

**Working Paper 05-01**

**Analysis of Absolute Change In Carpool and Vanpool Numbers in  
Northeastern Illinois From 1990 To 2000**

*Division of Transportation Management  
And Operations*

February 2005

**Chicago Area Transportation Study  
300 West Adams Street, Chicago, Illinois 60606**

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**Analysis of Absolute Change In Carpool and Vanpool Numbers in  
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## **Abstract**

The Chicago Area Transportation Study Rideshare Services Program promotes carpooling and vanpooling as a means of traveling to work in northeastern Illinois. Rideshare Services has undertaken the task of examining mode to work issues for the decade encompassing 1990 to 2000, with a focus on absolute change occurring during those years. This paper presents the absolute numbers and percentages of change in means of transportation to work for the years in question.

The results of our analysis show that while high occupancy vehicle (HOV) travel has declined overall as a means of transportation to work in the last 10 years, it has actually increased in Kane, Lake, McHenry and Will counties. Regionwide, HOV travel to work has decreased by 1.1% (4,603 motorists). Single occupancy vehicle (SOV) travel to work increased in all six counties by 11.4% (263,772 motorists) over the 10-year period.

Rideshare Services will use the knowledge gleaned from this analysis to improve outreach efforts. By identifying potential areas for rideshare marketing, Rideshare Services can more efficiently and effectively meet its objectives.

## **Table of Contents**

<b>Abstract.....</b>	<b>1</b>
<b>Table of Contents .....</b>	<b>2</b>
<b>List of Figures.....</b>	<b>3</b>
<b>List of Tables .....</b>	<b>3</b>
<b>Introduction.....</b>	<b>4</b>
<b>Purpose and Need .....</b>	<b>4</b>
<b>Study Process.....</b>	<b>4</b>
<b>Analysis Results.....</b>	<b>7</b>
<b>Conclusions and Next Steps .....</b>	<b>14</b>
<b>Appendices.....</b>	<b>15</b>
<b>Appendix A .....</b>	<b>16</b>
<b>Appendix B .....</b>	<b>17</b>

## List of Figures

Figure 1. Six-County Region of Northeastern Illinois.....	6
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## List of Tables

Table 1. Cook County from 1990 – 2000 .....	7
Table 2. DuPage County from 1990 – 2000 .....	8
Table 3. Kane County from 1990 – 2000 .....	9
Table 4. Lake County from 1990 – 2000.....	10
Table 5. McHenry County from 1990 – 2000.....	11
Table 6. Will County from 1990 – 2000.....	12
Table 7. Six County Region from 1990 – 2000.....	13

## **Introduction**

Rideshare Services wanted to determine whether carpooling/vanpooling and other means of traveling to work were absolutely increasing or decreasing in northeastern Illinois. This analysis focused on how HOV and other modes of transportation to work fared in terms of absolute change from 1990 to 2000.

## **Purpose and Need**

CATS Rideshare Services is working to expand carpooling and vanpooling in northeastern Illinois by promoting ridesharing to large employers. This analysis will assist the program by identifying areas in northeastern Illinois that may be good candidates for carpools and/or vanpools.

## **Methodology**

A carpooling analysis was performed to determine whether HOV travel was declining as a mode of travel to work in northeastern Illinois. Items 23a and 23b from the 1990 and 2000 United States Censuses (Form D-2, Long Form Questionnaire) were used to ascertain this information. Question 23a – which was worded the same way in 1990 and in 2000 – was *“How did this person usually get to work LAST WEEK? If this person usually used more than one method of transportation during the trip, mark the box of the one used for most of the distance.”*

The next section directed respondents as follows: “If car, truck, or van is marked in 23a, go to 23b. Otherwise, skip to 24a. Question 23b read, “How many people, including this person, usually rode to work in the car, truck, or van LAST WEEK?” The only change to question 23b is in the answer column. The 1990 response categories “5 people” and “6 people” were collapsed to “5 or 6 people” for Census 2000, and in 2000 the upper category was “7 or more people,” whereas in 1990 it had been “10 or more people.” This slight change did not affect the analysis because all carpools were grouped into one category for the analysis.

The “Means of Transportation to Work” question from both the 1990 and 2000 censuses offered 12 answer options. The list appeared as follows:

1. Car, truck, or van
2. Bus or trolley bus
3. Streetcar or trolley car
4. Subway or elevated
5. Railroad
6. Ferryboat
7. Taxicab
8. Motorcycle
9. Bicycle
10. Walked
11. Worked at home
12. Other Means

The “Carpooling” question offered 8 options on the 1990 questionnaire, and 6 options on the 2000 questionnaire.

Year 1990 Carpool response options:

1. Drove alone
2. 2 people
3. 3 people
4. 4 people
5. 5 people
6. 6 people
7. 7 to 9 people
8. 10 or more people

Year 2000 Carpool response options:

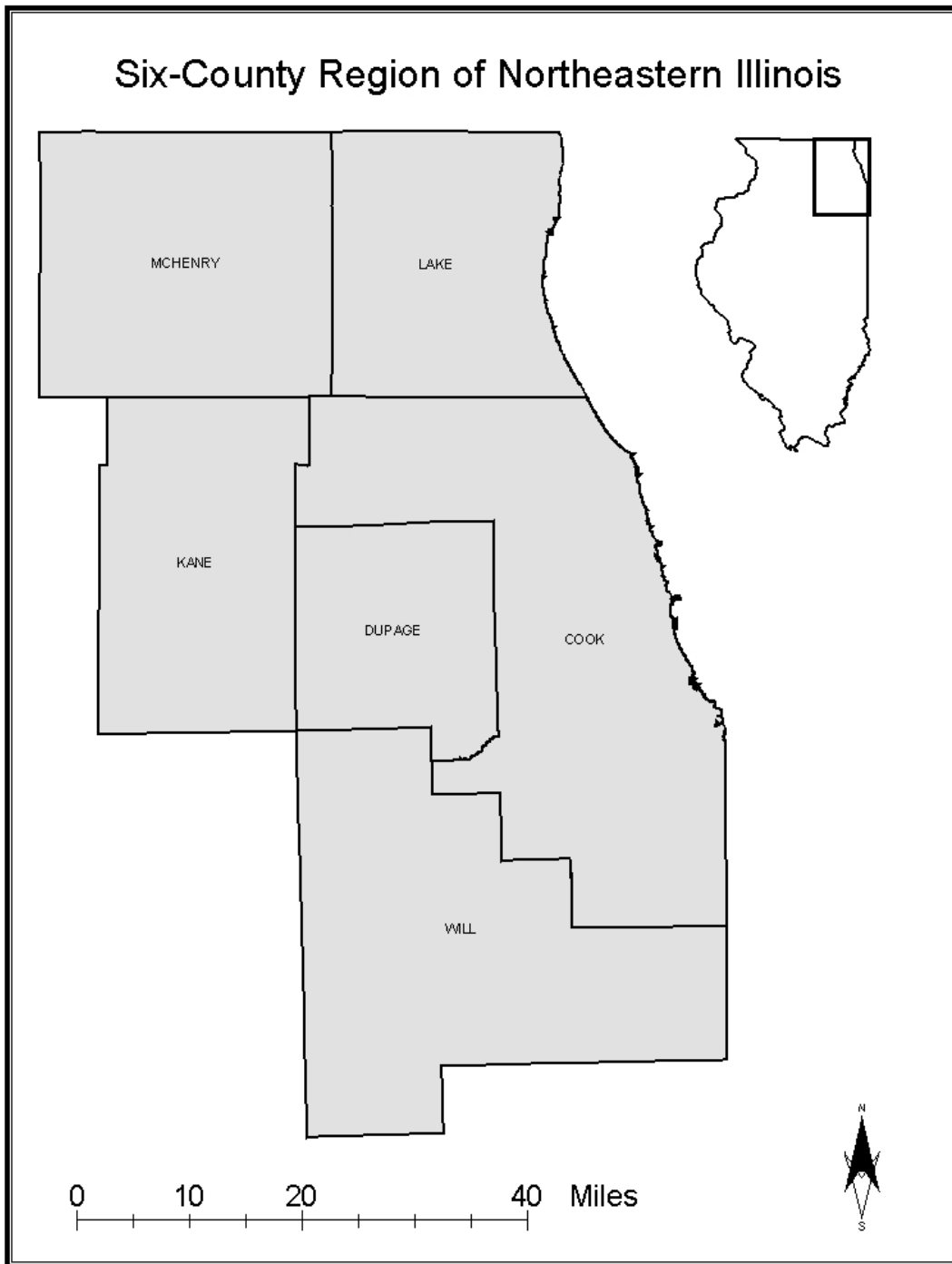
1. Drove alone
2. 2 people
3. 3 people
4. 4 people
5. 5 or 6 people
6. 7 or more people

Once the data from this question were collected from the Census Bureau, the options were grouped together to form six commuting choices. These choices were as follows:

1. Public Transportation (including taxicab)
2. Light Vehicle
  - a) SOV (single occupancy vehicle) = drive alone
  - b) HOV (high occupancy vehicle) = carpool including vanpool
3. Bike or walk
4. Work at home
5. Motorcycle, or other means

This analysis encompassed the six-county northeastern Illinois region comprised of Cook, DuPage, Will, McHenry, Lake and Kane counties. Figure 1 depicts the analysis area and provides a point of reference with regard to its location within the State of Illinois.

Figure 1:



Source: Chicago Area Transportation Study; TM Division

## Initial Analysis Results

The following tables present summaries by county of the absolute change in work trip mode choice between 1990 and 2000.

### Cook County

Table 1 shows the distribution of responses for Cook County for the 1990 and 2000 censuses, and the change that occurred from 1990 to 2000.

**Table 1: Cook County**

Cook County	YEAR		CHANGE	
	1990	2000	Percent	Absolute
<b>Work Trips</b>	<b>2,369,624</b>	<b>2,371,161</b>	<b>0.1%</b>	<b>1,537</b>
<b>Means of Transportation</b>				
Transit (including taxicabs)	459,947	409,067	-11.1%	-50,880
Light Vehicle	1,733,985	1,781,213	2.7%	47,228
SOV	1,432,449	1,490,277	4.0%	57,828
HOV	301,536	290,936	-3.5%	-10,600
Bicycle or Walked	116,423	103,675	-10.9%	-12,748
Work at Home	43,588	60,817	39.5%	17,229
Motorcycle or other	15,681	16,389	4.5%	708

Source: 1990 and 2000 Census Data

Over the last 10 years in Cook County, the number of people usually commuting to and from work by carpool decreased by 10,600 (3.5%).

The number of people commuting alone in a light vehicle increased by 57,828 (4.0%).

Transit use decreased by 50,880 (11.1%) in Cook County.

DuPage County

Table 2 shows DuPage County responses to questions on the 1990 and 2000 census questionnaires, and the change that occurred between 1990 and 2000.

**Table 2: DuPage County**

Du Page County	YEAR		CHANGE	
	1990	2000	Percent	Absolute
<b>Work Trips</b>	<b>425,284</b>	<b>469,373</b>	<b>10.4%</b>	<b>44,089</b>
<b>Means of Transportation</b>				
Transit (including taxicabs)	29,550	31,612	7.0%	2,062
Light Vehicle	373,012	408,951	9.6%	35,939
SOV	337,108	373,560	10.8%	36,452
HOV	35,904	35,391	-1.4%	-513
Bike or Walk	9,731	9,878	1.5%	147
Work at Home	11,074	16,599	49.9%	5,525
Motorcycle or Other	1,917	2,333	21.7%	416

Source: 1990 and 2000 Census Data

Over the 10-year period, carpooling in DuPage County decreased by 1.5% (513 carpoolers).

Driving to work alone increased by 10.8 % (36,452 commuters).

The number of individuals who work from home increased by 49.9% (5,525 telecommuters).

Kane County

Table 5 shows Kane County responses to the 1990 and 2000 censuses, as well as the change that occurred between 1990 and 2000.

**Table 5: Kane County**

Kane County	YEAR		CHANGE	
	1990	2000	Percent	Absolute
<b>Work Trips</b>	<b>157,482</b>	<b>192,862</b>	<b>22.5%</b>	<b>35,380</b>
<b>Means of Transportation</b>				
Transit (including taxicabs)	4,411	5,242	18.8%	831
Light Vehicle	144,504	175,975	21.8%	31,471
SOV	124,682	153,831	23.4%	29,149
HOV	19,822	22,144	11.7%	2,322
Bike or Walk	3,837	3,536	-7.8%	-301
Work at Home	3,857	6,536	69.5%	2,679
Motorcycle or Other	873	1,573	80.2%	700

Source: 1990 and 2000 Census Data

Both SOV and HOV travel increased in Kane County.  
 Carpooling increased by 11.7% (2,322 carpoolers).  
 Driving to work alone increased by 23.4% (29,149 commuters).

Lake County

Table 3 shows Lake County responses to the 1990 and 2000 census questionnaires, and the change occurring during that time.

**Table 3: Lake County**

Lake County	YEAR		CHANGE	
	1990	2000	Percent	Absolute
<b>Work Trips</b>	<b>270,244</b>	<b>317,442</b>	<b>17.5%</b>	<b>47,198</b>
<b>Means of Transportation</b>				
Transit (including taxicabs)	11,461	14,572	27.1%	3,111
Light Vehicle	231,352	274,693	18.7%	43,341
SOV	200,994	242,387	20.6%	41,393
HOV	30,358	32,306	6.4%	1,948
Bike or Walk	16,729	9,793	-41.5%	-6,936
Work at Home	8,429	13,294	57.7%	4,865
Motorcycle or Other	2,273	5,090	123.9%	2,817

Source: 1990 and 2000 Census Data

Between 1990 and 2000, driving alone and carpooling increased in Lake County. Some 41,393 additional people chose to drive to work alone. An additional 1,948 people carpoled over the ten-year period.

McHenry County

Table 6 shows relevant aggregate McHenry County responses to the 1990 and 2000 census questionnaires, and the change that occurred between 1990 and 2000.

**Table 6: McHenry County**

McHenry County	YEAR		CHANGE	
	1990	2000	Percent	Absolute
<b>Work Trips</b>	<b>93,876</b>	<b>133,257</b>	<b>42.0%</b>	<b>39,381</b>
<b>Means of Transportation</b>				
Transit (including taxicabs)	3,333	4,195	25.9%	862
Light Vehicle	84,677	121,284	43.2%	36,607
SOV	74,738	109,858	47.0%	35,120
HOV	9,939	11,426	15.0%	1,487
Bike or Walk	2,085	1,944	-6.8%	-141
Work at Home	3,343	5,056	51.2%	1,713
Motorcycle or Other	438	778	77.6%	340

Source: 1990 and 2000 Census Data

Similar to the other collar counties, McHenry also experienced an increase in both light vehicle modes from 1990 to 2000.

An additional 35,120 people drove to work alone.

Carpooling attracted an additional 487 followers.

Will County

Table 4 shows Will County responses to the 1990 and 2000 censuses, and the change that occurred during that time.

**Table 4: Will County**

Will County	YEAR		CHANGE	
	1990	2000	Percent	Absolute
<b>Work Trips</b>	<b>170,245</b>	<b>241,887</b>	<b>42.1%</b>	<b>71,642</b>
<b>Means of Transportation</b>				
Transit (including taxicabs)	6,494	9,832	51.4%	3,338
Light Vehicle	156,006	220,589	41.4%	64,583
SOV	136,684	200,514	46.7%	63,830
HOV	19,322	20,075	3.9%	753
Bike or Walk	3,111	2,998	-3.6%	-113
Work at Home	3,696	7,035	90.3%	3,339
Motorcycle or Other	938	1,433	52.8%	495

Source: 1990 and 2000 Census Data

Over the ten-year period, usage of both categories of light vehicle increased. An additional 63,830 people drove to work alone – this represents an increase of 46.7%. During the same period, carpooling increased by 3.9% (753 carpoolers).

Six Counties Combined

Table 7 shows the total aggregate responses for the six-county region.

**Table 7: All Six Counties**

Six Counties	YEAR		CHANGE	
	1990	2000	Percent	Absolute
<b>Work Trips</b>	<b>3,486,755</b>	<b>3,725,982</b>	<b>6.9%</b>	<b>239,227</b>
<b>Means of Transportation</b>				
Transit (including taxicabs)	515,196	474,520	-7.9%	-40,676
Light Vehicle	2,723,536	2,982,705	9.5%	259,169
SOV	2,306,655	2,570,427	11.4%	263,772
HOV	416,881	412,278	-1.1%	-4,603
Bike or Walk	151,916	131,824	-13.2%	-20,092
Work at Home	73,987	109,337	47.8%	35,350
Motorcycle or Other	22,120	27,596	24.8%	5,476

Source: 1990 and 2000 Census Data

The six-county region gained 263,772 commuters. This is an 11.4% increase from 1990 to 2000.

There was a 1.1% decline (4,603 commuters) in HOV (carpooling) travel.

Some 35,350 people in the region began working from home – that is an increase of 47.8%.

Transit providers in the region lost 40,676 passengers.

## **Conclusion & Next Steps**

This preliminary carpooling analysis provides very useful information for the CATS Rideshare Services Division and regional decision-makers. It is now apparent that, contrary to popular belief, carpooling is increasing in the outlying counties of northeastern Illinois. We can also conclude that Cook and DuPage are the only counties where HOV decreased over the 10-year period covered in the analysis.

The next phase of the carpool analysis will be to compare the change in HOV travel in northeastern Illinois with that of three other regions. The primary factor in choosing these three other regions will be their level of HOV system development. One region will have no HOV system. Another region will have a static HOV system, consisting of HOV facilities that are being maintained but not expanded. The third region will have a dynamic HOV system in which the system is being aggressively developed to meet travel needs. Once these three regions have been selected, 1990 and 2000 census travel mode data will be collected and analyzed.

**Appendices:**

Appendix A: U.S. Census Bureau, Official 2000 U.S. Census Form (Form D-2), Long Form Questionnaire, p. 6.

Appendix B: U.S. Census Bureau, Your Guide for the 1990 Census Form, pp. 14-15.





**23a. How did this person usually get to work LAST WEEK?** If this person usually used more than one method of transportation during the trip, fill the circle of the one used for most of the distance.

Car, truck, or van     Motorcycle  
 Bus or trolley bus     Bicycle  
 Streetcar or trolley car     Walked  
 Subway or elevated     Worked at home  
 Railroad     Skip to 28  
 Ferryboat     Other method  
 Taxicab

*If "car, truck, or van" is marked in 23a, go to 23b. Otherwise, skip to 24a.*

**b. How many people, including this person, usually rode to work in the car, truck, or van LAST WEEK?**

Drove alone     5 people  
 2 people     6 people  
 3 people     7 to 9 people  
 4 people     10 or more people

**24a. What time did this person usually leave home to go to work LAST WEEK?**

a.m.  
 p.m.

**b. How many minutes did it usually take this person to get from home to work LAST WEEK?**

Minutes — Skip to 28

**25. Was this person TEMPORARILY absent or on layoff from a job or business LAST WEEK?**

Yes, on layoff  
 Yes, on vacation, temporary illness, labor dispute, etc.  
 No

**26a. Has this person been looking for work during the last 4 weeks?**

Yes  
 No — Skip to 27

**b. Could this person have taken a job LAST WEEK if one had been offered?**

No, already has a job  
 No, temporarily ill  
 No, other reasons (in school, etc.)  
 Yes, could have taken a job

**27. When did this person last work, even for a few days?**

1990     1980 to 1984 } Go to 28  
 1989     1979 or earlier } Skip to 32  
 1988     Never worked }  
 1985 to 1987

**28-30. CURRENT OR MOST RECENT JOB ACTIVITY.** Describe clearly this person's chief job activity or business last week. If this person had more than one job, describe the one at which this person worked the most hours. If this person had no job or business last week, give information for his/her last job or business since 1985.

**28. Industry or Employer**

**a. For whom did this person work?** If now on active duty in the Armed Forces, fill this circle  and print the branch of the Armed Forces.

(Name of company, business, or other employer)

**b. What kind of business or industry was this?** Describe the activity at location where employed.

(For example: hospital, newspaper publishing, mail order house, auto engine manufacturing, retail bakery)

**c. Is this mainly — Fill ONE circle**

Manufacturing     Other (agriculture, construction, service, government, etc.)  
 Wholesale trade  
 Retail trade

**29. Occupation**

**a. What kind of work was this person doing?**

(For example: registered nurse, personnel manager, supervisor of order department, gasoline engine assembler, cake icer)

**b. What were this person's most important activities or duties?**

(For example: patient care, directing hiring policies, supervising order clerks, assembling engines, icing cakes)

**30. Was this person — Fill ONE circle**

Employee of a PRIVATE FOR PROFIT company or business or of an individual, for wages, salary, or commissions  
 Employee of a PRIVATE NOT-FOR-PROFIT, tax-exempt, or charitable organization  
 Local GOVERNMENT employee (city, county, etc.)  
 State GOVERNMENT employee  
 Federal GOVERNMENT employee  
 SELF-EMPLOYED in own NOT INCORPORATED business, professional practice, or farm  
 SELF-EMPLOYED in own INCORPORATED business, professional practice, or farm  
 Working WITHOUT PAY in family business or farm

**31a. Last year (1989), did this person work, even for a few days, at a paid job or in a business or farm?**

Yes  
 No — Skip to 32

**b. How many weeks did this person work in 1989?** Count paid vacation, paid sick leave, and military service.

Weeks

**c. During the weeks WORKED in 1989, how many hours did this person usually work each week?**

Hours

**32. INCOME IN 1989 —** Fill the "Yes" circle below for each income source received during 1989. Otherwise, fill the "No" circle. If "Yes," enter the total amount received during 1989. For income received jointly, see instruction guide. If exact amount is not known, please give best estimate. If net income was a loss, write "Loss" above the dollar amount.

**a. Wages, salary, commissions, bonuses, or tips from all jobs — Report amount before deductions for taxes, bonds, dues, or other items.**

Yes  
 No    \$ .00  
 Annual amount — Dollars

**b. Self-employment income from own nonfarm business, including proprietorship and partnership — Report NET income after business expenses.**

Yes  
 No    \$ .00  
 Annual amount — Dollars

**c. Farm self-employment income — Report NET income after operating expenses. Include earnings as a tenant farmer or sharecropper.**

Yes  
 No    \$ .00  
 Annual amount — Dollars

**d. Interest, dividends, net rental income or royalty income, or income from estates and trusts — Report even small amounts credited to an account.**

Yes  
 No    \$ .00  
 Annual amount — Dollars

**e. Social Security or Railroad Retirement**

Yes  
 No    \$ .00  
 Annual amount — Dollars

**f. Supplemental Security Income (SSI), Aid to Families with Dependent Children (AFDC), or other public assistance or public welfare payments.**

Yes  
 No    \$ .00  
 Annual amount — Dollars

**g. Retirement, survivor, or disability pensions — Do NOT include Social Security.**

Yes  
 No    \$ .00  
 Annual amount — Dollars

**h. Any other sources of income received regularly such as Veterans' (VA) payments, unemployment compensation, child support, or alimony — Do NOT include lump-sum payments such as money from an inheritance or the sale of a home.**

Yes  
 No    \$ .00  
 Annual amount — Dollars

**33. What was this person's total income in 1989?** Add entries in questions 32a through 32h; subtract any losses. If total amount was a loss, write "Loss" above amount.

None    OR    \$ .00  
 Annual amount — Dollars

Please turn the page and answer questions for Person 2 listed on page 1. If this is the last person listed in question 1a on page 1, go to the back of the form.