |
| Mt. Vernon | 7 | 4 | -43 |
| **Total:** | **11** | **6** | **-46** |
| **Cities with a By-Pass Highway:** | | | |
| **CITY** | **1958** | **1997** | **% Change** |
| Greenville | 2 | 3 | +50 |
| Upper Sandusky | 3 | 1 | -66 |
| Wooster | 8 | 3 | -63 |
| **Total:** | **13** | **7** | **-47** |

**REMAINDER OF COUNTY:**

| **Remainder of Counties Without a By-Pass Highway:** | | | |
|---|---|---|---|
| **COUNTY** | **1958** | **1997** | **% Change** |
| Preble | 9 | N/A | -- |
| Hardin | 2 | 5 | +150 |
| Knox | 8 | 6 | -25 |
| **Total:** | **19** | **11** | **-57** |
| **Remainder of Counties With a By-Pass Highway:** | | | |
| **COUNTY** | **1958** | **1997** | **% Change** |
| Darke | 13 | 2 | -85 |
| Wyandot | 5 | 2 | -60 |
| Wayne | 5 | 8 | +60 |
| **Total:** | **23** | **12** | **-60** |

SOURCE: U. S. Department of Commerce, Bureau of the Census, Census of Business, 1958 and 1997.

Table III-4, (next page) provides similar data in the same format for the change in the number of eating and drinking establishments from 1958 to 1997. The pattern exhibited by this table is similar to the pattern shown in Table III-1, *Change in Total Retail Sales.*

Eating and drinking establishments in cities with a by-pass increased by +57 percent, while eating and drinking establishments in cities without a by-pass increased only by +41 percent. Establishments in the remainder of county with a by-pass increased by +8 percent, while establishments in the remainder of county without a by-pass decreased by –26 percent.

Thus once again we can arrive at the same conclusion that the construction of a by-pass highway does not have a negative effect on eating and drinking establishments as we concluded that the construction of a by-pass highway does not have a negative effect on retailing.

## TABLE III-4
## PERCENT CHANGE IN EATING & DRINKING ESTABLISHMENTS 1958 TO 1997

**CITY:**

| **Cities without a By-Pass Highway:** | | | |
|---|---|---|---|
| **CITY** | **1958** | **1997** | **% Change** |
| Eaton | 19 | 27 | +42 |
| Kenton | 29 | 21 | -28 |
| Mt. Vernon | 31 | 49 | +58 |
| **Total:** | **69** | **97** | **+41** |
| **Cities with a By-Pass Highway:** | | | |
| **CITY** | **1958** | **1997** | **% Change** |
| Greenville | 22 | 39 | +77 |
| Upper Sandusky | 19 | 27 | +42 |
| Wooster | 46 | 71 | +54 |
| **Total:** | **87** | **137** | **+57** |

**REMAINDER OF COUNTY:**

| **Remainder of Counties Without a By-Pass Highway:** | | | |
|---|---|---|---|
| **COUNTY** | **1958** | **1997** | **% Change** |
| Preble | 40 | 33 | -18 |
| Hardin | 48 | 31 | -36 |
| Knox | 48 | 37 | -23 |
| **Total:** | **136** | **101** | **-26** |
| **Remainder of Counties With a By-Pass Highway:** | | | |
| **COUNTY** | **1958** | **1997** | **% Change** |
| Darke | 51 | 47 | -8 |
| Wyandot | 32 | 27 | -16 |
| Wayne | 74 | 96 | +30 |
| **Total:** | **157** | **170** | **+8** |

SOURCE: U. S. Department of Commerce, Bureau of the Census, Census of Business, 1958 and 1997.

# PART IV
# CONCLUSIONS

## A. Bibliographic Search:

1. All processes and/or procedures contained in the forty-one studies reviewed were ruled out as possible new methods for use by the Ohio Department of Transportation in assessing requests for by-pass-highway construction due to data problems, or inability of the process to definitively project consequences of said by-pass-highway construction.

2. The majority of studies did however, provide some evidence that the overall economic activity of the effected community was positive rather than negative after completion of the by-pass-highway. Only the category of gasoline service stations appeared to be negatively effected through a decrease in the number of such establishments.

## B. Experiential Analysis:

1. The city with two by-pass-highways (Wooster) has the most prosperous Central Business district. All other cities with a by-pass have prosperous central business districts. Steubenville is deemed a special case, having lost half of its population and work force due to restrictive governmental regulations on coal mining and automation of the steel industry while competing with two regional shopping centers on its borders.

2. The city with the most depressed central business district (Kenton) has no by-pass. One other city without a by-pass (Mt. Vernon) has a depressed central business district. The other community without a by-pass (Eaton) has a prosperous central business district.

3. All communities, except one (Upper Sandusky) have suburban style strip shopping centers on their periphery, whether they have a by-pass or not. This new style of retailing (circa 1960s-1970s) has had a greater effect on communities, moving the first tier of retailing activity to the centers and bringing a second tier of retailing to the CBD, than has the by-pass-highway. Upper Sandusky has a political leadership and strong merchant organization that has prevented this change in their community.

4. The counties containing a city with a by-pass-highway enjoy a larger number of manufacturing establishments with larger employment than those counties without a by-pass-highway.

This evidence supports the conclusion from Part I of this study. A by-pass-highway appears to have an overall positive effect on the economic activity of the by-passed community.

**C. Statistical Analysis:**

1. Data from the Census of Business, U. S. Census Bureau, Department of Commerce, denotes that total retail sales in communities with a by-pass-highway increased between 1958 and 1997 (prior to and after construction of by-pass-highway) to a larger degree than it did in communities without a by-pass.

2. Data from the same source presents a similar pattern for hotels/motels and eating and drinking establishments.

3. Data on the number of gasoline service stations however presents the exact opposite relationship. The number of gasoline service stations decreased at a greater rate in the communities with a by-pass-highway than in non-by-passed communities.

This portion of the report further reinforces the conclusions from the other two sections. Overall economic development receives a positive impact from the construction of a by-pass-highway while certain narrow sectors, such as gasoline service stations, might be negatively effected.

## RECOMMENDATION

The Ohio Department of Transportation should continue to utilize the current process for evaluation of requests for by-pass-highway construction on the current basis of transportation improvements, time saved, environmental improvements, and costs with the assumption that the improvements will benefit the overall economic development of the community with only minor dislocations to a narrow segment of the economic activity.