

# Economic Impacts of Access Management

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## Economic Impacts of Access Management

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## Meet Your Instructors



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**Research Scientist**  
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## Course Objectives

- Define access management.
- Discuss the relationship of access management and property values.
- Discuss business and customer survey results of access management implementation.
- Recognize how to become actively involved in promoting appropriate access management techniques to the business community.



## Course Overview

1. What is access management?
2. What are typical economic impact considerations and findings?
3. How can you assess economic impacts of access management projects?
4. Resource materials / contact info



## Session 1

What is Access Management?



## What is Access Management?

*“...the systematic control of the location, spacing, design, and operation of driveways, median openings, interchanges, and street connections to a roadway.”*

*Transportation Research Board, Access Management Manual*



## What is Access Management?

- Balances access to land with traffic mobility needs
  - Works with functional classification hierarchy
- Set of tools to help protect public investments in roadways and improve safety



## Why Use Access Management?

- Improve Public Safety
- Enhance Mobility
- Preserve Functional Classification Integrity
- Protect Infrastructure Investment



## 10 Principles of Access Management: Safety is Focus

1. Ensure functional integrity
2. Limit direct access to major roadways
3. Promote intersection hierarchy
4. Locate signals to favor through movements
5. Preserve the functional area of intersections/interchanges



Source: TRB AM Manual, see supplement



## 10 Principles of Access Management: Safety is Focus

6. Limit the number of conflict points
7. Separate conflict areas
8. Remove turning vehicles from through-traffic lanes
9. Use nontraversable medians to manage left-turn movements
10. Provide a supporting street and circulation system



Source: TRB AM Manual, see supplement



## Session 2

What are Typical Economic Considerations and Findings?



## National Study Characteristics

- Typically median installation, left-turn restrictions
- Business owner perceptions before/after construction
  - Gross sales often proprietary, difficult to obtain
- Investigation of property values, gross sales
- Studies in Florida, Iowa, Texas, Kansas, Minnesota



Source: TRB AM Manual



## Oakland Park Boulevard, Ft. Lauderdale, FL

### Roadway Characteristics

	Before Improvements	After Improvements
Type of corridor	6-lane divided	6-lane divided
Vehicles per day (daytime) <sup>a</sup>	34,670	36,580
No. of signalized intersections	4	4
No. of unsignalized intersections	33	16 (15 with left ingress and U-turn only and 1 with left egress)
Street lighting	None	Yes

<sup>a</sup> A reduction of crashes at night can also be attributed to the additional lighting that was installed during reconstruction. Therefore, to determine the success of the median plan, the study concentrated on daytime use only.

Reconstruction of raised median (1985-1986), closed several openings over 2.25-mile section

Study of business owners in 1991



Source: TRB AM Manual, NCHRP Report 395



## Oakland Park Boulevard, Ft. Lauderdale, FL

Question	Percent Response
Have the median changes adversely affected truck deliveries?	
Yes	30
No	70
Have the median changes caused major changes in business?	
Yes	16
No	84
How have property values changed due to median change?	
Increased	13
No effect	72
Decreased	15
How has the median change affected profits?	
Increased	6
No effect	66
Decreased	28
How has the median change affected the number of customers?	
Increased	10
No effect	61
Decreased	29

Based on 96 businesses



Source: TRB AM Manual



## Oakland Park Boulevard, Ft. Lauderdale, FL

- More than half (57%) reported they favored the median changes
- 80% of those traveling on the corridor favored the project



Source: TRB AM Manual



## Oakland Park Boulevard, Ft. Lauderdale, FL

- Interviewed business owners
- Asked to rank
  - Product price
  - Product quality
  - Customer service
  - Hours of operation
  - Accessibility
- Generally found product price, product quality, and customer service ranked higher than accessibility



Source: NCHRP Report 395, see supplement



## Iowa (1997)

- Access management awareness program/projects
- Used to develop access management education materials during early program development
- Center for Transportation Research and Education (CTRE)
  - Iowa State University



Source: Access Management Awareness Program, Phase II Report, CTRE



## Iowa

- Evaluated safety, operations, business impact, motorist/customer/public officials opinions
- 20 sites evaluated in the study
  - 5 sites investigated for business vitality
- Sites included implementation of
  - TWLTL (2), driveway consolidation (1), raised medians (2)



Source: Access Management Awareness Program, Phase II Report, CTRE



## Iowa

- Relatively short segments (up to 1.0 mile)
- All roadway improvements completed in the early 1990s
- Compared business opinion surveys to retail sales tax data for the cities
- Motorist / customer surveys also



Source: Access Management Awareness Program, Phase II Report, CTRE



## Iowa (Findings)

- No business categories/types that consistently decreased in number of establishments
  - Traffic-dependent businesses did not appear affected significantly different than all businesses



Source: Access Management Awareness Program, Phase II Report, CTRE



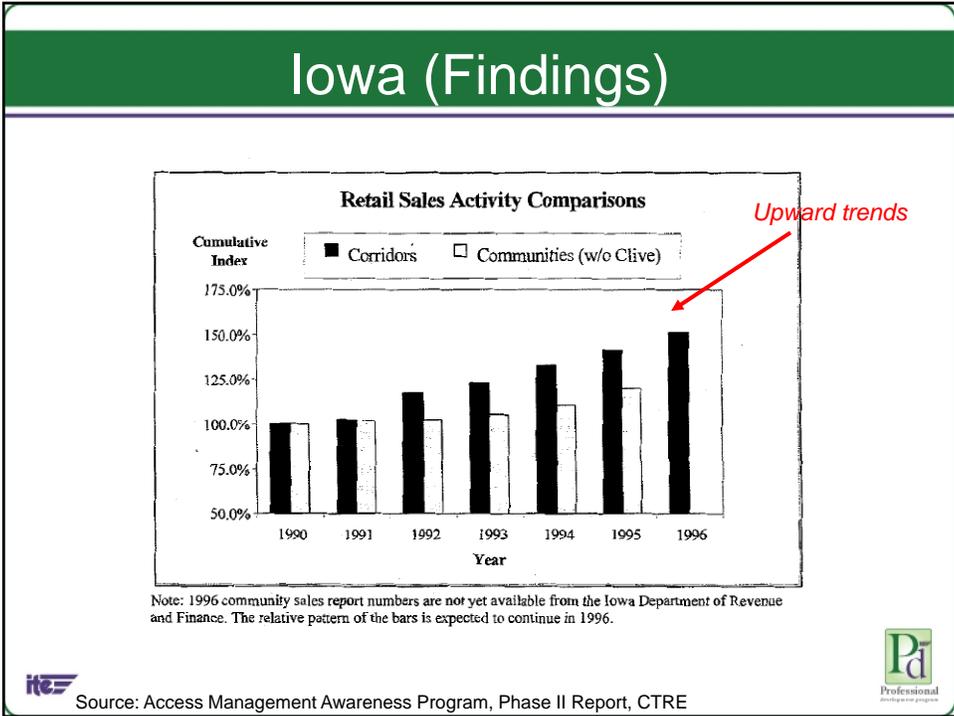
## Iowa (Findings)

- Retail sales for businesses within the case study corridors significantly outpaced sales in their respective communities
  - One exception had exceptionally high growth everywhere



Source: Access Management Awareness Program, Phase II Report, CTRE





## Iowa (Findings)

Sales Impact	Ames	Ankeny	Clive	Fairfield	Spencer	Average, All Cases
Increased	18%	42%	40%	29%	36%	33%
Same	73%	25%	50%	71%	46%	53%
Decreased	0%	17%	10%	0%	0%	5%
Uncertain	9%	17%	0%	0%	18%	9%
Total	100%	100%	100%	100%	100%	100%
Type of Project	Two-way left-turn lane	Raised median	Raised median	Driveway consolidation	Two-way left-turn lane	All

Over 80% of all business owners surveyed along the five business vitality corridors indicated that their sales had increased, stayed the same, or that they were uncertain about the impact.

3 of 63 businesses (5%) reported decreased sales activity. No particular business type (real estate office, supermarket, tanning salon).

Source: Access Management Awareness Program, Phase II Report, CTRE

## Iowa (Findings)

Do Your Customers Complain?	Ames	Ankeny	Clive	Fairfield	Spencer	Average
No	73%	92%	50%	100%	91%	81%
Yes	27%	8%	50%	0%	9%	19%
Total	100%	100%	100%	100%	100%	100%
Type of Project	Two-way left-turn lane	Raised median	Raised median	Driveway consolidation	Two-way left-turn lane	All

On average, about 81% of business owners/managers indicated that their customers did not complain about the difficulty in driving to their businesses after the completion of the projects.



Source: Access Management Awareness Program, Phase II Report, CTRE



## Iowa (Findings)

Group Surveyed	Ames	Ankeny	Clive	Fairfield	Spencer	Average, All Cases
Motorist	96%	100%	92%	100%	100%	98%
Business Owners / Managers	91%	100%	70%	88%	100%	90%
Type of Project	Two-way left-turn lane	Raised median	Raised median	Driveway consolidation	Two-way left-turn lane	All

90 to 100% of motorists had a favorable opinion of improvements made to the roadways. Vast majority agreed that roadways were safer, operate better, and easier to drive on.

Motorists always responded at least as favorably to projects as business owners/managers.



Source: Access Management Awareness Program, Phase II Report, CTRE



## Iowa Conclusions

- Limited number of businesses should be expected to have a long-term sales decline
  - Range from 0 to 15%
  - Most businesses recover quickly
- Some types of businesses will likely bear the brunt of customer complaints
  - Heavily dependent on highway access



Source: Access Management Awareness Program, Phase II Report, CTRE



## Iowa Conclusions

- A minority of business owners and managers (up to 30% on some projects) will not be supportive of projects even if needed for traffic operations/safety
- Not all motorists will support projects
  - Vast majority will
  - Non-support percentage probably under 10%
    - Higher in more complex projects
      - Raised medians, TWLTL



Source: Access Management Awareness Program, Phase II Report, CTRE



## Indiana (Construction Discussion)

- Iowa study did not measure the impacts of construction
- Iowa study references an Indiana study (Palmer, 1996)
  - 12 highway reconstruction projects
  - Average loss of retail sales was 13 percent
  - Most businesses recover in 2 years
  - 20% did experience a long-term negative impact on sales
  - Majority of businesses reported they benefited from the project improvements
    - Iowa results mirrored Indiana study



Source: Access Management Awareness Program, Phase II Report, CTRE



## Texas Study Background (1996-2000)

- TxDOT Needs
  - Increased implementation
  - Public interest / concern
- Previous Studies
  - Capacity
  - Safety



Source: TTI Research Report 7-3904-4



## Background (Texas)

- Objectives
  - Develop and test methodology
  - Developed recommended methodology
- Four-year project duration



Source: TTI Research Report 7-3904-4



## 11 Case Study Locations

- TWLTL to raised median (2)
- Undivided to raised median (8)
- Raised median to TWLTL (1)



Source: TTI Research Report 7-3904-4



## Case Study Locations

- TWLTL to raised median  
– College Station (Interview)



Source: Texas A&M Transportation Institute



## Case Study Locations

Added Landscaped Raised Median



Physically Removed Left-Turn Option



Source: Texas A&M Transportation Institute



## Case Study Locations

- Land use mix, primarily retail
- 0.5 mile to 2.5 miles
- Interview and mail-out surveys
  - Business surveys
  - Undeveloped land surveys



Source: TTI Research Report 7-3904-4



## Case Study Locations

- Customer surveys (5 sites)
  - College Station corridor
    - 2 sit-down restaurants
    - 1 fast-food restaurant
    - 2 gas stations



Source: TTI Research Report 7-3904-4



## Response Rates

- Mail-out surveys (5 sites)
  - Businesses: 26 returned, 8%
  - Undeveloped land: 8 returned, 13%
- Interviews (6 sites)
  - 136 businesses, average 58%
- Customer surveys
  - Range from about 20 to 70 responses



Source: TTI Research Report 7-3904-4



## Analysis

- Variables of most interest
  - Gross sales, property values, customers per day, number of employees
- Stratifying variables
  - Business type
  - When established relative to when interviewed
  - Location (along corridor and by site)
  - Survey type



Source: TTI Research Report 7-3904-4



## Findings (Texas)

- Most businesses increased in gross sales
- Gas stations / auto repair indicated perceived decreases in gross sales
  - Small sample size
- Generally followed city and county trends
- Similar pattern with customers per day
- Property values increased for all businesses



Source: TTI Research Report 7-3904-4



## Findings (Texas)

- All but gas stations / “other services” indicated no affect on full-time employees
- Decreases in sales were common during construction
- GOOD Communication with business owners is vital



Source: TTI Research Report 7-3904-4



## Findings (Texas)

- Regular customers
  - Majority “stay about the same” except gas stations (40%) and fast-food rest (45%)
  - Customer surveys indicated same majority as business owners for all sites



Source: TTI Research Report 7-3904-4



## Findings (Texas)

- Issues that businesses can control are more vital to success
  1. **Product quality**
  2. **Product price**
  3. **Customer service**
  4. Access to store
  5. Distance to travel
  6. Hours of operation



Source: TTI Research Report 7-3904-4



## Findings (Texas)

- Access to Store
  - Usually 4<sup>th</sup>, 5<sup>th</sup> or 6<sup>th</sup>—3<sup>rd</sup> for gas stations and fast-food restaurants
  - Ranked behind customer service, product quality, and product price
  - Always ranked lower by customers
  - Product quality ranked first for all but gas stations (product price by customers)

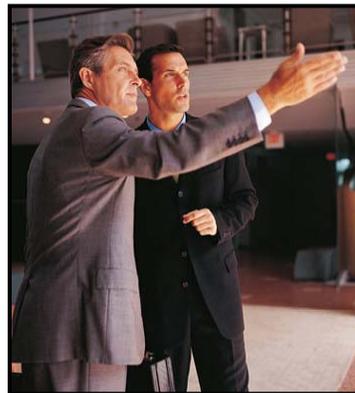


Source: TTI Research Report 7-3904-4



## Findings (Texas)

- Customers:
  - Indicated that access had generally declined
  - Customer service remained the same or improved



Source: TTI Research Report 7-3904-4



## Conclusions (Texas)

- In general, no significant negative economic impacts
  - Some businesses affected more
- General loyalty to employees
- Many economic factors
- Involvement in public participation  
“low” for 62% of respondents
- Good communication is vital



Source: TTI Research Report 7-3904-4



## Conclusions (Texas)

- Construction phase most difficult
  - Ensure access throughout
  - Perform quickly
  - Consider smaller segments on long projects
  - Customers indicate less likely to visit
  - Communication essential



Source: TTI Research Report 7-3904-4



## Conclusions (Texas)

- Interviews
  - Provide most reliable data
  - Appreciation to express concerns
- Customer surveys
  - Provide valuable insight
  - Relatively easy to perform



Source: TTI Research Report 7-3904-4



## Kansas (1999)

- KDOT studied 15 businesses that had filed inverse condemnation lawsuits
  - Access-related issues
    - Driveway consolidation
    - Mainlane relocation
- Claims that changes would have devastating business effects
  - Prevent property from highest and best use
- Some initially compensated for impacts



Source: TRB AM Manual



## Kansas

- Studied each property
  - Economic claims of business owners
  - “Before” and “after” aerial photography
  - Historical land use for each parcel
- In all but one case:
  - Claimant was still in possession of the property and operating the business or
  - Property was being put to the same use by a different operator or
  - Property had been upgraded



Source: TRB AM Manual



## Kansas

- One exception
  - Roadway relocated
  - Prior roadway converted to a frontage road
  - Drivers had to drive 2 miles to get to the gas station
- Strong anecdotal evidence
  - Changes in access or traffic patterns did not cause a change in the highest and best use of the property
    - One exception (above)—extreme circuitry



Source: TRB AM Manual



## Minnesota

- I-394 business impact survey
- MnDOT converted US 12 to freeway-standard
  - Between Minneapolis and Wayzata in Twin Cities metro
- Personal interviews
- Additional economic data
  - Business turnover, property values, sales



Source: Interstate I-394 Business Impact Study, 2007 report



## Minnesota

- Major reconstruction
- 1985-1993
- Rebuilt to urban interstate standards
  - No at-grade intersections
  - No direct driveway access or slip ramps



Source: Interstate I-394 Business Impact Study, 2007 report



## Minnesota Results

- Additional traffic capacity
- Improved travel speeds
- Improved traffic safety
- Business owners predicted worse impacts than were realized



Source: Interstate I-394 Business Impact Study, 2007 report



## Minnesota Results

- Statements in condemnation proceedings that locations would no longer be viable for business, turned out to be wrong in all cases
  - Economic environment improved greatly after project in place
  - Travel times to/from parcels declined due to increased speeds
- Corridor is healthy environment with abundant customers and buying power



Source: Interstate I-394 Business Impact Study, 2007 report



## Minnesota Results

Indicator	Direction of Impact	Comments
<b>Transportation</b>		
Traffic volume	Positive	Traffic doubled
Travel speed	Positive	Peak travel speeds up
Traffic safety	Very positive	Large decline in serious crash rate



Source: Interstate I-394 Business Impact Study, 2007 report



## Minnesota Results

Indicator	Direction of Impact	Comments
<b>Economic and demographic</b>		
Land use	Positive	Land developed more intensively
Population	Neutral to negative	Slight population loss due to land use changes away from residential
Income	Neutral to positive	Area consumers more affluent
Retail trade activity	Neutral	Mixed trends
Employment	Positive	Large office jobs gain
Business turnover	Neutral to positive	Below state turnover rate
Commercial land values	Neutral	Trend similar to I-494 corridor



Source: Interstate I-394 Business Impact Study, 2007 report



## Minnesota Results

Indicator	Direction of Impact	Comments
<b>Business type</b>		
Office buildings	Very positive	Large increase in activity
Automobile dealerships	Neutral	Remained viable after transition
Sit-down restaurants	Neutral	Remained viable with adjustments
Fast food restaurants	Very positive	Large increase in business
Strip commercial centers	Neutral to positive	Attractive location
General retail	Neutral	Remained viable with adjustments
Big box retail	Very positive	Very attractive customer base
Hospitality	Neutral	Insufficient data
Convenience stores and gas stations	Neutral	Remained viable



Source: Interstate I-394 Business Impact Study, 2007 report



## FHWA Safe Access is Good for Business

- Written “to” business community
  - Provides opportunity to encourage discussion of business owner concerns
- Provides overview of access management
  - Definition
  - Benefits



Source: FHWA Safe Access is Good for Business, see supplement



## FHWA Safe Access is Good for Business

- Selected section headings:
  - How will a change in access affect the success of my business?
  - How important is access to the success of my business?
  - Property value considerations with median installation and median opening closures
  - What can be done to keep my business going during construction?



Source: FHWA Safe Access is Good for Business, see supplement



## Median Retrofits Do Not Kill Retail Corridors



*University Drive in  
College Station, TX  
– development  
occurred after raised  
median was installed*



Source: Texas A&M Transportation Institute



## Median Retrofits Do Not Kill Retail Corridors

*South Cooper Street in Arlington, TX – still a very healthy retail/commercial corridor after raised median installed*



Source: Texas A&M Transportation Institute



## Items to Ask the Public Agency During Construction

- Provide clear signs from the roadway to business entrances
- Provide temporary and/or secondary access points
- Schedule construction around primary business hours
- Provide alternative parking
- Stagger construction along a corridor so impacts are localized and staged



Source: FHWA Safe Access is Good for Business, see supplement



## Items to Ask the Public Agency During Construction

- Expedite construction through incentive/disincentive programs
- Avoid blocking business entrances with construction equipment or construction barriers
- Establish a single point of contact in the agency about the construction project to facilitate communication
- Provide regular project progress reports to business and property owners



Source: FHWA Safe Access is Good for Business, see supplement



## FHWA “Sound bites”

- Access management has no impact on the demand for goods and services
- Main reason businesses fail is lack of management expertise (*USA Today*, 2004)



Source: FHWA Safe Access is Good for Business, see supplement



## FHWA “Sound bites”

- Main reasons businesses succeed (University of Tennessee, 1998):
  - The experience of management
  - How well customers are served
  - The quality of the product or service provided
  - Adequate financing and investment
  - Well-trained employees
  - The level and nature of competition
  - Keeping costs competitive



Source: FHWA Safe Access is Good for Business, see supplement



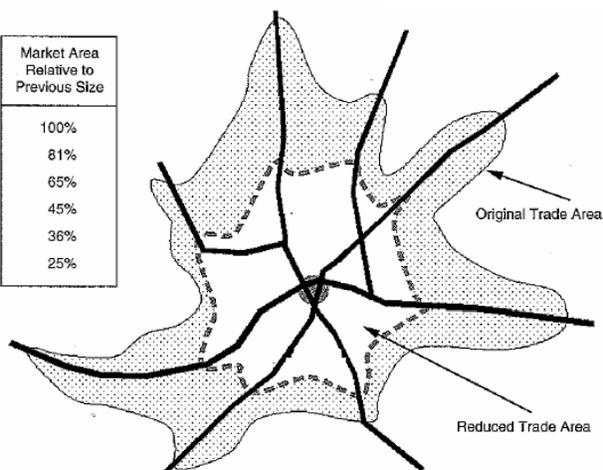
## Additional Economic Considerations

- Market area changes
- Urban Land Institute text



## Market Area Changes

Reduction in Average Speed	Market Area Relative to Previous Size
0%	100%
10%	81%
20%	65%
30%	45%
40%	36%
50%	25%

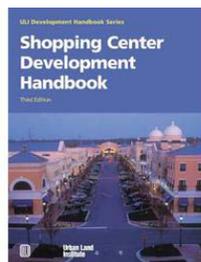


Source: TRB AM Manual



## Urban Land Institute

- Poorly designed access treatments can present traffic hazards and congestion that create a negative image of a center
  - Shopping Center Development Handbook, Urban Land Institute (1985)



## Concluding Remarks

- Median projects have little overall adverse impact on business activity
- Some businesses report increases, some report no change, some report decreases
  - Majority report no change following a median project
- Likelihood of left turns into a business declines as opposing traffic volumes increase
  - Raised medians have little incremental effect on high-volume roadways or during peak periods



Source: TRB AM Manual



## Session 3

How Could You Do an  
Economic Analysis of  
Access Management  
Projects?



## Poll Question

Have you ever performed an economic study of access management impacts by speaking with property owners before or after implementation?

- a) Yes
- b) No



## Recommended Methodology

- Identify sites
  - Construction 4 to 6 years prior
- Identify corridors with desired characteristics
  - Land use
  - Access locations
  - Roadway geometry
  - Site circulation



Source: TTI Research Report 7-3904-4



## Recommended Methodology

- Identify and contact local sources of information
  - Chamber of Commerce
  - Neighborhood Associations
  - Appraisal Districts
- Inventory businesses
  - Windshield surveys
  - Create maps
  - Contact information



Source: TTI Research Report 7-3904-4



## Recommended Methodology

- Obtain non-survey (economic) information about businesses
  - State Workforce Commission
  - State Comptroller of Public Accounts
- Prioritize businesses for survey



Source: TTI Research Report 7-3904-4



## Recommended Methodology

- Collect survey data
  - Interviews best
  - Interviewees appreciate opportunity to comment
- Analyze and summarize results



Source: TTI Research Report 7-3904-4



## Resources: Supplement

- TTI Report 7-3904-4
- TRB *Access Management Manual* (Economic Effects)
- NCHRP 395, *Capacity and Operational Effects of Midblock Left-turn Lanes*
- FHWA Primer – *Safe Access is Good for Business*



## Resources

- TRB Access Management Committee Internet Site
  - <http://www.accessmanagement.info>
  - Includes FHWA Primer, NCHRP 395
- TRB, *Access Management Manual*
- ITE *Transportation and Land Development*
- AASHTO, Green Book
- NCHRP Report 420, *Impacts of Access Management*
- Texas A&M Transportation Institute
  - <http://tti.tamu.edu>
  - Report 7-3904-4 under publications



## Questions?



## Thank You!

Please provide your feedback. A link to an online Webinar evaluation will follow in an e-mail to Web seminar registrants. Please distribute this email to participants at your site. The survey will close in one week.

Questions/Comments  
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