

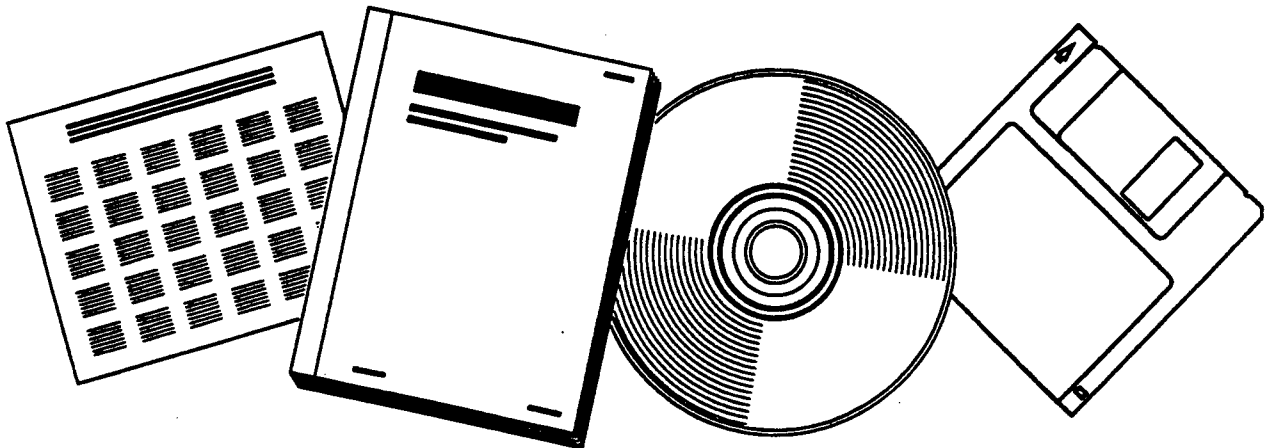


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ALTERNATIVE APPROACHES TO PROVIDING PASSENGER TRANSPORTATION IN LOW DENSITY CITIES: THE CASE OF COUNCIL BLUFFS, IOWA

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PB98-105935

**Alternative Approaches to
Providing Passenger
Transportation in Low Density
Cities: The Case of Council
Bluffs, Iowa.**

September 1997



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Mary Kihl, Jerry Knox, Thomas Sanchez, and C. Stephen Glennon
MATC Project No. MATC UNL 96-6

Mid-America Transportation Center

University of Nebraska-Lincoln

W333.2 Nebraska Hall

Lincoln, NE 68588-0530

Telephone 402.472.1974

Fax 402.472.0859

Website: <http://www.unl.edu/matc>

Sponsored by

The City of Council Bluffs

Public Works Department

209 Pearl Street


Council Bluffs, Iowa 51502

Telephone 712-328-4641

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The Advisory Panel:

Parker Bean, City of Council Bluffs

Dennis Eitmann, Vice President,

Iowa Western Community College

Terry Miller, Associate Dean School of Arts and

Sciences, Iowa Western Community College

Linda Stone, Metro Area Transit

Brad Chambers, MAPA

Peter Hallock, Director of Air and Transit Division,

Iowa Department of Transportation

Phil Shehi

Bob Mundt, Council Bluffs Area

Chamber of Commerce

Mike Slyby, Iowa Department of Transportation

Editor:

Audrey Brichetto Morris

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ALTERNATIVE APPROACHES TO PROVIDING PASSENGER TRANSPORTATION IN LOW DENSITY CITIES: THE CASE OF COUNCIL BLUFFS, IOWA

Final Report

Principal Investigator

Mary Kihl
Professor, Community and Regional Planning
Iowa State University/Arizona State University

Co-Principal Investigators

Jerry Knox
Associate Professor of Community and Regional Planning
Iowa State University

Thomas Sanchez
Assistant Professor of Community and Regional Planning
Iowa State University

Co-Investigator

C. Stephen Glennon
Assistant Professor of Social Science
Iowa Western Community College

Research Assistants

Brian Hurd, Tim Ross, Elyse Walker—Iowa State University
Peter Smith, Farhad Tavassoli—Arizona State University
Lachelle Fryett, Olga Maletina—Iowa Western Community College

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1 INTRODUCTION

Ridership on fixed-route buses is declining in smaller cities that have decentralized patterns of land use. Cities that have maintained a fixed-route bus system along a central corridor directed to an urban core find that service-sector employers have moved to expansive campuses on the periphery, shopping centers and large discount stores have largely supplanted the traditional Main Street, and new housing developments continue to crop up on former farm land along the expanding urban edge. This phenomenon is well understood in the large urban centers along the East and West Coasts which have experienced the development of suburbs. For the smaller cities of the Midwest the trends are parallel, although population densities are not comparable.

Along the Coasts the limited viability of public transit in far-flung suburbs has long been acknowledged. Residents are generally auto dependent and congestion continues to mount. The efforts of Robert Cervero and others to reintroduce transit-oriented development with high density areas clustered around light rail stops are gaining attention in metropolitan areas faced with rising levels of air pollution.

Meanwhile, the small cities of the Midwest continue to emulate the model of sprawl since land appears to be plentiful and is fairly inexpensive. Personal vehicles are a way of life and public transportation seems to be

relegated to captive riders who themselves find it increasingly difficult to use transit for trips to work sites often at the edge of the city. In what is generally a cyclical process, ridership declines, fixed routes are limited, and headways are extended. This, in turn, leads to fewer riders and higher operational costs. Although some residents clamor for more service, expanding fixed-route bus service appears to be incongruent, especially in light of threats of reduced funding for urban transportation systems. Hence, transit operations are challenged to find new and innovative ways of providing service to area residents.

The Development of Council Bluffs

Although unique in its history and terrain, Council Bluffs, Iowa in many ways epitomizes the Midwestern development pattern. Founded as a trading center and gateway to the west, initially the city grew up along the Missouri River. As the fur trading post transformed into a major stop along the Mormon Trail, the focus of development was the river. The Mormon Ferry evolved into bridges across the Missouri, "substantial enough to carry heavy artillery," (Chamber of Commerce, 60), and the gold seekers replaced the Mormons on the trail to the west, but for all Council Bluffs was an outfitting stop before crossing the Missouri River into the vast territory to the west. The introduction of the railroad with its large switching yards offered a new dimension to the

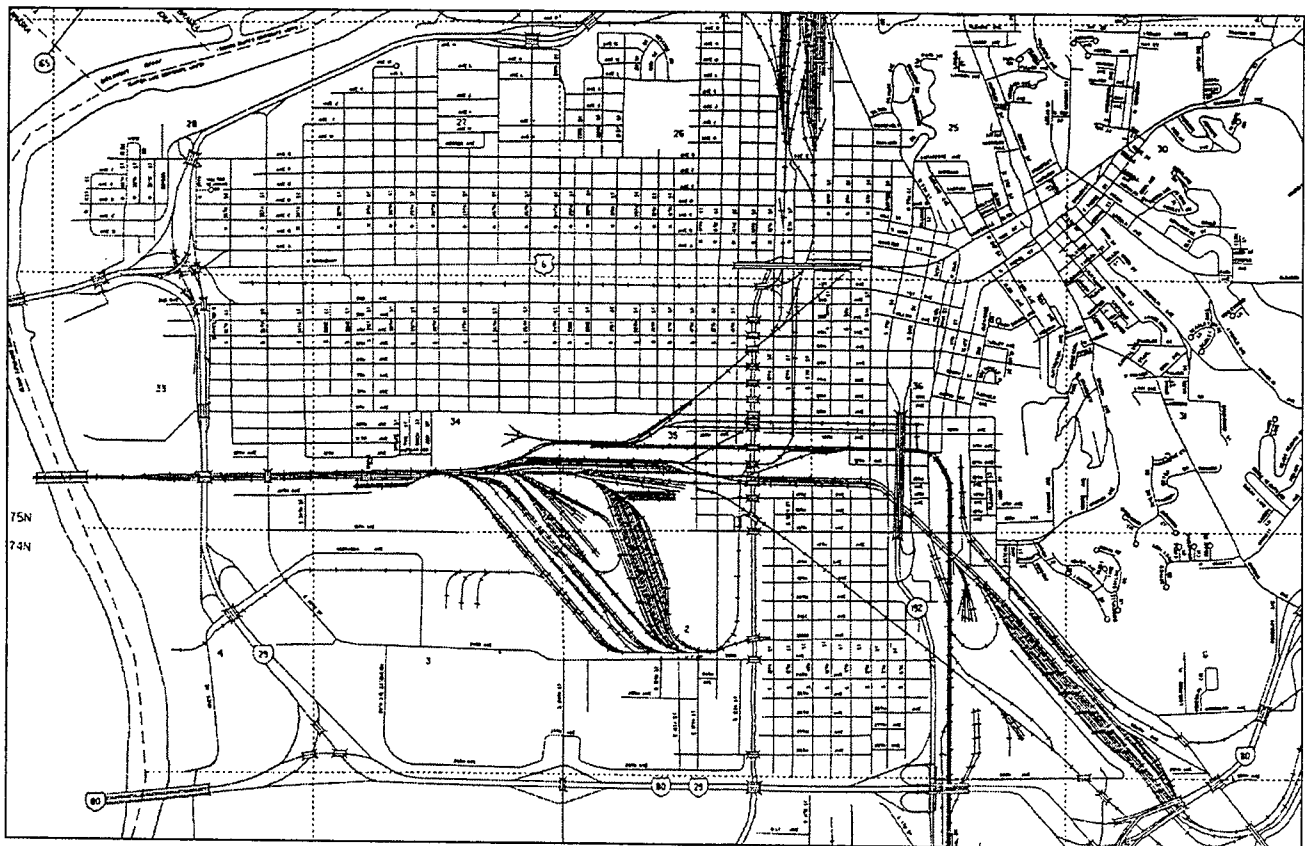
development of the city which ultimately grew around the tracks. The affluent chose the bluffs overlooking the river as the site for large-scale homes while the homes of the rail workers clustered in a grid pattern closer to the river bank and the rail yards. The result was a two-tiered city bisected by railroad tracks. Increased development on the slopes filled in some gaps, but the curved and incomplete street pattern along the bluffs characterized the growth of the city to the east.

With the introduction of interstate highways that almost encircle the city, Council Bluffs again found itself at the intersection of trade and travel, a potential stop off point for travelers going north, south, east, and west. These highways offered the next major direction to the development pattern of the city. A city which had largely developed on an east-west axis now began to flow south as development emerged at key interchanges. Tourist facilities and trucking facilities sprouted up at 24th Street and at the interchange between I-29 and I-80. The relatively flat land on the south side of the interstates provided opportunities for developers to amass the large sites

needed for big box development, while a relatively level area near the Madison Avenue interchange offered a site for a large indoor mall, again at the edge of the city. A new community college campus emerged at the interchange with U.S. Highway 6. Apartment complexes wedged their way onto land now accessible from the interchange at 35th Avenue. As with many cities, this peripheral development took its toll upon the businesses along Broadway, and many closed. Some former businesses have now re-emerged as service centers. The low land along the river outside the interstate ring became the latest target for development as casino operators seized the opportunity to develop gambling centers on the Missouri River. Figure 1 highlights this scattered development pattern.

While responding to these opportunities for development, Council Bluffs evolved a growth pattern that offered major challenges for a traditional fixed-route bus system. Although the fixed-route bus can efficiently link the Broadway corridor, with its grid-shaped development, to Omaha across the river, it is difficult to serve the bluffs and inefficient to serve

Figure 1. Council Bluffs, Iowa



the scattered retail development around the city's periphery and the low density housing in between. Nevertheless, the current transit route structure in Council Bluffs does pass within one quarter mile of most development in the city as Figure 2 indicates. It does not, however, serve the Community College nor other locations east of North Broadway, nor does it serve some areas crisscrossed by rail tracks and segmented from the rest of the city by viaducts. A final challenge to the fixed route bus system is the schedule. Operating on a basic daytime schedule, the bus is unable to serve the large number of employees who work on second and third shifts. To extend hours to meet these needs would not be economically feasible.

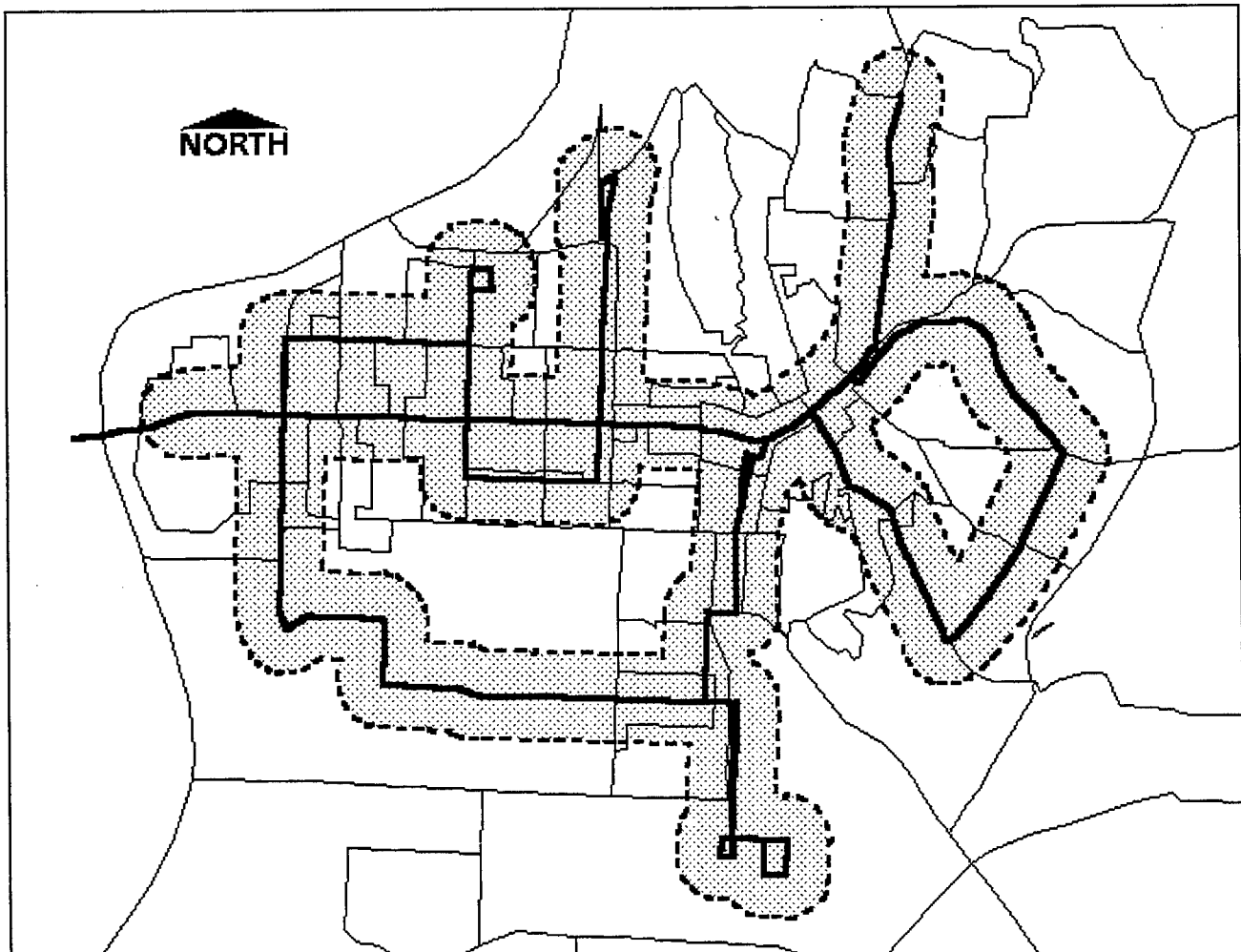
Parameters of the Study

The following study explores transportation alternatives for Council Bluffs. As such, the study has a

specific focus. Nevertheless, the intention is to explore alternatives that may potentially prove viable for other small cities faced with scattered development patterns and limited population density. The report is not intended to offer a definitive assessment of the viability of the various transportation options. That will await the results of pilot tests of the various options. Such pilot tests will be needed to refine the concepts suggested in this study and to gauge the level of public interest.

This study was inspired by the interest and concerns expressed to the principal investigator by a number of Council Bluffs residents during the development of an early deployment study for the Omaha Metropolitan Area. While interested in Intelligent Transportation Systems strategies for improving transit service delivery, these residents felt that their needs were more basic. They wanted to increase access to

Figure 2. City development within one quarter mile of current bus routes



retail and employment opportunities within their city. Further conversations with others in the community indicated that these interests were shared by a number of target populations: seniors, college students, service sector employees, and high school students. Assessing and responding to the interests of these target populations became the basis for the study. The complexities in addressing these interests with the existing fixed-route bus alone became the challenge.

A major consideration in shaping this study was the expectation of the continued operation of the existing Metropolitan Transit Authority routes in Council Bluffs. Any specific route assessment was deemed outside the realm of this project. Nevertheless, several alternatives may have implications for increasing ridership. Since the study is funded in part by the City of Council Bluffs, a further defining factor in the study was that the City of Council Bluffs Public Works Department would continue to oversee transit operations in the city. The research team reflected an active partnership between Iowa State University and Iowa Western Community College in Council Bluffs.

The study was funded in part by the Mid-America Transportation Research Center, a university transportation research center located in Lincoln, Nebraska; and in part by the City of Council Bluffs with funds allocated by the Iowa Department of Transportation. The study benefited greatly from the active participation of an advisory board which reflected the broad interest in the study. Although gratefully acknowledging the major contribution of the funding and the advisory board to this study, the research team are solely responsible for the findings of this study.

The report is divided into seven sections:

- Introduction
- Council Bluffs Geographic Analysis
- Survey Analysis
- Review of Service Options
- Service Options as Applied to Council Bluffs
- Fiscal Analysis
- Recommendations and Implementation Plans

**2 CITY OF
COUNCIL BLUFFS
GEOGRAPHIC ANALYSIS**

Council Bluffs, like most American cities, is largely automobile dependent. Across the city households typically owned 1.78 vehicles in 1990 and 95.51 percent of all work trips were made by automobile. On average, only about 1.22 percent of work trips were made by transit. However, the proportion of work trips made by transit was somewhat higher for those households within one quarter mile of a bus stop, being 1.59 percent. The total population of the City of Council Bluffs in 1990 was 51,981. Of these, 14.1 percent were over age 65 and 22.4 percent were under age 14. Like much of Iowa, the proportion of minority population was small, only 3.5 percent of the total. The median household income of \$21,324 in 1990 places the city in the moderate income category, while the percent of homes owned across the city, 68.75, indicates relative stability (U.S. Census, 1990). Council Bluffs is located directly across the Missouri River from Omaha, Nebraska and the economies of the two cities are in many ways intertwined. Planning for both is coordinated through a common Metropolitan Planning Organization. Figure 3, generated from 1990 U.S. Census data, indicates the interconnected commuting patterns between the two cities. In 1990, only 53.8 percent of the working public worked within the city of Council Bluffs.

As indicated above, fixed-route transit service is currently provided under contract from Metropolitan

Area Transit (MAT), operating out of Omaha across the river. The routes in Council Bluffs and Omaha are interconnected but operated separately. For example, the adult fare in Nebraska is \$.90, while it is \$1.00 in Iowa. Transfers cost \$.05 in Nebraska, but are free in Iowa. While Nebraska has a variety of bus card options, cash fares are still required in Iowa. Unlike Nebraska, there are no express routes in Iowa. Council Bluffs has also selected a different provider for complementary paratransit service, the American Ambulance Company, which operates a dial-a-ride service for those residents who are ADA eligible.

MAT operates five routes within the city of Council Bluffs. Approximately 13 percent of the city's residents lived within one tenth mile of a bus route in 1990 and 54.4 lived within one quarter mile. For the purposes of this study, a distance of one quarter mile was considered to represent the maximum likely distance that a person would walk to board a bus. A distance of one tenth mile was considered to be a relatively easy walking distance to a bus stop.

Overall, MAT bus routes serve the different age groups at relatively similar levels, except that the age group of over 65 is slightly better served on average. Nonwhites and lower income households also tend to have better access to the bus system. Commuting and mobility characteristics for households within

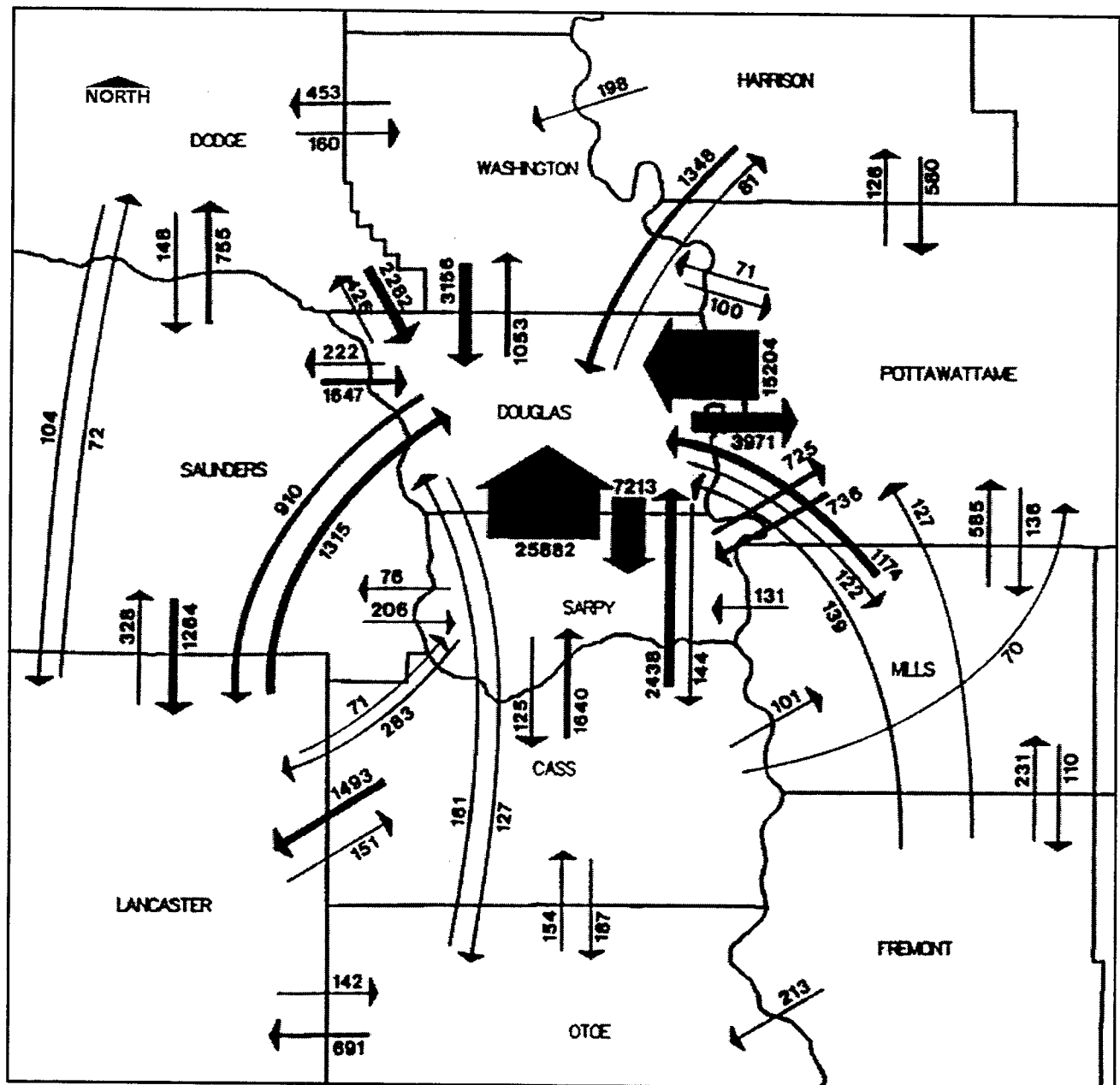


Figure 3. Commuting patterns in the Omaha-Council Bluffs area

close proximity to bus routes are not significantly different from the characteristics for the entire city. This includes a variable for mode choice to work, departure time for the work trip, and vehicle ownership. Educational attainment, labor participation, and home tenure characteristics do not show significant differences for the households one tenth of a mile from bus routes as compared to the city as a whole.

As Figure 4 shows, among those living one tenth mile from a bus route, 1.46 percent used transit to get to work and 57.98 percent of them worked

within the city. On average, the educational level of those residents closest to any bus route was also the same as that for the rest of the city, 15.1 years. However, those households living within one tenth mile of bus routes include a higher proportion of renters. They have somewhat fewer automobiles available, 1.75 per household as compared to 1.78 for the city as a whole. The median income for those households closest to the bus stop was \$15,443, significantly lower than that for the city as a whole (\$21,324). In most areas other than educational achievement, the MAT routes as a whole attempt to respond somewhat

Category	Variable	Location				All
		0.10 miles	%	.25 miles	%	
Population	1990 Population	6,974	13.4%	28,274	54.4%	51,981
	0 to 14 years	1,532	22.0%	6,446	22.8%	11,649
	15 to 24 years	863	12.4%	3,883	13.7%	6,976
Age	25 to 64 years	3,407	48.9%	13,835	48.9%	26,018
	65 and over	1,172	16.8%	4,160	14.7%	7,339
	Average age	34.1		34.1		34.9
	White	6,652	13.3%	27,101	54.0%	50,162
Race	Non-white	322	17.7%	1,173	64.5%	1,819
	Percent white	95.38%		95.85%		96.50%
	Automobile	95.10%		95.09%		95.51%
Mode to Work	Transit	1.46%		1.59%		1.22%
	Work at home	3.45%		3.33%		3.38%
Place of Work	Worked inside City	57.98%		54.91%		53.80%
	12 a.m. to 8:59 a.m.	74.37%		73.39%		74.83%
Time Leaving	9 a.m. to 11:59 a.m.	6.60%		7.26%		6.97%
For Work	12 p.m. to 3:59 p.m.	8.84%		8.49%		8.08%
	4 p.m. to 11:59 p.m.	10.13%		10.86%		10.13%
Education	Average years of school	15.1		14.7		15.1
Employment	Percent employed	94.80%		94.56%		96.33%
Income	Median household income	15,443		19,582		21,324
Tenure	Percent owner occupied	64.30%		64.25%		68.75%
Mobility	Average Vehicles owned	1.75		1.69		1.78

Figure 4. All bus routes

more to the needs of the traditional transit users—seniors, minorities, lower educational attainment, and lower income households.

Segregating out the characteristics of residents close to each of the individual bus routes proved to be somewhat complex. Due to the irregular shapes of census block groups and the fact that the bus routes overlap, some of the block group population totals are counted for more than one bus route. For example, routes 41, 42, and 45 travel down Broadway, so the block group population within one tenth mile and one quarter mile of Broadway are counted in summaries for each of these individual routes. For analysis purposes a block group is considered to be within .10 or .25 miles of a route if its centroid (geometric center) falls within .10 or .25 mile of the nearest bus route. This method was used because the block group boundaries were the smallest geographic units for which detailed information was available from the census. Summarizing the block group data in this way provides a general indication of bus service available for each route. This is useful information for analyzing the effectiveness of current bus route configurations. The maps in Figures 5 to 8 associate

age, income, and automobile ownership with transit routes. It is important to note that in areas with very low population density, such as rail yards, the characteristics of a few households are attributed to a large geographic area. Nevertheless, the maps do indicate that the existing bus routes are accessible to population groups that are traditionally transit dependent: the young, the aged, the low-income, and those without access to automobiles.

A comparison of similar factors for the individual routes does indicate a considerable variation among the routes. For example, as Figure 9 indicates, route 41 is within one tenth mile of a substantial number of renters—17 percent more than that for the city as a whole. Residents along that route also have fewer vehicles available (1.52 as compared to 1.78) and are more inclined to use the bus—2.21 percent as compared to 1.22 for the city as a whole. The residents along that route, however, have incomes considerably higher (\$25,136) than those for the city as a whole (\$21,234). Along route 42 automobile ownership is even lower, .99 per household and the level of home ownership is very low, 18.07 percent. Of the residents along route 42, 5.51 percent use

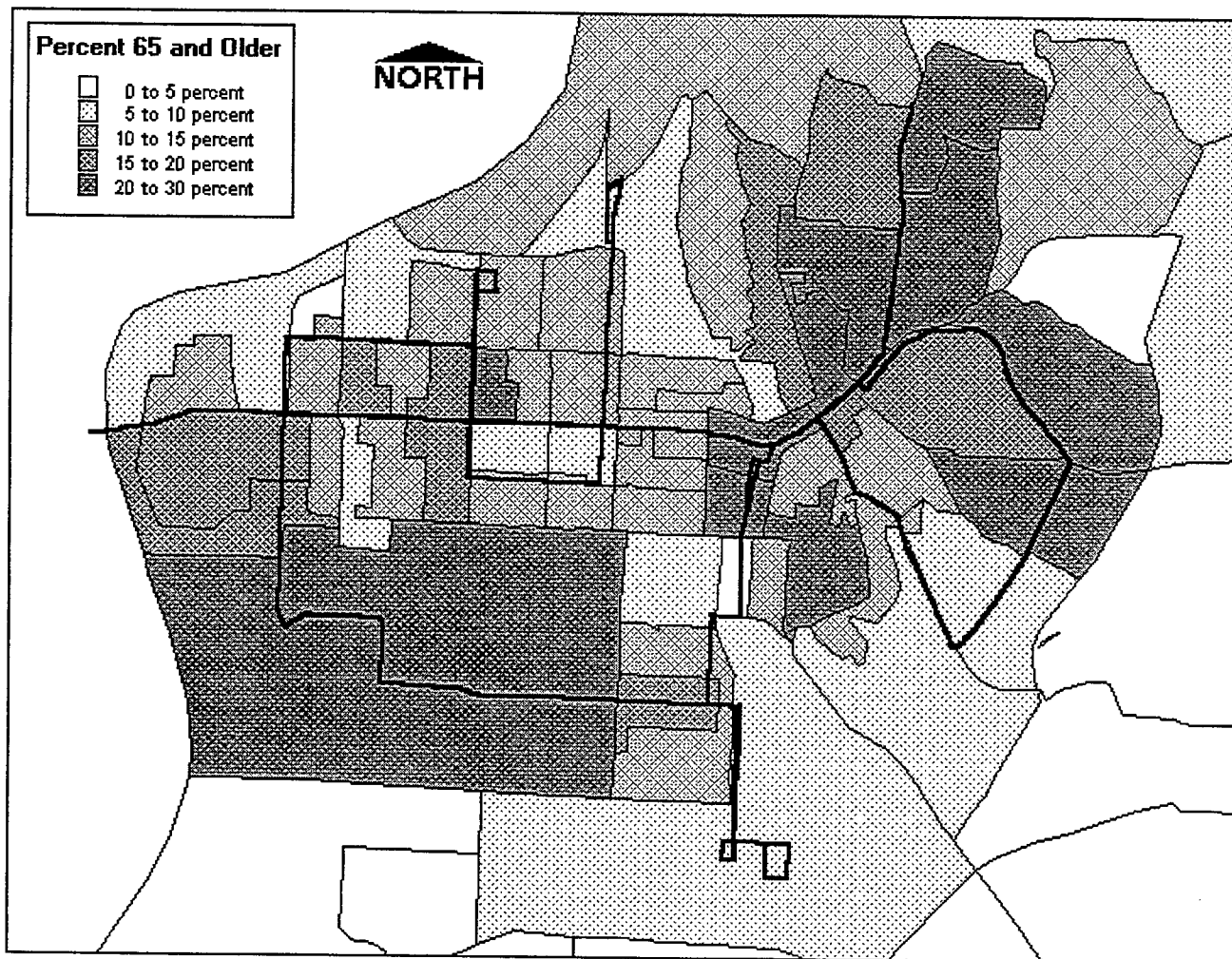


Figure 5. Percentage residents 65 and over, by block group

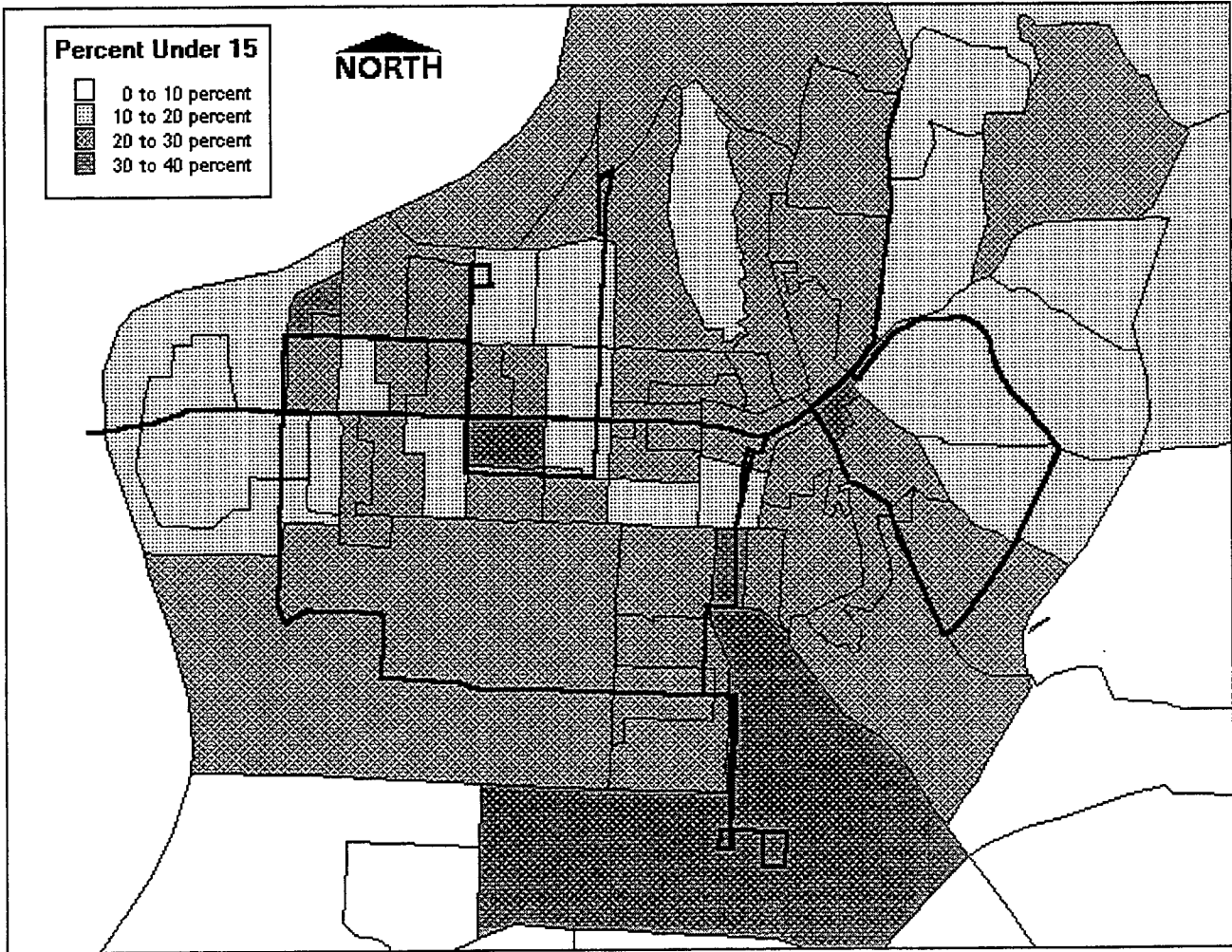


Figure 6. Percentage residents under age 15, by block group

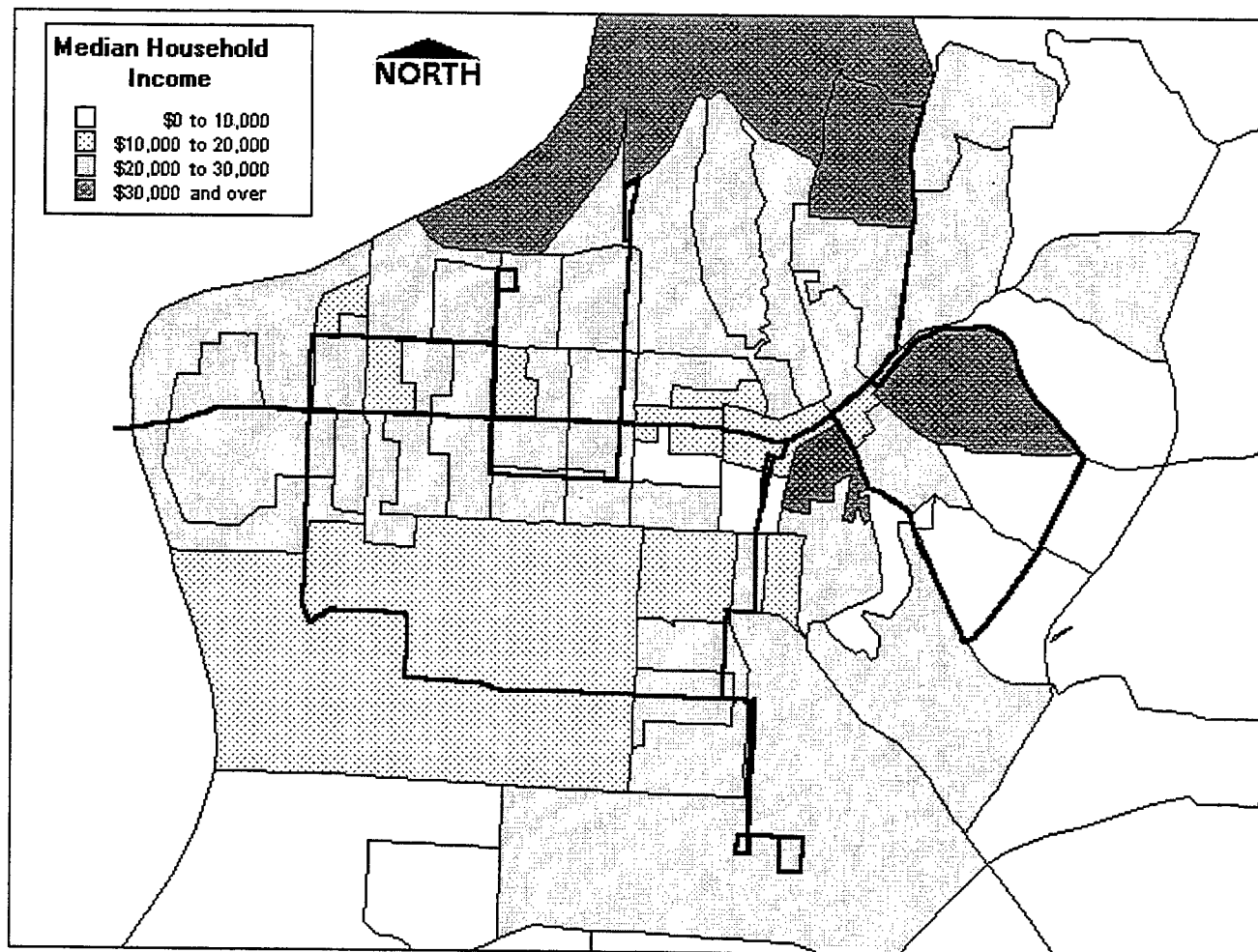


Figure 7. Median household income, by block group

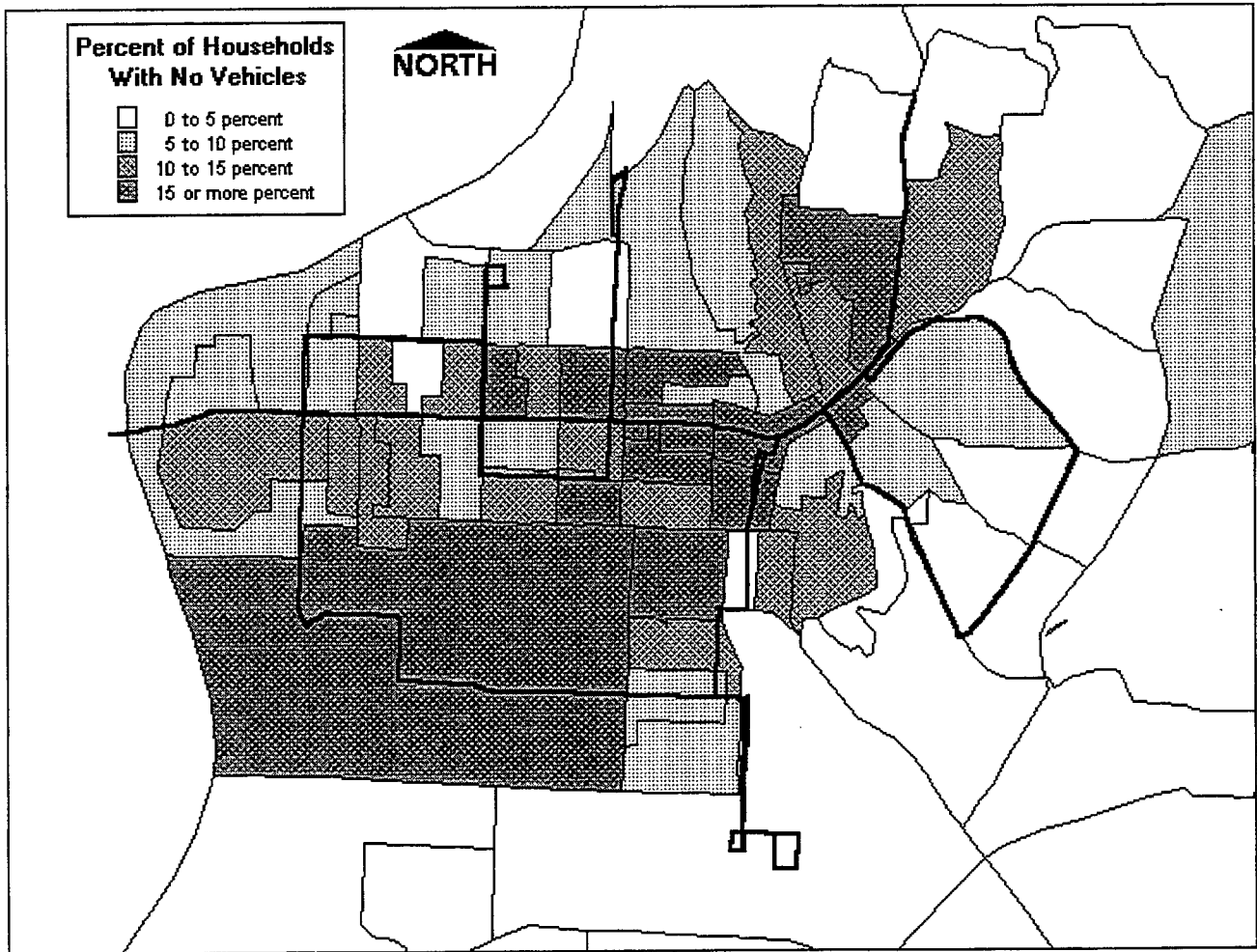


Figure 8. Percentage households with no vehicles, by block group

Category	Variable	Location				All
		0.10 miles	%	.25 miles	%	
Population	1990 Population	3,767	7.2%	12,671	24.4%	51,981
	0 to 14 years	874	23.2%	2,879	22.7%	11,649
	15 to 24 years	454	12.1%	1,725	13.6%	6,976
Age	25 to 64 years	1,843	48.9%	6,133	48.4%	26,018
	65 and over	596	15.8%	1,934	15.3%	7,339
	Average age	34.0		32.9		34.9
	White	3,647	7.3%	12,166	24.3%	50,162
Race	Non-white	120	6.6%	505	27.8%	1,819
	Percent white	96.81%		96.01%		96.50%
	Automobile	93.42%		95.15%		95.51%
Mode to Work	Transit	2.21%		1.80%		1.22%
	Work at home	4.36%		3.04%		3.38%
Place of Work	Worked inside City	62.07%		55.06%		53.80%
	12 a.m. to 8:59 a.m.	75.85%		73.18%		74.83%
Time Leaving	9 a.m. to 11:59 a.m.	6.90%		6.60%		6.97%
For Work	12 p.m. to 3:59 p.m.	8.81%		9.29%		8.08%
	4 p.m. to 11:59 p.m.	8.44%		10.93%		10.13%
Education	Average years of school	13.4		13.0		15.1
Employment	Percent employed	97.36%		95.59%		96.33%
Income	Median household income	25,136		22,824		21,324
Tenure	Percent owner occupied	51.11%		57.91%		68.75%
Mobility	Average Vehicles owned	1.52		1.57		1.78

Figure 9. Route 41

transit to get to work. A possible explanation is that the proportion of older residents is considerably higher (17.2 percent) than that for the rest of the city (14.2). Route 43 also serves a number of residents who have characteristics associated, traditionally, with transit ridership. Residents have a lower median income (\$17,313) and fewer average years of education, 12.3 years as compared to 15.1 years for the city as a whole.

Route 44 serves a significantly larger senior population base—20.5 percent of the residents are over age 65. Residents along this route also have a much lower proportion of owner occupied units (40.96 as compared to 68.75 for the city as a whole). Only 23.9 percent of the units within one tenth mile of route 45 are owner occupied and the median income was only \$14,496 in 1990. The proportion of seniors (16.3 percent) is higher than the city average. The proportion of residents using transit to get to work (3.32) is also much higher than the city average of 1.22 percent, and 64.17 per cent of these residents work within the city. Figures 10 through 14 show the locations of these routes.

The data for this analysis was assembled using a geographic information system (GIS) incorporating Iowa DOT road network information, MAT bus route information, and the 1990 Census of Population and Housing Information. The road network data and census block group boundaries were used to construct base maps for the City of Council Bluffs. The bus routes were digitized into the GIS from route maps provided by MAT and distance buffers (one quarter and one tenth mile) were generated by GIS. An MAT report on average daily ridership figures was also used to evaluate ridership levels on each of the routes. The April 1996 report, which gives four month moving averages for daily ridership and revenue levels, was used for route analyses. The months of April and May are generally the periods of highest bus usage for the entire MAT system.

Based on a comparison of the total population in close proximity to bus routes (within one tenth mile) and average daily ridership levels, routes 41, 42, and 45 have the highest daily ridership levels (ratio of riders to residents) 8.43, 13.84, and 9.41 percent, respectively. Routes 43 and 44 carry significantly fewer daily passengers which correspond to the lower passenger

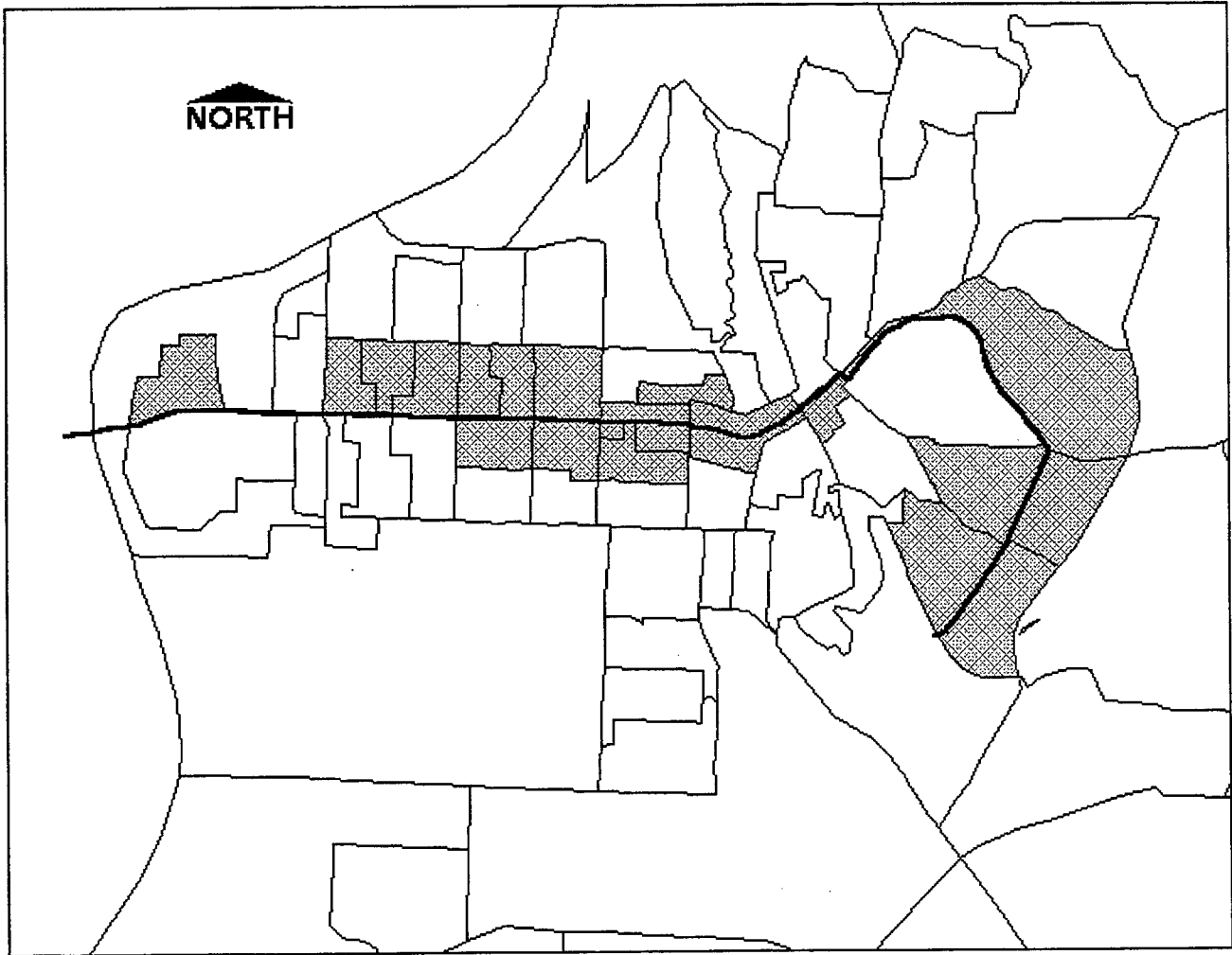


Figure 10. Route 41

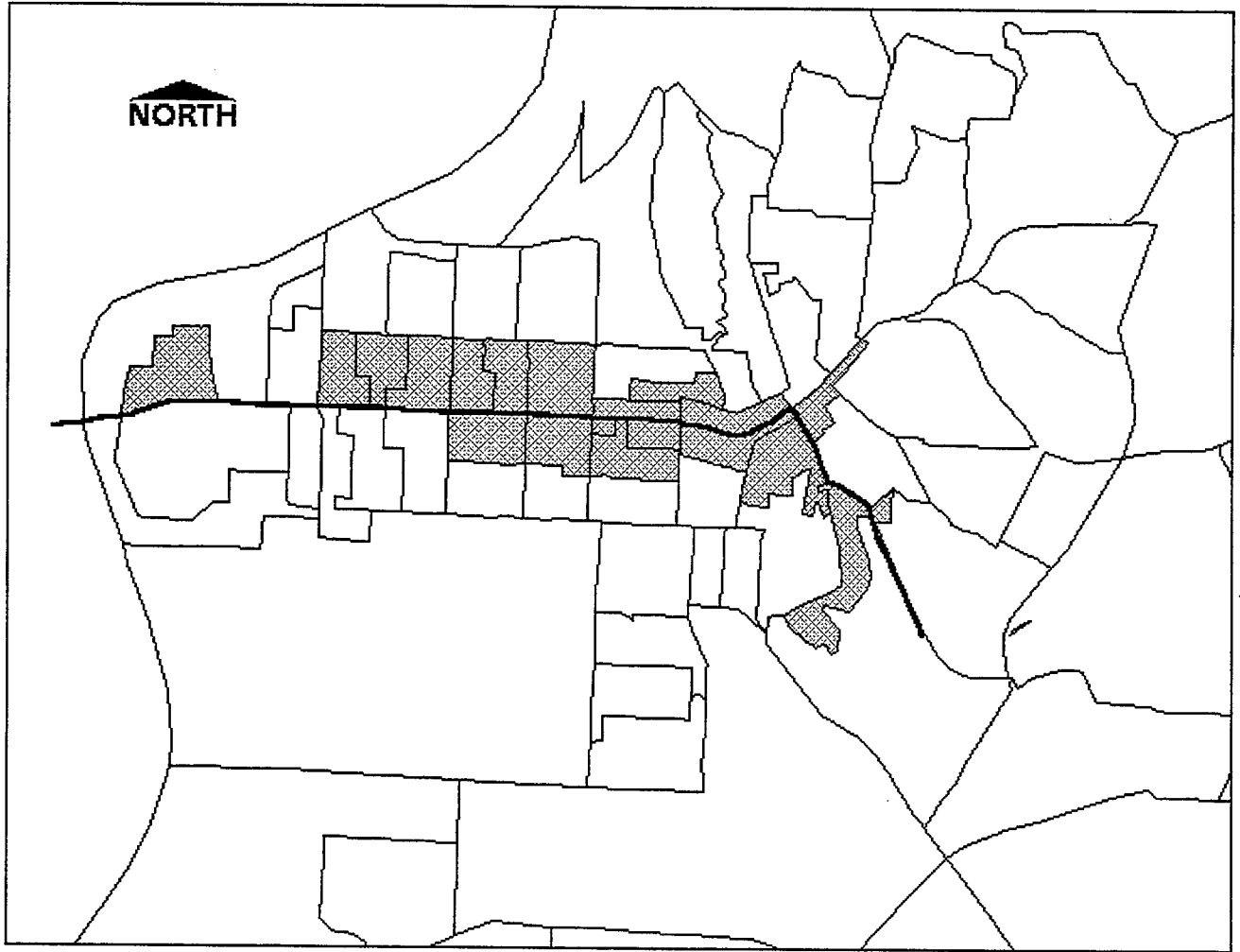


Figure 11. Route 42

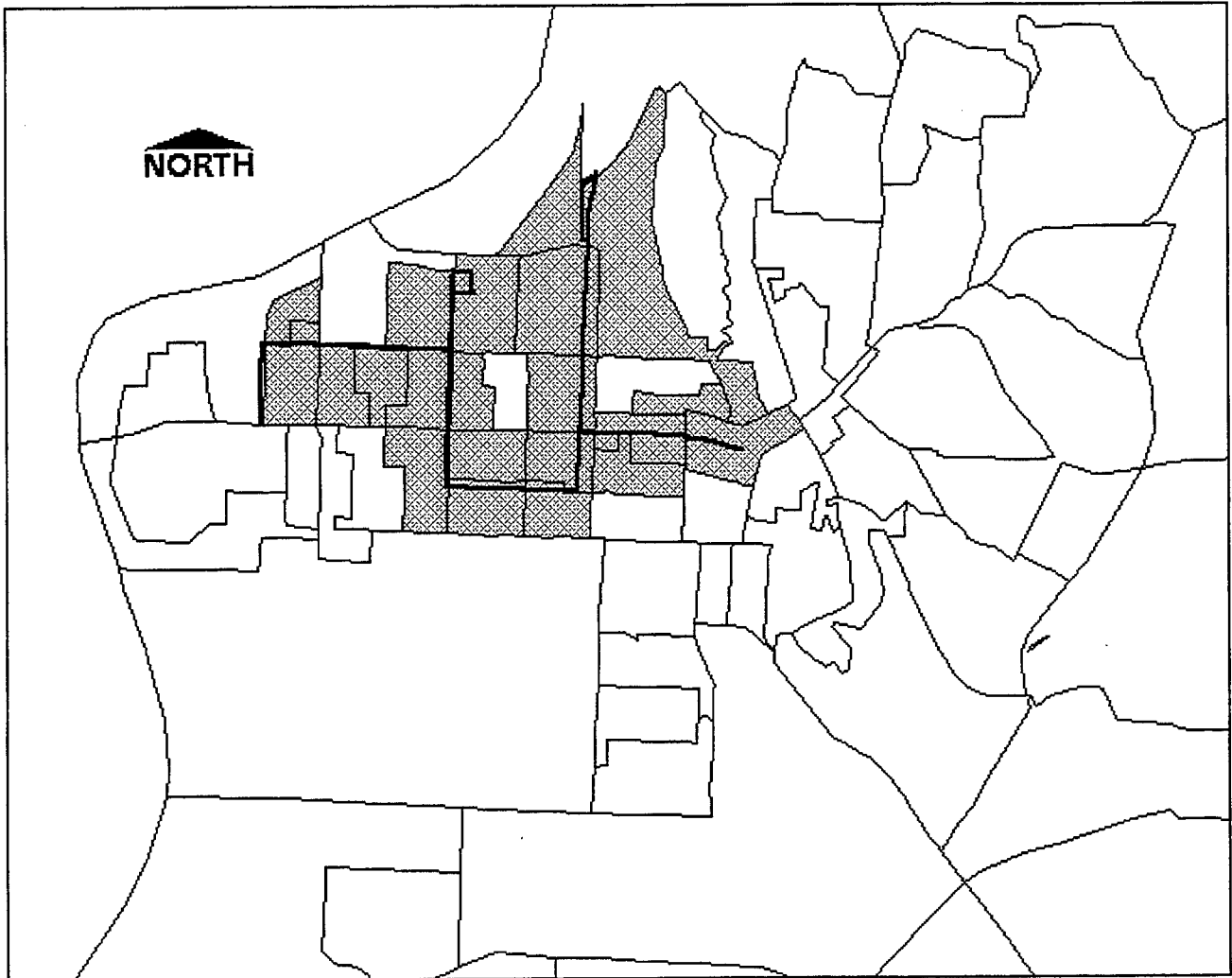


Figure 12. Route 43

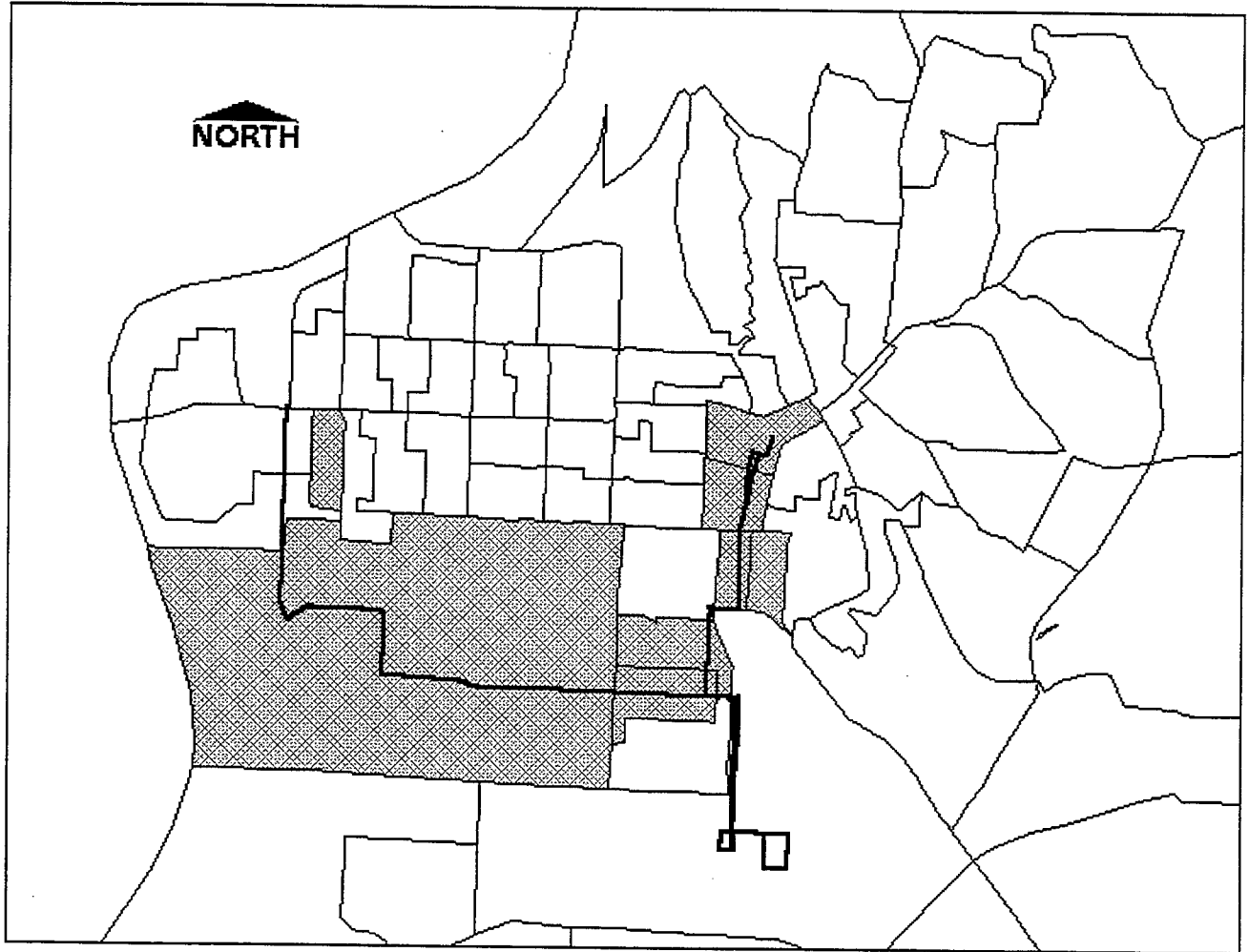


Figure 13. Route 44

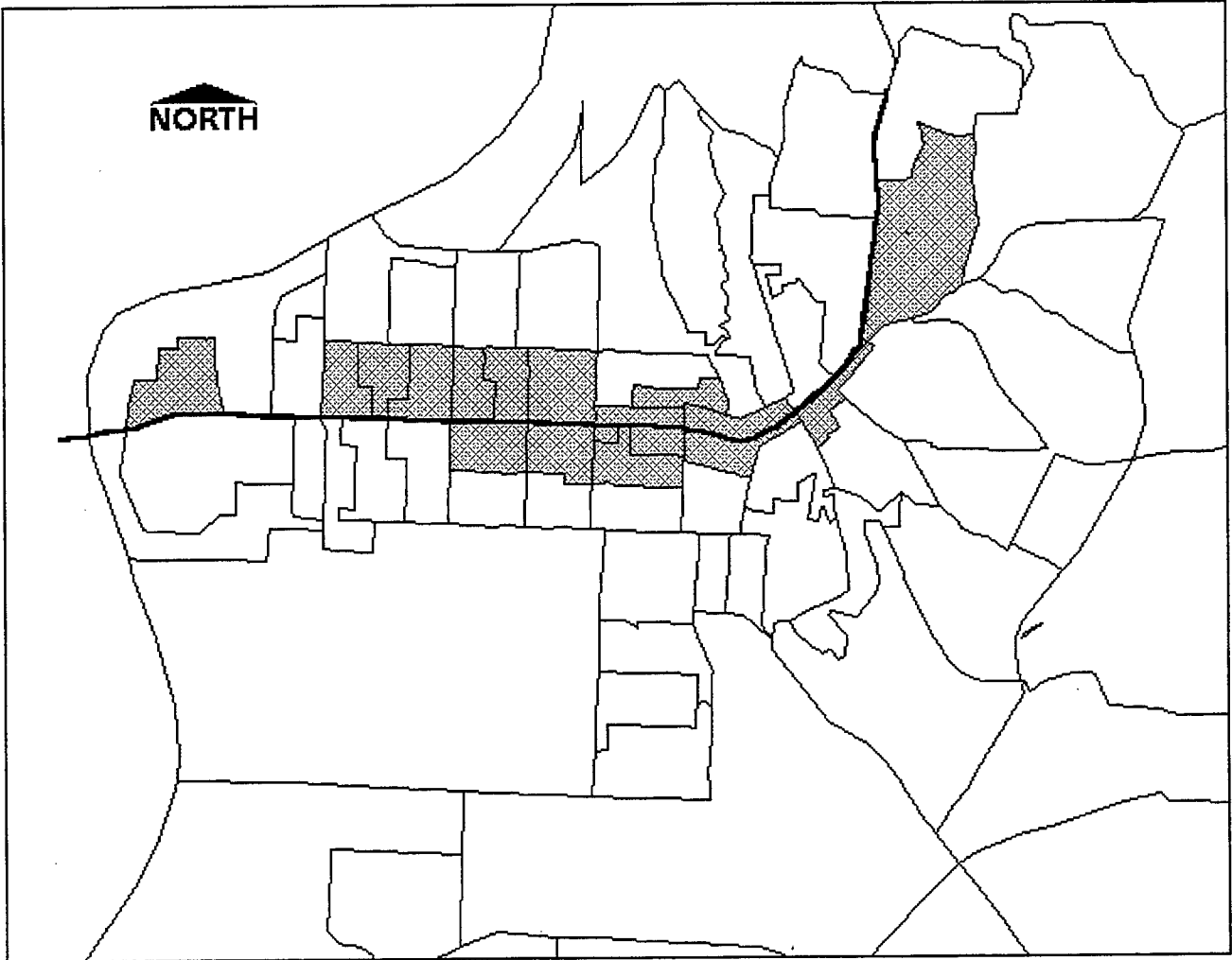


Figure 14. Route 45

Category	Variable	Location				All
		0.10 miles	%	.25 miles	%	
Population	1990 Population	1,999	3.8%	15,894	30.6%	51,981
	0 to 14 years	422	21.1%	3,693	23.2%	11,649
Age	15 to 24 years	307	15.4%	2,382	15.0%	6,976
	25 to 64 years	981	49.1%	7,716	48.5%	26,018
	65 and over	289	14.5%	2,103	13.2%	7,339
	Average age	32.6		31.3		34.9
Race	White	1,910	3.8%	15,111	30.1%	50,162
	Non-white	89	4.9%	783	43.0%	1,819
	Percent white	95.55%		95.07%		96.50%
Mode to Work	Automobile	94.78%		95.20%		95.51%
	Transit	2.74%		2.05%		1.22%
	Work at home	2.48%		2.75%		3.38%
Place of Work	Worked inside City	58.28%		51.48%		53.80%
	12 a.m. to 8:59 a.m.	73.33%		71.77%		74.83%
Time Leaving For Work	9 a.m. to 11:59 a.m.	5.64%		6.91%		6.97%
	12 p.m. to 3:59 p.m.	13.04%		8.70%		8.08%
Education	4 p.m. to 11:59 p.m.	7.99%		12.62%		10.13%
	Average years of school	12.3		12.6		15.1
Employment	Percent employed	94.60%		93.70%		96.33%
Income	Median household income	17,313		23,677		21,324
Tenure	Percent owner occupied	40.58%		61.42%		68.75%
Mobility	Average Vehicles owned	1.32		1.59		1.78

Figure 15. Route 43

per mile rates for these two routes. There are no dramatic demographic differences between the routes with the lowest ridership rates and the other routes. For route 44, differences in ridership rates may be attributed to lower population densities along a substantial portion of the route which connects some development on the city's south side with the rest of the city. The block groups near route 44 reported a higher than average proportion of persons leaving for work between 4 PM and midnight (14.2 percent as compared to 10.97 for other routes). Low ridership rates on the very long route 43 are a special challenge. It travels within one quarter mile of thirty percent of the city's population base, as is shown in Figure 15, but the proportion of the population within one tenth mile of this route is dramatically lower. The route and the degree of ease in accessing it requires further analysis.

Each route not only serves the households that can access it, but also the businesses along it. Within Council Bluffs, 60.8 percent of the businesses in the city are located within one tenth mile of a bus route and a substantial proportion—77.1 percent—are within one quarter mile of a bus route. This means

that 62 percent of all employees can arrive within one tenth mile of work by taking a bus and 72.4 percent of the employees can take a bus to within one quarter mile of their work site.

To develop this analysis, employer locations provided by the Department of Employment Services were "address matched" using the GIS so that the geographic distribution of employment could be compared to the geographic distribution of city population. Having employment and population information mapped also allows for the comparison of employment and population location in relation to bus routes and facilities. The analysis included 1,320 out of 1,385 employment locations (95 percent) and 24,992 out of 25,773 jobs (97 percent). Based upon employment accessibility analysis the current bus routes are within one quarter mile of 77.1 percent of all business locations, which accounts for 72.4 percent of all local jobs. Compared to the demographic analysis these estimates are probably more accurate because the actual point locations were aggregated to the bus route buffers. In the case of the population data, census block groups had to be relied upon because individual household data was not available.

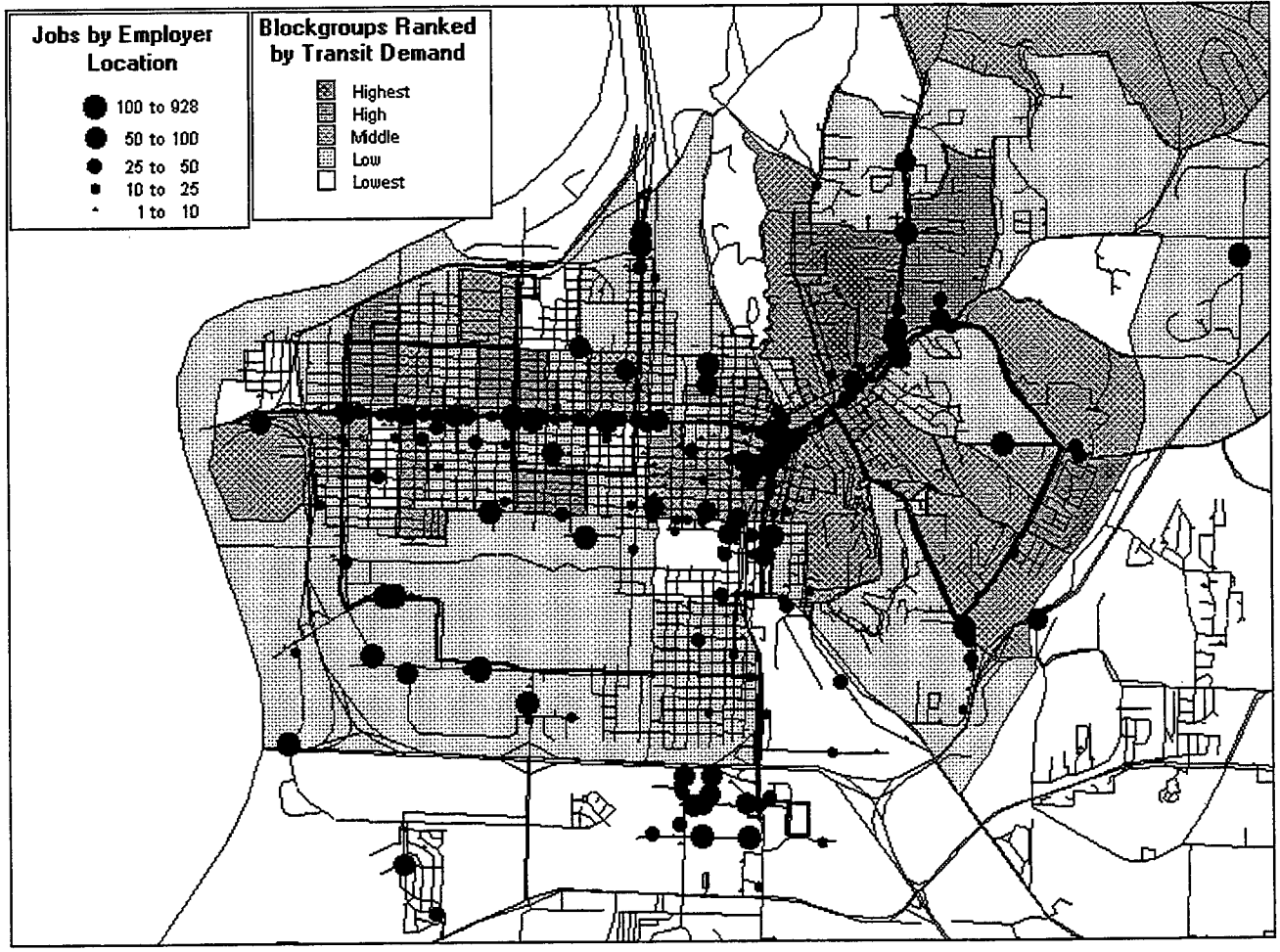


Figure 16. Employer location and transit demand by block group

Figure 16 offers a summary of all demographic information included in this chapter, and as such shows the relative levels of transit demand in various census block units across the city. The map presents a visual overview of the locations of employers within Council Bluffs. The cluster of sites along Broadway is indicative of the resurgence of that major thoroughfare, primarily as a base for human service agencies and other service centers including medical support units. The area near Main Street also continues to be a major center for government offices. The increasing number of employment opportunities in the area near the power mall (lower center) is also striking. There are even a substantial number of employers in Twin City.

By showing a composite of population characteristics, corrected for population density, in association with employment opportunities, this map graphically points out target areas for increased transit service. As such, it serves as a primary data base for planning alternative service options.

3 SURVEY ANALYSIS

While geographic analysis can highlight potential and indicate opportunities for service development, the success of any transportation option depends on the interest of potential riders and ultimately their willingness to get on board.

During fall 1996 and winter 1997 the study team conducted a variety of different surveys in the Council Bluffs area with a view toward gaining more information on the scope and direction of transportation needs in the city. These included:

- A household mail-out survey intended to get an overall picture of travel patterns of households within the city
- A survey of major employers (those with more than 50 employees) to get their perspective on transportation needs
- A series of clipboard surveys directed at key target populations:
 - College Students* at Iowa Western College
 - Employees* at 4 major employment centers:
 - Sapp Brothers, Firststar Bank, Redlands, and Mercy Hospital
 - Seniors* at Council Bluffs Senior Center, the Lutheran Church meal site, and Regal Towers
 - High School Students* at Thomas Jefferson, Kaneshville, and Abraham Lincoln High Schools.

As anticipated, these surveys indicated a variety of different perspectives on transportation needs in the city. All, however, reflected values developed from overall reliance on the private automobile as the primary means of transportation. Most respondents had access to a private automobile and would consider an alternative mode only if it emulated the flexibility and convenience which the automobile offers. Nevertheless, a closer reading of the results of each of these surveys indicates a potential market for some form of transportation option. The study team highlighted those indicators and developed a series of options intended to address the needs of the various target populations.

Household Survey

Mail-out surveys were distributed in October 1996 to a total of 300 households selected at random from the Polk City Directory. Thanks to the Chamber of Commerce the team was able to use this directory, which lists all residents by home address. It was, therefore, possible to over-sample in areas of the city where there are residents who would typically be more likely to travel in a mode other than personal automobile: those areas with a higher proportion of lower income residents and a higher proportion of older residents.

Two questionnaires were returned as undeliverable. Hence a total of 298 households received

questionnaires. After one follow-up reminder a total of 101 were returned, giving us a return rate of 33.9 percent. While not outstanding, this return rate is within the anticipated level of about 30 percent for a survey of the general public.

Demographics

The respondents were 57 percent male and 43 percent female, but since the responses were directed toward households, rather than individuals, this proportion is probably fairly reflective of the overall number of households in Council Bluffs.

Reported incomes varied: 12 percent of the households reported an income of less than \$15,000 and 35 percent reported a household income of \$15,000 to \$29,000. On the other end of the scale, 18 percent of the households had incomes of \$30,000 to \$49,000 and 23 percent had incomes over \$50,000. Twelve percent of respondents did not report household incomes. Given the targeting of the questionnaires indicated above it is not surprising that there were a considerable number of respondents in the low to low-middle income range. In Council Bluffs as a whole the proportion of households with incomes under \$30,000 was 60 percent according to the 1990 census.

Since we anticipated that age of household members would impact trip making, we also asked how many members in the household were in several age brackets. Understandably, a number of households have members in several age groups. Responses were as follows: 31 percent of all responding households have at least one member over age 65. Of these, 25 percent have 2 or more residents over age 65. Most households (40 percent) have at least one member in the age group 45 to 64. More than 29 percent of the households reflect the younger middle age group with at least one member between the ages of 25 and 44. Younger drivers aged 16 to 24 were also represented with about 20 percent of the households reporting at least one resident in this age group. The smallest representation was for households with members age 15 and younger. Only slightly over 18 percent of the responding households included children or youth under age 15.

The 1990 census reported the following proportions for individual residents in Council Bluffs:

age 0 to 14 ——— 22 percent
age 15 to 24 ——— 13 percent
age 25 to 64 ——— 50 percent
age 65 and over ——— 14 percent

Given the intentional oversampling and the requested reporting by households, the representation in the household survey was close to that anticipated.

Among all households responding the personal automobile was, not unexpectedly, the travel mode of choice. Each respondent was asked to indicate frequency and number of household members using each travel mode. Only one respondent even reported a household member riding to work in a carpool. Two respondents indicated that a household member used a carpool to get to school, shopping, or social occasions and three used carpools for medical needs. Out of all respondents only one reported that a member of the household used transit to get to work. A taxi was the mode of travel for one respondent for all purposes—work, school, social, shopping, and medical trips. One respondent bikes to work and shopping. Specialized transit met the medical needs of individuals in two responding households.

Mobility

At first glance, these demographics would indicate that all travel needs are met. A review of the number of automobiles available to these households, however, reveals a somewhat different picture. Seven respondents (7 percent) indicated that their households had no working automobile and 37 percent of responding households with more than one person have only one car. Six respondents indicated that no one in the household had a valid driver's license. This does indicate a possible target population for some type of alternative travel mode. With only one car available to households with more than one resident it is possible that other members are travel-disadvantaged when the family car leaves the home. Three percent of the respondents even noted that members of their household were unable to make trips because of a lack of available transportation.

The challenge is to provide an alternative mode that initially offers service to meet the needs of this targeted population, and can later entice others to leave their cars at home.

Trip making

Respondents were asked how long it took members of their households to make trips for various purposes. The thought was that it would be easier for respondents to report time than distance and time could be a surrogate for distance. Time also represents the convenience threshold represented by a car for the overwhelming number of respondents. For most, travel time to work and other purposes is relatively short.

- The work trip for 62 percent of those responding to that question was 15 minutes or less. For only 23 percent of those responding did the work trip take more than 30 minutes.
- Medical trips took 15 minutes or less for 79 percent of respondents answering that question, and more than 30 minutes for only 16 percent of the respondents.
- The grocery store proved to be even closer; 88 percent of respondents reported that trips to the grocery store were typically 15 minutes or less. Other shopping trips were only slightly less convenient, 75 percent of respondents reported that those took 15 minutes or less.
- For recreational trips, respondents typically traveled farther: 50 percent of the respondents traveled twenty minutes or longer to recreation sites.

Given this tripmaking pattern, any alternative transportation system would need to be very efficient, but it also clear that a fairly tight network will reach most of the travel needs in the city.

Preferred destinations

A follow-up series of questions asked respondents how many trips were made by members of their household to specific destinations: the Power Mall, the Mall of the Bluffs, shops and services along Broadway, downtown Omaha, and the casinos.

- The overwhelming destination of choice was the Mall of the Bluffs. In 84 percent of responding households, members make two or more trips to the Mall of the Bluffs each week.
- The Power Mall, on the other hand, only attracted one or more trips a week from 25 percent of the responding households.

- Broadway attracted weekly trips from 45 percent of responding households, and in 47 percent of households at least one member made a trip to downtown Council Bluffs each week.
- The link to Omaha was also evident. In 43 percent of the households members made one or more trips a week into downtown Omaha. One third of the household members who traveled to either to Broadway or Omaha made multiple trips, apparently reflecting a work schedule.
- Trips to medical facilities were also frequent: 43 percent of households had at least one member visiting medical facilities at least one time a week. The heavy representation of seniors in the sample can probably help to explain this figure.
- The casinos attracted trips from 25 percent of the households

All of the above destinations, except the casinos, currently have fixed-route bus service. (The casinos do run some private shuttle trips.)

The issue is whether trips can originate to these destinations from locations near those wanting to travel there and at times that they want or need to travel.

Preferred transit characteristics

To get a picture of the characteristics of an alternative transportation system that are most important to the respondents, we asked whether they would ride a bus if no car were available: 75 percent of the respondents answered “yes.” In a series of follow-up questions these respondents underscored issues of reliability and convenience as being most important.

- 78 percent of respondents indicated that dependability was “very important.”
- Travel time was key for 40 percent of respondents who wanted service “as quick as my car.”
- The most frequently stated operational factor was whether the system had flexible routes (38 percent of respondents).
- A wait of less than 15 minutes was noted by 28 percent of the respondents.
- The location of the bus stop, not more than two blocks from the origin or destination, was somewhat less important, being checked by 25 percent of respondents.

Other issues of somewhat less significance were involved: time in transfer (14%) and cost (18%). Driver courtesy and vehicle cleanliness were not issues of importance to very many respondents, 6 percent and 4 percent, respectively.

Given these responses, convenience and flexibility need to be foremost in planning for alternative transportation.

Targeted Surveys

To get a more complete picture of the travel patterns of specific subgroups of Council Bluffs residents, a number of independent clipboard surveys were conducted from October 1996 through January 1997 with the help of students from Iowa Western College. Groups targeted included employees, students at the community college, the senior population, and high school students. As anticipated, travel patterns and needs differ considerably among these groups. A parallel mail-out survey of major employers (those with over 50 employees) was conducted in September by the Iowa State study team. The following indicates findings from these surveys.

Employees

As indicated in the Household Surveys, the work trip continues to be of primary importance for most households in the city. Hence, it is important to get a closer look at the travel patterns of employees in some of the largest firms in the city. The Iowa Western study team selected four major employers as broadly representative of the various types of employment groups in the area. The specific sites for the surveys were, however, dependent upon the agreement of managers at each firm. As a result, the service sector is somewhat over represented in the clipboard surveys. The sites represented in the employees clipboard survey are SAPP Brothers Truck Stop, Firststar Bank, Redlands Insurance, and Mercy Hospital. With the approval of respective personnel supervisors, students personally approached employees at each of these sites and conducted brief individual interviews with them.

In all 154 such employee-intercept interviews were completed: 15 at SAPP, 18 at Firststar, 35 at Redlands, and 86 at Mercy Hospital. The heavy proportion of service sector employees is reflected in the fact that 70 percent of the respondents were female. Understandably, more than 78 percent of the respondents

were in the age groups 25–44 and 45–64. In terms of work assignment about 15 percent were mid level managers, 61 percent were office support staff, and the remaining 24 percent were involved in some aspect of production.

Mobility

The overwhelming majority of respondents have automobiles available for travel to work. In fact, 66 percent of them have two or more vehicles available to their household. However, about five percent of the workers have no vehicle available and more than 28 percent have only one vehicle available to their household.

Commuting patterns

When asked how they got to work on that day, most respondents (80 percent) said that they drove alone, while 12.5 percent said that they participated in car pools. Only two workers (1.3 percent) used the bus that fall day, while nine workers (6 percent) either walked or biked to work. However, when asked if they ever rode the bus to work, 31 respondents (20.1 percent) indicated that they had. Work hours varied considerably. Reported arrival times ranged from 4:45 AM to 11 PM with the most common arrival times being between 6:50 AM and 8 AM. Only five percent of these respondents arrived after noon. That could, however, be a factor of the time that the survey was conducted, during the day shift. Departure times again varied—from 1:50 AM to midnight, with the majority leaving between 3:50 PM and 6 PM (77 percent). The most common departure time is 4:50 PM. Most do not need to travel far to work—70 percent of the respondents travel 15 minutes or less with about 14 percent of them traveling only five minutes to work. On the other hand, however, 16 percent of the respondents take more than one half hour to get to work.

Bus transportation is relatively accessible to most of the respondents—41 percent of them responded that they live within three blocks of a bus stop. In terms of destination, bus stops are within three blocks of the work site of 75 percent of these employees. Only one worker, however, was familiar with any type of employee incentive program to use the bus, two were unsure as to whether there were such a program.

When asked why they did not ride the bus, the respondents came up with an array of individual

answers which can be roughly grouped as follows:

- Have a car and prefer to drive—35 responses
- There is no bus stop available either near my home or near the work site—24 responses (several noted that the bus no longer stops at Mercy and it does not go near SAPP)
- One respondent said that she had always taken the bus in Omaha but had to buy a car when starting work at Mercy
- Live too far out of town; there is no bus and travel time is considerable—8 responses
- Buses don't run when I need to come to work—10 responses
- It is more convenient to use a car—9 responses
- A car is needed to help with child care—5 responses
- A car is needed on the job—2 responses
- No bus is available for overtime
- Waiting at the bus stop takes too long—2 responses
- Can't walk far enough to get to bus stop
- Buses are scary—4 responses
- Walk to work—3 responses
- Carpool with family member
- Do ride in bad weather.

The car is clearly the preferred travel mode, largely because of convenience. However, the number of respondents who did not live close enough to a bus stop or for which there was no service at the work site was considerable, as was the number for which bus schedules did not match work schedules. Workers were asked about the closest intersection to their homes to enable follow up on the issue of availability of bus service.

When asked their opinion about the primary transportation problem in the Council Bluffs area, responses varied from concern about road conditions to concern about bus schedules. Seven respondents focused not on their own needs, but rather specifically mentioned the transportation needs of elderly and the disabled. Concerns about the roads included:

- too many pot holes and narrow roads (10)
- too much construction (3)
- congestion (7)
- street light timing (1)
- need for turning lanes (1)
- trains block roads (1)
- bad drivers (2)

Specific concerns about transit service included:

- inadequate service for elderly and disabled (7)
- need for more cab service and at lower cost (4)
- not enough buses, leading to infrequent schedules (10)
- not enough bus stops (9)
- too many stops clustered on Broadway (2)
- no service to hospitals (2)
- inadequate information on bus routes (1)

Suggestions offered were—use smaller buses (2); try express service (2).

Clearly these concerns went far beyond the work trip, but they do invite further analysis when considering the transportation needs of the city as a whole. They parallel in part the write-in suggestions included as part of the household survey where eight responses related to considering smaller buses. There were also suggestions regarding the need for more service to the hospitals, Iowa Western College, and to the industrial area; more flexible routes and weekend hours; and through fares. Weather-protected stops were another frequently mentioned suggestion.

Employers Survey

To gain another perspective on the work trip, a mailout survey was sent to each employer of more than 50 workers. The firms were selected from a list provided by the Council Bluffs Chamber of Commerce. The initial mailing in September to the personnel office of each firm along with a telephone reminder generated 29 responses (a 58 percent response rate). These respondents included six firms which employed less than 100, 16 firms which employ 100–499, 3 firms with 500–999 employees, and four branches of large firms which employ 1000 or more. As such, the respondents do represent a range of major employers in the Council Bluffs area.

Hiring plans and transportation

Anecdotal comments had indicated that low unemployment rates required special efforts to transport workers to job sites, in food service especially. (It should be noted that this survey was conducted before Iowa Beef Processing—IBP—announced its plans to greatly downsize its operation in the city.) Firms were asked about hiring plans. In the next year seven of the firms do plan to be hiring new employees and an additional 20 firms plan to hire for replacement. Of these firms, six (20.7 percent) did indicate that they had problems in hiring new

employees. Only two firms do not anticipate any hiring in the near future. Thus, access of potential workers to the work site could be an issue.

Transit use

To get a perspective on the nature of the work force required and the proportion of workers falling within the categories frequently included in the category "transit dependent," the firms were asked what proportion of their workers earn less than \$15,000 a year. The proportions were relatively high. Six (20.7 percent) of the firms have more than 50 percent of their workers earning less than \$15,000. An additional seven firms (24.1 percent) had between 25 and 50 percent of their workforce in this pay scale. Twelve more firms (41.9 percent) had under 25 percent of their workers in this wage group, but only three firms had no worker earning less than \$15,000. Part-time workers are another group that is frequently associated with transit. Again, a considerable proportion of the firms, 41.3 percent, reported that more than 25 percent of their work force was part-time. For five firms (17.2 per cent) the proportion of part-time workers was over 50 percent.

Yet when asked about current use of transit, the numbers were much lower. Twenty of the responding firms are within three blocks of a bus stop, seven are not. Two of the employers did not know the location of the nearest bus stop. Two of the employers, however, indicated that more than five percent of their employees rode the bus to work. Ten reported that no workers rode the bus. When asked whether they had promoted the use of transit, only one employer answered "yes." Unlike a number of firms in Omaha which subsidize transit passes for employees, these respondents had no current plans to promote the use of transit.

Work hours

To get a perspective on the level of complexity involved in serving these firms, the employers were asked about their hours of operation and their shifts. As indicated above, a number of employees responding to the clipboard survey had noted that work schedules did not coincide with current bus schedules. These concerns were born out in this employer survey. Business office hours at the responding firms ran from about 8 AM to 5 PM, with all but one of those answering that question noting that their office opened between 7 AM and 9 AM. One office opened at 6 AM. Closing hours ranged from 3 PM to 5 PM with

the majority of the offices (76 per cent) closing between 4 PM and 5 PM. One office stayed open until 11 PM. There were four firms that did not respond to this question.

Responses to the questions about shift hours for other employees, however, revealed the issue of work schedules not corresponding with transit schedules. Twenty of the firms (68 percent) indicated that they had workers on two shifts and fifteen (52 percent) of the responding firms noted that they had workers on three shifts. The hours of all shifts vary by firm, but in most firms the day shift starts between 5 AM and 10 AM and runs to 3 PM to 6 PM. The most common arrival times are between 7 AM and 8 AM, (60 percent of respondents), but five of the firms start their day shift before 6 AM. The second shift typically starts between 1 PM and 3 PM (9 firms, 45 per cent of those responding to the question), but for two firms (10 percent) the second shift starts after 5 PM. For most (9 firms, 45 percent) the second shift ends at 11 PM, but ending times for the second shift range from 2 PM to 11:30 PM. For those firms with a third shift, this usually starts at 11 PM (7 firms, 50 percent of those responding to the question). However, the start of a third shift ranges from 2 PM to 11 PM. These workers typically end the third shift between 7 AM and 8 AM (7 firms, 46.3 percent of respondents) but the range of ending times runs from 5 AM to midnight.

The most problematic of these hours in relation to the current bus schedule are those after 6 PM and before 7 AM. There are a substantial number of employees involved in these late and early hours. For example, five firms have more than 25 percent of their work force involved in the third shift and 16 of the firms have more than 25 percent of their work force involved in a second shift.

Perceived transportation problems

When employers were asked to comment on the primary transportation problem in the Council Bluffs area, they focused on congestion, access to I-80, and traffic flow with signal lights and poor road maintenance. Several did, however, mention that the bus routes do not extend to all areas. This observation was reinforced when several responded that the frequency of transit is inadequate to handle varying work hours and the needs of the second and third shifts. One employer volunteered that three employees were terminated because of transportation problems

and several applicants were unable to accept positions because of transportation problems. In terms of suggestions, one employer requested continuous service and including his business on the route; two others noted that the issue is complex given varied schedules and personal requirements.

Assessment

The number of workers arriving or departing at any one hour differs widely across the firms making it difficult to serve the late shift with extended hours on a regular transit bus, even assuming that a considerable proportion of the workers would opt to ride transit. Waiting at bus stops late at night in the cold is probably not appealing to most workers. Nevertheless, there is an apparent need among current and potential workers on late shifts.

The challenge is to provide direct transportation between specific large employers and residential areas in the community. Fortunately the size of the city is manageable, making it possible for a single van or minibus to serve more than one employer. Any effort in this direction will require the interest and support of employers. The fact that so many large employers participated in the survey is encouraging. The need for follow-up is clearly indicated.

College Student Survey

Several years ago when a student poll indicated that there was interest in bus service to campus, MAT responded by extending routes to Iowa Western College during morning and evening peak hours. Ridership, however, proved to be less than anticipated and the service was scaled back and finally eliminated. To gain a perspective on current interest and a clearer image of actual travel patterns of the students this study team conducted a clipboard survey of Iowa Western students in September 1996. The surveys were administered directly by the Iowa Western Students who are part of the project team.

Mode of travel

A total of 141 students responded to the survey—69 men and 72 women. Although the largest portion of respondents (67 percent) were in the age range 16 to 24, there was also considerable representation from nontraditional students over age 25 (32 percent). Most students drive alone to school (68 percent). Furthermore, when asked whether they had exclusive use

of a car to travel to school, eighty percent responded in the affirmative. Nevertheless, 21 percent of the respondents travel to school by car pool. One person arrived via taxi. The rest either walk or bike to campus.

Schedule

Arrival times vary given the range of course schedules. Although most students arrive between 7 and 9 in the morning, others arrive throughout the morning and afternoon and 27 percent of the respondents have night classes. Once they arrive on campus, 75 percent of the students stay on campus until they complete all classes for the day. However, a considerable proportion of the respondents (63 percent) reported working off campus during the week, presumably before or after classes. The expectation is that they arrange their work schedule around a block of classes. Travel time to campus is not a major concern for the majority of students. Seventy-five percent of the respondents live within twenty minutes of campus. There are, however, students commuting as long as eighty minutes to campus, well out of range of any traditional city bus system.

Parking on campus

Parking is becoming a problem. Thirty-nine percent of the respondents regarded it as a regular problem while an additional fifteen percent sometimes found it to be a problem. This may help to explain the relatively high proportion of carpoolers (21 percent of the respondents.)

Transit potential on campus

The open-ended question "What do you see as the major transportation problem in Council Bluffs?" generated a substantial number of observations regarding the need for a bus to campus. Of the respondents 38 percent mentioned the need for a city bus to campus, while an additional eight percent would like an on-campus shuttle to the dorms. This was particularly noteworthy since the questionnaire did not even mention buses. Others mentioned the need for more handicapped parking on campus. A follow-up question regarding what could be done to improve bus service generated responses similar to those raised in response to the other surveys: increased schedules with more buses and more bus stops were common responses (32 percent). Given the long commute of some students a reference to the need for intercity service was noted (8 percent). A substantial number of students wanted the bus to go

to “more places besides the mall” (13 percent). One additional comment of a substantial proportion (13 percent) of the respondents, “I don’t know if there is a bus or where it goes,” underscored the need to market bus services and routes to students and others.

Challenges of providing transit to campus

Given the interest of a considerable number of students in using some type of public transportation, it is certainly worth exploring options. The difficulty is that the students do not travel to campus in large numbers at any one point in time. Hence a regular 42-passenger transit bus would certainly be underutilized. This provides an added challenge as well as an opportunity to explore alternative transit options.

Senior Survey

As is indicated above, comments on the household and the employee surveys indicated community concern about the transportation problems of seniors. The employee surveys documented those concerns which have been voiced in various discussions with community residents. Although some information was provided in response to the household survey, more focused information was needed. To gather more information, an additional series of clipboard surveys was addressed to the needs of senior populations. This survey was conducted by the Iowa Western Students at three sites which were intended to represent a variety of senior needs: the Council Bluffs Senior Center, the Lutheran Church meal site, and the Regal Towers senior residence facility. A total of 88 questionnaires were administered: 46 at the Council Bluffs Senior Center, 12 at the Lutheran Church, and 30 at Regal Towers.

Demographics

As anticipated the respondents were overwhelmingly female (70 percent). They ranged in age from 65 to over 85: 56 percent were age 65–75, 40 percent were age 76–85, and five percent were over age 85.

Transportation needs

Given the large proportion of “young seniors” aged 65–75, it is understandable that most of the respondents (77 percent) had no difficulty getting where they wanted to go. Most of these respondents were, after all, away from home at the time that they responded to the survey. The possible exception was the group of respondents at Regal Towers. Nevertheless, the comments of those who did have difficulty in

traveling were revealing. One respondent said that the extreme hot and cold was too difficult at bus stops but that she was not sufficiently disabled to ride the handicapped bus. Someone who was eligible for the handicapped bus noted that the \$3.00 round trip fare was expensive. Another person said that she was dependent on others but had no rides available over the weekends. Clearing the snow off the car was a problem for another respondent who continued to drive. One other respondent noted that “some days I feel so groggy that it’s dangerous to drive, but what can I do?” The household survey identified five senior households where no one had a driver’s license. Nevertheless, when asked on the clipboard survey how they traveled to the location where they were interviewed, the majority (61 percent) reported that they drove themselves. Ten percent came in car pools, while five percent came on the bus.

Seniors and trip purposes

In an effort to identify travel needs by purpose, respondents were asked how they traveled to medical services, shopping, and social functions. In all cases most drove alone (53 to 72 percent). Medical trips were rather frequently performed alone—59 percent of those with regular medical appointments drove alone while 40 percent drove with others. Only one percent of the respondents (1 person) took the bus. In terms of shopping 72 percent of the respondents drove themselves and an additional 18 percent rode with others. Again only 1 percent took the bus. Understandably, social trips often involved traveling with others. Still, 53 percent of the respondents most often travel alone to social functions, and 44 percent traveled with others. When asked in another question, “Do you ever ride the city bus?” eight percent of the respondents (7 people) indicated that they rode the bus between one and three times a week and 3.4 percent (3 people) reported riding the bus four to seven times a week. The other 88.6 percent did not ride the bus at all.

Reasons for not using the MAT bus

When asked in an open-ended question about why they did not take the city bus, 39 percent of the seniors noted that they have their own cars and drive; 14 percent take the handicapped bus; while 22 percent ride with others. Others indicated their concerns about riding the bus. Concerns included:

- long walks to bus stops
- waiting at bus stops

- no stop near preferred destinations.
- riding a big bus is scary
- the routes are confusing
- the bus is too hard to board

Preferred destinations

The short clipboard surveys did not ask seniors about trip destinations. The household survey, however, pointed out the relative preference of some destinations among seniors. The overwhelming destination of choice is Mall of the Bluffs. The proportion of households with senior members visiting key locations in the Council Bluffs area at least once a week are as follows:

- Mall of the Bluffs—90 percent of households
- Medical facilities—54 percent
- Broadway shops and services—40 percent
- Casinos—38 percent
- Omaha—35 percent
- Power Mall—29 percent

In all but medical trips these priorities parallel those of other residents. The MAT bus does provide access to all of these with the exception of casinos and the possible exception of some doctor offices. The destinations that are not accessible via the city bus are homes of friends, some churches, and other locations for personal business.

Travel mode

Overall, the majority of seniors do drive. Nevertheless, some seniors admit that they drive even though they are not confident on the road. Meeting the travel needs of these unconfident drivers in an alternate way will improve the safety of other residents as well. Others do not see the bus as an option since it does not go where they want to go, when they want to travel, and does require a walk on either end of the trip along with a wait at a bus stop.

Summary

Flexible service that minimizing walking to stops and waiting will be required to meet the needs of the senior population. Cost is a consideration, but independence is key. With the stress on the paratransit bus imposed by the ADA, eligibility requirements are enforced. This leaves the moderately mobile senior looking for a ride in an effort to retain personal independence. The fixed-route city bus is not the complete answer.

High School Survey

High school students who are too young to drive but active and involved in a variety of extracurricular activities, both formal and informal, are another group often targeted as a potential market for transit. In fact, MAT directs a specific marketing effort toward this group in Omaha. As part of their orientation materials, young high school students get information on bus routes that access their campuses and on the reduced bus card program.

Hence, this study team directed another survey to the needs of ninth graders. 133 students in ninth grade English classes in three high schools in Council Bluffs—Thomas Jefferson, Kaneshville, and Abraham Lincoln—participated in the survey. They were distributed as follows:

- Thomas Jefferson—58
- Kaneshville—15
- Abraham Lincoln—59

Demographics

Gender distribution was skewed somewhat toward female students with 59 percent of the respondents being young women and 41 percent young men. Since all students in the selected freshman English classes were included in the survey, there were some participants who are over age 16, the legal age for a driver's license in Iowa. Nevertheless, the majority were in the targeted age groups. The break outs were as follows:

- age 14—40 students (30.3 percent)
- age 15—72 students (54.5 percent)
- age 16—7 students (5.3 percent)
- age 17 and older—11 students (7.6 percent)
- not reported (2.3 percent)

Mobility

The inclusion of some older students is reflected in their travel mode. When asked how they traveled to school today, answers were as follows:

- car pool—39.1 percent
- school bus—15 percent
- walk—8.3 percent
- drove alone—5.3 percent
- city bus—.8 percent
- bike—0 percent
- taxi—0 percent
- other—31.6 percent

The large number of “other” included primarily drop offs by parents, relatives, or adult friends. This was clearly underscored in the comments. Students regarded “carpool” as a trip with a fellow student and a drop off as another type of trip even if several students traveled together in one car. The lack of bike riders can easily be explained by the time of year that the survey was conducted (early March, 1997).

Travel patterns

Since school starts at 8 AM, most students arrive between 7:31 and 8:00. There were some who arrived earlier, presumably for pre-school activities and some who arrived later. Distribution was as follows:

- Before 7:00—7.6 percent
- 7:00–7:30— 12.1 percent
- 7:31–8:00— 68.9 percent
- after 8:00—11.4 percent
- missing—4.5 percent

Departure times were much more broadly distributed, a point frequently underscored in the comments section:

- before 3 PM—40.2 percent
- 3:00–3:30—29.1 percent
- 3:31–4:00—3.9 percent
- 4:01 and later—26.8 percent
- missing—4.5 percent

The large number of late departures reflect a substantial involvement in after-school activities.

Not unexpectedly, most students live close to school. They reported the following travel times on the way to school:

- 5 minutes or less—26.9 percent
- 1 to 10 minutes—40.8 percent
- 11 to 20 minutes—26.1 percent
- over 21 minutes—6.2 percent
- missing—2.3 percent

As anticipated 83.5 percent of these students stay on campus all day. There are 16.5 percent who do leave and return, however.

Among the respondents 23.3 percent had jobs after school. They got there by driving alone (6 percent), carpool (5.3 percent), bike (1.5 percent), walk (6 percent), other (pick up and drop off—9 percent), and city bus (0 percent).

Given the small number in this group of respondents who are of age to have a drivers license, it was somewhat surprising that 12 percent have an automobile

or pickup truck available for their exclusive use during the week. Among those driving to school, over 20 percent found that parking was sometimes a problem.

Perceived transportation problems:

The comments section of the survey provided a closer look at the travel problems of this group of primarily younger high school students.

In response to the question “What is the major transportation problem that you have getting to and from school?” students came up with a wider variety of comments. The issues they addressed can be grouped as follows:

- Problems in coordinating schedules with the family member who regularly drives them to school—24 responses
- Complexities arising from a specific need to get to school early or stay late because of an activity—8 responses
- School bus problems:
 - Bus schedules don’t relate to times needed to travel—6 responses
 - The need to wait in the cold for the bus—6 responses
 - Buses are dirty and drivers discourteous—5 responses (It should be noted, however, that one student noted she was very happy with her bus driver.)
- Walking to school in the cold—3 responses

In response to the more general question “What ideas do you have to improve the city’s bus service?” 31 students said they had never ridden the city bus and had no comment. A number of other students offered comments that can be grouped as follows:

- need more stops (several mentioned K-mart)—15
- need improved timing and schedules—9
 - several mentioned that buses are late
 - 2 said schedules don’t accommodate student early arrival schedules
- need increased frequency (less time between buses)—5
- routes are too long and buses too slow—7
- need cleaner buses and more friendly drivers—12
- warmer places to wait for bus—2
- more information on bus routes—2

Several offered other broader suggestions that were also considered in developing service options:

- 3 students specifically noted a need for a bus that would drop you close to your home or at least closer to home.
- 2 mentioned the need for a type of bus pass to accommodate students whose schedule does not key in with the school bus.
- 2 others noted the need for more reliable schedules to reduce wait time in the cold.

Summary

This group of younger travelers very much mirror the interests of older residents. Since they are largely captive riders, their concerns have somewhat greater urgency. Nevertheless, they want a transportation system that can accommodate to their schedules, particularly late activities at the schools. Like others, they want an efficient system with considerable flexibility with the potential of accommodating occasional trips to a variety of locations. These are all qualities that a personal automobile offers, but are difficult to approximate in a fixed-route bus.

Overall Assessment of Surveys

The various surveys connected with the study indicate that there are a variety of transportation needs across the city. These differ by target group. Nevertheless, some common elements emerge:

- interest in a convenient service with expanded numbers of stops and schedules
- interest in expanded hours of operation
- interest in reduced wait times between buses.

Although these needs clearly emerge among all segments of the population, the total number of individuals who would actually use an expanded transit service, even if funds were available to provide it, is relatively few.

Given the size of the city and availability of automobiles, most residents will continue to use their cars. Attracting choice riders to transit will require considerable marketing and a change in public perception of transit. Congestion is mentioned as an emerging problem, but it is not yet perceived as a compelling concern. While parking availability and rates were not specifically addressed in these surveys, it is apparent that most firms continue to offer free parking to their employees. One employer noted that parking places downtown were becoming more limited. Students at Iowa Western are increasingly concerned about parking availability, and have responded with car pooling rates of 20 percent.

What seems to be indicated is the need for a new look at transit. While the existing bus service is providing transportation to several key destinations: Omaha, services along Broadway, and the Mall of the Bluffs it does not, and probably cannot, serve the range of interests represented by a number of the respondents to the surveys. The preferred characteristics that emerge are:

- small vehicles
- flexible routes
- expanded schedules
- accommodation of work or school schedules which lie outside the parameters of the fixed-route bus schedule.

A number of alternatives can and will be explored:

- vanpools
- expanded carpools
- route deviation
- a type of community circulator
- shared-ride taxis

Other cities have experimented with each of these options. In the next phase of the study these options were researched in relation to the experience of other cities and presented in a public meeting. In response to the ideas presented at the meeting a set of possible service options were developed as concepts for possible application to Council Bluffs. Each of these options was then subjected to a fiscal analysis and preliminary recommendations were identified.

4 SERVICE OPTIONS

As is indicated above, the various surveys of households, employees, seniors, college students, and high school students all underscored a desire for flexible transportation that would be available when the trip was needed and would go where the traveler wanted to go. The obvious wish is for public transit to emulate a private automobile as much as possible. This is not surprising since the overwhelming mode of choice in the Council Bluffs area is the automobile. As indicated above, according to the 1990 census 95.1 percent of trips in the area were made by the automobile. Nevertheless, there is a sizable proportion of the residents who do not have access to an automobile for part or all of their needed trips. Figure 17 indicates a number of census blocks in the city where a sizable proportion of the population does not have an automobile available. Even granting that several of those census blocks have very low density since they contain the rail yards or open space in parks or the bluffs, the map still indicates that there are households with no automobile available. A fairly substantial proportion of the households with more than one member have only one car available. While one car is certainly adequate for some households, others may find that when one member of the household takes the car to work, others are left without a ready mode of travel. In addition, as congestion increases some may consider convenient travel options that would get them to their destination without use of a personal automobile.

The current MAT bus is providing helpful service along the major Broadway corridor and to the Mall of the Bluffs. It also supplies a viable alternative mode for the substantial number of trips which Council Bluffs residents make into Omaha each day. Ridership on this Omaha link may be increased as complaints mount about parking costs, particularly at downtown Omaha work sites. A 1995 intercept survey of workers outside several of those downtown work sites revealed concerns about costs of up to \$3.00 a day for parking. The addition of a park and ride lot along the Broadway corridor, possibly at the supermarket, would potentially benefit both Omaha commuters and the grocery since workers alighting from the bus in the evening could easily dash into the store and buy groceries before heading home.

There are, however, travel needs which a fixed-route, 42-passenger bus cannot easily meet. Given the street layout and the terrain of Council Bluffs there are areas where streets cannot accommodate a heavy bus and where residential densities are too low and employment sites too scattered to make a fixed-route bus an efficient option.

There are also personal needs that a fixed-route bus cannot address. While not necessarily ADA qualified, 8 percent of senior respondents to the senior survey indicated that they had difficulty in using the bus

because of the required walk to the bus stop or that their chosen destination was off the bus route. High school students echoed the same concerns about destinations off the bus route while a number also expressed concern about the length of routes and frequency of service. College students underscored the absence of public transportation to their campus which is a distance from most other trip generators in the city.

A major issue emerging on the household and employee surveys was the timing of work shifts. The bus schedule which runs from about 6:30 AM to about 6:30 PM is not a viable option for those who work the second or third shift. Fifty-nine percent of the employers responding to the employer survey indicated that they had multiple shifts and 23 percent of employees noted working shifts that either began or ended outside the usual operating hours of the MAT bus.

Given this range of needs the current study explored a variety of transportation service options:

- vanpools
- carpools
- community circulators (shuttles)
- route deviation or flexible-route buses
- shared-ride taxis.

All of these options offer increased flexibility in terms of route and destination. Vanpools, carpools, and shared-ride taxis offer increased flexibility in terms of time. Their appeal in terms of targeted market, however, differ.

Vanpools, typically involving a nine- or fifteen-passenger van or sometimes a low-floor minivan, offer transportation to or from a single destination at a preestablished common travel time. These are now increasingly associated with the work trip, although traditionally van pools have been used by senior centers to bring groups to common programs, like congregate meals. Vans are typically not owned by the travelers, but rather by firms or by bus companies and there is an expected fare or contribution for each ride.

Carpools are associated with travel of smaller groups either on a regular basis or at single common point of time. The travelers start from relatively close points of origin and go to relatively close destinations, if not a common destination. Carpools are generally comprised of some type of affinity

group, although a formal carpool may range far beyond a group of close friends or associates. Since carpoolers typically share driving and travel in private automobiles, payment for services is informal, such as a contribution for gasoline. Various types of carpools are, therefore, applicable to a wide range of trip purposes.

Travelers in a shared-ride taxi may have nothing in common except their current interest in traveling from points near each other to destinations near each other at a relatively common point of time. Hence this is applicable to individualized travel needs. Costs of trip, hours of service, and target population depend on whether the service is an extension of a private taxi service, is sponsored by some social service agency, or whether it is a form of paratransit offered on conjunction with the fixed-route bus service.

Community circulators may take the form of a mini-bus traveling along a regular route with a limited number of established stops and encouraging flag stops in between or they may operate on-call within an established zone. These can provide flexible service to the general public in areas with limited population density or where the streets cannot accommodate the fixed-route bus. In many areas they serve as shuttles or feeders to a fixed-route bus or a train.

Route deviation involves having the regular fixed-route bus divert from its regular route to pick up someone or drop someone off, by prearranged request, in an area close to the regular bus route. The bus returns to its route at the location of a regular bus stop. The number and schedules of regular bus stops are spaced out to permit the deviation. Where used most successfully route deviation can meet the needs of some residents with personal disabilities who find it difficult to get to the bus stop. The result is to reduce the need for some paratransit service and increase mobility for residents involved.

The following discussion probes a bit more into the relative advantages of each of these service options based on the experience of other transit properties.

Vanpools

The concept of vanpooling began formally in 1973 when 3M Company in Minnesota established a program for its employees, but no doubt the concept was operating for some time before that. A national

survey conducted by the National Association of Vanpool Operators in 1984 estimated that 100,000 commuters traveled in over 10,000 vans. Data from the 1990 National Personal Transportation Survey suggests that three percent of all work trips nationally are made in shared-ride vehicles with five or more occupants.

To form a vanpool it is necessary to:

- Identify a group of about seven to 15 passengers whose trip patterns and personal characteristics are sufficiently compatible to form a stable ride-sharing unit.
- Support the cost of fuel and maintenance for the vehicle.
- Find an acceptable arrangement for sharing responsibility for driving, scheduling, and vehicle maintenance.
- Assume the risk and expense of insuring the vehicle (U.S. DOT 1993).

Vanpools are an increasingly popular response to the need for work trips in either far-flung suburbs with low density or for employees in firms where shifts are outside the usual schedule of the bus company. There are a variety of options with differing levels of involvement and responsibility on the part of the employers and/or the public transit operator.

Three basic types of vanpool arrangements include:

- **Owner-Operator Vans**
These offer the simplest arrangement. The van is owned or leased directly by an individual who assumes complete responsibility for organizing the group and all financial arrangements and risks.
- **Employer-Sponsored Vanpools**
Here the van is owned by the employer and riders are charged a fare to recover the operating and capital cost of the vehicle. There is an incentive for the driver who is either not charged a fee or is allowed personal use.
- **Third-Party Vanpools**
These vanpools involve either a nonprofit corporation, a private vendor, or a transit agency which makes the vans available to employers or individual users. The users pay fares based on the cost of the vehicle, maintenance, fuel, and insurance. With the growing need to respond to the mandates

associated with the Federal Clean Air Act, a number of communities and firms in non-attainment areas have instituted Vanpool Incentive programs as a means of luring small groups of commuting workers out of their private automobiles and at the same time offering a viable way of serving the suburb to suburb trip (U.S. DOT 1993, p. 71).

Publicly-Managed Vanpools

PACE—Suburban Chicago, Illinois

Among the best known programs is a state-run vanpool program operated by PACE in the Chicago area. PACE offers fixed-route service on over 140 regular routes, 79 feeder routes, and a dial-a-ride service in its six-county service region in addition to its vanpool program. It also operates nine subscription routes for Sears employees, now that Sears has moved its headquarters to a suburban campus. The multiple service options meet the needs of the range of commuters in the market.

The PACE vanpool incentive program, which was established in October 1991, operates more than 200 vans where fares are based on the number of passengers in each van (5–15) and the round trip mileage. As such, they recover more than 100 percent of their operating costs which are paid for through a public sales tax. Nearly 80 percent of the riders use the service to get to work. The service has proven to very effective. The number of vans in the program has more than doubled since it began six years ago. A recent addition is an element called ADvAntage. This uses vans to provide service for those ineligible for the regular paratransit service because of personal capability or because they live outside the required 3/4 mile buffer outside a fixed route bus route. These typically take workers with disabilities to sheltered work shops or regular work sites. PACE couples its vanpool program with a guaranteed ride home program and markets its programs via personal contact with employees (TCRP Synthesis 14 1995, pp. 9–12). To encourage participation PACE contacts companies interested in providing their employees with the option of vanpooling and describes the program to the employees. The employer is only involved to the extent of arranging for the presentation.

Individuals interested in joining a PACE vanpool submit a rider agreement, complete an application form and pay a (\$75) fare deposit and agree to commit to

the program for a minimum of three months. The riders are then matched with a pool and assigned to a group which resides in the same geographic area. PACE arranges routes and schedules. Passengers then purchase monthly passes in advance to ride in the vans. These fares are based on the fixed, predetermined daily trip mileage of each pool. The vanpool driver is assigned a monthly roster of paid riders. PACE checks the driving record and credit history of each potential driver and requires a physical exam. One moving violation renders the new driver applicant ineligible. For existing drivers one moving violation results in a six month probation. Drivers sign "hold harmless" agreements as well as agreements promising to abide by PACE program rules. As an incentive, PACE gives each van driver 300 monthly personal miles plus 100 buffer miles for servicing, maintaining, and fueling the vehicle. Drivers remain insured for the personal miles.

PACE owns the vans and is insured through a combination of self insurance and private insurance. Private insurance provides the auto liability limits per occurrence, defined as an accidental injury—causing event. PACE is self insured for losses in excess of the primary limits and for physical damage to the vans. Collision, comprehensive, and general liability coverage is extended to private vehicles used for carpooling if PACE cannot provide a loaner van when the regular van is not available.

Metropolitan Seattle Rideshare Operations—Seattle, Washington

In Seattle, the Metropolitan Seattle Rideshare Operations (Seattle Metro) provides both ridematching and vanpool services. The organization, publicly administered by a branch of King County Transit Department, is self insured. It operates a fleet of over 500 vans and focuses on recruiting riders and volunteer drivers from large employers in the area. Individuals telephone in information regarding their commute pattern or submit a short written application. Seattle Metro then matches the potential riders with either carpools or vanpools. As part of a careful risk management program, Seattle Metro has a detailed selection criteria for volunteer drivers as well as a mandatory orientation and training program. It then develops a pool of approved van drivers, since there is constant turnover in drivers due to employee resignation and job changes.

Seattle Metro does not screen the drivers in the carpool ridematch program, but it does encourage carpoolers to check with their own insurance agents to confirm coverage for carpools and to meet to discuss rules, responsibilities, and insurance before actually agreeing to participate in a particular car pool group (Legal Research Digest 1994, pp. 5-6).

KITSAP Transit—Kitsap County, Washington

Kitsap County, Washington, which includes the cities of Bainbridge Island, Bremerton, Port Orchard, and Poulsbo, is engaged in a Commute Trip Reduction program. One of the major parts of that program is vanpooling. Much as in the case of PACE, Kitsap Transit owns a fleet of vans that are to be used by groups of seven or more for their daily commute. In this case, Kitsap Transit pays for the van's fuel, insurance, and maintenance and pays the driver \$10 a month to keep it clean. Drivers, who ride free, must have a verified clean driving record for the last three years and pass a defensive driving skills test. Drivers also complete a four-hour defensive driving course run by the Washington State Department of Transportation. The driver or someone he or she designates is responsible for selling tickets and book keeping. Although each of the major employers has a Trip Reduction Coordinator, the vanpool program is run centrally (Kitsap Transit Home Page, <http://www.telebyte.com/kitrans/>).

Des Moines, Iowa

One of the most successful recent vanpool programs is in Des Moines where the Metropolitan Transit Agency (MTA) owns a fleet of vans, which has grown to 40 over the last two years. There are plans to expand to 100 in the near future. The MTA, in cooperation with the city's major employers, manages a ride matching program in which groups of riders are assigned to vans. The drivers' driving records are carefully screened, and once approved, the driver not only travels to work free, but gets to use the van over weekends. Other riders are charged \$50 to \$100 a month for the service, depending on how far the van must travel (Grange 1997).

Lansing, Michigan

In Lansing, Michigan MichiVan is offering a low cost leasing plan for groups of seven or 15 people to commute together as a vanpool.

Private Ridesharing Programs

Bank of America

Bank of America, one of the nation's largest banks, has a ridesharing program in Southern California which matches riders into vanpools or carpools based on information in their personnel files. It is run by a bank administrator who compiles lists of likely riders and drivers and gives the lists to the employees requesting information. It does not own any vehicles and makes no effort to screen driving records, but before any information is disseminated, all those on the list and those inquiring must sign release forms, releasing Bank of America from any liability arising from such ridesharing arrangements (Legal Digest 1994, p. 7).

Van Pool Services, Inc.

In contrast to the publicly managed vanpool programs, there are also programs run by larger corporations. Van Pool Services, Inc. (VPSI), now a subsidiary of Budget Rent-a-Car, evolved out of a program which Chrysler Motors developed for its employees. After operating successfully as a subsidiary of Chrysler for a number of years, it was recently sold to Budget. It operates more than 4000 vans in more than 25 locations throughout the country. The program focuses on putting riders into leased vans and offers month-to-month programs as well as long-term leasing programs. Customers are either individuals who lease vans to start their own vanpools or employers wanting to provide vanpooling as an option for employees. Generally, VPSI supplies ride-matching organizations like Rides for Bay Area Commuters (RIDES) in the San Francisco Bay area with leasing information. At the request of employers, however, it can actually take over much of the task of setting up the vanpools and relieve employers of administrative tasks like collecting lease payments, sending out bills, and screening drivers. For these firms VPSI generates publicity regarding the benefits of vanpools, makes on-site presentations to groups of employees upon request, distributes survey and application for match forms, and then plans and schedules routes. VPSI has also begun working with city transit agencies, such as those in Austin, Texas and Phoenix, Arizona. Each city transit agency sets its own guidelines and VPSI designs a program to its specification. The level of responsibility retained by the transit agency is up to the agency itself (Legal Digest 1994, p. 7).

The VPSI leasing package consists of a preventative and emergency maintenance package, insurance, title, registration, 24-hour emergency road service, and a maintenance hot line. VPSI offers lessees a range of comprehensive insurance programs including one which includes "no deductible" protection for drivers who pass their screening procedure (VPSI 1997).

Overall, vanpools serve an important niche in the transportation market. They are self-supporting and operate in low-density settings where it is difficult for traditional fixed-route bus service to be viable. For employers they represent a potentially cost-effective way to access labor pools. Some have also found that they raise employee morale and reduce absenteeism and tardiness. They do, however, require an administrative burden in setup and operation and some extra insurance risk. For the individual traveler, vanpools do increase driving time and constrain individual schedules, but they are relatively convenient with door-to-door service, moderate cost, and minimal reliance on a personal vehicle.

The typical vanpool works for employees traveling a considerable distance from far-flung suburbs. A work trip from a location in eastern Council Bluffs to West Omaha, would, however, approximate this concept. Within Council Bluffs, the actual travel distance and travel time is not very far for most employees. Vanpools would be most effective in providing service for employees working late shifts when MAT does not operate. The door-to-door service would be very appealing under these circumstances.

Carpool

The concept of forming carpools, both informally on a personal basis and formally through ride-matching programs is certainly well established. Although nationally the number of Americans who are traveling to work in multi-occupant vehicles declined from 40.4 percent in 1977 to 32.9 percent in 1990 (U.S. DOT FHA 5-4-5-6), car pooling for social and recreational purposes is considerably higher. In the surveys conducted with the various groups in Council Bluffs, carpooling was mentioned by 39 percent of the college students and a substantial portion of the senior residents. Nationally, 48.1 percent of social trips and 42.2 percent of educational trips involve more than one person in a vehicle. The reasons generally given for not participating in a carpool on the way to work are the impossibility of arranging for chained trips on the way

home and the inconvenience of needing to arrange common travel times.

Nevertheless, largely in response to the requirements of the clean air act, carpooling has begun to attract more champions both in the public and private sectors. Agencies or companies either develop their own ride matching lists in-house or hire a quasi-nonprofit matching agency.

For example, Apple Computer encourages its employees to participate in carpooling by offering carpool matching, preferential parking, a guaranteed ride home, and a financial incentive program. Employees who register for the Commute Alternative Program (CAP) can access a database of employees organized by zip code and work site. There is no screening of potential drivers and it is up to the commuters to coordinate the pools and develop their own rules for operation.

The State of Connecticut coordinates its rideshare programs through three private nonprofit organizations: Greater Hartford Rideshare of Hartford, MetroPool of Stamford, and Rideworks of New Haven. Each of these acts as a broker and serves a region of the state (Legal Digest 1994, p. 9).

A number of newer concepts have been employed to respond to the need for flexibility in carpools. The need to fill vehicles with enough passengers to qualify to use the HOV lanes have stimulated casual carpools in both Oakland-San Francisco and in Northern Virginia. In greater Oakland it is estimated that about 8,000 people are commuting via the informal carpools which pick up passengers at preestablished BART stations and AC Transit bus stops and take them across the Bay Bridge to the Transbay Bus Terminal in downtown San Francisco. Carpoolers gain a benefit of ten to twenty minutes of travel time and avoid paying a \$1.00 toll. Since there are no eastbound HOV lanes, this system only operates in one direction and commuters return to Oakland using public transit.

In northern Virginia instant carpools are formed as commuters stand at preestablished suburban locations and then travel down the Shirley Highway HOV lane, saving five to fifteen minutes in travel time. They are dropped off at one of two or three locations in down-

town Washington. On the return these "ride-line" commuters stand in prearranged locations in Washington and wait for cars to circle and indicate plans to travel back to the point of origin in the Virginia suburbs. It is estimated that about 2,500 to 5,000 commuters participate in these casual carpools in the morning. The number returning is substantially lower, indicating that many choose public transit in the evening since work hours vary considerably on the return.

Although this type of casual carpool would not be applicable to Council Bluffs, a mobility manager program under way in Beaver County, Pennsylvania might be considered. This system includes the flexibility associated with casual metropolitan car pools but includes technology as a way of compensating for the lack of density and the HOV timesaving incentive. In this system a group of commuters access alternative transportation services via a computer modem, a touchtone telephone, or a cellular phone.

Similarly, in Ontario, California the ATHENA project provides for single-trip ridesharing. By accessing the ATHENA computer commuters will be provided with the best match and then advise driver and passenger of a scheduled pick up time and fares to be charged. ATHENA interfaces with vehicles containing personal digital assistants (PDAs) which have messaging and GPS vehicle location capability. Initially travelers will use telephones to request a trip. Pages may be a later option. Taxis provide the trip if no other vehicle is available. A similar system using cellular phones and a common computer data base has been tried in Bellevue, Washington, outside Seattle. That system netted only on a modest number of rides, in part because of the relatively small number of participants in the pool and the lack of incentives to overcome the natural preference to drive alone (State of the Art Update 1996, p. 4).

In Council Bluffs, Iowa Western Community College, a common destination, where 22 percent of respondents to the survey already car pool and 39 percent pointed out parking problems, there may be a real opportunity to test casual carpooling, potentially using some type of technology (personal pagers) to enhance the potential of ride matching on the way to campus. Preferred parking on campus would be a real incentive for participation.

Legal Issues Confronting Employers Involved with Facilitating Carpools and Vanpools

Some firms have been wary of possible legal liability stemming from the organization or promotion of rideshare programs. The areas of potential liability include:

- liability of rideshare promoters or organizers for injuries sustained by participants
- liability of employers engaged in rideshare promotion for injuries incurred by third parties and workers compensation
- liability of employers that promote or organize rideshare programs.

Common law negligence actions are based on whether the violation is the fault of a driver or if the car is owned by the rideshare provider. Questions revolve around the organizer's duty to protect employees against unforeseen risks. The scope of such duty depends on the level of the organizers' involvement with the program. The more involved with administration, the greater the potential for liability. Ironically, however, the more involved an organizer is in administering a rideshare program, the closer it comes to the kind of control that might give rise to a "duty." If the employer sincerely encourages ridesharing, but does not maintain or repair the vehicles or make any representation regarding the competence of the drivers, it will probably not reach the threshold level of control necessary to impose liability. If the organization does offer matching and attempts to screen drivers, they are potentially liable for negligence if a poor driver slips through the system. They are even more liable if they mandate a particular form of transportation. Carpools can be held to a higher level of care, such as are motor carriers, unless states have specifically exempted rideshare arrangements. Unfortunately, Iowa is one of the states that has not yet passed such an exemption.

Questions arise as to whether workman's compensation becomes applicable if the program is organized by the firm and someone is injured while on the way to work. Generally the firm is not liable unless the injury occurs while on the job. Most states maintain that the worker's day commences with his or her arrival on the work site. In Nebraska, however, for companies which own vehicles, the day starts as the

worker enters that vehicle. In order to encourage employers to participate in encouraging ridesharing, some states, such as Illinois, have legislation that specifically limits the liability of the employers.

Insurance also becomes an issue. Some insurers actually offer a discount to carpoolers based on the factor of less exposure. For the owner-operated vanpool, it is somewhat more complicated since it is not clear whether the vanpool is liable for rates under an extended family policy or under the more expensive commercial policy. Most states specifically sanction the use of family policies for vanpools. Coverage for bodily injury should be increased to cover the number of wage earners in the vehicle. A minimum of \$500,000 is recommended, but \$1 million is preferred by some. Companies or individuals who lease a van from a third party typically get insurance through the lessor.

For employers that offer a nominal level of incentives and means for employees to locate fellow poolers, liability exposure is remote. For companies that own, lease, operate, and maintain vanpools for their employees, however, fleet insurance is essential. To minimize tort liability the following is advised:

- Written agreements are highly encouraged, even for participation in a computer matching program, since they serve as a written waiver in the case of privacy of releasing personal information.
- Employers should urge potential poolers to have a pre-trip meeting for discussing rules, routes, and times. The level of success of vanpools or organized carpools is dependent upon the willingness of travelers to work with and accommodate one another.
- Driver screening is essential for vanpool programs to minimize liability.
- Drivers should be 21 or older, preferably 25.
- Potential drivers should establish stable employment for some period of time.
- Drivers must have valid unrestricted drivers' licenses with no recent suspensions.
- Drivers should not have had their insurance policy cancelled in the last five years.
- Drivers should participate in a mandatory orientation and safety program.

- All vans must be in a preventative maintenance program.
- All drivers must be provided with an operations manual and sign for it (Legal Research Digest Sept. 1994, pp. 12–15).

Route Deviation

The concept of diverting a regular fixed-route bus off its scheduled route to pick up passengers unable to walk to the bus stop has frequently been employed in rural areas. In that setting, a bus makes a scheduled trip along a major highway, but with sufficient notice it can divert to pick up someone in a farmhouse not far off the route. Within a small town it can load most of the passengers at an established location, such as a senior center, on a regular schedule and then, by prior arrangement, pick up a few individuals with mobility impairments at their homes before taking the whole group to a scheduled set of destinations in another city.

In urban areas the concept has not been widely adopted because the option seemed too difficult to implement and too costly. The importance of maintaining on-time, accurate schedules along a fixed route is regularly underscored by any transit system evaluator, and route deviation obviously provides a challenge to this fundamental principle of transit operation.

Nevertheless, transit operators are becoming more willing to consider such an option as a way of increasing the use of the existing fixed-route service, offering a cost effective way of serving travelers eligible for complementary paratransit as mandated by the Americans with Disabilities Act (ADA), and maintaining the mobility of those who are not eligible for ADA-mandated complementary paratransit and who may have been displaced from specialized services. A recent study conducted by Sandra Rosenbloom for the Office of Technical Assistance of the Federal Transit Administration identified and interviewed spokespeople at 15 properties that were offering or considering route deviation. The list of these properties is included in Figure 17 (U.S. DOT FTA 1996, pp. 4–5), while a quick browsing of the internet identified two others. The list is growing.

Transit Agency	City Population	County Population
Community Transit, Inc Sissertown, SD	2,181	9,914
Jefferson Transit Port Townshend, WA	7,001	20,146
Mason County Transportation Authority Shelton, WA	7,241	38,341
Central Coast connections Newport, OR	8,437	38,889
Grays Harbor Transportation Hoquiam, WA	8,982	69,000
Rides Mass Transit Rosidore, IL	10,000	69,000
Omnibus Excelsior Springs, MO	10,354	153,411
Community Action Agency of Yamhill County McMinnville, OR	17,894	65,511
Astabula County Transportation System Astabula, OH	21,633	99,821
Marbel Valley Regional Transit Rutland, VT	23,990	62,142
Johnson County Transit District Lenexa, KS	34,034	355,054
Cheyenne Transit Program Cheyenne, WY	50,008	73,142
Danville Transit System Danville, VA	53,056	55,655
Rural Transit Bloomington, IN	60,633	126,259
City of Wichita Falls Wichita Falls, TX	96,259	122,378
City Link Abilene, TX	106,654	119,655

Figure 17. Properties with route deviation

Route deviation is not intended to substitute for the ADA-required complementary paratransit, but rather to supplement it by adding more riders to the fixed-route system relatively efficiently. Rosenbloom's study identified five different types of route deviation:

- Entire route deviation, which deviates anywhere along the route but may be limited to .75 miles.
- Point deviation, which deviates only to prearranged stops (e.g. senior centers or hospitals)
- Limited deviation, which only deviates in some sections of the route
- Checkpoint service, which has fixed stops but will provide demand-responsive services in between stops
- Hybrid service, which is fixed-route in some area and demand-responsive in others.

Most of the systems reviewed by Rosenbloom were in cities smaller than Council Bluffs. However, the experiences of Abilene and Wichita Falls, Texas may be relevant. Abilene, Texas, a community of 106,000 people, has ten fixed routes, nine of which will deviate upon request. Riders call to request the service 30 minutes before boarding, but at times riders also request deviation as they board. Most requests come from those using wheelchairs. Many elderly people who are not certified by ADA also use deviation. Although this system is less expensive than an expanded paratransit service, it is difficult to operate. Wichita Falls, population 122,378, has five fixed routes and no paratransit services. All buses deviate up to two blocks from the fixed route, but only for those who qualify under the ADA. In 1994 four percent of the 120,000 boardings were deviations requested by elderly and those with disabilities. This represents a 900 percent increase in ridership by those groups since deviation began.

Some operations, like Grays Harbor Transportation Authority of Hoquiam, Washington, which has three routes, only permit deviation in specific areas.

Dannville, Virginia, a city of about 50,000, operates a "paratransit deviation service" which offers deviated service from about two-thirds of its fixed routes, but only on an advance reservation basis. When the vehicle deviates it actually displays a sign, "Handivan," indicating that it is operating as a paratransit vehicle. This approach enables the city to accommodate about thirty percent of the more traditional paratransit ridership, allowing the demand responsive system to concentrate on other riders (U.S. DOT FTA 1996, pp. 15-17).

Checkpoint deviation, which permits deviation from the route as long as the vehicle arrives at scheduled stops on time, may have more potential for Council Bluffs.

In Cheyenne, Wyoming the Cheyenne Transit Program has four flexible routes which allow deviation along the route, so long as the buses arrive and leave the scheduled stops on time. The purpose is to pick up and drop off people with disabilities rather than serve origins and destinations off the route. The original plan was to respond to the ADA mandate efficiently, but others are also served. There have been some complaints from other passengers who are delayed.

The approach used in Rosiclare, Illinois is called "quadrant checkpoint deviation." With this plan the bus is in each quadrant of the city for fifteen minutes each hour. It travels along a published route, stopping at fixed points, but deviating to provide door-to-door service as requested. Riders can only request deviations while the bus is in their quadrant and, as a result, may have to wait up to an hour for service. Ridership has increased over 13 percent in the year since the service was started and the system plans to add an additional vehicle (U.S. DOT FTA 1996, p. 18).

In eastern Prince William County and Manassas, Virginia, OmniLink, the fixed-route bus service, can deviate .75 miles into areas served by the route. All deviations need to be scheduled one or two days in advance through a Customer Service office that arranges to have the bus come as close as possible to the location requested. The service offers the caveat, "please note that some locations are not accessible to OmniLink buses." OmniLink also accommodates standing orders for route deviation and enforces a policy to discourage "no shows" (OmniRide Home Page, <http://www.omniride.com/>).

Mason County, Washington also offers prearranged route deviations. Deviations should be requested one or two hours in advance whereas dial-a-ride service must be arranged the day before the trip. Passengers may also flag down a bus at any point along the route where it is safe for the bus to stop. Passengers are encouraged to use an arm wave or a flashlight after dark. The Mason County service also connects with other services in the region (Mason County Transportation Authority home page, <http://olympus.net/gettingAbout/busMason.html>).

Community Circulator or Shuttle Service

This concept differs among communities, but in general, the circulator operates in suburban settings with smaller vehicles than the 42-passenger fixed-route bus. Typically flex-route, or circulator, schedules are prepared with known time points like a fixed-route bus. Flex-routes include a few time points located at the pulse point (a transfer point), at each terminus and at two midpoints. These time points are bus stops served at fixed times and are the temporal anchors for the service. Beginning with this fixed schedule, the dispatcher adds in trip requests and subscriptions to produce the schedule. As trips are

scheduled passenger are called back given a time and location for pick up. For systems, like OmniLink mentioned above, these calls must come in the day before. However, with increasing use of dynamic (real time) scheduling and Automatic Vehicle Location (GPS system) it will be possible to schedule inserted trips with much less notice—ultimately in near real time (Farwell and Marx 1996, p. 5).

Flex-route service

Ridership on the flex-route service of OmniLink rose rapidly during the first five months of service. In fact, one of the routes posted a 305 percent increase from 100 passengers in April to 409 in August. Consequently the average cost per trip decreased by 74 percent over that period. In order to maintain the flexible quality of the route, the proportion of subscription call-in rider requests was capped. This became necessary since call-ins and prearranged pick ups was making it increasingly difficult to maintain the on-time performance of the schedule. Hence the percentage of call-ins to casual riders, varied from 41 to 22 percent during its first 5 months of service. (Farwell and Marx 1996, p. 5)

Feeder service

In some cases a circulator operates more like a feeder bus or a shuttle, connecting with a regular line-haul bus or commuter rail. It serves lower density suburban areas which would be not be efficient to serve with a large bus and travels over irregular terrain or residential streets which could not support a full 42-passenger bus. Typically these systems maintain a limited, but regular, set of stops. The key factor is the pulse point at which passengers are transferred to the regular line-haul bus or a commuter rail train to continue their trip. In some communities these small buses can be flagged down at other locations along the route. Although some systems charge for rides on the shuttle as a separate trip; for others the fare is only the regular transfer charge.

In Eastern Prince William County, Virginia, where the shuttle serves largely the work trip and feeds the commuter rail, ridership increased about 250 percent in the first 8 months of service. Ridership proved to be higher in the evening than the morning since workers can more easily arrange instant carpools with family members or friends on the way out than on the return. Although the number of passengers per trip ranged from four to 20 in a 24 passenger

minibus, the overall trend in ridership clearly was up (Farwell and Marx 1996, p. 6).

In West Omaha low-floor minibuses are used to provide circulator shuttle service which meets the regular line-haul bus at Westgate Mall. The concept proved to be an instant success. Not only does it connect residents in scattered home sites with the rest of the system, but it also provides access to the array of service industries (telemarketing and hotel reservations centers) that have sprung up on the far side of the interstate highway. In fact, ridership is so great at peak hours that a line-haul bus is pressed into service for one of the trips and the smaller vehicle is used on a less popular route for that run. Although the low-floor vehicles have introduced some maintenance issues in the winter season, in particular, they do provide for much more efficient access for riders traveling in wheelchairs. By selecting the mall as the transfer point the route maintains substantial ridership throughout the day. The service, therefore, serves a wide range of the general public, ranging from workers to the elderly and disabled.

In Monmouth County, New Jersey, the shuttle is directed primarily at the needs of older residents. Here the DOT operates what is known as a "service route" in addition to operating fixed route and paratransit service. Small buses travel along a 50 minute route with a two hour headway on week days. This shuttle is available to the general public, although most riders are elderly or have disabilities. Passengers can board anywhere along the routes which serve malls, libraries, shopping centers, hospitals, and business areas. The routes are arranged to permit transfers to other routes in the system. This shuttle carries 20,000 passenger trips per year at a cost of roughly \$22 per vehicle hour, considerably less than the cost of the demand-responsive door-to-door paratransit service. Ridership is steadily increasing.

In Toronto, Canada, the Toronto Transit Commission operates five community buses in addition to accessible fixed-route bus and subways. The routes serve local community destinations—shopping, recreation, and medical—but also serve as a feeder to the other service. They operate on a fixed schedule, from 9:30 AM to 5:30 PM on weekdays. The bus can be flagged down anywhere along the route. Anyone can ride for the same fare as on the rest of the system. Since this community bus has been available, it has diverted

a number of riders from the traditional paratransit operation. In fact, on the most successful route, 30 per cent of the riders were eligible for paratransit. Passengers are continually requesting longer hour and weekend service.

In Ottawa, Canada, OC Transpo operates three communibuses with low-floor vehicles with two wheel chair securements. On one of their routes, almost 26 percent of the trips are made by people who are eligible for paratransit and over 40 percent are made by people who have trouble with the regular buses. One route carries 208 passengers a day, 24 of whom are diverted from paratransit door-to-door service.

One other model, BELine, which operates in the Bloomington-Edina area in suburban Minneapolis, is focused on a major trip generator, the Mall of America. The BELine is a two route circulator that operates six days a week from 6:25 AM to 10:30 PM, six days a week. The system, anchored by the Mall of America and Southdale, operates four small minibuses. It began as a replacement for three highly-subsidized fixed-bus routes. Direct transfers are possible from BELine to fourteen different routes. Medicine Lake Bus Company runs the service under contract with the Metropolitan Council for \$35.25 an hour and averages 13 passengers an hour. Passengers pay \$1.00 off peak and \$1.25 on peak. With an average of 1.1 passengers per mile and a total operating cost of \$650,00 the cost per passenger is \$2.85, rather than \$3.05 per passenger on the fixed route system (BELine 1997).

Shared-Ride Taxi

This concept involves using the existing taxi service to offer rides to a small group of passengers who travel together usually as a non affinity group and who happen to be traveling at the same time in relatively the same direction. While most taxi companies are efficient in logging and dispatching individual trips, this many-to-many type of scheduling is far more complex. Nevertheless, with car radios broadcasting the location of a requested trip, cab operators are able to divert to pick up additional trips much like airport limousines. With increasing use of advanced scheduling systems, taxis are able to build such trips in real time. The location of the various cabs are monitored, some with Global Positioning

(GPS) and as locations of callers are geocoded, schedules can be built and revised automatically.

Wisconsin has been operating a very successful system of shared ride taxis in such cities as Wisconsin Rapids, Whitewater, Rhinelander, and Chippewa Falls for more than 15 years. Currently 36 cities are served by such systems, most with private operators who are contracted to the municipalities. Discounted fares are available for seniors. Since this service is subsidized by federal Section 9 funds along with Wisconsin State DOT funding and local funding, the systems are concentrated within city limits. There is a premium cost of \$1 per mile for trips outside the city limits. Fare box revenues cover approximately 35 percent of the costs and cab companies are reimbursed for trips according to prearranged contract. (Wisconsin DOT 1989, updated by telephone interview with Wisconsin DOT, April, 1996)

Columbia Heights, Minnesota has offered shared-ride taxi service since 1978. The average cost per passenger is only about \$2.76, one third of which is recovered from the fare box (Minnesota DOT 1995, p. 40).

In Hopkins, Minnesota, the city contracts with a private taxi operator, Suburban Taxi Co., to provide advanced share-a-ride door-to-door transportation (Hop-A-Ride) for the general public within the city limits or to a specific set of destinations outside the city limits. These include the Methodist Hospital, a Medical center, a school and the opportunity workshop. The city sells tickets for the trips at \$4.00 a ride, but there are subsidized tickets available for eligible residents. Advanced reservations are required for this service which operates twelve hours a day, six days a week (Minnesota DOT 1995, p. 55).

In Omaha—Council Bluffs, most of the cab companies are operated by a single umbrella agency, based in west-central Omaha. The firm currently concentrates its effort on serving the larger Omaha market and handles only a relatively limited number of calls in the Council Bluffs area. Nevertheless, the firm is equipped with a rather sophisticated computer program and currently geocodes passengers on both pickup and destination. The system manager has expressed interest in exploring the shared ride concept in Council Bluffs.

**5 POTENTIAL SERVICE
OPTIONS AS APPLIED TO
COUNCIL BLUFFS**

In order to assess the relative viability of these various service options, it is necessary to suggest possible system designs as they might be applied in Council Bluffs. These designs are intended to be illustrative, indicating potential applications rather than specific terms of actual service proposals. Timing, routing, vehicle selection, and operating procedures are ultimately the province of the city and those interested in providing the service. Nevertheless, the following service concepts do respond to the interest of the various groups of survey respondents for flexible service. It may be possible to test one of these concepts in a limited market or area and later expand to cover more of the city if the concept proves to be viable.

In developing these concepts it became clear that a number of these service options will necessarily be interconnected. The individual elements can, in some ways, stand alone. Nevertheless there are clear economies in perceiving them as a system, building on each other. Underlying this family of service options is the continued presence of the current fixed-route bus system. Each of the options is directed at a specific set of travelers in Council Bluffs. As such they respond to needs identified in the surveys. However, most of the options can be adapted to address the needs of other groups as well.

The current fixed-route bus provides the backbone for the future system, playing a role somewhat analogous to a rail line through the heart of the city with significant "branch lines" along 23rd Street and to the Mall of the Bluffs. All concepts are intended to enhance that system and increase its effectiveness by providing specialized services that can meet the needs of targeted populations groups in a growing and changing Council Bluffs.

As indicated above, a park and ride lot along Broadway at the supermarket might directly enhance ridership to Omaha. Several of the other service options will feed into the fixed-route bus, extend the ranges and hours of public transportation, and hopefully increase the overall ridership of the Council Bluffs transit service. Several of the service options are also intended to enhance the ADA paratransit service now being provided by American Ambulance. Since that service is currently operating at capacity, these options would offer additional travel options, particularly to those who are not ADA eligible, such as older residents who are physically able to access an accessible fixed-route bus stop.

Service Option I (Vanpools)

Targeted population: Employees on the evening and night shifts. This need was repeatedly noted on the surveys of employees and employers.

A pilot program may be begun with the hospitals, which have a considerable proportion of staff working on late shifts. With two hospitals in very close proximity, the probability of finding a sufficient number of participants living relatively near each other and coming to work at the same time is greatly enhanced.

Rationale: These late shifts operate well outside the usual service hours of the MAT bus, and it would not be economically viable for MAT to extend its hours to accommodate a relatively small group of riders. On the other hand, vanpools are very efficient in accommodating trips to a common destination or a set of close destinations.

Operator: The City of Council Bluffs (possibly contracted to MAT) or a consortium of employers led by the hospitals. The agency responsible for the vans should already have fleet insurance and these extra vehicles would just be an add on.

The concept: Vanpools can involve groups of seven to 15 employees riding together to work on a regular basis. Since the small seven-passenger vehicles are generally preferred by riders as being quicker to load and easier to maneuver, this concept is designed around the smaller vehicles. Vanpools are formed from applications submitted by employees and will be based around proximity of residences.

Riders will all pay the operator a common monthly payment of approximately \$50 for pools based within Council Bluffs and \$100 a month for pools based outside the city. The actual fees will be set so that the total fees collected will pay for the full operating costs of each van including insurance, maintenance, and fuel. However, these are the levels of fees charged in other areas with vanpools coordinated by transit operators. Vans will be maintained by the operator at a contracted garage, or possibly at the operator's own fleet garage.

The drivers will be carefully screened by the operator to insure that they have a clean driving record and then be tested for defensive driving skills at an Iowa DOT license test site. A backup driver for each pool will be similarly screened and tested. The monthly participation fee will be waived for drivers and the backup drivers will receive a ten percent

reduction in the fee. In addition, drivers receive use of the van over weekends and 200 free miles a month. These same perks are offered proportionately to the backup drivers if they substitute a week or more a month. Drivers are responsible for picking up all participants, taking them to work, and then returning them to their homes. In addition the driver is responsible for garaging the van, keeping it cleaned, purchasing fuel with a provided fuel card, taking it to the maintenance garage for regular maintenance checks, and filing basic monthly reports on participation and vehicle performance.

Responsibility for developing the vanpool groups and setting up a computer data base will be the responsibility of an alternative systems development specialist. Updating pools as well as collecting the monthly service fee will be assigned to a designated city rideshare coordinator, ideally a salaried employee who will also work with employers to further participation and arrange for maintenance contracts. This same rideshare coordinator will work with other service options, such as the dynamic carpool.

Service Option II (Dynamic Carpool)

Targeted population: Students at Iowa Western Community College.

Rationale: Among the students responding to surveys, a considerable proportion (21 percent) indicated that they already do travel to school in carpools. Most arrived on campus between 7 AM and 9 AM, but others arrived for classes at various time of day. Twenty-seven percent of the respondents have night classes. Seventy-five percent of the respondents stay on campus once they arrive, but then leave whenever their classes are over. 39 percent noted parking on campus as a concern and more than 30 percent wanted increased bus schedules and service.

Low density and scattered travel times make regular fixed-route bus service impractical for students at the college. Dynamic carpools that are "ready when you are" seem to offer the necessary flexibility ride time and appear practical for a student body which generally (75 percent) lives within a 20-minute car ride of the campus.

Operator: The college would act as facilitator for the system, but would not assume responsibility for ride

matching, hence minimizing liability and exposure. The Alternative System Development Specialist will set up the system and the city rideshare coordinator(s) (the same persons identified with the vanpools) will update records, field telephone calls, and manage the system.

The concept: The basic concept is that students interested in participating would be clustered into about four zones, based on the location of their home or other regular point of origin. Each participant would pay a monthly participation fee of \$25. They would each be issued a pager. Different codes would be assigned, via a group net, for each zone to indicate "ride wanted" or "ride available." Calls could be placed the night before or potentially shortly before departure. Upon receiving confirmation that a driver was heading to campus, riders would stand at one of a few prearranged locations in their zone. The driver would then pass the pick up point, retrieve the passenger, and head to school. Trips leaving school would be arranged informally by students standing near a carpool sign near the entrance to the main classroom building. Drivers would agree to drop other students at prearranged sites in a requested zone. Pagers may also alert a prospective driver that a passenger is waiting.

Driver incentives will include the perk of parking in a close-in lot and a gas reimbursement card. Passengers sign an ID number on a card distributed to each driver, who receives a \$10 gas coupon reimbursement for carrying ten passengers. To reduce abuse of the system and minimize administrative time, gas coupons will be distributed twice a month.

Student interest will be assessed via survey and interested students would be asked to attend an organizational meeting at which they would be introduced to the concept and asked to fill in an application form. The form will include address, telephone, general school travel schedule, and an insurance waiver form. All students interested in driving will also be asked to verify that their personal auto insurance covers carpools. It is estimated that 100 students will participate initially. Their names, addresses, telephones, and IDs will be entered into a carpool data bank. They will be issued a pager upon receipt of their initial monthly participation fee.

To ensure full confidence in the system it is essential to offer a guaranteed ride home for someone who is unable to get a ride after waiting for a specific length of time. To offer a guaranteed ride home in Council Bluffs it is essential to identify an alternative travel mode. The shared-ride taxi is proposed to meet that need. For this purpose, a special arrangement with the private cab company will be needed to insure that they base a cab in Council Bluffs and will carry stranded carpool riders home. A base monthly fee will be paid to the cab company in addition to a three dollar supplement per passenger.

The carpool setup, including developing the computer data base, mapping addresses, and selecting pickup points will be accomplished by a short-term consultant who will also set up the database associated with the vanpool. Then, both the carpool and the vanpool can be maintained and updated by the city rideshare coordinator.

Service Option III (Shared-Ride Taxi)

Targeted population: General public including seniors (those not necessarily eligible for paratransit), high school students, college students (guaranteed ride home for carpools), and employees (guaranteed ride home for vanpools).

Rationale: All service options need a backup. This option is essential to the success of the carpool or vanpool, specifically because there is no other public transit system available at the times and in the locations needed by participants in these systems. To build confidence in using one of these other systems, it is critical to have a guaranteed ride home. Although these special rides are assumed to be needed only on an emergency basis, it is important to meet the needs efficiently. In addition, the shared-ride taxi could meet otherwise unmet needs of groups of seniors or unscheduled trips of seniors or young high school students. Individual taxi rides are not feasible either in terms of cost or in terms of service availability.

Operator: A private cab company with a specific contract from the city shared-ride program.

The concept: Although the Omaha-based cab company (Happy Cab) does include Council Bluffs in its service area, there are typically not enough fares to warrant basing a cab in Council Bluffs. Cab drivers

are reluctant to come over to Council Bluffs from Omaha because of a limited amount of return fares. However, a contract might be arranged with either that cab company or an alternative shuttle service to base a vehicle in Council Bluffs.

The cab would run on a shared-ride basis, charging all riders a flat fare of about \$3 within Council Bluffs with a supplement outside the city limits. The mode of operation would be similar to an airport shuttle or a paratransit vehicle. Passengers would be picked up and dropped off in accordance with a reasonably efficient itinerary, rather than any assurance of first-on, first-off. Given the size of Council Bluffs, it is fairly safe to assume that most trips would take less than a half hour, even if the route was somewhat less than direct. The college and employers would subsidize emergency trips for their participants and the cab driver would be given a token or coupon that could be redeemed by the rideshare coordinator. The shared-ride service would also be available for any other travelers within the city limits for a flat fee of \$3.00.

This type of service can be very efficient if the cab is equipped with a global positioning system (GPS) or even if the company has a dynamic (near real time) scheduling program which can update the cab's location with radio call in. Happy Cab in Omaha, for example, does have the ability to geocode the location of call ins.

Service Option IV (Route Deviation)

Targeted population: The general public, especially senior citizens who are not eligible for paratransit. Potentially, some travelers who are eligible for paratransit may also be accommodated on the accessible fixed-route bus if they had a shorter walk to the bus stop. With route deviation in place in a specific area, however, the service would be available on the same basis to all residents in that area.

Rationale: The fixed-route bus travels along major arterials. As such, bus stops are sometimes four or more blocks from a residence or preferred destination. If the bus could divert off the regular route by two or three blocks and then return to the arterial, it could potentially pick up several additional passengers. In some other cities this has also reduced some of the pressure on the paratransit service by

accommodating some paratransit-eligible travelers on the less expensive, more frequent fixed-route bus. By making the bus stops more convenient, potentially more travelers will opt for the bus.

Operator: MAT as an addition to its current contract with the city of Council Bluffs.

The concept: The fixed-route bus can deviate off the established route during non-peak hours and at specific, well-announced locations along the route. The bus would then complete the detour and return to the original route and continue. The schedule would indicate spaced-out bus stops along the regular route for those non-peak hours when deviation is permitted, so as not to strand anyone along the regular route or arrive late at a regular bus stop. Initially the deviated route would be requested the night before the service is needed, but this time frame might be more compressed as the system is tested. Passengers boarding on the deviated route would pay a small supplement (about 25 cents). Locations selected for route deviation need to have roadway sufficiently strong to handle the large 42-passenger buses.

An initial concept might be to offer deviation on route 44 in the neighborhood adjacent to the Route 192 "expressway." The bus currently goes right through the middle of that elongated neighborhood and the ridership on this route is somewhat lower than for other routes. This would allow it, upon request, to divert either north or south a couple of blocks. The GIS study indicates that this area has a higher potential for transit ridership than is currently realized. Another potential location for a route deviation could be identified along Broadway and added as needed in off-peak hours. The detours would be short and limited to one for each trip so as not to greatly inconvenience other riders onboard.

Requests for route diversion could be taken at MAT headquarters so as to alert the bus driver on the route involved, or alternatively the rideshare coordinator could take calls and refer them to MAT.

Service Option V (Community Circulator)

Targeted population: General public including employees, seniors, and high school students. Depending on where the circulator is deployed, it could augment transit ridership in an area not currently served by public transit.

Rationale: The regular 42-passenger bus seems inappropriate to serve some parts of the city given the terrain, the limited population densities, and the considerable distances between housing developments and employment and shopping centers in some parts of town. A smaller, more flexible vehicle, possibly with a low floor to accommodate persons with disabilities, might be more appropriate. The smaller vehicle could also serve as a feeder for the regular fixed-route bus. These smaller vehicles could either follow a regular route or stop on command at prearranged stops when someone called ahead for a ride.

Operator: This would need to be part of the regular contract between Council Bluffs and MAT to accommodate the feeder option. The vehicle(s) would be a net addition to the existing fleet.

The concept: Although the circulator can take several forms, the simplest is a small bus or minibus operating at specific times of day in areas not currently served by the regular fixed-route bus. It would have a limited number of regular stops and would travel in a loop past them. It could also stop at one or two more prearranged stops if requested ahead and then connect directly with the regular fixed-route bus at a prearranged transfer point.

For example, a small bus could operate in the area south of the interstate—in Twin City, and the mobile park near the 24th Street bridge. This could operate initially in the peak period (6 AM to 9 AM and 4 PM to 6 PM) and connect with route 44 (which passes Bluffs Run), just north of SAPP Brothers Truck Stop. Passengers could call a direct line to alert the bus driver that they were waiting at a prearranged stop.

With an advance call, the small bus could also retrieve passengers from Lake Manawa during those same hours of service. Interviews with residents in these areas revealed concern about lack of bus service, particularly for the work trip. Low densities in the area would make regular fixed-route service there not feasible. With the arrival of the Western Trails Museum and the sports complex just south of the Interstate and just north of Twin City, there may be potential for expanding service hours in the future. An efficient use for the same vehicle would be to operate a “downtown circulator” in the area south of Broadway and primarily west of Main Street. The

demographic data highlights this area as one with a substantial proportion of older residents and residents with low income. These population groups as well as workers in the government buildings in the area would be prime targets for a midday shuttle. Since the area is crossed by rail tracks and is partly below the grade of viaducts, it is not efficiently served by a regular fixed-route bus. The smaller vehicle, especially a low-floor vehicle to accommodate older residents and those with disabilities, would, however, operate effectively. The fixed-route bus currently passes by this area as it continues down Broadway.

6 FISCAL ANALYSIS

To provide any definitive analysis of costs and benefits of these various system options is difficult since all would be new systems and there is no existing data on either the specifics of operating costs or the level of appeal that each would have for the residents of Council Bluffs.

The following analysis is built upon a number of assumptions derived from the experience of similar systems in other cities. Assumptions were also made about the possible appeal of each alternative to the riding public. The objective in this analysis was to increase ridership and limit costs. All benefits and costs are focused specifically on the public sector which is assumed to be the transit provider. There was no effort to incorporate the very real benefits of an improved transportation system for individual members of the traveling public. The assumption was that these benefits were reflected in the level of subsidies currently contributed for the city transit system. Since all alternatives would involve startup costs, the first year of operation of any of these alternatives is anticipated to reflect a negative net present value. Hence costs were distributed over a period of six years as a reasonable payback period.

A key factor in introducing new service options in the city will be the hiring of an individual who will set up the systems, an Alternative Rideshare Development

Specialist. This individual will be in a management position and be capable of designing the various options and promoting them among potential riders. The required skills and experience will include education in transportation planning and in computer data base development. The expectation is that this position will require the time of an individual for two years. The salary level is estimated at \$30,000 for the first year with an inflation increase of three percent in the second year. Once the system is set up a second individual, designated as Rideshare Coordinator, will be essential for day-to-day management and operation of the various options. This person will primarily handle phone calls from rideshare participants and other general administrative tasks such as monitoring the data back of participants and scheduling the routine maintenance of vehicles. The salary was estimated at \$15,000 with an inflation increase of three percent each year.

Although each option is presented as a fairly small pilot program, each will require the dedicated attention of someone who can ensure that they run efficiently. For purposes of this analysis the salaries of the Alternative Rideshare Development Specialist and the Rideshare Coordinator are distributed among the various options in proportion to the amount of development and system operations time that would be required.

A major consideration in this analysis is the expectation that state and federal transit funds would be available to assist with capital costs and some start up operating costs. Section 9 of the Surface Transportation Act is the basic source of capital funds for urban transportation systems. Those funds are distributed to Council Bluffs on the basis of a formula reflecting revenue miles of service performed and ridership and are currently pumped back into the fixed-route bus system operated for Council Bluffs by Metropolitan Area Transit. Any allocation of these funds to an alternative system would, therefore, reflect a net loss in terms of the existing fixed-route system. Any changes in that system were considered to be outside the scope of this study. There would, however, be possibilities of exchanging equipment or making minor scheduling changes.

The study did, however, assume that additional funding might be available through the Iowa DOT from CMAC/ICAAP funds which are related to congestion management and air quality and that federal discretionary funds might be available through Section 3 of the Surface Transportation Act. These two programs have been used successfully by other transit operations in Iowa, particularly for start-up funds needed to develop alternative transportation systems that can reduce the number of single occupancy vehicles traveling to work sites. Council Bluffs has not yet applied for such funds and an application from the city would, therefore, be reviewed with interest.

Given the relatively low ridership on the available city buses and on similar systems nationally, all estimates regarding potential ridership were purposely kept conservative. The expectation is, however, that once the residents become aware of service options, ridership will increase. This has certainly proven true in other cities. For example, the number of vanpools increased from five to 40 in Des Moines in two years, and ridership on the small bus circulator in West Omaha has exceeded all expectations. Similar success has been noted with route deviation in Virginia. Shared-ride taxis, which are, after all, a more flexible privately operated dial-a-ride, have proven to be very effective in the small cities in Wisconsin and Minnesota. The dynamic carpool concept proposed above is relatively new. Although there are many examples of standard carpool matching programs, a variation of the more flexible system proposed here

is still being tested as part of a Federal Transit Administration Intelligent Transportation System program.

The conventions relating to each of the individual service options are discussed in subsequent pages in this report. This analysis is directed toward achieving a positive Net Present Value (NPV). The NPV was calculated as Total cash flow divided by 1.1 to the exponent level of t . The exponent (t) represents the discounting of these future cash flows into the present value. The discount rate of 10 percent was chosen because it was generated by the U.S. Department of Transportation as the cost of capital in similar transit-related studies. The exponent (t) is simply the year the cash flows are from. For example, in year five, the equation would read $NPV = \text{cash flows} / (1.1)^5$. The total NPV is the sum of all other NPVs in each analysis.

A Vanpool Program

As indicated above, vanpools could be developed for employees to any of the work sites in the city. This pilot program is built around a startup with five minivans serving employees at the two hospitals. For purposes of this analysis the assumption was that three of these vanpools would operate within the city limits and two would operate in the surrounding county. The expectation is that the city transit service would operate these, possibly through MAT.

- The purchase price for each of five vans was estimated at \$25,000.
- Routine maintenance for each van was estimated at a figure of \$100 for each vehicle for the first year and increased at three percent to reflect inflation in subsequent years.
- Vanpool fleet insurance was estimated at \$120 per van per month and multiplying these figures across the five van fleet. This insurance is assumed to be a supplement to an existing fleet insurance policy. An independent fleet insurance policy for a vanpool would be very expensive. The level of liability insurance on five to seven wage owners in one van is recommended at least \$1 million.
- The administrative costs include 20 percent of the salary of the Alternative Ridershare Development Specialist's salary for the first two years of operation and ten percent of the rideshare coordinator's salary. Once the

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Costs:							
Vans (5)	(\$125,000.00)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Maintenance	\$0.00	(\$500.00)	(\$515.00)	(\$530.45)	(\$546.36)	(\$562.75)	(\$579.64)
Rideshare Salary 10%	\$0.00	\$0.00	\$0.00	(\$1,500.00)	(\$1,545.00)	(\$1,591.35)	(\$1,639.09)
Alternative Rideshare Development Specialist 20%	\$0.00	(\$6,000.00)	(\$6,180.00)	\$0.00	\$0.00	\$0.00	\$0.00
Benefits to Drivers	\$0.00	(\$4,200.00)	(\$4,200.00)	(\$4,200.00)	(\$4,200.00)	(\$4,200.00)	(\$4,200.00)
Benefit to Backup Drivers	\$0.00	(\$600.00)	(\$600.00)	(\$600.00)	(\$600.00)	(\$600.00)	(\$600.00)
Insurance	\$0.00	(\$7,200.00)	(\$7,200.00)	(\$7,200.00)	(\$7,200.00)	(\$7,200.00)	(\$7,200.00)
Subtotal	(\$125,000.00)	(\$18,500.00)	(\$18,695.00)	(\$14,030.45)	(\$14,091.36)	(\$14,154.10)	(\$14,218.73)
Benefits/Revenue:							
Federal Support @ \$2.66/Rider	\$0.00	\$33,250.00	\$39,900.00	\$46,550.00	\$46,550.00	\$46,550.00	\$46,550.00
Revenue from riders	\$0.00	\$25,200.00	\$29,400.00	\$33,600.00	\$33,600.00	\$33,600.00	\$33,600.00
Federal Support for ARDP	\$0.00	\$6,000.00	\$6,180.00	\$0.00	\$0.00	\$0.00	\$0.00
Subtotal	\$0.00	\$64,450.00	\$75,480.00	\$80,150.00	\$80,150.00	\$80,150.00	\$80,150.00
Total:	(\$125,000.00)	\$45,950.00	\$56,785.00	\$66,119.55	\$66,058.64	\$65,995.90	\$65,931.27
NPV (Total / (1.1) EXP t	(\$125,000.00)	\$41,772.73	\$46,929.75	\$49,713.95	\$45,245.64	\$40,991.24	\$37,249.31
Total NPV	\$136,902.62						

Figure 18. Vanpool analysis

vanpool program is underway the day-to-day operation will require very little administration except for tracking fare payments, vehicle operation and maintenance, and arranging for emergency rides home. Hence ten percent time seemed appropriate.

- As indicated above, the vanpool drivers are not paid but have their monthly fees waived. That fee (\$50 a month in the city for three drivers and \$100 for two drivers in the county) is a cost to the city. The backup drivers receive a \$10 discount off their fee each month.

Revenue anticipated with the vanpools include:

- Each passenger would pay \$50 a month if they lived in the city and \$100 a month if they were traveling from out in the county.
- Given the expectation that the vanpool would be operated by the city transit system the subsidy of \$2.66 per rider currently contributed for each passenger on the city bus line is assumed to relate to these passengers also. This subsidy would not be available if the vanpool were operating as a private, employer-based system.
- This analysis also assumes that the salary of the Alternative Rideshare Development Specialist can be covered through a grant from CMAC/ICAAP funds.

As Figure 18 indicates, the vanpool program will

achieve a positive net present value over six years of operation. For most vanpool operations the fares alone are sufficient to cover the operating costs each year. If the vehicles can be acquired with CMAC/ICAAP funds, this vanpool program would achieve a positive net present value within the first year of operation.

A Dynamic Carpool Program

To be viable a dynamic carpool program needs to have a sufficient number of participants in a pool to increase the probability that schedules of participants will overlap. It works best when participants can share a common set of incentives, such as preferred parking in a common lot or contributions toward gas offered through an established administrative office. Participants also need the increased comfort with the system and with riding together that can be provided by a startup meeting and regular updates in information. It could potentially operate in any large firm.

For purposes of this study, the carpool option is assumed to operate at Iowa Western Community College with 150 students participating, 50 as drivers and 100 as passengers. Students would register to participate. Once registered, they would be issued a beeper and assigned to a commuter zone within which they could expect to find people to ride to school with. Students needing a ride would call a code that would be read by potential drivers in the area and the passenger would then wait at a prearranged pick up point. The cost of acquiring the beepers is placed at \$15 per participant. As indicated above, an incentive for

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Costs:							
Beepers @ \$15/person	\$0.00	(\$27,000.00)	(\$27,000.00)	(\$27,000.00)	(\$27,000.00)	(\$27,000.00)	(\$27,000.00)
Administrative Costs	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Cost of Legal Protection	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Cost of incentive (gas) for drivers	\$0.00	(\$12,000.00)	(\$12,000.00)	(\$12,000.00)	(\$12,000.00)	(\$12,000.00)	(\$12,000.00)
Rideshare Salary @ 80%	\$0.00	\$0.00	\$0.00	(\$12,000.00)	(\$12,360.00)	(\$12,730.80)	(\$13,112.72)
Alternative Rideshare Development Specialist @ 70%	\$0.00	(\$21,000.00)	(\$21,630.00)	\$0.00	\$0.00	\$0.00	\$0.00
Subtotal	\$0.00	(\$60,000.00)	(\$60,630.00)	(\$51,000.00)	(\$51,360.00)	(\$51,730.80)	(\$52,112.72)
Benefits/Revenues:							
Revenues from riders	\$0.00	\$30,000.00	\$30,000.00	\$30,000.00	\$30,000.00	\$30,000.00	\$30,000.00
Federal Support for ARDP	\$0.00	\$21,000.00	\$21,630.00	\$0.00	\$0.00	\$0.00	\$0.00
Subtotal	\$0.00	\$51,000.00	\$51,630.00	\$30,000.00	\$30,000.00	\$30,000.00	\$30,000.00
Total:	\$0.00	(\$9,000.00)	(\$9,000.00)	(\$21,000.00)	(\$21,360.00)	(\$21,730.80)	(\$22,112.72)
NPV (Total / (1.1) EXP t	\$0.00	(\$8,181.82)	(\$7,438.02)	(\$15,789.47)	(\$14,630.14)	(\$13,497.39)	(\$12,493.06)
Total NPV		(\$72,029.90)					

Figure 19. Carpool analysis

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Costs:							
Additional Costs	\$0.00	(\$154.50)	(\$154.50)	(\$154.50)	(\$154.50)	(\$154.50)	(\$154.50)
Subtotal	\$0.00	(\$154.50)	(\$154.50)	(\$154.50)	(\$154.50)	(\$154.50)	(\$154.50)
Benefits/Revenue:							
Additional Revenue	\$0.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00
Subtotal	\$0.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00
Total:	\$0.00	\$4,845.50	\$4,845.50	\$4,845.50	\$4,845.50	\$4,845.50	\$4,845.50
NPV (Total / (1.1) EXP t	\$0.00	\$4,405.00	\$4,004.55	\$3,643.23	\$3,318.84	\$3,009.63	\$2,737.57
Total NPV		\$21,118.81					

Figure 20. Route deviation analysis

drivers will be a \$10 gas card in exchange for picking up 10 riders. The cost of that incentive is estimated at \$20 per driver per month.

Major costs will be 70 percent of the salary of the alternative rideshare development person who will set up the program and 80 percent of the salary of the rideshare coordinator. Setting up this program and tracking the participants will be a continuing responsibility. The expectation is that the salary of the rideshare development person will be funded through SMAC/IAAP funds. Hence, it is shown both as a cost and as revenue. The other source of revenue will be a contribution of \$25 a month from each participant.

The analysis shows that with this set of parameters the carpool program alone does not achieve a positive net present value over a six year period. The only way that it will achieve a positive present value is if the program begins to become routine, requiring less time from the rideshare coordinator.

Route Deviation

Route deviation can actually occur anywhere along the routes of the fixed-route bus. The location proposed as a pilot location is the neighborhood near Route 192 through which route 44 passes on the way out to the Power Mall. The length of that diversion is estimated at one half mile off the fixed route along 23rd Street. Any route diversion would be kept very short so as to offer minimal inconvenience for the continuing passengers. No attempt was made in this fiscal analysis to quantify either the inconvenience to passengers on board or the increased convenience to the additional passengers being retrieved. Both are real figures, however, and the compromise is represented by the short diversion which also limits the extra cost to the bus operator.

The expectation is that requests for route deviation would be permitted only during off-peak hours and would be requested well before the affected run. To simplify the process and minimize calls directly to the bus operator, calls would be taken by the rideshare

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Costs:							
Shuttle	(\$100,000.00)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Operation Costs = \$3.00*40miles*250 days	\$0.00	(\$30,000.00)	(\$30,000.00)	(\$30,000.00)	(\$30,000.00)	(\$30,000.00)	(\$30,000.00)
Subtotal	(\$100,000.00)	(\$30,000.00)	(\$30,000.00)	(\$30,000.00)	(\$30,000.00)	(\$30,000.00)	(\$30,000.00)
Benefits/Revenue:							
Federal Grant for Shuttle	\$100,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Revenue per rider	\$0.00	\$52,155.00	\$52,155.00	\$52,155.00	\$52,155.00	\$52,155.00	\$52,155.00
Subtotal	\$100,000.00	\$52,155.00	\$52,155.00	\$52,155.00	\$52,155.00	\$52,155.00	\$52,155.00
Total:	\$0.00	\$22,155.00	\$22,155.00	\$22,155.00	\$22,155.00	\$22,155.00	\$22,155.00
NPV (Total / (1.1) EXP t	\$0.00	\$20,140.91	\$18,309.92	\$16,657.89	\$15,174.66	\$13,760.87	\$12,516.95
Total NPV	\$96,561.20						

Figure 21. Circulator analysis

coordinator in Council Bluffs, requests aggregated and one call made at a prearranged time to the dispatcher at MAT. Time involved in this call aggregating process would be a very small portion of the duties of the rideshare coordinator.

The operational costs of route deviation were figured by assuming that the half mile diversion would occur twice daily, 250 days a year. This figure was then multiplied by the \$.618 per mile that it costs to operate the fixed-route bus.

The revenue stream for the route diversion was estimated by assuming that the additional convenience would generate eight additional riders twice a day. Each of these would pay the regular fare of \$1.00 and a supplement of \$.25. This was multiplied by the 250 days of service each year. The figure of eight riders may be somewhat high, but it was generated after considering the current ridership from census blocks along that route which now have better access to the bus. See Figure 19.

Community Circulator

The minibus circulator, as described above, would actually operate in two areas and in two modes. In the peak hours it would operate as a shuttle in a fairly large zone including Twin City and western Lake Manawa, connecting residents of those areas with the route 44 fixed-route bus. It would make two loops through Twin City, passing the mobile home park south of the interstate. It would also travel out to a prearranged stop in Lake Manawa on request.

At midday the same small bus would resemble more of a downtown circulator, traveling frequently around

a preestablished loop in the downtown area, covering the downtown businesses, government buildings, the senior residence facility, and other residences in the near downtown area.

The cost of purchasing the minibus was estimated at \$100,000. This purchase would be an allowable request for Section 9 funding through the U.S. Department of Transportation, Federal Transit Administration.

The cost of operating both modes of the circulator were estimated by taking the number of miles that the circulator would cover daily, estimated at 40, and multiplying that figure by the operating costs of \$3.00 per mile for 250 days a year. That is the approximate cost per mile of the circulator that MAT operates in west Omaha.

The circulator revenue was determined by estimating fifty seven riders a day that would pay \$1.00 each in fare. In addition, the federal subsidy of \$2.66 per rider would be available for these riders. The daily total was multiplied by 250 days a year. The ridership figure was estimated from the ridership generated in similar census tracks in Council Bluffs which now have close access to the fixed-route bus. See Figure 20.

Shared-Ride Taxi

The shared-ride taxi, as developed in this report, is to be run by a private cab company. The cab company would, therefore, absorb the regular operating costs involved. The cab company would, however, be paid directly by the city in subsidies of \$3.00 for transporting individuals who are stranded from carpools

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Costs:							
Rideshare Salary 10%	\$0.00	\$0.00	\$0.00	(\$1,500.00)	(\$1,545.00)	(\$1,591.35)	(\$1,639.09)
Alternative Rideshare Development Specialist 10%	\$0.00	(\$3,000.00)	(\$3,090.00)	\$0.00	\$0.00	\$0.00	\$0.00
Cost of Subsidizing Rides \$3.00*16*250	\$0.00	(\$12,000.00)	(\$12,000.00)	(\$12,000.00)	(\$12,000.00)	(\$12,000.00)	(\$12,000.00)
Subtotal	\$0.00	(\$15,000.00)	(\$15,090.00)	(\$13,500.00)	(\$13,545.00)	(\$13,591.35)	(\$13,639.09)
Benefits / Revenues:							
Alternative Rideshare Development Person 10%	\$0.00	\$3,000.00	\$3,090.00	\$0.00	\$0.00	\$0.00	\$0.00
Subtotal	\$0.00	\$3,000.00	\$3,090.00	\$0.00	\$0.00	\$0.00	\$0.00
Total:	\$0.00	(\$12,000.00)	(\$12,000.00)	(\$13,500.00)	(\$13,545.00)	(\$13,591.35)	(\$13,639.09)
NPV (Total / (1.1) EXP t	\$0.00	(\$10,909.09)	(\$9,917.36)	(\$10,150.38)	(\$9,277.40)	(\$8,441.83)	(\$7,705.70)
Total NPV	(\$56,401.75)						

Figure 22. Shared-ride taxi analysis

or vanpools and need a guaranteed ride home. The riders would themselves pay \$1.00. In order to encourage the cab company to keep a cab based in Council Bluffs the cab company would receive a guarantee of 16 fares a day as an incentive. In figuring costs to the city for these fares, it was assumed that a proportion of these riders would be seniors or persons with disabilities and eligible for reduced fares on the city bus. The city could request reimbursement for fares for these persons performed by the taxi rather than the fixed route bus. Overall, the cost of subsidy paid to the taxi company by the city was estimated at \$3.58 a ride times 16 riders a day for 250 days a year.

Once based in Council Bluffs this shared-ride taxi would be available for groups of high school students, seniors, or other members of the general public at a fare of \$3.00 a ride anywhere in the city limits. The system would operate as a type of dial-a-ride offering door-to-door service from 7 AM to 10 PM. The expectation is that more than one rider is on board at any one time and that the driver makes decisions on the logistics for pickup and delivery, rather than relying on any policy of first on, first off. The typical taxi cab comfortably seats three passengers, so that would be the maximum number of passengers anticipated at any one time. Given the size of Council Bluffs, the expectation is that all passengers will reach their destinations in at most one half hour.

Since this analysis assumes a private operation of the shared-ride taxi, these fares would be a direct benefit to the cab company. The opportunity for this type of travel would be a direct benefit to the various groups of riders. Neither of these sets of benefits are

reflected in the following analysis which reflects only costs and revenues to the city.

These figures would need to be readjusted if the guaranteed ride home was performed by a public dial-a-ride service such as SWITCO (Southwest Iowa Transportation Council). Although SWITCO does currently deliver passengers from the county to hospitals in the county and retrieve them, it does not currently have the right to pick up and discharge passengers within the city. SWITCO has recently been awarded the right to pick up and deliver head start students. Possibly that right could be extended to include other population groups. While American Ambulance currently performs the complementary paratransit service required by the ADA, it is operating at capacity and cannot perform casual trips for non-ADA eligible seniors or other population groups. See Figure 21.

Summary

As indicated, all of these independent fiscal analyses are intended to be representative of the types of applications that are available in each of these service options. Variations in numbers of participants and parameters of the services could certainly vary the level of the NPV. Nevertheless these analyses do show the relative costs involved with the various options. The net present value of both vanpools and route deviation are clearly positive while the net present values of the carpool, circulator, and shared-ride taxi are negative. The primary factor driving down the value of the carpool is the administrative costs that are allocated to it. The low level of ridership on the circulator is driving down its value; however, if the cost of the vehicle is covered by Section 9 funds, that

Figure 23. Total benefits

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Costs:							
Vans (5)	(\$125,000.00)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Van Maintenance	\$0.00	(\$500.00)	(\$515.00)	(\$530.45)	(\$546.36)	(\$562.75)	(\$579.64)
Rideshare Salary 100%	\$0.00	\$0.00	\$0.00	(\$15,000.00)	(\$15,450.00)	(\$15,913.50)	(\$16,390.91)
Alternative Rideshare Development Specialist 100%	\$0.00	(\$30,000.00)	(\$30,900.00)	\$0.00	\$0.00	\$0.00	\$0.00
Benefits to Van Driver	\$0.00	(\$4,200.00)	(\$4,200.00)	(\$4,200.00)	(\$4,200.00)	(\$4,200.00)	(\$4,200.00)
Benefit to Backup Van Driver	\$0.00	(\$600.00)	(\$600.00)	(\$600.00)	(\$600.00)	(\$600.00)	(\$600.00)
Van Fleet Insurance	\$0.00	(\$7,200.00)	(\$7,200.00)	(\$7,200.00)	(\$7,200.00)	(\$7,200.00)	(\$7,200.00)
Beeper @ \$15/person	\$0.00	(\$27,000.00)	(\$27,000.00)	(\$27,000.00)	(\$27,000.00)	(\$27,000.00)	(\$27,000.00)
Cost of incentive (gas) for drivers	\$0.00	(\$12,000.00)	(\$12,000.00)	(\$12,000.00)	(\$12,000.00)	(\$12,000.00)	(\$12,000.00)
Route Deviation Additional Costs	\$0.00	(\$154.50)	(\$154.50)	(\$154.50)	(\$154.50)	(\$154.50)	(\$154.50)
Circulator or Shuttle	(\$100,000.00)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Shuttle Operation Costs	\$0.00	(\$30,000.00)	(\$30,000.00)	(\$30,000.00)	(\$30,000.00)	(\$30,000.00)	(\$30,000.00)
Taxi Costs =3.00*16*250	\$0.00	(\$12,000.00)	(\$12,000.00)	(\$12,000.00)	(\$12,000.00)	(\$12,000.00)	(\$12,000.00)
Subtotal	(\$225,000.00)	(\$123,654.50)	(\$124,569.50)	(\$108,684.95)	(\$109,150.86)	(\$109,630.75)	(\$110,125.05)
Benefits/Revenues							
Federal Grant for Shuttle	\$100,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Vanpool Revenues / Federal Inflow	\$0.00	\$33,250.00	\$39,900.00	\$46,550.00	\$46,550.00	\$46,550.00	\$46,550.00
Revenue from riders	\$0.00	\$25,200.00	\$29,400.00	\$33,600.00	\$33,600.00	\$33,600.00	\$33,600.00
Federal Support for ARDP 100%	\$0.00	\$30,000.00	\$30,900.00	\$0.00	\$0.00	\$0.00	\$0.00
Carpool Revenue	\$0.00	\$30,000.00	\$30,000.00	\$30,000.00	\$30,000.00	\$30,000.00	\$30,000.00
Route Deviation Revenue	\$0.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00
Circulator Revenue	\$0.00	\$52,155.00	\$52,155.00	\$52,155.00	\$52,155.00	\$52,155.00	\$52,155.00
Subtotal	\$100,000.00	\$175,605.00	\$187,355.00	\$167,305.00	\$167,305.00	\$167,305.00	\$167,305.00
Total:	(\$125,000.00)	\$51,950.50	\$62,785.50	\$58,620.05	\$58,154.14	\$57,674.25	\$57,179.96
NPV (Total / (1.1) EXP t	(\$125,000.00)	\$47,227.73	\$51,888.84	\$44,075.23	\$39,831.60	\$35,822.52	\$32,305.06
Total NPV	\$126,150.97						

would certainly move into the positive column. The shared-ride taxi, as a private enterprise, is a net loss in terms of direct expenditures, since the city cannot recoup any of the revenues. Nevertheless, the availability of some form of guaranteed ride home is essential to the success of the carpool and vanpool. For the city to operate its own service would be much too costly. Hence the subsidies to the shared-ride taxi can be perceived as opportunity costs, payments in lieu of the much higher costs of an alternative.

As is shown in Figure 23, these five options together have a positive net present value. The implication is that they really should be perceived as a system. Together they offer economies of scale and at the same time offer to meet the needs of a variety of the groups of residents identified on the surveys.

7 RECOMMENDATIONS AND IMPLEMENTATION PLANS

The above analysis of transit service options offers a range of opportunities for Council Bluffs. Any plan for implementation will need to consider:

- current service patterns
- preferences and interests of potential riders
- concentrations of major employers and/or activity nodes
- location of target populations
- future development patterns
- costs and potential funding options
- ease in adding service

The Existing Fixed-Routes System

As indicated, all the suggested service options presume the continuance of the existing fixed-route system. As the analysis in Chapter 2 points out, it does serve much of the targeted population in the city. Besides the usual lack of public interest in riding transit, low levels of ridership on the fixed routes are largely the result of land use, density, street patterns, and the terrain. Adding to the existing fixed route is probably inefficient. There are, however, limited-cost options of increasing ridership on the existing routes.

A number of participants in the surveys indicated that they did not know about bus routes and schedules. There is a major opportunity for increased marketing of the existing system. Considerable effort is expended to market the bus in Omaha, including promotions and

schedules highlighting high school stops. A similar effort could be tried in Council Bluffs.

As indicated above, a park and ride lot at the grocery store along Broadway would benefit commuters to Omaha. Another missed opportunity is to have employers become involved in transit bus pass subsidy programs. None of the employers who participated in the employers' survey was offering an incentive program to encourage employees to use transit. Nevertheless, the majority of those same employment sites are within a few blocks of a bus stop. A transit subsidy program has proven to be very successful in Omaha. MAT reports that an increasing number of employers in Omaha offer either partial- or fully-supported bus passes for their employees. Employees have responded very positively. For example, one employer sold over 3000 bus passes to employees within the first month of participation in the program.

Small bus circulators could provide logical extensions of the existing bus system to developing attractors—the Western Trails Museum, the sports complex, and the casinos. These areas not only attract visitors to the city, but they also offer service sector employment. Given the clustering of these attractions close to the interstate highways and the Missouri River, and the limited number of exit ramps available from those interstate highways, traffic congestion

will increase considerably in those areas. Access to the new museum from the interstate will be made even more complex by the large number of trucks using the same exit ramps to use established truck stops off 24th Street. Any effort to divert single occupancy vehicles from those areas will be welcomed.

Enhancing the System with Flexible Service Options

Based on a geographic assessment and a series of surveys this study developed a number of service options which offer enhancements to the existing transit service in the city of Council Bluffs. While none of these options offer major departures from the current service patterns, they do offer relatively low-cost enhancements that can increase the mobility of a variety of population groups within the city. None of them involve large investments in capital equipment. As indicated above, the equipment that is needed would be potentially fundable through existing state and federal funding programs. In fact, each of these options can be introduced in a small pilot project, assessed, and then expanded as interest and funding allows.

Vanpools

The vanpool project as presented here involves five vanpools serving primarily employees on the second and third shifts at the hospitals. If there is sufficient interest, the program could easily be increased either at the hospitals or at other firms in the city. If the city elects to employ an outside vendor, such as VPSI, to operate vanpools it will be necessary to involve a considerably wider base of participants. Potentially a contract with VPSI might include links with some Omaha-based firms as well. After all, over 50 percent of Council Bluff's workers are employed in Omaha.

Dynamic carpools

The carpool program, as discussed, relates directly to the transportation needs of students at the community college. If successful, however, it might be tried at employment centers or possibly among senior populations.

Route deviation

Route deviation is certainly possible along any of the bus routes, providing that there is a sufficient population base that can be accessed on request if the bus traveled a short distance (no more than one half mile) off the established route. The increase in operating

costs of the bus are minimal. However, it is important not to inconvenience other passengers who are hurrying to work, school, or other appointments. Even though the actual time in completing the deviation may be quite short, it will be perceived as an inconvenience to through travelers. For that reason, the route deviation described in this study is limited to one per route in off-peak hours. The location proposed in this study was selected primarily because a relatively minor diversion from the existing route could potentially access a considerable number of household units. In addition, the roads in this area appear to be adequate to support a regular bus and this particular route currently does not carry as many passengers as the others.

The expectation is that the primary beneficiaries of route deviation will be seniors and those with disabilities who have difficulty walking to the bus stops. For those individuals a pre-requested route deviation will be a major benefit in increased mobility. As other cities have discovered, this may also reduce the pressure for rides on the oversubscribed paratransit bus operated by American Ambulance.

Community circulator

The two community circulator models discussed in this report could also be applied elsewhere in the city. The small bus circulating in an area with relatively low density and connecting with an existing fixed-route bus is presented here to respond to needs for the work trip. The geographic analysis pointed out the location of a considerable proportion of young families in this area. Nevertheless, circulators could also be considered in the far eastern sections of the city.

The reason for selecting the Twin City area and nearby mobile home park was to respond to the strong interest in transit expressed by residents in those areas. There was also interest expressed in transit in Lake Manawa. Since that area is considerably farther from existing routes, it seemed appropriate to consider service there only as a type of prearranged deviation for the circulator. Adequate, regular demand in that area could potentially warrant a second circulator. As presented here, this circulator runs only in peak hours. With the completion of the Iowa Western Trails Museum and the sports complex just north of Twin City, there may be demand for longer hours. The circulator concept presented for downtown in

midday is intended as a small downtown bus traveling a short route frequently, with the option of some deviations on preresult. The midday (10 AM to 4 PM) hours are intended to appeal both to those carrying on business in the various offices downtown and to the senior and low-income residents living in that area. This section of the city is currently underserved, but the terrain and railroad tracks make it very difficult to serve with a large bus. The small bus is much more flexible, and will potentially be more appealing to a broader segment of the population. A well-used small bus will also increase the positive visibility of transit in the city.

Although low-floor small buses could be used effectively on several of the regular routes, especially that traveling up North Broadway, and increase accessibility to older residents or residents with disabilities, the concept of a small bus making frequent short loops requires considerable population density. In downtown the population density among dwelling units is supplemented by the regular stream of visitors to the courthouse and other government buildings downtown. The new downtown library will be another major attractor.

In this example, the same vehicle was intentionally used for both circulators in an effort to minimize costs in vehicle purchase. Obviously, extending hours in either of these locations will necessitate purchasing an additional vehicle. That would only be done after assessing the demand for these pilot services.

Shared-ride taxi

The shared-ride taxi is clearly a need in the city. Not only do the success of the vanpools and carpools depend upon the availability of a guaranteed ride home, but the shared ride could appeal to any small groups of residents—high school students leaving school late after extra curricular activities, seniors wanting to go to the senior center, and workers coming home late, for example. A regular single-ride taxi has not worked out in Council Bluffs. From the cab owner's point of view there are not enough fares, and from the resident's point of view the cost of an individual ride is too expensive. A fixed-price shared-ride taxi would provide all the advantages of a dial-a-ride for the population which is not ADA eligible.

Having the shared-ride taxi operated by a private contractor would be the best way of making use of

an existing effective dispatching system and use trained drivers with an existing fleet. It would also provide evidence of a valuable public-private partnership. However, to entice a private operator to base a cab in Council Bluffs and agree to accept that flat fare would probably require some type of incentive. This could possibly be some level of guaranteed fares. The incentive could be negotiated as a startup, and gradually phased out as ridership picked up. If efforts to work with the private operator were unsuccessful, the role of a shared-ride operation might be filled by a dial-a-ride operation, under contract with the city. To contract with SWITCO to meet this need will require a policy change permitting the county public bus to serve the urban population with a dial-a-ride.

Implementation Strategy

As indicated above, all five service options were developed in response to needs and interests identified through analyzing the various surveys conducted in connection with this study. Two meetings with the project advisory group helped to sharpen concepts and underscore points of interest.

In May, the study team held a public meeting to share ideas and assess the relative level of interest in the various options. Large display boards capsuled the characteristics of each of the service options. Although the meeting was not well attended, a newspaper reporter was present. Those who participated underscored the need for more flexible transportation for the transportation disadvantaged, particularly the senior population.

Two options that attracted initial interest were vanpools and carpools. The surveys had underscored a potential need for this type of service and discussions with employers and the community college students indicated sufficient interest to develop the concepts farther.

Hospitals and vanpools

The study identified the hospitals as a potential test site of the vanpool option. With two large facilities across the street from one another and similar late shifts, they seemed to offer the possibilities of a sufficient pool of workers with which to begin a small vanpool program. Hence one of the members of the study team launched a survey asking employees about their interest in a vanpool and their work hours. The

administrators at both Jennie Edmonson Hospital and Mercy Hospital agreed to participate and offer the survey to their employees. The results of that survey are anticipated at the end of July. If sufficient interest is identified, this could form the basis for an application for funding under the CMAQ/IAACP program administered by the Iowa Department of Transportation.

Community College and carpools

The concept of dynamic carpooling seems appropriate for students at Iowa Western Community College. It will, however, require considerable effort to design a functioning system. One of the members of the study team is, therefore, involved in setting up a limited demonstration of such a system, to test the beeper technology and to further student interest. Results of this effort will be available in early fall 1997. The results of this experimental effort will also form the basis for a funding application.

Route deviation and community circulators

With sufficient interest and enthusiasm, these concepts can easily be explored with MAT. MAT already runs circulators on the Omaha side of the river and could, therefore, offer one in Council Bluffs as well, especially if the initial request was for a single small vehicle. To date MAT has not experimented with route deviation in Omaha, but the concept could certainly be tested with a small pilot in Council Bluffs. Costs of implementing this option would be minimal, especially if the person responsible for implementing the ride share programs fielded the telephone requests.

Administrative Needs

The key to success in implementing either the vanpool or the carpool programs will be the availability of a talented, enthusiastic full-time city staffperson. This person, identified above as Alternative Transportation Development Specialist, will need to set up the programs and inform employees and students, respectively, about the new services. Envisioned as a two year position, this person will also set up computer programs to track participants and establish procedures for vanpooling. This specialist will also be a spokesperson for the concept of alternative transportation systems in Council Bluffs and will be in a position to further the related program with the shared-ride taxi.

Recommendation

Council Bluffs can make a difference in increasing the mobility of its residents. The various service options offer the opportunity for a new look at transit while maintaining its existing fixed route system. The innovative new systems are designed to increase ridership by appealing to segments of the population which are now not being adequately served. Together they offer a package which not only generates positive results in a fiscal analysis but offers transportation choices for a wide range of the public. The initial investments for each option can initially be kept relatively low, allowing incremental increases in service as demand warrants. Similarly, the level of funding required to initiate any option is not so high as to limit experimentation and modification.

Unlike larger cities which must make major investments in order to see results, Council Bluffs is small enough that pilot projects at the level discussed in this report can make a difference. The challenge is to seize the opportunity and move ahead.

Summary

The key recommendations of the study team are as follows:

- Enhance efforts to increase ridership on the existing fixed route transit system by:
 - a. increasing marketing efforts
 - b. instituting an employer subsidized bus pass program
 - c. pursuing efforts to establish a park and ride facility along the Broadway corridor
- Designate a single staff employee to institute and champion rideshare alternative programs
- Be alert to opportunities to attract external funding to the city
- Establish a set of small pilot projects—no one option meets the needs of all target groups
- Implement small scale projects with limited capital, allowing incremental additions as warranted.
- Build on opportunities available through existing public and private providers
- Share information about pilots widely so as to stimulate broader interest
- Involve the broader public in regular reassessments of new transportation options
- Link development of transportation options to broader plans for city development.

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A. SURVEYS

City of Council Bluffs Employee Clipboard Survey

The City of Council Bluffs, Iowa Western Community College, and Iowa State University are conducting a study of the transportation systems here in Council Bluffs. The study will help us identify current and future transportation needs. I would like to take two to three minutes of your time to ask you a few questions about your transportation needs? All answers are voluntary and confidential!

Background: Do not ask: just fill in as well as you can.

- A. Location and setting where this survey was administered:
 5.9% - Sapp 7.1% - Firststar 13.8% - Redlands 36.8% - Mercy
 10.7% - Lutheran Nursing Home 4.3% - Vocational Dev. 20.9% - Ameristar
- B. Gender: 26.9% Male 71.1% Female (1.3% missing)
- C. Which age group do you fall into?
 A. 1.2% 15 or 0 under D. 33.2% 45 - 64 (.8% missing)
 B. 13.0% 16 - 24 E. 3.2% or older
 C. 47.0% 25 - 44 F. 1.2% declined to answer

Ask Respondent:

1. How did you travel to work today?
79.4% drove alone 15.0% car pool .8% bus 4.0% other(bike/walk) (.8% missing)
- If they answered *bus* for Question #1, skip Question #2 and go to Question #3.
2. A. Have you ever traveled to work using the bus?
17.4% Yes 81.0% No (1.6% missing)
- B. What are your reasons for not using the bus?
3. A. Is there a bus stop within 3 blocks of your home? B. Within 3 blocks of your work?
27.3% Yes 64.4% No (7.9% missing) 47.0% yes 45.8% No (7.1% missing)
4. A. About what time do you usually arrive here in the mornings?
 0001 - 0500 13.0% 1401 - 1800 2.0%
 0501 - 1000 76.7% 1801 - 2400 .4%
 1001 - 1400 2.0% (5.9% missing)
- B. What time do you usually leave in the afternoons and/or evenings?
 0001 - 0500 .8% 1401 - 1800 68.8%
 0501 - 1000 12.6% 1801 - 2400 5.5%
 1001 - 1400 6.7% (5.5% missing)
5. How many minutes does it take for you to travel to work?
 1 - 5 12.3% (1.2% missing)
 6 - 10 27.7%
 11 - 20 40.7%
 21 - 30 13.0%
 31 - 60 5.1%
6. How many automobiles or pickup trucks does your household have?
 0 - 2.8% 5 - 1.6%
 1 - 28.1% 6 - .4%
 2 - 46.6% 8 - .4%
 3 - 16.2% (1.6% missing)
 4 - 2.4%

7. Does your company have an incentive program which encourages you not to drive to and from work alone?

A. .4% Yes B. 65.6% No C. 32.4% Did not know (1.6 missing)

If yes, have you taken advantage of it by using it?

A. ____ Yes B. ____ No

If no, why not?

8. What is the closest major intersection (traffic light or stop sign) to your home?

9. In your opinion, what would you say is the primary transportation problem in Council Bluffs?

10. What category best sums up your work assignment:

11.9% mid level manager 45.1% office support staff .4% machinery operator (meat Packing)
7.5% game table operator (Casino) 10.3% production staff 2.0% Islands 3.9% Nurse
2.0% maintenance 5.1% Nurses Aid 2.8% housekeeping 1.6% Food Service?

11. What ideas do you have to improve the city's bus service?

Thank you for your participation and help!

City of Council Bluffs School Student Clipboard Survey

The City of Council Bluffs, Iowa Western Community College, and Iowa State University are conducting a study of the transportation systems here in Council Bluffs. The study will help us identify current and future transportation. I would like to take two to three minutes of your time to ask you a few questions about your transportation needs? All of your answers are voluntary and confidential.

Background:

A. Location and setting where this survey was administered:

Thomas Jefferson 43.6%
Kanesville 11.3%
Abraham Lincoln High 44.4%

B. Gender: 41.4% **Male** 58.6% **Female**

C. How old are you? 14 30.1% 17 3.8% .8% **Missing**
 15 54.1% 18 3.0%
 16 5.3% 19 .8%

Ask Respondent

1. How did you travel here today? 15% **school bus** 5.3% **drove alone** 39.1% **car pool**
 0% **bike** .8% **bus** 8.3% **walk** 0% **taxi** 31.6% **other**
2. About what time do you usually arrive here at school for your first class?
Before 7:00 7.6%
7 - 7:30 12.1%
7:31 - 8:00 68.9%
After 8:00 11.4%
Missing .8%
3. About what time do you usually leave after your last class?
Before 3:00 40.2%
3:00 - 3:30 29.1%
3:31 - 4:00 3.9%
4:01 - Later 26.8%
Missing 4.5%
4. Do you primarily stay on campus during the day between classes or do you leave and come back?
83.5% stay on campus 16.5% **leave and come back**
5. A. Do have a job after school? 23.3% **Yes** 71.4% **No** B. How do you get there?
 0% **school bus** 6.0% **drove alone** 5.3% **car pool** 1.5% **bike** 0% **bus** 6.0% **walk**
 0% **taxi** 9.0% **other** 72.2% **Missing**
6. Is parking a problem on campus for you? 6.8% **Yes** 69.2% **No** 14.3% **Sometimes**
 9.0% **Missing**
7. How long does it take you in minutes to travel to school from your home?
5 minutes or less 26.9%
6 - 10 minutes 40.8%
11-20 minutes 26.1%
Over 21 minutes 6.2%
Missing 2.3%

8. Do you have an automobile or pickup truck for your exclusive use during the week?
12.0% Yes 85.7% No 1.5% Missing
9. What is the major transportation problem you have getting to and from school?
10. What idea(s) do see that would improve the city's bus service?

Thank you for your participation and help!

City of Council Bluffs Senior Center Clipboard Survey

The City of Council Bluffs, Iowa Western Community College, and Iowa State University are conducting a study of the transportation systems here in Council Bluffs. The study will help us identify current and future transportation needs. I would like to take two to three minutes to ask you a few questions about your transportation needs? All of your responses are voluntary and confidential.

Background:

A. Location and setting where this survey was administered:

CB Senior Center	<u>52.3%</u>
Lutheran Church	<u>13.6%</u>
Regal Towers	<u>34.1%</u>

B. Gender

30.7 Male 69.3% Female

Ask Respondent

1. Do you have any problems getting where you want to go at the time that you want to go, here in Council Bluffs?

12.5% Yes

Have them explain briefly :

Can't handle the extreme hot/cold wait @ the bus stops. Not disabled enough to ride handicap bus.

Every two hours, if you miss it is 4 hours one could walk faster.

Handicap bus. Lucky I can ride. \$3.00 round trip expensive

Have to have nephew drive

Husband still alive

I am dependent on others. I have no alternatives through the weekend.

Somedays I feel groggy & feel it's dangerous to drive but what can I do.

The car may be covered in snow & I'm unable to clear it or it is old & I can't get it started.

Want to go when I need to. Inconvenient to ride the bus.

87.5% No problems

2. Do you ever ride the city bus?

11.4% Yes

How often? 8.0% 1 to 3 times a week 3.4% 4 to 7 times a week

88.6% No

Why not?

If they answered yes to this question, skip # 3 and go directly to question #4.

3. How did you travel here today?

61.4% car 4.5% bus 10.2% taxi 9.1% car pool 9.1% other (please specify)

(14.8% missing)

4. Do you have regular medical check-ups?

72.70% Yes

If yes, how do you usually travel to these medical facilities?

43.2% drive yourself 28.4% ride with others taxi 1.1% bus other (please specify)

12.5% No

5. Do you go shopping for yourself?

77.2% Yes

If yes, how do you usually travel there?

55.7% drive yourself 13.6% ride with others taxi 1.1% bus 6.8% other (please specify)

22.7% No

6. How do you primarily travel to visit friends and/or go to dinner and other social functions ?

53.4% drive yourself 44.3% ride with others taxi bus 2.2% other (please specify)

7. What is your age range?

54.5% 65 - 75

38.6% 76 - 85

4.5% over 85

(2.3% missing)

Thank you for your participation and help!

City of Council Bluffs Student Clipboard Survey

The City of Council Bluffs, Iowa Western Community College, and Iowa State University are conducting a study of the transportation systems here in Council Bluffs. The study will help us identify current and future transportation. I would like to take two to three minutes of your time to ask you a few questions about your transportation needs? All of your answers are voluntary and confidential.

Background:

A. Location and setting where this survey was administered:

IWCC	14.5%	LDCW	28.3%
IWCCFD	17.9%	LDBW	28.3%
IWCCWA	17.9%		

B. Gender: 47.6% Male 49.7% Female

C. Mark the age group that you would estimate them to be in:

A. 1.4% 15 or under (2.8% missing)
 B. 64.8% 16 - 24
 C. 27.6% 25 - 44
 D. 2.8% 45 - 64
 E. .7% 65 or older
 F. _____ declined to answer

Ask Respondent

- How did you travel here today?
68.3% drove alone 20.7 car pool .7% taxi % bus 10.3% other (bike/walk)
- About what time do you usually arrive here at school for your first class?
33.9% 5:30 a.m. - 8:00 a.m.
53.1% 8:01 a.m. - 10:00 a.m.
13.3% 10:01 - ON
- Do you have a night class? 26.9% Yes 72.4% No
- Do you primarily stay on campus during the day between classes or do you leave and come back?
75.9% stay on campus 24.1 leave and come back
- Do you work off campus during the week? 62.8% Yes 36.6% No
- Is parking a problem on campus for you? 38.6% Yes 46.2% No 14.5% Sometimes
- How long does it take you in minutes to travel to school from your home?
17.9% 1 - 5 minutes
15.2% 5:01 - 10 minutes
42.8% 10:01 - 20 minutes
13.8% 20:01 - 30 minutes
10.4% 30:01 - on

8. Do you have an automobile or pickup truck for your exclusive use during the week?
80.7% Yes 19.3% No
9. What do you see as the major transportation problem in Council Bluffs?
10. What idea(s) do see that would improve the city's bus service?

Thank you for your participation and help!

City of Council Bluffs Employers Survey

(1) Approximately how many people does your company employ?

20.7% Less than 100
55.2% 100 - 499
10.3% 500 - 999
13.8% 1000 or More

(2) Approximately what proportion of these employees earn less than \$15,000 a year?

10.7% 0%
42.9% Under 25%
25.0% 25 - 50%
21.4% 51 - 75%
— 76 - 100%

(3) Approximately what proportion of your work force is part time?
Define part - time as less than 30 hours.

6.9% 0%
51.7% Under 25%
24.1% 25 - 50%
17.2% 51 - 75%
— 76 - 100%

(4) Do some of your employees use the bus?

— Yes, about what proportion?
58.6% 5% or less
6.9% 6 - 25%
— More than 25%
34.5% No

(5) Does your company sponsor a rideshare program, shuttle service, employee subsidy or other incentive program to encourage the use of public transportation?

— Yes
About how many workers are involved?
Please describe briefly:

100% No

(6) Are there any plans under consideration?

— Yes
Please explain briefly.

100% No

(7) In relation to your business, what is the primary transportation problem in the Council Bluffs area?

See text.

(8) What are normal working hours for most employees? **See text.**

Office _____ to _____

Day Shift _____ to _____

2nd Shift _____ to _____

3rd Shift _____ to _____

(9) What approximate % of total workers are on

Day Shift? _____

2nd Shift? _____

3rd Shift? _____

See text.

(10) Has the lack of transportation caused any problems for you in hiring new workers, or keeping employees?

A. 20.7% Yes

Please explain briefly

B. 79.3% No

(11) In the next year, would you say you will be doing —

6.9% Almost no hiring

69.0% Normal replacement hiring only

24.1% Hiring new employees

(12) What ideas does your company have that might help to improve the current bus service?

(13) Is there a bus stop within 3 blocks of your location?

A. 69.0% Yes

B. 24.1% No

C. 6.9% Not sure

City of Council Bluffs Residential Mail Survey

(1) Do you or any member of your household ever use the local bus system?

- A. _____ Yes
- B. _____ No

(2) Which of the following types of transportation do you and your household generally use for the following purposes? Put a number next to each type of transportation indicating the number of round trips you and your household make each day using each type of transportation for the trip purposes indicated. If you or your household do not use a transportation type for a specific purpose, place a 0 in the appropriate square.

Type of Transportation	For Work	For School	For Medical	For Shopping
A. Walk				
B. Car or Pick-up				
C. Car/Van Pool				
D. (Transit)				
E. Special Transit				
F. Taxi				
G. Bicycle				
H. School Bus				

(3) How many cars or pickups does your household have available for trip making?.

_____ indicate total number. If none, write 0.

(4) How many members of your household have a driver's license?

_____ indicate total number. If none, write 0.

(5) On a typical weekday, approximately how many **minutes** does it take for you or other members of the household to travel one way to the following places: *Please note that if you or household members do not typically make trips for these purposes leave the square blank.*

Household Member	Work or Volunteer	Service	School	Medical	Grocery Store	Other Shopping	Recreation
You							
Other Member							
Other Member							
Other Member							

6) Have you ever participated in a car or van pool?

- A. _____ Yes
- B. _____ No

(7) Have you ever had to leave and/or change a job because of transportation problems?

A. _____ Yes

Note that this section provides a few questions about you and other members of your household for general purposes. This information is important and needed to check that a broad cross section of people living in Council Bluffs is represented.

(16) What is your gender?

A. _____ Male

B. _____ Female

(17) What range does your household income fall into?

A. _____ Less than \$15,000

B. _____ \$15,000 - \$29,999

C. _____ \$30,000 - \$49,999

D. _____ \$50,000 or More

(18) How many people in your household are in the following age groups?

A. _____ 15 or Under

B. _____ 16 - 24

C. _____ 25 - 44

D. _____ 45 - 64

E. _____ 65 or Over

(19) What ideas do you have that might help to improve the current bus service?

(8) When do you and other household members travel to and from work or school on weekdays?
Please check all of the relevant boxes.

Time Intervals	You	Other Household Member	Other Household Member	Other Household Member
3:01AM to 6AM				
6:01AM to 8AM				
8:01AM to 10AM				
10:01AM to Noon				
12:01PM to 3PM				
3:01PM to 5PM				
5:01PM to 7PM				
7:01AM to 9PM				
9:01PM to Midnight				

- (9) In your selection of a daily mode of transportation, how important do you rate each of following factors? Place an 'X' under the column for each factor that best fits your opinion.

Factors	Very Important	Fairly Important	Not Important
A. Convenience			
B. Cost			
C. Travel Time			
D. Privacy			
E. Riding Comfort			
F. Dependability			

- (10) What is the employment status for all the members of Your household? **Indicate the number of people in your household for each category.**

- A. ____ Full-Time
- B. ____ Part-Time
- C. ____ Temporary
- D. ____ Student
- E. ____ Unemployed
- F. ____ Homemaker and/or Work at Home
- G. ____ Retired

- (11) If you and/or others work outside the home, please indicate the name of the company or firms that you and other household members work for and what cities are they located?

<u>Firm Name</u>	<u>Location (City)</u>
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- 1.
- 2.
- 3.
- 4.
- 5.

- (12) If you do not currently use the bus system, would you or your family use the bus system if service were improved?

A. ____ Yes, Briefly explain idea(s) for improvements

B. ____ No

C. ____ Possibly

- (13) Is there a bus stop within 3 blocks of your home?

A. Yes

B. No

- (14) Which of the following would encourage you or other members of your household to travel by some type of transportation other than your own car? Please check only the 3 most important points.

- if I have no car available
- if costs per ride are less than \$1
- if the wait is less than 15 minutes
- if no time is lost in transfers
- if the travel time was as quick as my car
- if I don't have to walk more than 2 blocks on either end of the trip
- if the drivers are courteous and responsive
- if the vehicle is clean and neat with very few passengers
- if the wait is less than 5 minutes
- if the costs per ride are less than \$.75
- if the vehicle has flexible routes to take me very close (within 2 blocks of where I need to go)

- (15) Within the last week, about how many trips did members of your household take to: (please indicate approximate number of round trips)

- the Power Mall
- the Mall of the Bluffs
- shops or offices along Broadway
- downtown Omaha
- the casinos
- medical facilities in Council Bluffs
- downtown Council Bluffs (Main Street Area)

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