

Use of Secondary Data Sources to Determine the Business Vitality Impacts of Access Management Projects in Iowa

DAVID PLAZAK, TOM SANCHEZ, AND KEN STONE

Access management is the process of carefully managing the access by vehicles from major transportation routes to adjacent land development. Access management projects, such as those involving driveway consolidation and installation of raised medians, have proven highly effective in improving traffic safety and traffic operations. However, the impact of retrofit access management projects on the vitality of existing businesses along the improvement corridor is a continuing source of concern for business owners, city officials, chambers of commerce, and transportation professionals. As part of a major research, education, and outreach project conducted for the Iowa Department of Transportation's (Iowa DOT) Access Management Task Force, a variety of secondary data sources and analytic methods were used to assess the impact of completed access management projects on local retail activity and business vitality. Methods developed and used included community-level business market share "pull factors" and business survival rates developed using original source data made available by the Iowa Department of Revenue and Finance (IDRF); detailed "before and after" business profiles along access management project corridors; and detailed retail sales trends for selected businesses along access management project corridors. The results of this research indicate that for the great majority of businesses, access management projects are not detrimental. In fact, access-managed corridors studied in Iowa generally outperformed their larger communities in terms of business losses and retail sales growth.

PROBLEM STATEMENT

Access management has proven to be a very effective technique around the nation for improving both the safety and operations of arterial roadways. Like most other roadways, arterials must serve a dual function: moving through traffic and providing access to adjacent property and land development. Arterials should predominantly serve through traffic movement, however some have developed and

been managed in such a way that extensive access to property has been provided, mainly via private driveways. When this happens, the result is often high rates of accidents related to turning movements, high rates of property damage and personal injury accidents, traffic congestion at peak hours, and motorist delays.

Recent case study research in Iowa indicates that applying access management principles to arterial roadways can greatly enhance their safety and operations. Accident rates per million vehicle-miles on a variety of roadways in Iowa declined by an average of 40 percent. This magnitude of decline is consistent with results from other studies on access management conducted elsewhere around the United States.

Opinion surveys of motorists in Iowa indicate that they perceive the positive impact that access management projects can have both in terms of safety and operations. Motorists believe that specific access management projects such as driveway consolidation, turn lane installation, and median construction improve traffic flow, ease of turning, and safety. The great majority of motorists (typically 90 to 95 percent) are also supportive of projects that have been completed.

The problem with access management projects both in Iowa and in the nation as a whole tends to come in terms of lack of support from businesses, in particular retail businesses adjacent to. Businesspersons are considerably less supportive of access management than motorists, who are also their customers. Businesspersons often equate reductions in the number of driveways and other direct access ways with loss of sales. They may actively oppose access management projects, particularly those that involve more restrictive treatments such as raised medians. Local businesspersons are often influential with local public officials. Even though local officials are typically supportive of most access management projects because of the safety and operational benefits, they can be swayed by vocal opposition from businesspersons. It is for this reason that the Iowa Department of Transportation and the Iowa Highway Research Board (IHRB) commissioned research on the actual impacts of access management projects on business vitality.

PREVIOUS RESEARCH

There is very little in the way of literature available on the business vitality impacts of access management projects. Most of the research that has been completed is from Florida and involves the

D. Plazak, Center for Transportation Research and Education, Iowa State University, 2625 North Loop Drive, Suite 2100, Ames, Iowa 50010. T. Sanchez, Center for Urban Studies, Portland State University, PO Box 751-CUS, Portland, Oregon 97207. K. Stone, Department of Agricultural Economics, 460D Heady Hall, Iowa State University, Ames, Iowa 50011.

impacts of the retrofit installation of raised medians on very high traffic arterials. A study completed in 1991 notes that “the majority of through travelers, residents, customers, and business owners favored the retrofit despite some inconveniences... (these opinions after project development contrast with those set forth at two public hearings conducted by the Florida DOT during project development. These meetings were mainly attended by local merchants and residents who opposed the project” (1).

Another Florida study surveyed 180 drivers and 228 businesses along several major projects. The motorists were very supportive of the projects, however about 30 percent of the business owners felt that the projects had at least a small detrimental impact on their businesses (including sales declines, truck delivery difficulties and the like) (2).

DATA SOURCES AND METHODOLOGY

The Iowa Department of Revenue and Finance maintains an extensive historical database of retail sales tax payments by individual businesses in the state. This allows for quarterly or annual sales trends to be analyzed. IDRf allows these data to be used for research purposes provided that the confidentiality of data can be maintained for individual businesses. In the case of this study, sales tax trends were aggregated to the corridor level (by street address range) and on a quarterly basis to maintain confidentiality.

The sales tax database was used for two purposes. The first purpose involved creating a profile of the entire community’s retail trade environment and characteristics. This involved assessing such factors as five-year business survival rates, retail sales growth trends, and retail trade “pull factors.” In addition to the IDRf sales tax data, other secondary data that were used to assess impacts of access projects management on business vitality were from R.L. Polk City Directories. These are privately compiled directories that list businesses (and households) by street address. These directories were used to create a before and after project “snapshot” of the corridors and to assess turnover in the corridor.

RESULTS

This analysis examines business trends in five case study communities: Ames, Ankeny, Clive, Fairfield, and Spencer (Figure 1). Data on the change in total number of businesses, business composition, and retail sales activity levels are analyzed for each of the communities as well as the corridor in which access improvements were completed. Each of the case study communities is profiled below.

Ames is a large, regional hub for trade serving an area covering several counties. It has a population of slightly under 50,000 persons. A large percentage of the residents are college students at Iowa State University. Ames has experienced slow but steady growth in retail trade activity since the mid-1980s.

Ankeny is a rapidly growing suburb of Des Moines with nearly 20,000 residents. Along with rapid increases in population, it has experienced strong growth in retail trade since the late 1980s. The number of retail firms in Ankeny has roughly doubled since the mid-1980s with well over 500 currently.

Clive is also a suburban community of Des Moines with a population approaching 10,000. It has experienced very rapid growth in retail trade since the early 1990s and has been one of the fastest-

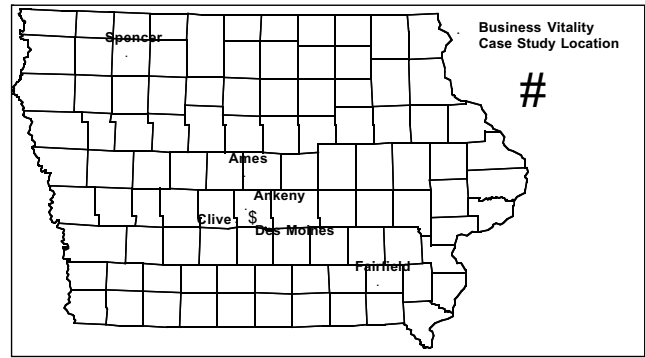


FIGURE 1 Locations of business vitality case studies.

growing communities in Iowa in terms of retail trade. Given current development trends, it is likely that the strong retail growth will continue in Clive over the next few years.

Fairfield is a mid-sized, rural community with about 10,000 persons located in the southeast part of Iowa. The city has experienced relatively stable levels of retail sales over the past two decades. The number of retail firms located in Fairfield has remained nearly constant at 400 to 450 for the past 10 years.

Spencer is another mid-sized community with about 11,000 residents with a geographic trade area that is considerably larger than Fairfield. Spencer is located in a less densely populated region of Iowa with no other, similar regional centers in close proximity. Like Fairfield, it has experienced stable inflation-adjusted retail sales since the mid-1980s.

The five business vitality case study communities represent a range of business activity levels, although all are generally prosperous and have maintained relatively stable business growth. In Iowa, only about 50 percent of businesses with sales tax permits survive over a five-year period. For the five business vitality case study communities, this percentage varied from 41 percent (Fairfield) to 54 percent (Spencer). Clive is a notable exception with a business survival rate of 64 percent. In other words, a business loss rate of 7 to 12 percent per year can be expected in almost any community in Iowa.

All of the case study communities, with the exception of Fairfield, have expanded their retail sales markets. In 1996, each of the case study communities had retail sales pull factors over 1.00. A pull factor of more than 1.00 indicates that a community is serving the retail needs of persons beyond those living in the local community. The pull factors for these communities range from 1.06 (Ankeny) to 1.71 (Clive). Ames, Ankeny, and Clive all experienced significant increases in retail sales pull factors between 1990 and 1996 (see Table 1). In terms of total retail sales activity for this period, all five case study communities experienced increases in total retail sales activity ranging from 5.5 percent (Spencer) to 346.2 percent (Clive). Clive has experienced explosive growth in business activity as a result of rapid development in the western Des Moines metropolitan area. The other four case study communities have had somewhat slower rates of growth, averaging approximately 1 to 10 percent annual growth (adjusted for inflation).

The previous results indicate that the business vitality case study communities have been successful retail markets over the past few

Table 1 Summary of Case Study Community Retail Business Trends

Community	Five Year Business Survival Rate	Five Year Change in Retail Sales	Five Year Change in Number of Retail Firms	Retail Sales Pull Factor 1990	Retail Sales Pull Factor 1996	Pull Factor % Change 1990-1996
Ames	44.6%	8.8%	2.1%	1.00	1.14	+14.0%
Ankeny	44.1%	57.2%	22.7%	0.86	1.06	+23.3%
Clive	63.7%	346.2%	171.0%	0.44	1.71	+388.6%
Fairfield	41.2%	7.0%	10.4%	1.20	1.16	-0.3%
Spencer	54.3%	5.5%	3.4%	1.56	1.57	+0.1%
State of Iowa	49.8%	—	—	1.00	1.00	—

Source: Iowa Department of Revenue and Finance.

Table 2 Difference in Current (1996) Business Composition: City Compared to Corridor

	Ames	Ankeny	Clive	Fairfield	Spencer
Utilities/Trans.	1.3%	1.6%	0.0%	2.7%	2.3%
Building Materials	-2.6%	-1.4%	0.0%	-5.5%	0.3%
General Merchandise	2.1%	0.5%	0.0%	-0.4%	1.2%
Food Dealers	-0.1%	-4.9%	0.0%	-5.5%	-2.5%
Motor Vehicle	-19.9%	0.6%	-5.1%	-28.7%	-16.0%
Apparel	4.3%	-2.1%	-7.1%	2.8%	1.9%
Home Furnishings	2.2%	3.8%	5.7%	3.6%	4.6%
Eating and Drinking	-20.1%	-3.2%	-10.0%	1.8%	-5.1%
Specialty Retail	14.6%	4.2%	-4.1%	12.0%	12.2%
Services	10.8%	-13.5%	6.6%	12.3%	-5.7%
Miscellaneous	5.1%	5.5%	7.5%	-1.8%	1.1%
Mobile Home Sales	na	na	na	na	na
Residential	na	na	na	na	na

Source: R.L. Polk Directories and Iowa Department of Revenue and Finance

years. These trends can then be compared to business activities within each of the case study corridors.

As might be expected, the most frequent types of businesses in each of the corridors studied are services, eating and drinking, miscellaneous, automotive, and specialty retail—typical “commercial strip” businesses. These categories range from 10 to 45 percent of the businesses in each corridor. By comparison, services, specialty retail, and miscellaneous businesses are the most prevalent in each community as a whole. In general, the corridors differ from their community business composition primarily in the proportion of motor vehicle, eating and drinking, and to a degree, specialty retail and service establishments. Corridors tend to have a greater share of auto-related and restaurant establishments. Corridors also tend to have a smaller share of specialty retail and services compared to their communities (Table 2). Such businesses might instead be located within shopping malls or in downtown areas. Because there are not dramatic differences in overall composition of businesses, changes in business activity for each corridor should be comparable to changes in business activity for the community in which they are located.

Table 3 Change in Business Composition by Corridor

	Ames	Ankeny	Clive	Fairfield	Spencer
Utilities/Trans.	na	-100.0%	na	na	na
Building Materials	0.0%	-25.0%	na	200.0%	0.0%
General Merchandise	na	100.0%	na	0.0%	-100.0%
Food Dealers	-50.0%	66.7%	na	0.0%	0.0%
Motor Vehicle	10.0%	50.0%	100.0%	85.7%	-25.0%
Apparel	-100.0%	0.0%	0.0%	na	100.0%
Home Furnishings	0.0%	-100.0%	na	na	-100.0%
Eating and Drinking	40.0%	33.3%	66.7%	0.0%	0.0%
Specialty Retail	100.0%	50.0%	266.7%	400.0%	100.0%
Services	-42.9%	24.1%	11.1%	250.0%	-5.6%
Miscellaneous	-50.0%	100.0%	100.0%	25.0%	-55.6%
Mobile Home Sales	0.0%	na	na	0.0%	na
Residential	na	na	na	na	0.0%
TOTAL	-8.0%	21.3%	68.0%	85.7%	-13.7%

Source: R.L. Polk Directories

In addition to analyzing the changes in total business activities within the case study corridors, the changes in specific categories of businesses are also of interest. Impacts of access modifications can have different affects on different types of businesses as well as on overall business activity. A review of the five case study corridors does not indicate a consistent pattern of business composition changes. This means that there does not appear to be a proportionately larger impact of access management projects on one type of business compared to another in these areas.

There were no particular business categories that consistently decreased in number of locations for the case study corridor areas (Table 3). Home furnishings, services, and miscellaneous were the only business types to decrease in number of establishments in more than one corridor for the periods analyzed (each decreased in two corridors). The loss of the home furnishings, services, and miscellaneous businesses (a total of 18 for all case study corridors combined) did not have a significant impact on total business numbers, with the total number of businesses increasing an average of approximately 20 percent for each of the five corridors. It should be noted here that some of the business categories listed have high

thresholds for success. For example, a large, new home furnishings establishment opening in a nearby community could easily disrupt local home furnishing sales, resulting in a nearly 100 percent loss of this type of establishment to the local business mix.

The business changes previously discussed represent net changes in number of businesses. The composition of the current stock of businesses in each corridor is the result of businesses existing before and after access improvements, new businesses (or name changes), and loss of businesses (or name changes). Because the business information was collected from R.L. Polk directories, the difference between name changes and new or lost businesses was not always clear. For this reason, renamed businesses were counted as losses. Ames and Spencer had the highest rates of remaining

businesses (67 and 64 percent respectively). Ankeny, Clive, and Fairfield had the highest rates of new business locations (61, 67, and 54 percent respectively). The rates of business losses or turnover ranged from 13 percent for Fairfield to 50 percent for Spencer over a five-year period, with Ames, Ankeny, and Clive all between 20 and 35 percent. This equates to approximately a 2.6 to 10.0 percent annual turnover of businesses. A typical Iowa community will experience anywhere from a 5 to 15 percent annual change (with 10 percent being the statewide average), so these rates can be viewed as indicating stable and typical business environments. In fact, only in Spencer did the loss rate for the corridor (at 50 percent) equal or exceed that for the community as a whole (46 percent).

Table 4 Sales Activity for Corridors and Communities

Year	Corridor Sales	Community Sales	Corridor Index	Community Index	
Ames					
1991	15,068,900	384,328,804	100.0%	100.0%	
1991	13,445,019	388,862,320	89.2%	101.2%	
1992	14,215,046	388,774,727	94.3%	101.2%	
1993	14,393,570	399,426,817	95.5%	103.9%	
1994	13,846,263	402,207,192	91.9%	104.7%	Project completed Fall 1994
1995	14,693,133	418,148,170	97.5%	108.8%	
1996	15,798,306	na	104.8%	na	
Ankeny					
1990	8,211,100	116,564,938	100.0%	100.0%	
1991	10,132,321	128,618,282	123.4%	110.3%	
1992	13,989,674	136,846,533	170.4%	117.4%	
1993	13,456,890	137,075,948	163.9%	117.6%	Project completed Fall 1993
1994	16,492,770	154,852,588	200.9%	132.8%	
1995	17,067,945	183,212,866	207.9%	157.2%	
1996	18,595,836	na	226.5%	na	
Clive					
1990	6,478,100	24,020,089	100.0%	100.0%	
1991	6,745,108	49,518,974	104.1%	206.2%	Project completed Fall 1991
1992	8,800,195	66,399,337	135.8%	276.4%	
1993	9,564,852	74,415,863	147.6%	309.8%	
1994	10,773,843	103,397,595	166.3%	430.5%	
1995	10,890,861	107,170,336	168.1%	446.2%	
1996	11,588,433	na	178.9%	na	
Fairfield					
1990	18,261,350	86,837,886	100.0%	100.0%	
1991	17,354,959	83,458,500	95.0%	96.1%	
1992	17,549,619	83,106,800	96.1%	95.7%	Project completed Fall 1992
1993	17,840,378	87,605,920	97.7%	100.9%	
1994	17,776,399	88,784,797	97.3%	102.2%	
1995	19,211,631	92,891,667	105.2%	107.0%	
1996	20,720,973	na	113.5%	na	
Spencer					
1990	4,583,850	129,098,725	100.0%	100.0%	
1991	4,521,337	126,634,993	98.6%	98.1%	
1992	4,130,907	123,987,367	90.1%	96.0%	Project completed Fall 1992
1993	5,158,390	126,038,810	112.5%	97.6%	
1994	4,976,689	132,828,612	108.6%	102.9%	
1995	5,834,589	136,202,113	127.3%	105.5%	
1996	6,027,244	na	131.5%	na	

Notes: Years are State of Iowa Fiscal Years, 7/1-6/30. Figures adjusted to 1990 dollars. 1996 community sales were not available at the time the research was completed.

Source: Iowa Department of Revenue and Finance.

Further analysis used disaggregate retail sales data for each of the five case study corridors. The Iowa Department of Revenue and Finance was able to report sales tax summaries for the street addresses which fell within a project corridor. (Breakdowns by business type were not possible for any corridor because of data confidentiality rules). From 1990 to 1995 retail sales activity increased within each of the five business vitality case study communities. Inflation adjusted annual increases ranged from 0.9 percent (Spencer) to 57.7 percent (Clive) (see Table 4). At the same time, all of the case study corridors experienced retail sales growth between 1990 and 1996. The annual corridor increases ranged from 0.7 percent (Ames) to 18.1 percent (Ankeny). Overall, the average annual sales growth rate for the five corridors was 7.3 percent compared to an average of 14.1 percent for the communities. However, excluding Clive, the average rate of growth for communities was 3.3 percent. Clive has experienced such phenomenal retail sales growth that its sales figures distort the average of the five communities. With this in mind, the results suggest that on average, the corridors have out-paced the communities in terms of retail sales activity over the past seven years by some 15 to 20 percent (see Figure 2).

To examine the short-term impacts of the access management projects, this analysis looked at changes in sales activity from the year before and the year after access improvements were completed. In each of the five case study corridors, sales activity increased the year after the projects were completed. Retail sales activity increases ranged from 1.6 percent (Fairfield) to 37.0 percent (Ankeny) with a 19.7 percent average rate of increase. The average for the corridors was slightly higher than the 'before and after' average changes for the communities (19.29). The average corridor sales activity increases are even more dramatic if Clive is excluded from the community average, with the comparison then becoming 19.7 percent (corridors) to 6.5 percent (communities).

CONCLUSIONS

The results of this effort with secondary data as well as opinion surveys conducted during the research project suggest that access

management projects have a far less detrimental impact on retail businesses than business owners and managers initially believe. Business failure rates in corridors where access management projects have been constructed were almost always lower than those of their surrounding communities or that of the state of Iowa as a whole. Further, retail sales growth in access-managed corridors significantly exceeded that in surrounding communities. It is simply not possible to say that access management projects have a large, detrimental impact on local retail businesses. These findings were confirmed by the Iowa opinion survey results, which indicated that only a small minority (5 percent) of business owners in the case study corridors felt their sales had been negatively impacted by the access management projects.

SUGGESTIONS FOR FURTHER RESEARCH

In any experimental design, the ideal situation is to have only one variable. In the case of the Iowa corridor studies, this sort of approach was not followed. Case studies were selected to explore and illustrate the impact of different. A suggestion for further research would be to select several pairs of similar cases where one arterial roadway has had access management improvements made and another has not and then assess business vitality trends. This would create a more rigorous experimental design. A reasonable working hypothesis would be that access management projects do not adversely impact business vitality. One potential problem with this approach, however, is that corridors with the worst access-related safety problems tend to be programmed for improvements. Further, the universe of available corridors in Iowa (both improved and not improved) is rather limited. The total number of corridors originally considered suitable for analysis at the beginning of the Iowa research project was only about 50.

There is also some anecdotal evidence based on several project corridors in Iowa that access management projects, once successful, may lead to land redevelopment along the corridor. This phenomenon is particularly noticeable in the cases located in growing metropolitan areas. It may be worthwhile to track land development, sales trends, and property valuations over a longer period of time for these corridors.

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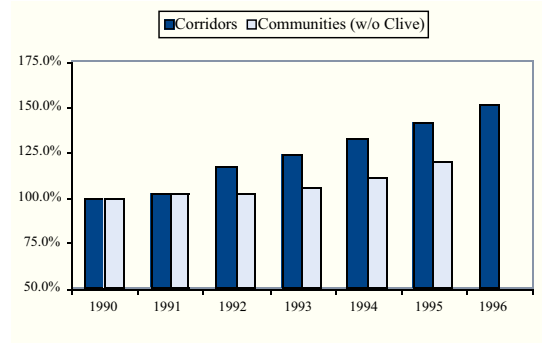


FIGURE 2 Retail sales activity comparisons.