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**BASELINE TRANSIT NEEDS ASSESSMENT -
TOPEKA, KANSAS
BASELINE PARATRANSIT NEEDS ASSESSMENT -
MANHATTAN, KANSAS**

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February 1998

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PREFACE

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ABSTRACT

The basic objective of this research project is to estimate the capital and operating costs associated with providing general public transportation and paratransit services in Topeka, Wichita, Lawrence and Manhattan, KS over the next ten years (1997-2006). This report presents the results of the transit needs assessment for Topeka. The results reported in the present study are based on a synthesis and extrapolation of existing data. The needs assessment is presented in aggregate financial terms. The present study does not explicitly address ridership, demand, routes, service configuration, or system design.

The needs assessment is presented in terms of several scenarios which attempt to quantify the financial resources needed to maintain existing levels of general public transportation and paratransit services in Topeka for the period 1997-2006 for various levels of local, state and federal funding assistance. In addition, data concerning local socio-demographic trends and transit service characteristics are provided in sufficient detail to allow local service providers to perform a rudimentary assessment of the potential economic and service impacts of a range of alternative transit service configurations.

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CHAPTER I: EXECUTIVE SUMMARY

INTRODUCTION AND PURPOSE

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) requires state departments of transportation (DOTs) and local metropolitan planning organizations (MPOs) to: 1) develop, establish and implement public transportation facilities and equipment management systems; 2) develop a statewide, long-range transportation plan; 3) develop long range transportation plans for each of the state's metropolitan areas; and 4) develop a unified planning work program to meet the state's total transportation system needs. The provisions of ISTEA require states to consider not only the expansion of current systems to accommodate increased demand, but also an assessment of capital investment and other measures necessary to preserve the existing transportation system, including rehabilitation of existing and future transit facilities.

To address the ISTEA mandates enumerated above, the Kansas Department of Transportation (KDOT) has sponsored several studies directed at assessing the state's public transportation needs for the next ten years. In addition to satisfying the requirements of ISTEA, these needs assessment studies will be valuable to local and state elected officials in developing and evaluating programs to meet the transportation needs of the citizens of the state of Kansas in an efficient and economical manner.

An assessment of the state's rural public transportation needs has been completed [1]. The transit needs of the Kansas City (KS) Tri-County Area have been assessed by that area's planning agencies [2]. The basic objective of the present two-year research project is to estimate the capital and operating costs associated with providing general public transportation and paratransit services in Topeka, Wichita, Lawrence and Manhattan over the next ten years (1997-2006). The needs assessment studies for Topeka and Wichita were completed in the first year (1995-96) of the two-year project. The needs assessment studies for Lawrence and Manhattan are scheduled to be completed during year two (1996-97) of the research project. The present report presents the results of the

transit needs assessment for Topeka. The results of the transit needs assessment studies for the remaining cities will be documented in three subsequent reports.

SCOPE AND LIMITATIONS

The basic objective of the first year of this research project was to estimate the capital and operating costs associated with providing general public transportation and paratransit services in Topeka and Wichita over the next ten years (1997-2006). The present report presents the results of the transit needs assessment for Topeka.

The results reported in the present study are based on a synthesis and extrapolation of existing data. The needs assessment is presented in aggregate financial terms. The present study does not explicitly address ridership, demand, routes, service configuration, or system design.

In addition, the needs assessment is presented in terms of a “base case” scenario which attempts to quantify the financial resources needed to maintain existing levels of general public transportation and paratransit services in Topeka for the period 1997-2006. Alternative scenarios, such as service extensions and cutbacks are not addressed in this report. However, data concerning local socio-demographic trends and transit service characteristics are provided in sufficient detail to allow local service providers to perform a rudimentary assessment of the potential economic and service impacts of a range of alternative transit service configurations.

FINDINGS

This report provides data on existing transit services in Topeka, summarizes key socio-demographic data that can affect the demand for transit services, and presents estimates of the financial resources needed to maintain existing levels of general public transportation and paratransit services in Topeka for the period 1997-2006. The findings within each of these three basic subject areas are summarized in the following sections of this chapter.

Existing Transit Services

Public transportation in the City of Topeka is primarily provided by the Topeka Metropolitan Transit Authority. Operating expenses for TMTA during fiscal year 1995 totaled \$2,926,644, and estimates of expenses for fiscal 1996 totaled \$2,959,403. Since 1990, TMTA's operating expenses have risen more than 33 percent.

In order to meet these expenses, TMTA has in recent years found it necessary to rely more heavily upon the local mill levy as its major source of revenue. Whereas TMTA once had typically received approximately one-third of its revenue from each of three main sources (mill levies, federal funding, and operating revenues), the local mill levy accounted for an estimated 47 percent of TMTA's revenues during fiscal 1996. Federal funding has slipped from 39 percent in fiscal 1993 to an estimated 30 percent in 1996. This trend is expected to continue until fiscal 1998 when federal funding is expected to stabilize at approximately \$560,000, an amount which would have accounted for only 18.9 percent of estimated revenues in 1996.

In addition to increasing operating expenses, TMTA also faces more than \$19.9 million worth of needed capital projects before the end of fiscal 2006. These projects include the replacement of 66 buses, construction of new maintenance and transfer facilities, and the purchase of support equipment.

Several other entities provide transportation services to the people of Topeka and Shawnee County and receive funding from state and federal sources. These entities primarily provide paratransit services for the elderly and for the disabled. Twenty vehicles, purchased with assistance from either federal section 16(b)2 grant funds or State of Kansas paratransit funds, were operating in the Topeka-Shawnee County metropolitan area as of June 1996.

Overall, these vehicles represent a total purchase investment of nearly \$500,000, and each vehicle is due to be replaced at least once prior to the end of 2006. During the 1995 calendar year, the providers operating these vehicles incurred approximately \$121,500 in operating costs while

collecting approximately \$6,700 in revenues.

TMTA's fixed-route ridership experienced growth during the early 1990s, reaching a peak of 1,373,912 total passengers in fiscal 1993 and a high of 1,007,905 revenue passengers in fiscal 1994. However, after that, these numbers have fallen to 1,250,604 total passengers and 955,827 revenue passengers in 1996. In terms of fixed-route performance, nine of TMTA's 15 routes met the agency's performance standard of 20-30 passengers per hour.

TMTA's complementary paratransit service, known as the Lift, has experienced significant growth since implementation of policies mandated by the Americans with Disabilities Act of 1990. The number of revenue passengers has increased from a low of 18,761 in fiscal 1992 to a high of 32,141 in fiscal 1996. Similarly, the number of total passengers has increased from 25,077 in fiscal 1992 to 37,534 in fiscal 1996.

The performance of the transit services provided by the TMTA measured in terms of service efficiency (operating expense/vehicle revenue mile and operating expense/vehicle revenue hour), cost effectiveness (operating expense/passenger mile and operating expense/passenger trips), and service effectiveness (passenger trips/vehicle revenue mile and passenger trips/vehicle revenue hour) were compared with that of other similar cities in the U.S. The cities were selected on the basis of service areas and service area population. The values indicate that the performance of both fixed-route bus and demand responsive transit services provided by the TMTA is at least as effective as the other similar cities. Operating expenses per vehicle revenue mile and per vehicle revenue hour for TMTA's fixed-route bus transit are lower than the national average. The ridership per vehicle revenue mile and per vehicle revenue hour of the TMTA also equals the national average. However, TMTA's operating expenses per vehicle revenue hour and per passenger trip for demand responsive transit are higher than the national average.

Factors Affecting Transit Demand

The growth of population in the Topeka-Shawnee County area has been modest. Historically both the City of Topeka and the balance of Shawnee County have experienced stable growth. The resident population in the City is becoming more dispersed resulting in a decreasing population density. The Central region of the Topeka-Shawnee County area lost 23% of its population over the period 1970 to 1990. Population projections suggest that by 2010, the Central region will lose another 10% of its population. Population in other regions of the area is experiencing a stable growth. The primary growth is anticipated to occur in the South and South-East and West and South-West region of the Topeka-Shawnee County area.

Density of dwelling units in the Topeka-Shawnee County area is low. Since the average number of persons per dwelling unit has decreased, the percentage decline of dwelling units in Central Topeka has been less pronounced than population loss, and the percentage increase of dwelling units in the West-Southwest region has been greater than the corresponding increase in population. Sixty-one percent (61%) of the total housing units in 1990 were owner-occupied. Of the remaining 39%, 31% were renter occupied and 8% were vacant.

Despite the loss of population, the Central region of Topeka-Shawnee county area will continue to be the primary regional activity center. More than 50% of the area's total employment is located in the Central region. Therefore, the average distance from residences to places of employment, shopping destinations, and other trip destinations will tend to increase.

Labor force participation in the Topeka-Shawnee county area has increased significantly from 42.8% of the total population in 1970 to 52.3% in 1990. This increase has been attributed to two factors: an increasing proportion of the population which is sixteen years of age and older, and an increasing proportion of persons sixteen and older who are working or seeking work. The increased percentage of the total population which is in the work force serves to increase work trips. This increases not only the total travel but also increases the week-day morning and evening peak trips. This is the travel

category which places the highest demands on the street and road system, and on the capacity of the transit system.

1990 Census data show that persons living in the North, south and Southeast, and West and Southwest regions have household incomes above the county/city median. The median household incomes of all the census tracts of the West and Southwest region are higher than the county/city median household income. Percentages of persons below the poverty level in Shawnee county and in the City of Topeka were 10.0% and 12.3%, respectively.

Approximately 95% of the working population in Topeka-Shawnee County area uses automobiles as a means of transportation to and from work. 12% of the population of this category use carpooling. Use of public transportation is extremely low (below 2%). The mean travel time to work is relatively short with values of 17.0 and 15.6 minutes for Shawnee County and the City of Topeka, respectively. Persons who have a travel time of 45 minutes or more constitute approximately 4% of the total working population. The mean work travel time of this category is approximately 66 minutes.

BASELINE FINANCIAL NEEDS ASSESSMENT

A summary of the baseline estimates of the capital and operating costs needed to continue to provide general public transportation and paratransit services at their current levels of service for the period 1997-2006 are presented in the following sections of this chapter. The reader is referred to Chapter IV of this report for a detailed explanation of the data sources and methodology used to develop the estimates of future financial needs.

TMTA Services

Trends in expenditures and revenues since 1990 provided the basis for projecting the financial needs of the TMTA through fiscal year 2006. Using TMTA's approved budget for fiscal 1997 as a baseline,

salaries were increased 4.5 percent annually, the annual amount projected for fringe benefits was approximately 23 percent of the amount projected for salaries, and all other expenses were increased an average of 5.1 percent annually. Based on this method, total operating expenses are projected to increase approximately 4.8 percent annually, reaching more than \$4.8 million in fiscal 2006. Overall, it is projected that TMTA will incur total operating costs of approximately \$39 million during the 10-year period beginning with fiscal 1997 and ending with fiscal 2006.

Future capital expenses were determined on a project-by-project approach, based on cost estimates provided by TMTA officials. For the 10-year period from fiscal 1997 to fiscal 2006, it is projected that TMTA will require more than \$19.9 million to complete the desired capital projects. This figure includes more than \$8.7 million for 66 vehicle replacements, more than \$2.1 million for a new maintenance facility, \$5.3 million for two transfer facilities, \$2.2 million for bus shelters and a day care center, and more than \$1.4 million for support equipment. Overall, it is estimated that total expenditures (operating plus capital) for TMTA will be approximately \$59 million through fiscal 2006.

Because federal operating and planning funding has declined in recent years, and because passenger fares and other revenues have remained fairly constant, more money has been needed from the local mill levy in order to meet TMTA's operating expenses. Given the increasing operating expenses and the relatively stable flow of money from other revenue sources, TMTA will require dramatic increases in revenue from the mill levy or other local and/or state sources if it is to continue to provide current levels of service. If federal operating allocations remain constant, it is projected that TMTA will receive approximately \$5.8 million in federal operating/planning revenue, nearly \$6.3 million from passenger fares, and \$828,000 from "other" revenues sources. This leaves a gap of nearly \$26 million, of which approximately \$25 million can be funded through the mill levy under current restrictions. This results in an amount of nearly \$1 million of operating expenses to be funded by other local and/or state revenues sources during the 10-year period if existing services are to be maintained.

However, if federal operating allocations are gradually reduced and phased out in 2001, TMTA is

projected to experience a revenue shortage beginning in fiscal 2001. In this scenario, federal operating funding will fall to a total of approximately \$2.1 million during the 10-year period, while revenue from the mill levy will total approximately \$26.3 million under present restrictions. The result is a budget shortfall of more than \$3.8 million for operating expenses and a shortage of \$255,000 of local revenue to match projected federal and state funds for capital on an 80/20% ratio. In either scenario the revenue required to meet funding of capital projects is considerably less than the expenses projected.

Other Paratransit Services

Data concerning the revenues and expenses for the nine other paratransit service providers in the Topeka-Shawnee County were obtained from the individual providers (via questionnaire or telephone conversation) and from the Kansas Department of Transportation (KDOT). Operating costs through the year 2006 were estimated by assuming that the combined 1996 transportation budgets of the nine providers would increase at the rate of 4.5 percent annually through fiscal 2006.

Based on this methodology, it is projected that the nine paratransit providers will incur approximately \$6.3 million in operating expenses for transportation services through fiscal 2006 and that an additional \$950,000 million will be needed for vehicle replacement during this time period.

REFERENCES

1. Kansas University Transportation Center. *Kansas Rural Transit Needs Assessment*. Prepared for Kansas Department of Transportation, Topeka, KS, (Draft) August 1996.
2. JBM Engineers and Planners in association with ETC Institute and Dobies and Associates. *Tri-County Public Transportation Needs Assessment Study*. Prepared for Mid-America Regional Council, Kansas City, KS, November 1995.

CHAPTER II: EXISTING TRANSIT SERVICES

INTRODUCTION

Public transportation in the City of Topeka is provided mainly by the Topeka Metropolitan Transit Authority (TMTA). However, other entities in Topeka and Shawnee County provide demand-responsive or point deviation paratransit services that primarily target senior citizens and persons with disabilities. These services operate independently of the paratransit service provided by the Topeka Metropolitan Transit Authority.

TMTA initiated transit service as an independent public entity under authority of Kansas statutes (K.S.A. 12-2801 through K.S.A. 12-2840) in 1973. TMTA has the authority to operate within the City of Topeka and in the unincorporated area within three miles of the city. However, the current service area is located wholly within Topeka's city limits.

Following is a summary of fixed-route, trolley, charter and contract, and paratransit services provided by TMTA, as well as paratransit services provided by other agencies.

TMTA FIXED-ROUTE SERVICES

The basic operating characteristics and ridership trends for TMTA's current fixed-route transit services are summarized in the following subsections of this chapter.

Fleet Characteristics

TMTA utilizes 30 vehicles, all of which are due to be replaced by fiscal year 1999, to provide its fixed-route services. Twenty-five of these vehicles are 35-foot Flexible Metro buses, model years 1987 through 1989, that function as the primary carriers. Three 1982 GMC buses, as well as two Flexible New Look buses, model years 1974 and 1975, are used as spares for fixed-route operations.

The TMTA fixed-route fleet, organized by vehicle age, is shown in Table II-1.

Table II-1 TMTA Fixed-Route Fleet.

Model Year	Make/Model	Wheel Base (ft)	Quantity	Passenger Capacity	Wheelchairs/ Vehicle	Year to Replace ^a
1974	Flexible New Look	35	1	45	0	due
1975	Flexible New Look	35	1	45	0	due
1982	GMC T8H5307A	40	3	49	0	due
1987	Flexible Metro	35	13	40	0	1997
1988	Flexible Metro	35	7	40	0	1998
1989	Flexible Metro	35	5	40	0	1999

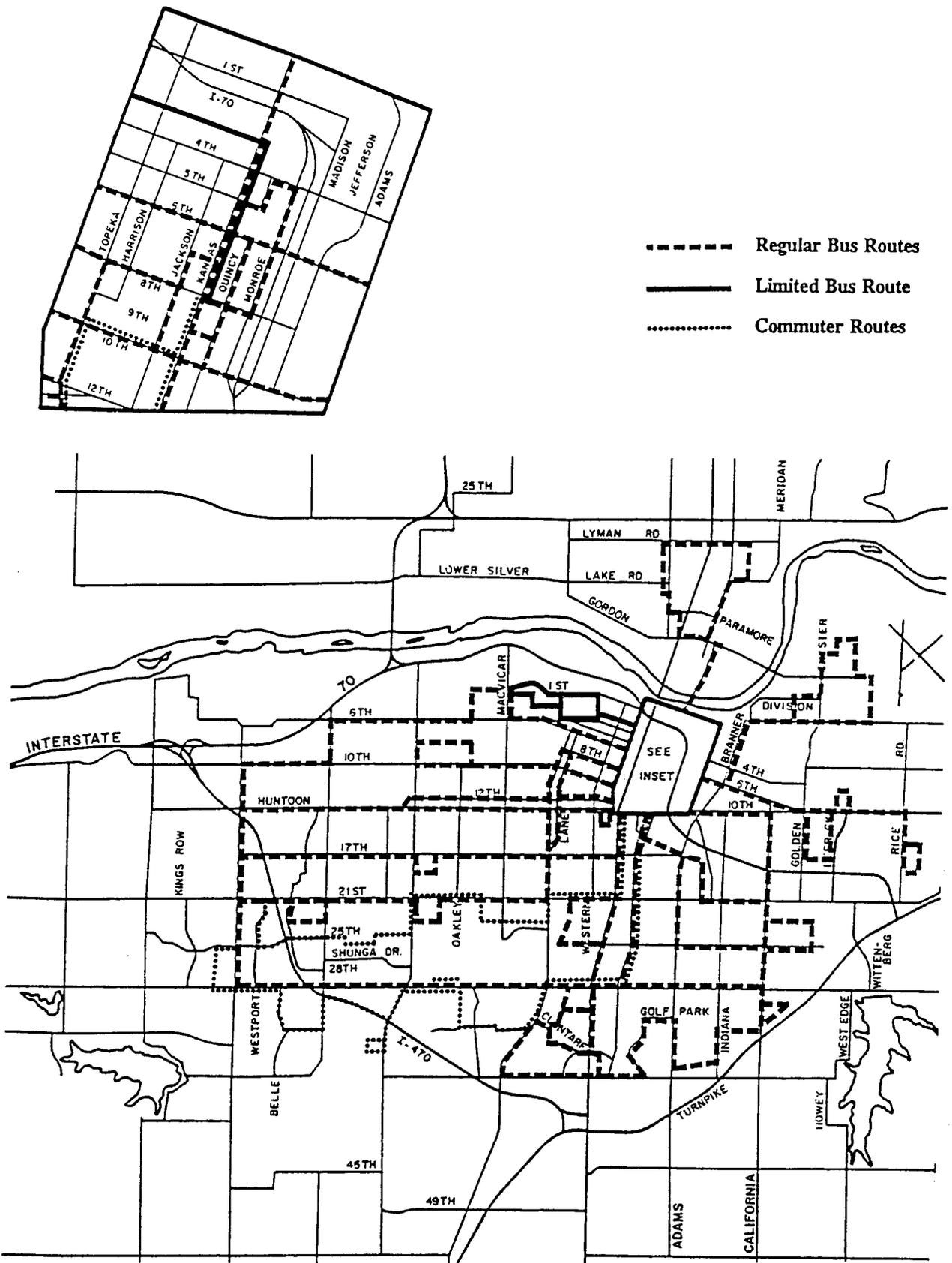
^a According to the replacement schedule from TMTA's rolling stock inventory.

Source: Ref. 1

Routes

The TMTA fixed-route system consists of 12 regular routes (four paired routes, one tripled route, and one independent route), one limited route, and two commuter routes. These routes are illustrated in Figure II-1. The Kenwood/No. 15 route is limited to two trips per day, while the two commuter routes (West 25th Special/No. 13 and West 29th Special/No. 14) each offers three trips into downtown in the morning and three trips from downtown in the evening. All buses begin trips at the 8th-and-Kansas Avenue transfer area every thirty minutes during the peak periods (6:15 to 8:45 a.m. and 2:45 to 5:45 p.m.) and every hour during off-peak hours.

During fiscal year 1996 (July 1, 1995 through June 30, 1996), fixed-route operations included 55,400 route hours and 906,967 route miles. The fixed-route system carried an average of 4,426 passengers per weekday and an average of 1,950 passengers on Saturdays.



Source: Ref. 2

Figure II-1 Topeka Transit Bus Routes.

Hours of Operation

Fixed-route services are offered Mondays through Fridays from 6 a.m. to 6:30 p.m. and on Saturdays from 8 a.m. to 6:30 p.m. Service is not available on Sundays, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, or Christmas Day. The Customer Service Center, currently located at 735 South Kansas Avenue, is open Mondays through Fridays from 6:30 a.m. to 6 p.m. and on Saturdays from 8 a.m. to 6 p.m.

Transfer Facilities

The Customer Service Center, located on the northwest corner of the 8th-and-Kansas Avenue intersection, also functions as TMTA's primary transfer facility. This building, which was purchased by TMTA in 1987, houses a waiting area, restrooms, and a service counter where coupon books, monthly passes and system information may be obtained.

On weekdays, the bus transfer function occurs between the hours of 6:15 a.m. and 5:45 p.m. Utilizing a "pulse system," routes converge on the transfer facility at approximately the same time, remain 3 to 5 minutes, and then depart. Buses arrive every 30 minutes during the morning and afternoon peak periods, and every hour during the off-peak period and on Saturdays. Fifteen designated on-street bus bays are available to accommodate the transfer function.

TMTA is studying the feasibility of building a new transfer center. The amount of \$2 million has been targeted to pay for architectural and engineering designs, construction, real estate acquisition, relocation, and demolition of the existing structure. Five sites are being considered for the new transfer center: (1) east side of Jackson Street between 10th and 11th streets, (2) west side of Kansas Avenue between 7th and 8th streets, (3) west side of Kansas Avenue between 12th and 13th streets, (4) east side of Jackson Street between 12th and 13th streets, and (5) the corner of 8th and Madison streets.

Fares

The regular per-trip fare for the fixed-route system is \$0.80. Discounted fares are available via the purchase of multiple-ticket coupon books and monthly passes, and additional discounted fares are available for elderly and disabled riders. Fixed-route fares are shown in Table II-2.

Ridership and Rider Profiles

Annual fixed-route ridership has fluctuated during recent years. Ridership generally declined during the late 1980s and rebounded during the early 1990s. Fluctuation in ridership may be explained by a number of factors, such as general economic conditions, gasoline prices, availability of downtown parking, route and service adjustments, and fare changes. Table II-3 summarizes annual fixed-route ridership trends since fiscal year 1990.

Table II-2 TMTA Fixed-Route Fares.

PAYMENT METHOD	FARE
CASH	
Full Fare	\$0.80
Senior/Disabled	\$0.40
Children under 5	Free
Transfers	Free
COUPONS	
Full Fare (10 rides)	\$7.00
Senior/Disabled (10 rides)	\$4.00
MONTHLY PASSES	
Full Fare	\$22.00
Senior/Disabled	\$15.00

Source: Ref. 3

Table II-3 TMTA Annual Fixed-Route Ridership.

Fiscal Year	Revenue Passengers	Total Passengers ¹
1990	740,576	1,115,122
1991	837,693	1,215,081
1992	949,030	1,343,328
1993	984,583	1,373,912
1994	1,007,905	1,339,033
1995	962,434	1,257,570
1996	955,827	1,250,604

¹ Includes transfers, no-fare passengers, contract passengers, charter passengers, and Lunchtime Express passengers.

Source: Ref. 4

In an effort to identify characteristics of its clientele, various passenger surveys have been conducted by TMTA or on its behalf in 1985 [5], 1992 [6], and 1996 [7]. The 1992 survey conducted by The Corradino Group was primarily used to study the desirability of relocating TMTA's transfer center. Overall, survey responses indicate that the majority (51-65 percent) of fixed-route trips are work-related and that 73-82 percent of respondents typically make bus trips five or more times per week. Furthermore, 61-65 percent of respondents indicate that they have no other means of transportation.

Results from the 1985 survey indicate that nearly 66 percent of TMTA's passengers had incomes below \$20,000 and that females accounted for nearly 57 percent of the system's passengers. Nearly 75 percent of all passengers classified themselves as "white," 18.1 percent as "black," and 4.5 percent as "Hispanic." In terms of age, the 35-64 age group accounted for 40.4 percent of passengers, followed by the 19-34 group (37 percent), the 18-and-below group (14.1 percent), and the 65-and-above group (8.4 percent).

TMTA TROLLEY SERVICES

In 1986, three rubber-tired Chance Trolley buses were purchased by TMTA with federal capital grant funds, local funds raised through private contributions, and a contribution from the City of Topeka. Characteristics of the trolleys are detailed in Table II-4. The trolleys are considered "character"

vehicles and have been utilized for a variety of purposes, including a parking lot shuttle service during morning and afternoon peak periods, a noon-hour downtown circulator service known as the Lunchtime Express, trips on the morning and afternoon commuter routes, and charter services.

Table II-4 TMTA Trolley Fleet.

Model Year	Make/Model	Wheel Base (ft)	Quantity	Passenger Capacity	Wheelchairs/ Vehicle	Year to Replace
1986	Chance Trolley	27	3	24	0	1998

Source: Ref. 1

The parking lot shuttle service, which served the city-owned lot at 8th and Madison (east of Interstate 70), has been suspended due to insufficient utilization of the lot. Therefore, the trolleys primarily are utilized for TMTA's 25-cents-per-ride Lunchtime Express, as well as for the morning trip on the Kenwood route and for the commuter route trips.

Trolley ridership, which does not include charter services or passengers from the Kenwood route, peaked in 1992 but has experienced a general decline since then. Both trolley ridership and trolley performance in terms of passengers per hour (PPH) are shown in Table II-5.

Table II-5 TMTA Trolley Ridership and Performance in Passengers Per Hour (PPH).

Fiscal Year	Ridership (Passengers)	Performance (PPH)*
1990	5,742	5.7
1991	10,326	7.9
1992	16,914	12.7
1993	16,558	12.5
1994	12,649	9.3
1995	12,849	10.1
1996	10,265	7.3

* Passengers per hour.

Source: Ref. 4, 8

TMTA CONTRACT AND CHARTER SERVICES

The Topeka Metropolitan Transit Authority also offers bus transportation in the form of contract and charter services. Tables II-6 and II-7 show the fiscal-year hours, miles, and passengers served by both contract and charter services since 1990.

Table II-6 TMTA Fixed-Route Contract and Charter Services.

Fiscal Year	Contract			Charter		
	Hours	Miles	Passengers	Hours	Miles	Passengers
1990	1,222.07	13,244	35,629	1,738.58	19,772	34,681
1991	773.64	7,153	19,908	2,075.13	24,395	39,676
1992	510.40	4,529	20,270	1,585.27	18,173	27,783
1993	176.97	1,418	14,051	1,216.61	14,412	21,606
1994	159.95	1,372	10,404	1,082.07	12,348	20,990
1995	133.93	1,187	6,574	1,154.96	13,970	22,115
1996	437.85	5,565	11,989	978.10	11,588	18,987

Source: Ref. 4

Table II-7 TMTA Lift Contract and Charter Services.

Fiscal Year	Contract			Charter		
	Hours	Miles	Passengers	Hours	Miles	Passengers
1990	613.84	8,412	7,951	18.59	257	121
1991	601.84	7,206	6,779	6.75	111	36
1992	501.81	6,737	6,006	36.91	387	310
1993	169.25	2,160	2,047	20.11	211	186
1994	0.0	0	0	14.92	185	129
1995	N/A	N/A	4,129	12.75	138	123
1996	N/A	N/A	5,150	27.82	431	237

Source: Ref. 4

TMTA PARATRANSIT SERVICES

TMTA initiated disabled-accessible paratransit service for elderly and transportation disabled passengers in 1976. The operation, known as the Lift, provides door-to-door service by appointment using wheelchair lift-equipped buses. With the passage of the Americans with Disabilities Act (ADA) of 1990, the Lift program was restructured to provide service to those who are determined to be eligible according to the guidelines set forth by ADA in conjunction with accessibility regulations for public transit services.

Persons wishing to use the Lift service must first complete an application for ADA paratransit eligibility. Once the application is completed, verified and approved, passengers receive identification cards and may request rides by calling the TMTA paratransit coordinator. Partial eligibility may be granted to persons whose disability may not be continuous. In these instances, the TMTA paratransit staff may make eligibility determinations on a trip-by-trip basis.

The basic operating characteristics and ridership trends for TMTA's current paratransit services are summarized in the following subsections of this chapter.

Fleet Characteristics

In order to provide its Lift service, TMTA utilizes 11 air-conditioned buses that feature lift devices, wheelchair lock-downs, wide doors, and enhanced lighting. These buses may be configured to accommodate a limited number of combinations of wheelchair and ambulatory passengers. The characteristics of TMTA's Lift paratransit fleet are summarized in Table II-8.

Services and Area of Operation

The Lift service provides door-to-door bus service for persons with disabilities who are unable to use the fixed-route bus system. Once determined to be eligible for service, passengers may call the

paratransit coordinator to arrange a ride. Information, such as date and time of the requested ride, origin and destination, is obtained by the coordinator at this time. In order to confirm pickup times, the coordinator will attempt to call passengers the afternoon prior to the day of a scheduled ride. All requests must be scheduled in advance to allow for maximum use of Lift buses.

Table II-8 TMTA Lift Paratransit Fleet.

Model Year	Make/Model	Wheel Base (ft)	Quantity	Passenger Capacity	Wheelchairs/ Vehicle	Year to Replace
1981	TMC T30	30	1	19	2	due
1983	Carpenter CBW 300	30	4	21	3	due
1992	Goshen Coach GCII	25	2	12	3	1996
1994	Diamond VIP 2500	25	4	14	3	1998

Source: Ref. 1

The Lift service operates within 3/4-mile of all fixed bus routes. The Lift service area is illustrated in Figure II-2. Persons wanting to travel from an origin or to a destination beyond the 3/4-mile range are eligible for service only on a space- and time-available basis. Bus drivers may assist passengers while boarding and exiting the buses, but drivers may not enter any establishment or home to give assistance.

During fiscal year 1996, the Lift operation provided 11,767 total hours and 200,975 total miles of service. The service carried an average of 142 passengers per weekday and an average of 31 passengers on Saturdays.

Hours of Operation

Lift service is provided during the same hours that the fixed-route system operates, Mondays through Saturdays. Mondays through Fridays, the earliest pickup time is 5:45 a.m. and the latest pickup time is 6:15 p.m. On Saturdays, the earliest pickup time is 7:15 a.m. and the latest pickup time is 6 p.m. Service is not available on Sundays or on major holidays; however, Lift buses may be chartered for

any day and time by calling the TMTA paratransit coordinator.

Fares

The price for a one-way Lift trip, whether provided by Lift buses or another company contracted by TMTA, is \$1.60. Books of 10 ride coupons may be purchased for \$16 from Lift bus drivers or at either the Customer Information Center or TMTA administrative offices. Unlimited monthly passes are not offered in conjunction with Lift service.

Ridership

Annual Lift ridership has increased from a low of 18,761 revenue passengers in fiscal 1992 to a high of 32,141 revenue passengers in fiscal 1996. This dramatic increase is most likely explained by the implementation of ADA regulations. Annual Lift ridership trends are shown in Table II-9.

Table II-9 TMTA Annual Lift Ridership.

Fiscal Year	Revenue Passengers	Total Passengers ¹
1990	21,510	29,582
1991	20,543	27,358
1992	18,761	25,077
1993	24,303	26,536
1994	30,412	30,541
1995	31,033	35,285
1996	32,141	37,534

¹ Includes charter and contract passengers.

Source: Ref. 4

OTHER PARATRANSIT SERVICES

Several entities in Topeka and in Shawnee County provide demand-responsive or fixed-route paratransit services for senior citizens or for persons with disabilities. These services operate in

addition to the paratransit service provided by the Topeka Metropolitan Transit Authority's Lift system.

Twenty privately owned or quasi-public paratransit vehicles, purchased with assistance from either Federal Transit Administration 49 U.S.C. 5310 (formerly Section 16) grant funds or State of Kansas Elderly and Disabled Coordinated Public Transportation Assistance Funds, were operating in the Topeka-Shawnee County metropolitan area during calendar year 1995. Of these vehicles, 10 are equipped with wheelchair lifts.

The majority of these paratransit providers within Shawnee County are members of the Topeka-Shawnee County Paratransit Council. This voluntary organization consists of paratransit providers and other interested persons for the purpose of encouraging the most efficient utilization of paratransit capacity, promoting cooperation and ride sharing, and advising the Kansas Department of Transportation (KDOT) and the Topeka-Shawnee County Metropolitan Planning Agency in regard to paratransit issues.

Table II-10 summarizes the services of paratransit providers who utilize vehicles purchased with federal or state assistance. Table II-11 provides an inventory of these vehicles as of June 1996.

Table II-10 Paratransit Services Provided by Other Topeka-Shawnee County Providers.

Provider	Type of Service	Target Clientele	Transportation Budget ¹
Auburn Senior Center	Demand-responsive	Elderly	\$1,881
Breakthrough House	Point deviation	Disabled	15,000
East Topeka Senior Center	Demand-responsive	Elderly/Public	18,870
Family Services and Guidance	Demand-responsive	Disabled	170,000
LULAC	Demand-responsive	Elderly/Disabled/Public	12,000
Papan's Landing Senior Center	Demand-responsive	Elderly	12,000
Sheltered Living	Demand-responsive	Disabled/Public	225,011
TARC	Point deviation	Disabled/Public	33,273
Shawnee Community Mental Health	Demand-responsive	Elderly/Disabled/Public	10,063

¹ Transportation budget (operating) figures supplied by providers via mailed questionnaire or telephone conversation.

Source: Ref. 9

Table II-11 Inventory of Other Paratransit Vehicles in Topeka-Shawnee County.

Provider	Vehicle Description	Lift	Purchase Price (\$)	Projected Year to be replaced*
Auburn Senior Center	1985 window van	No	16,290	1997
Breakthrough House	1994 window van	No	24,961	2004
E. Topeka Senior Center	1985 station wagon	No	10,174	1997
	1992 transit bus	Yes	32,294	2001
	1993 window van	No	28,760	2000
	1996 window van	No	18,930	2006
Family Service/Guidance	1995 conversion van	Yes	32,504	2005
LULAC	1984 window van	Yes	17,036	1997
	1990 station wagon	No	13,982	2000
	1994 transit bus	No	29,265	2004
Papan's Landing	1990 window van	No	20,648	2000
Sheltered Living	1989 conversion van	Yes	25,931	1999
	1990 conversion van	Yes	26,054	1998, 2006
	1990 conversion van	Yes	26,054	1998, 2006
	1996 transit bus	Yes	33,870	2006
TARC	1987 window van	Yes	18,939	1997
	1988 window van	No	18,800	1997, 2006
	1991 transit bus	Yes	33,369	2001
Shawnee Mental Health	1994 window van	No	25,356	2004
	1995 transit bus	Yes	37,663	2005

*Based on vehicle age and average annual mileage; vehicle replaced at 10 years of age or 100,000 miles.

Source: Ref. 9

TMTA SYSTEM PERFORMANCE

The key measure of route performance is ridership, in terms of passengers per hour (PPH). In order to evaluate its routes, TMTA has established as its satisfactory performance standard the value of 20-30 passengers per hour. Routes that average above 30 PPH exceed the standard, while routes below 20 PPH are considered sub-standard. Routes below 15 PPH may be considered for trip cutbacks or route elimination.

Performance of each of TMTA's 15 fixed routes is shown in Table II-12. Overall system performance improved from 19.4 PPH in fiscal 1990 to 24.5 PPH in 1993, before slipping to 24.1 in 1994 and to 22.4 in both 1995 and 1996. Incidentally, fiscal year 1994 marked an increase in fixed-route fares, and in fiscal 1995 additional center-street parking spaces were added to downtown Topeka.

Table II-12 Fiscal Year Fixed-Route Performance in Passengers Per Hour (PPH).

Route	1990	1991	1992	1993	1994	1995	1996
Oakland	24.5	25.1	27.5	27.7	25.0	23.4	22.8
Highland Park	28.1	25.7	29.8	33.0	29.6	28.9	25.9
North Topeka	25.3	28.7	29.6	33.0	29.8	30.1	31.2
West 10th	26.7	30.1	29.5	31.6	30.4	28.0	27.6
West 6th	19.0	19.3	23.0	24.6	24.6	21.5	23.5
West 17th	13.3	15.1	16.4	16.3	17.3	16.5	17.1
Huntoon	17.3	22.0	26.9	28.0	26.8	26.2	28.4
South California	17.9	21.5	24.2	24.5	23.9	23.1	22.3
West 29th	17.5	14.5	16.2	16.2	17.9	16.6	16.8
Kenwood	9.3	7.6	5.6	6.1	3.5	2.8	5.8
East 6th	26.4	26.5	28.7	29.7	29.6	26.0	25.7
West 21st	16.1	26.7	30.5	29.9	30.5	27.3	24.9
White Lakes	16.0	15.6	14.9	15.3	14.8	14.5	14.5
West 25th Special	N/A	13.5	13.6	14.4	12.1	10.0	9.0
West 29th Special	N/A	19.6	15.5	16.5	16.9	14.2	13.2
System Average	19.4	21.4	23.6	24.5	24.1	22.4	22.4

Source: Ref. 8

The performance of the transit services provided by the TMTA measured in terms of service efficiency, cost effectiveness, and service effectiveness was compared with that of other similar cities in the U.S. The cities were selected on the basis of service areas and service populations. Table II-13 summarizes the service areas and the service populations of ten peer group cities in the U.S., including Topeka. Topeka has a transit service area of 151 square miles and a service area population of 145,000. Of the 10 cities, 4 (Brockton, Bremerton, Huntsville, and Victorville) have populations greater than Topeka while the other 5 cities (Richland, Duluth, Medford, Abilene, and Simi Valley) have populations less than Topeka. These data are for 1994 (January 1 to December 31) [11]. The range of service areas of the cities is 100 to 168 square miles and the range of service area populations is approximately 105,000 to 177,000. All these cities are operating both fixed-route bus and demand responsive transit systems. Figures II-3 and II-4 compare the service areas and the service area populations of these 10 peer group cities.

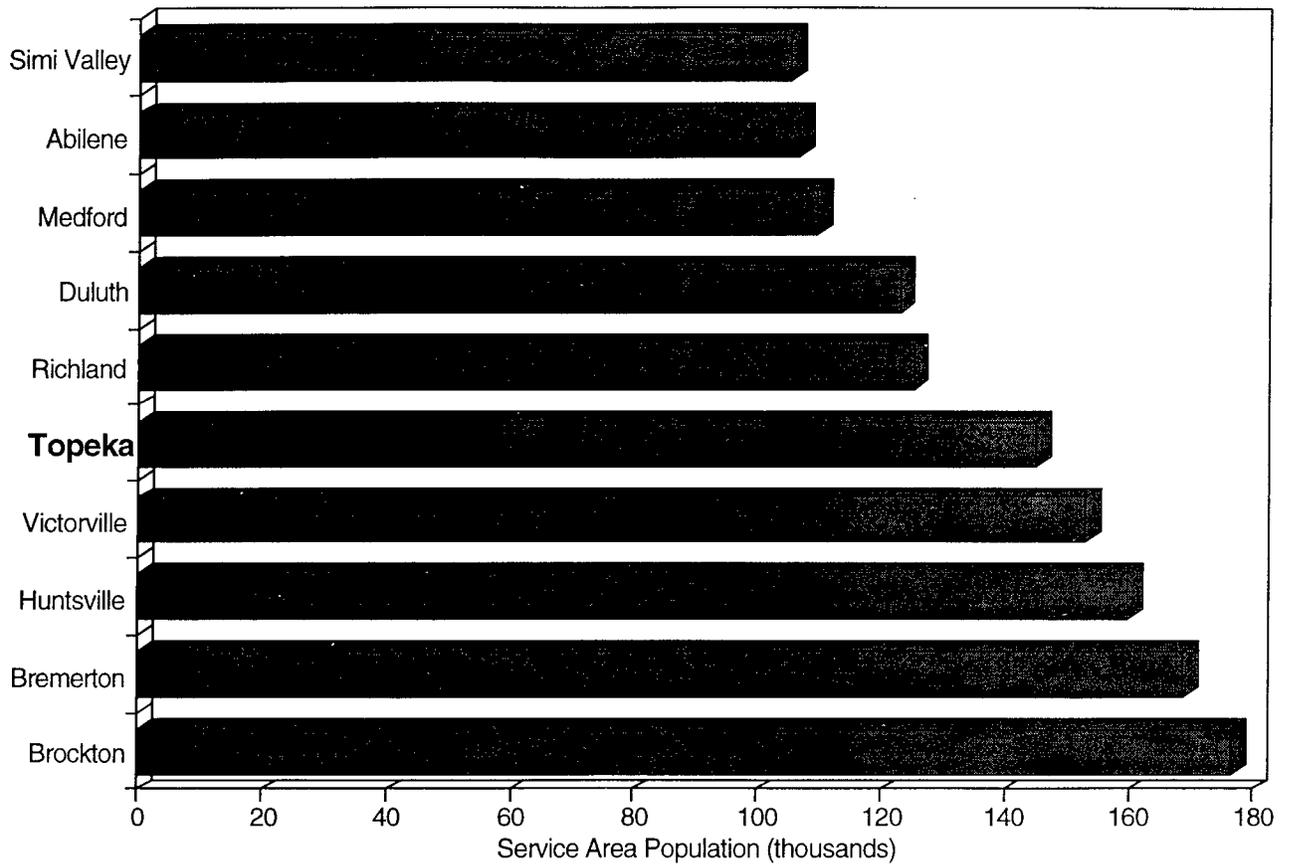
Table II-13 Service Area and Population in 1994 of Peer Group U.S. Cities.

City	Service Area (Sq. Miles)	Service Area Population
Brockton, MA	114	176,677
Bremerton, WA	132	169,000
Huntsville, AL	168	159,880
Victorville, CA	140	153,176
Topeka, KS	151	145,000
Richland, WA	110	125,175
Duluth, MN	143	122,971
Medford, OR	159	109,449
Abilene, TX	108	106,654
Simi Valley, CA	100	105,234

Source: Ref. 11

Tables II-14, II-15 and II-16 show the 1994 annual ridership, system wide operating expenses and the capital funds for the 10 U.S. cities. The data in Table II-14 reveal no readily apparent relationship between population and transit ridership. Though Richland and Duluth have populations less than Topeka, total ridership for these two cities was substantially higher than Topeka. However, the ridership per vehicle revenue hour for Topeka was approximately equal to that of these two cities (Tables II-17 and II-18). Total operating expenses for 1994 follow the same pattern as that of total ridership; i.e., the higher the ridership the higher the total operating expenses (Figures II-5 and II-6). The comparison shows that the capital funds used in Topeka was the lowest (\$19,674 compared to \$1,090,205 for Victorville which has a population and service area approximately equal to Topeka). Figure II-7 compares the capital funds available in 1994 for the transit systems of the ten peer group cities.

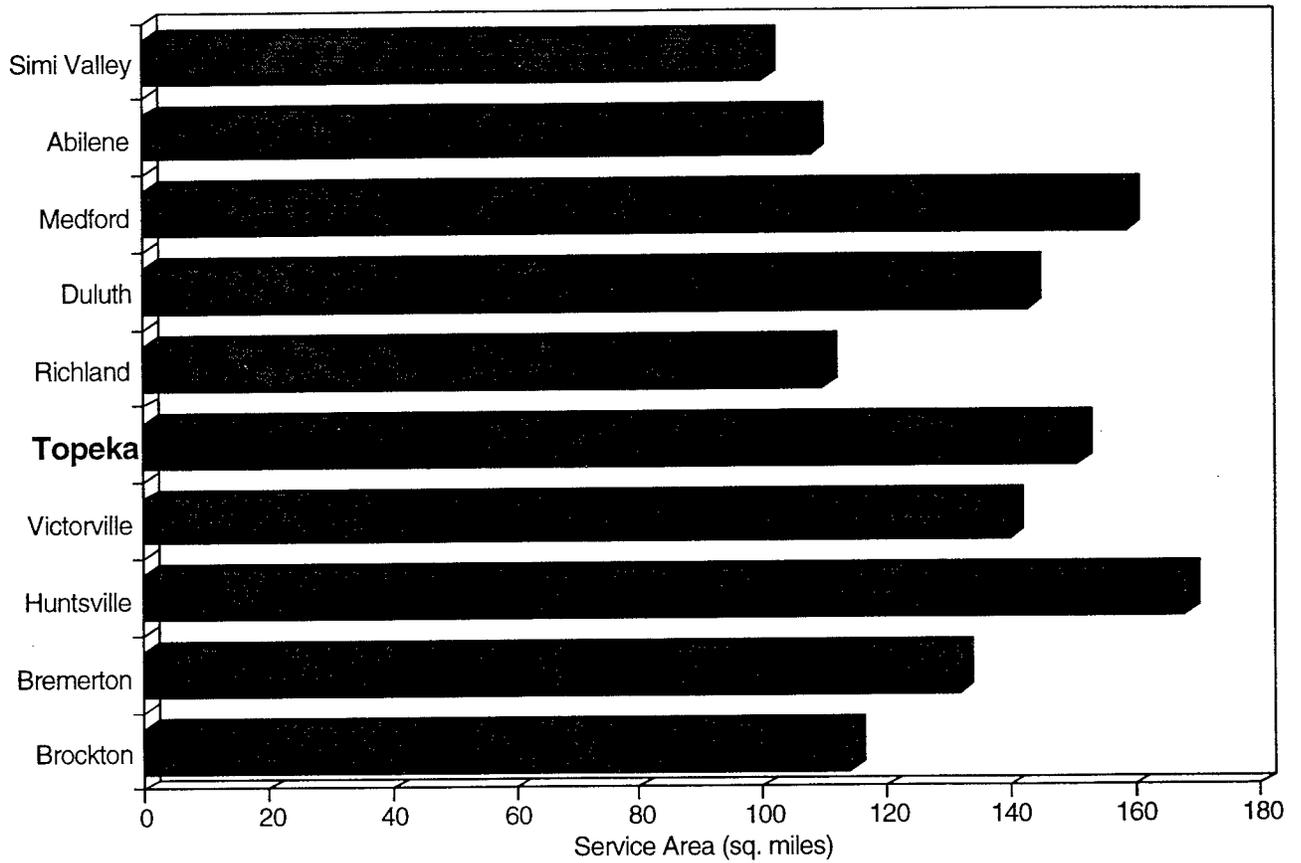
Service Area Population Report Year 1994



Source: Ref. 11

Figure II-3 Transit Service Area Population of Peer Group U.S. Cities.

**Transit service Area
Report Year 1994**



Source: Ref. 11

Figure II-4 Transit Service Area of Peer Group U.S. Cities.

Table II-14 Total Transit Ridership in 1994 of Peer Group U.S. Cities.

City	Total Unlinked Passenger Trips*
Brockton, MA	3,853,040
Bremerton, WA	4,037,013
Huntsville, AL	550,186
Victorville, CA	584,605
Topeka, KS	1,351,106
Richland, WA	3,519,828
Duluth, MN	3,245,594
Medford, OR	853,540
Abilene, TX	408,991
Simi Valley, CA	402,226

* trips taken by both initial-board (originating) and transfer (continuing) transit patrons. Each passenger is counted each time that person boards a transit vehicle regardless of the type of fare paid or transfer presented [12].

Source: Ref. 11

Table II-15 System Wide Operating Expenses in 1994 of Peer Group U.S. Cities.

City	System Wide Operating Expenses (\$)
Brockton, MA	9,072,737
Bremerton, WA	12,863,845
Huntsville, AL	1,160,427
Victorville, CA	2,641,505
Topeka, KS	2,830,368
Richland, WA	9,973,658
Duluth, MN	7,948,008
Medford, OR	2,053,484
Abilene, TX	1,315,674
Simi Valley, CA	1,427,709

Source: Ref. 11

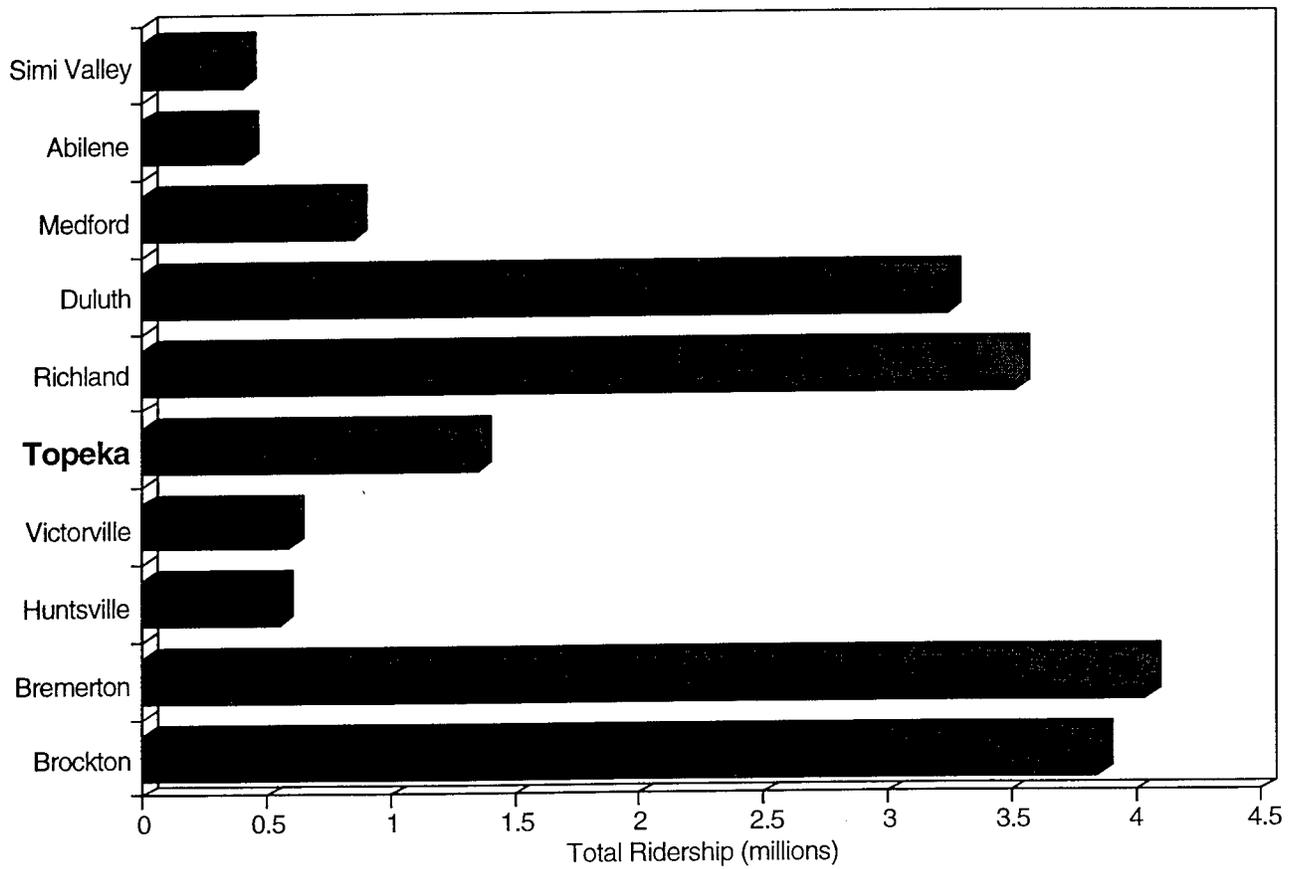
Table II-16 System Wide Capital Funding in 1994 of Peer Group U.S. Cities.

City	System Wide Capital Funding (\$)
Brockton, MA	305,653
Bremerton, WA	2,771,818
Huntsville, AL	538,741
Victorville, CA	1,090,205
Topeka, KS	19,674
Richland, WA	167,784
Duluth, MN	204,150
Medford, OR	1,046,885
Abilene, TX	32,771
Simi Valley, CA	67,514

Source: Ref. 11

Performance of the transit service provided by the TMTA was also compared with that of other similar U.S. cities. Performance was measured in terms of service efficiency (operating expense/ vehicle revenue mile and operating expense/ vehicle revenue hour), cost effectiveness (operating expense/ passenger mile and operating expense/ passenger trips), and service effectiveness (passenger trips/ vehicle revenue mile and passenger trips/ vehicle revenue hour). Tables II-17 and II-18 summarize the performance measures for fixed-route bus and demand responsive transit systems, respectively. The values indicate that the performance of both fixed-route bus and demand responsive transit services provided by the TMTA is at least as efficient as the other similar cities. Operating expenses per vehicle revenue mile and per vehicle revenue hour for TMTA's fixed-route bus transit are lower than the national average (Table II-17). The ridership per vehicle revenue mile and per vehicle revenue hour of the TMTA also equals the national average. On the other hand, Table II-18 shows that TMTA operating expenses per vehicle revenue hour and per passenger trip for demand responsive transit are higher than the national average.

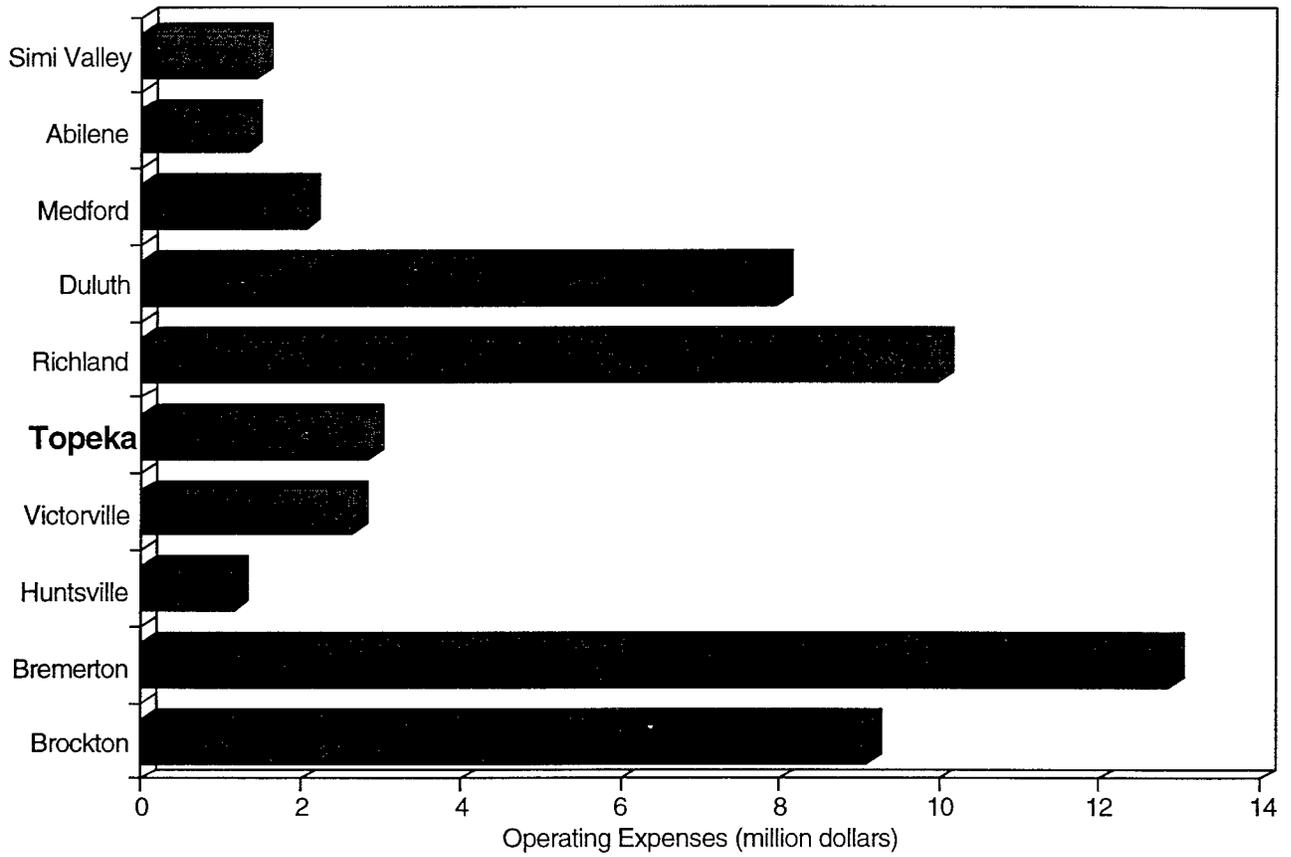
**Total Unlinked Trips
Report Year 1994**



Source: Ref. 11

Figure II-5 Total Transit Ridership of Peer Group U.S. Cities in 1994.

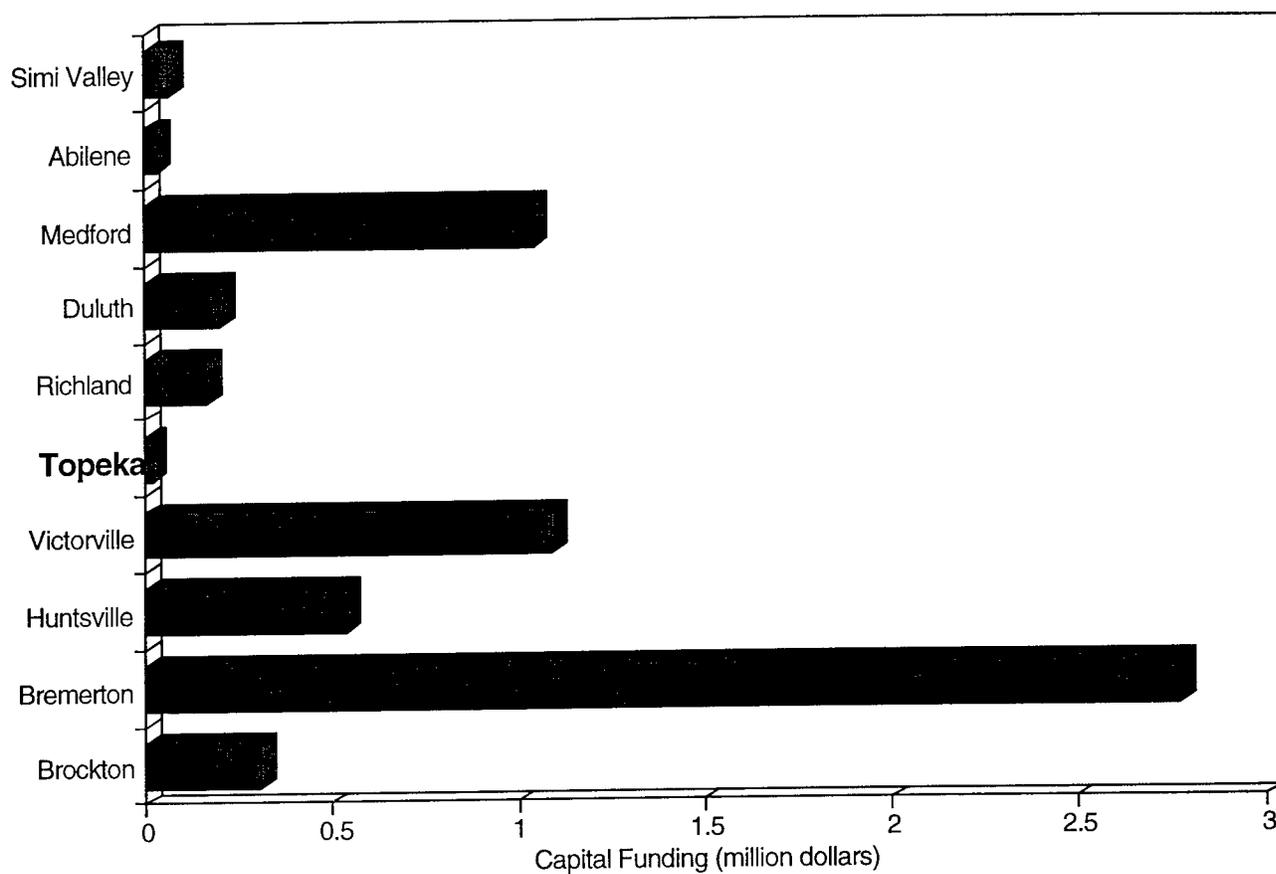
System Wide Operating Expenses Report Year 1994



Source: Ref. 11

Figure II-6 System Wide Operating Expenses in 1994 of Peer Group U.S. Cities.

Capital Funding Report Year 1994



Source: Ref. 11

Figure II-7 System Wide Capital Funding in 1994 of Peer Group U.S. Cities.

Table II-17 Performance of Fixed-Route Bus Transit Systems of Peer Group U.S. Cities.

City	Service Efficiency		Cost Effectiveness		Service Effectiveness	
	Operating expenses/ vehicle revenue mile (\$)	Operating expenses/ vehicle revenue hour (\$)	Operating expenses/ passenger mile (\$)	Operating expenses/ passenger trip (\$)	Passenger trips/ vehicle revenue mile	Passenger trips/ vehicle revenue hour
Brockton, MA	5.00	62.77	0.36	1.84	2.71	34.05
Bremerton, WA	4.06	67.49	0.36	2.70	1.50	24.98
Huntsville, , AL	1.48	23.51	0.57	2.48	0.60	9.49
Victorville, CA	1.80	33.52	0.57	3.59	0.50	9.35
Topeka, KS	2.87	42.95	0.56	1.84	1.56	23.33
Richland, WA	3.34	57.22	0.28	2.39	1.40	23.98
Duluth, MN	4.09	54.40	0.83	2.39	1.71	22.78
Medford, OR	3.10	56.53	0.55	2.38	1.30	23.79
Abilene, TX	2.29	33.90	0.88	2.39	0.96	14.16
Simi Valley, CA	3.80	62.75	0.65	3.28	1.16	19.15
National Average*	3.37	46.85	0.52	1.96	1.72	23.93

* For urbanized areas with population less than 200,000.

Source: Ref. 11

Table II-18 Performance of Demand Responsive Transit Systems of Peer Group U.S. Cities.

City	Service Efficiency		Cost Effectiveness		Service Effectiveness	
	Operating expenses/ vehicle revenue mile (\$)	Operating expenses/ vehicle revenue hour (\$)	Operating expenses/ passenger mile (\$)	Operating expenses/ passenger trip (\$)	Passenger trips/ vehicle revenue mile	Passenger trips/ vehicle revenue hour
Brockton, MA	3.18	60.40	2.51	12.06	0.26	5.01
Bremerton, WA	3.43	58.27	1.50	13.94	0.25	4.18
Huntsville, , AL	1.02	6.41	0.37	1.73	0.59	3.69
Victorville, CA	1.32	28.16	0.75	10.72	0.12	2.63
Topeka, KS	2.20	37.28	1.21	11.81	0.19	3.16
Richland, WA	3.01	45.61	1.45	13.94	0.22	3.27
Duluth, MN	1.75	22.53	1.66	9.36	0.19	2.41
Medford, OR	3.22	61.09	2.22	7.64	0.42	8.00
Abilene, TX	2.33	37.92	2.80	16.26	0.14	2.33
Simi Valley, CA	3.94	39.22	2.03	12.70	0.31	3.14
National Average*	2.11	27.82	1.28	8.41	0.25	3.31

* For urbanized areas with population less than 200,000.

Source: Ref. 11

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CHAPTER III: FACTORS AFFECTING TRANSIT DEMAND

INTRODUCTION

It has been understood for many years that there is a close relationship between land development, population and economic patterns and the demand for transportation services. Among the various factors affecting travel demand, the most significant are the natural growth of population and the spatial distribution of residences, work, shopping, and entertainment activities. These factors change over time affecting the road and street system and other transportation services and facilities.

This chapter provides a summary of key socio-demographic trends that could have a significant impact on the demand for transit services in Topeka and the surrounding area in coming years. These data should be useful to local transit service providers in assessing potential new transit markets and in evaluating alternative transit system configurations and service delivery schemes.

POPULATION GROWTH TRENDS

Historically, the growth of population in Shawnee County has been modest. Until recently, both the City of Topeka and the balance of Shawnee County have experienced stable growth. However, the census period from 1970 to 1980 reported a population loss in both areas. This loss can be attributed to the closing of Forbes Air Force Base in May, 1973, which is considered to be a “one-time” event and not part of the growth trend within the regional civilian population base [1]. The census period from 1980 to 1990 reported a moderate population gain in both areas, with a higher rate of growth in the balance of the county. County and City populations as reported by the U.S. Bureau of the Census in 1970, 1980 and 1990, are shown in Table III-1 [2].

Table III-2 shows population projections for the City of Topeka and Shawnee County up to 2010 [1]. Note that the data for 1980 and 1990 in Table III-2 are the actual census counts.

Table III-1 Population of the City of Topeka and Shawnee County, Kansas.

Year	City of Topeka	Balance of County	County Total
1970	125,011	30,311	155,322
1980	118,690	36,226	154,916
1990	119,883	41,093	160,976

Source: Ref. 2

Table III-2 Population Projections for the City of Topeka and Shawnee County: 1980-2010.

	1980	1990	1995	2000	2005	2010
County	154,916	160,976	175,627	179,627	183,476	187,544
City	118,690	119,883	125,850	126,204	126,683	127,336
Balance of County	36,226	41,093	49,961	53,423	56,793	60,208

Source: Ref. 1

POPULATION DENSITY

The resident population in the City is becoming more dispersed (Table III-1). In 1970, 80% of the Shawnee County population resided in Topeka. By 1990, the portion of the county population residing in Topeka had declined to 75%. At the same time the limits of the City grew. Resident population density has thus decreased in the past two decades, as shown in Table III-3.

Table III-3 Population Density in the City of Topeka, Kansas.

Year	Population	Area (Sq. Miles)	Population per Sq. Mile
1970	125,011	47.5	2,632
1980	118,690	49.5	2,398
1990	119,883	56.6	2,118

Source: Ref: 2

As population density decreases, the average distance from residences to places of employment, shopping, and other trip destinations tends to increase. Accordingly, as the average trip lengths increase, the total miles of travel increase.

POPULATION DISTRIBUTION

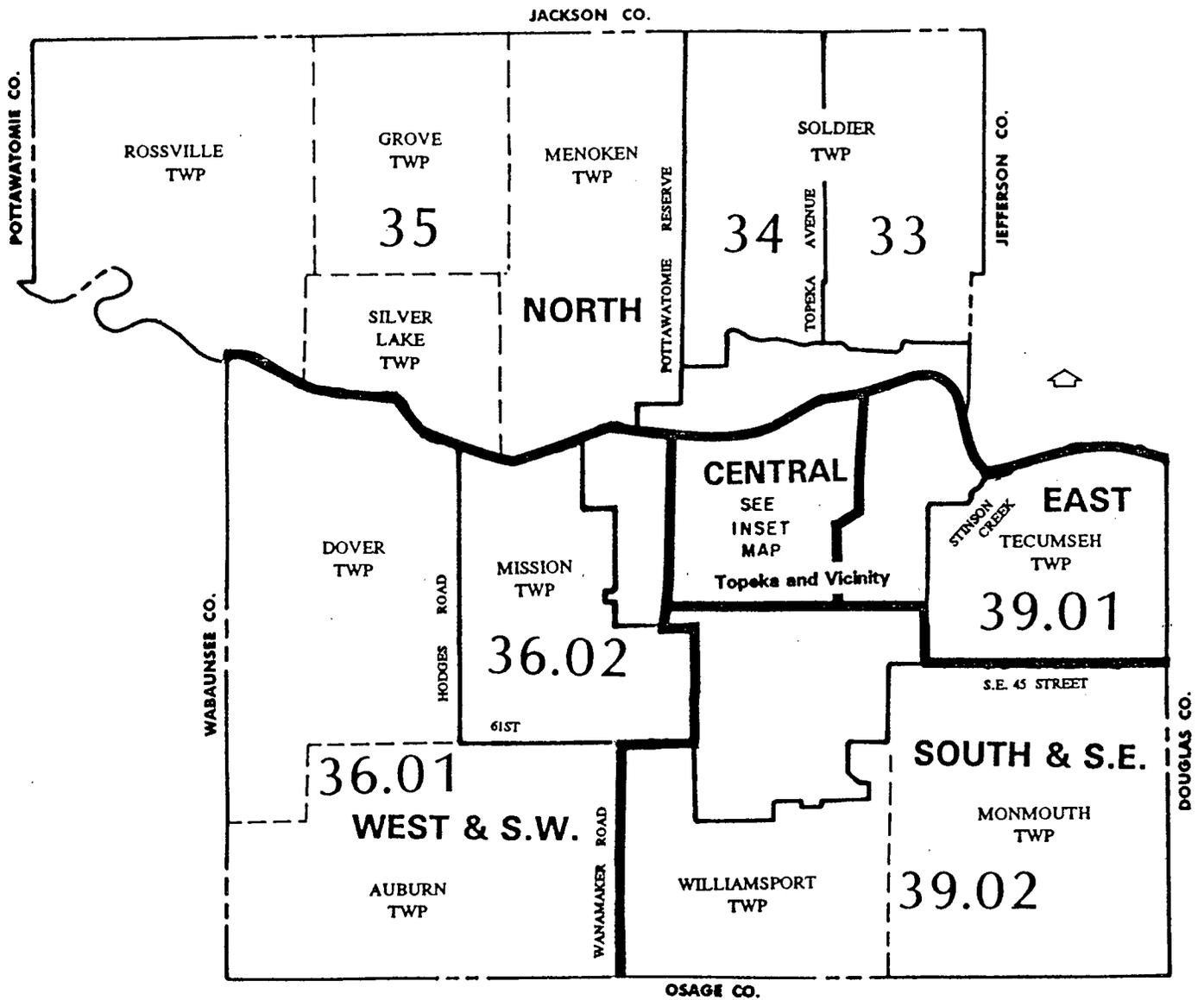
As mentioned earlier, residential density in Topeka has decreased during the past twenty years. The shift in the location of the resident population is more clearly illustrated by examining the population shifts among the regions of the metropolitan area. For analysis purposes, the *Comprehensive Metropolitan Plan- 2010* divides the Topeka metropolitan area and Shawnee County into several regions identified as the Central, North, East, South-Southeast and West-Southwest regions [2]. These regions and their corresponding census tracts are shown in Table III-4 and in Figures III-1 and III-2.

Table III-4 Census Tracts for Metropolitan Regions.

Region	Census Tracts
Central	1, 2, 3, 4, 5, 6, 14, 15, 16.01, 17, 18, 19, 20, 21, 22, and 23
North	7, 8, 33, 34, and 35
East	9, 10, 11, 12, 13, 31, 32, and 39.01
South & South-East	16.02, 28, 29, 30, 37, 38, and 39.02
West & South-west	24, 25, 26.01, 26.02, 27.01, 27.02, 36.01, 36.02

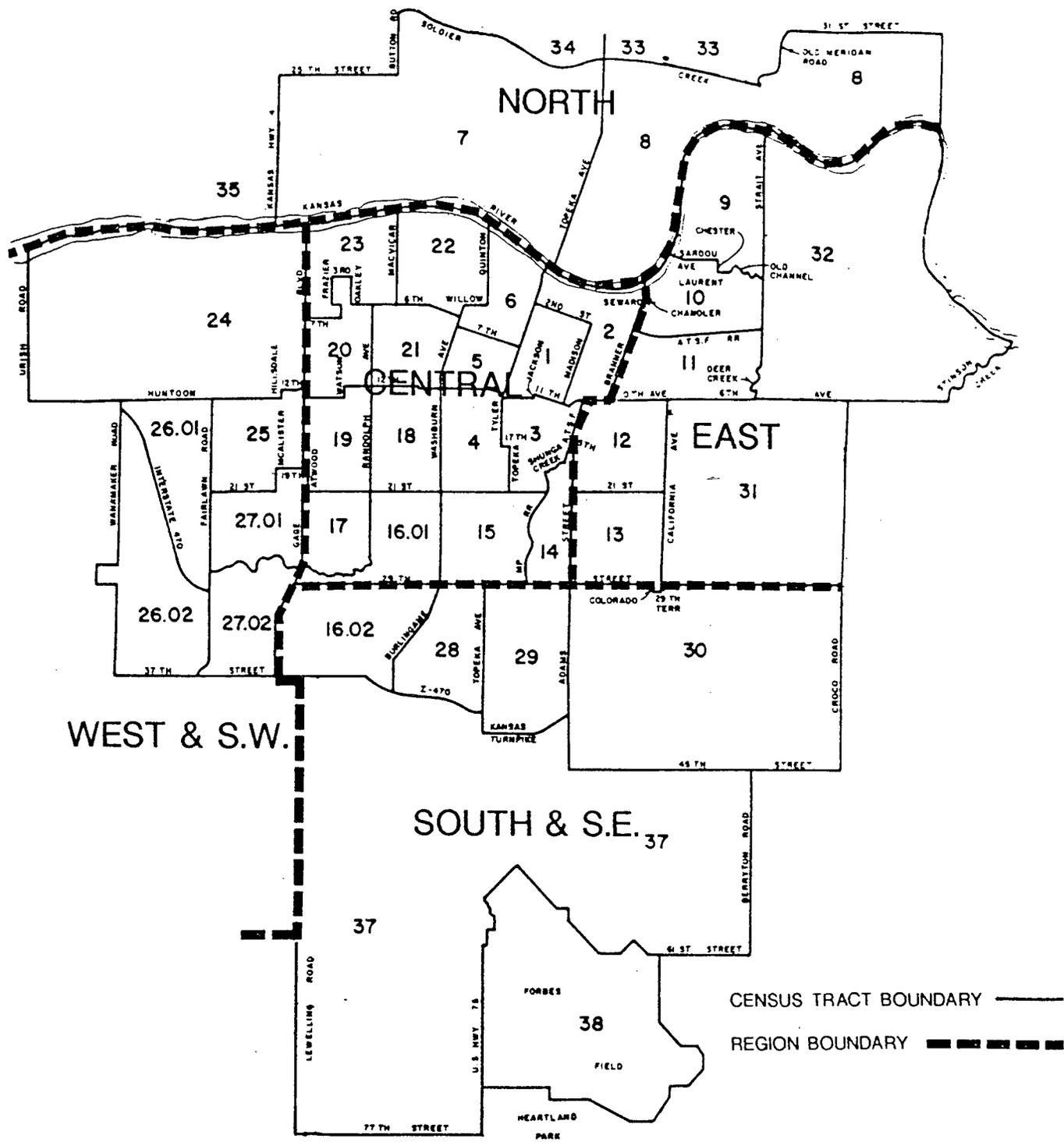
Source: Ref. 2

Over the past twenty years there have been substantial changes in population within the regions. Table III-5 shows the 1970, 1980 and 1990 populations of each region within the county. The projected population for the regions for the year 2000 and 2010 is shown in Table III-6.



Source: Ref. 2

Figure III-1 Census Tracts and Regions in Shawnee County.



Source: Ref. 2

Figure III-2 Census Tracts and Regions in Shawnee County (inset map of Topeka and Vicinity).

Table III-5 Population (1970-1990) by Metropolitan Region in Shawnee County, Kansas.

Region	1970	1980	1990	Difference		Percent Difference		Percent Difference '70-'90
				'70-'80	'80-'90	'70-'80	'80-'90	
Central	49,365	41,407	37,829	-7,958	-3,578	-16.12%	-8.64%	-23.37%
North	19,838	24,019	24,098	4,181	79	21.08%	0.33%	21.47%
East	32,405	30,147	28,063	-2,258	-2,084	-6.97%	-6.91%	-13.40%
South & SE	30,229	29,790	32,774	-439	2,984	-1.45%	10.02%	8.42%
West & SW	23,485	29,553	38,212	6,068	8,659	25.84%	29.30%	62.71%
Total	155,322	154,916	160,976	-406	6,060	-0.26%	3.91%	3.64%

Source: Ref. 2

Table III-6 Population (1990-2010) by Metropolitan Region in Shawnee County, Kansas.

Region	1990	2000	2010	Difference		Percent Difference		Percent Difference 1990-2010
				1990-2000	2000-2010	1990-2000	2000-2010	
Central	37,829	36,858	34,204	-971	-2,645	-2.57%	-7.20%	-9.58%
North	24,098	27,728	29,580	3,630	1,852	15.06%	6.68%	22.75%
East	28,063	32,384	32,843	4,321	459	15.40%	1.42%	17.03%
South & SE	32,774	39,425	41,665	6,651	2,240	20.29%	5.68%	27.13%
West & SW	38,212	43,232	49,252	5,020	6,020	13.14%	13.92%	28.89%
Total	160,976	179,627	187,544	18,651	7,917	11.59%	4.41%	16.50%

Source: Ref. 1

Between 1970 and 1990 (see Table III-5) the Central Region lost 23% of its population and the population of the East Region declined by over 13%. In contrast, the population residing in the North Region increased by nearly 22% and the population in the West-Southwest Region increased by 62%. The population of Central Topeka declined by more than 11,500 persons while the population of the West-Southwest Region increased by nearly 15,000 persons.

The population projections for the period from 1990 to 2010 (see Table III-6) suggest that the population of the Central Region will continue to decline. However, the population of the East Region will continue to increase (17%). Tables III-5 and III-6 show that the primary growth will continue to occur in the West and Southwestern part of Topeka, with secondary growth in the Southeast and Northern part of Topeka.

AGE DISTRIBUTION

Age distribution dynamics have varied substantially since 1940 [1]. Persons who were born between 1941 and 1964 began to enter the working cohort (20-64) between 1970 and 1980. That same time period saw the decline of school age children (5-19) and non-school age children (under 5). The retiree age cohort (65 and over) has increased moderately since 1940 with an increased rate of growth occurring from 1960 to 1990. Table III-7 summarizes the age distribution of the population in Shawnee County since 1940 to 1990. Table III-8 also shows the composition of some specific population subgroups for the City of Topeka and Shawnee County in 1990. These “target population” subgroups are frequently used to estimate the demand for transit services.

ETHNIC CHARACTERISTICS

The ethnic characteristics of the population in 1990 for Shawnee County show that the population is predominantly white, accounting for 87.7% of the total population. Census data also show that 4.8% of the total population in Shawnee county is of Hispanic origin irrespective of race. Table III-9 summarizes the ethnic characteristics of the population for Shawnee County in 1990.

Table III-7 Population Age Distribution of Shawnee county: 1940-1990.

Year	Age Group				County Total
	Under 5	5-19	20-64	65 & over	
1940					
Number	5,979	21,186	55,455	8,627	91,247
Percent (%)	6.6	23.2	60.8	9.5	100.0
1950					
Number	10,533	20,874	63,438	10,573	105,418
Percent (%)	10.0	19.8	60.2	10.0	100.0
1960					
Number	17,615	34,836	74,905	13,930	141,286
Percent (%)	12.5	24.7	53.0	9.9	100.0
1970					
Number	13,103	45,439	81,132	15,945	155,622
Percent (%)	8.4	29.1	52.2	10.3	100.0
1980					
Number	11,437	36,310	88,640	18,529	154,916
Percent (%)	7.4	23.4	57.2	12.0	100.0
1990					
Number	11,670	34,095	94,126	21,085	160,976
Percent (%)	7.3	21.2	58.5	13.0	100.0

Source: Ref. 1

Table III-8 Target Population Subgroups.

Population Subgroups	Shawnee County	Topeka City
Total Population	160,976	119,883
Elderly (65 years and over)	21,085	17,681
Elderly (65 years and over) Non-disabled	17,323	14,445
Disabled ¹	7,758	6,569
Youth 15-19 years	10,514	7,277
Youth 0-14 years	35,251	25,190
General ²	90,130	66,402

¹ Persons 16 years and over. Disabled population includes persons with mobility and/or self-care limitations.

² General population is the population other than Elderly non-disabled, Disabled, Youth 0-14 years, and Youth 15-19 years.

Source: Ref. 3,4

Table III-9 Ethnic Characteristics of the Population in 1990 for Shawnee County.

Race / Hispanic origin	Population	Percent of Total Population
White	141,976	87.7
Black	13,365	8.3
American Indian / Eskimo / Aleut	1,836	1.1
Asian / Pacific Islanders	1,179	0.7
Other Races	3,407	2.1
Hispanic Origin ¹	7,785	4.8

¹ Hispanic origin total (irrespective of race).

Source: Ref. 1

HOUSEHOLD CHARACTERISTICS

1990 Census data show that the total numbers of households in Shawnee County and in the City of Topeka were 63,768 and 49,936, respectively. Approximately 65 percent of the total households were family-households. The percentage distribution of the size of households was approximately 33% 2-person households, 30% 1-person households, 15% 3-person households, and 13% 4-person households. Tables III-10 and III-11 summarize the household characteristics in Shawnee County and in the City of Topeka.

Table III-10 Household and Family Characteristics (1990).

	Shawnee County	Topeka City
Total Population	160,976	119,883
Persons in Households	156,835	116,134
Householder	63,768	49,936
Family Households	43,046	31,162
Non-family Households	20,722	18,774
Persons per Household	2.46	2.33
Persons per Family	3.03	2.96

Source: Ref. 3,4

Table III-11 Household Size (1990).

Household Size	Shawnee County	Topeka City
Total Households	63,768	49,936
1-person Household	17,627	15,969
2-persons Household	21,303	16,710
3-persons Households	10,431	7,672
4-person Households	9,183	6,028
5-person Households	3,584	2,362
6-person Households	1,109	789
7 or more person Households	531	406

Source: Ref. 3,4

DISTRIBUTION OF HOUSING UNITS

The pattern of the location of housing units is similar to the pattern of population distribution. Since the average number of persons per dwelling unit has decreased substantially during the past twenty years, the percentage decline of dwelling units in Central Topeka was less pronounced than population loss. Likewise, the percentage increase of dwelling units in the West- Southwest region was greater than the corresponding increase in population. Dwelling unit counts for 1970, 1980 and 1990 by Regions are shown in Table III-12.

New residential development in recent years has been primarily at the fringe of the metropolitan area. In the past ten years, sixty percent (60%) of the total single family residential building permits were issued by Shawnee County and forty percent (40%) of the total single family residential building permits were issued by the City of Topeka. The number of single family residential building permits for the ten year period 1984 through 1994, for the City of Topeka and Shawnee County are shown in Figure III-3. During the same ten years, the City and the county issued permits for 3,156 multi-family dwelling units. The regional distribution of residential building permits issued by the City and the County during the period from 1984-1994 is shown in Table III-13.

Table III-12 Dwelling Units by Metropolitan Region in Shawnee County, Kansas.

Region	1970	1980	1990	Difference		Percent Difference		Percent Difference '70-'90
				'70-'80	'80-'90	'70-'80	'80-'90	
Central	19,477	19,801	18,568	324	-1233	1.7%	-6.2%	-4.7%
North	6,290	8,542	8,939	2,252	397	35.8%	4.6%	42.1%
East	10,480	11,398	11,319	918	-79	8.8%	-0.7%	8.0%
South & SE	8,453	12,851	13,718	4,398	867	52.0%	6.7%	62.3%
West & SW	7,241	11,854	16,428	4,613	4,574	63.7%	38.6%	126.9%
Total	51,941	64,446	68,972	12,505	4,526	24.1%	7.0%	32.8%

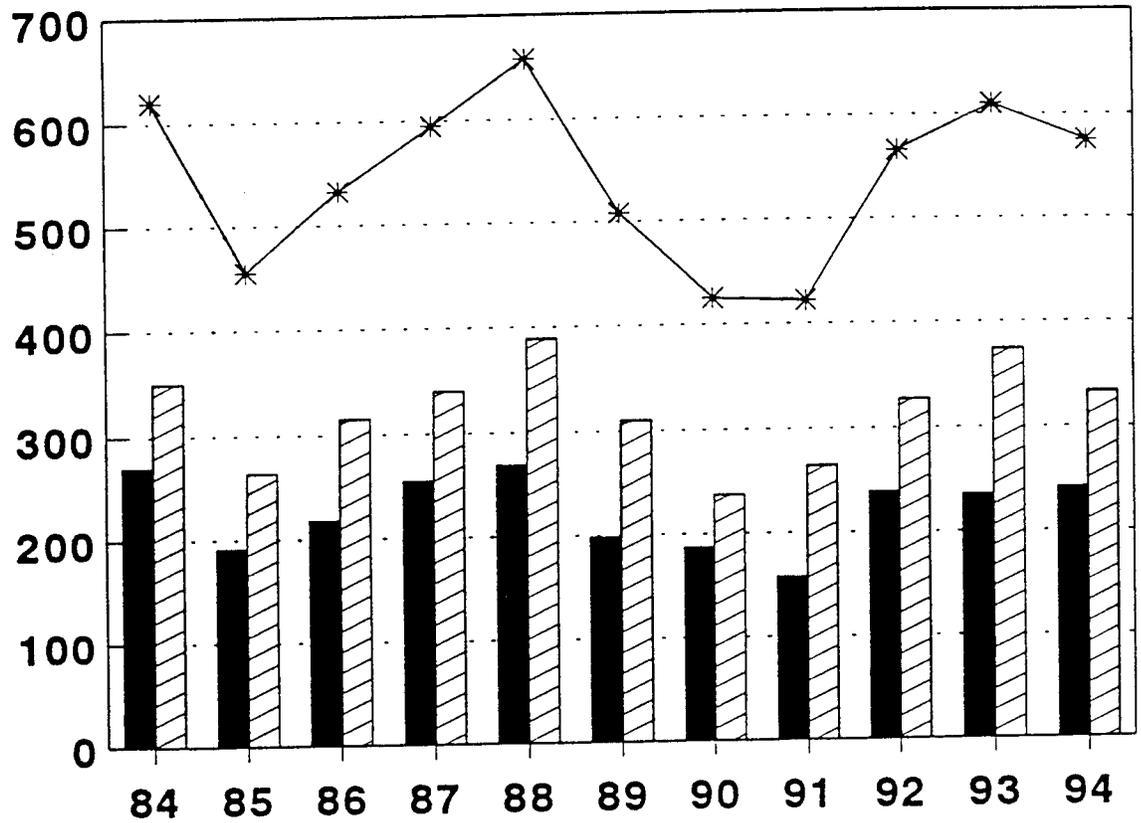
Source: Ref. 2

Table III-13 Residential Building permits (1984-1994).

Region	Single Family Dwelling Units	Multi-Family Dwelling Units
Central		
Number	161	288
Percent (%)	2.7	9.1
North		
Number	1182	69
Percent (%)	19.8	2.2
East		
Number	322	61
Percent (%)	5.4	1.9
South & S.E.		
Number	1,186	361
Percent (%)	19.9	11.4
West & S.W.		
Number	3,116	2377
Percent (%)	52.2	75.3
City and County Total	5,967	3,156
	100.0	100.0

Source: Ref. 1

Number of Building Permits



City	270	191	218	255	269	198	187	157	239	236	242
County	350	264	315	340	389	310	238	265	327	374	333
Total County	620	455	533	595	658	508	425	422	566	610	575

Years

Jurisdiction

City
 County
 * Total County

Source: Ref. 1

Figure III-3 Single Family Dwelling Building Permits in Topeka and Shawnee County.

DWELLING UNIT DENSITY

The 1990 Census data shows that the density of dwelling units in Shawnee County is relatively low. Table III-14 summarizes the density of dwelling units by census tract for Shawnee County in 1990. Densities have been defined in general terms as follows: Very Low Density (<1 dwelling unit per acre), Low Density (1 to 5 dwelling units per acre), Medium Density (6 to 30 dwelling units per acre), and High Density (>30 dwelling units) [1]. The density of dwelling units in the central region is much higher than the other regions (Table III-14).

HOUSING OCCUPANCY STATUS

Of the 68,991 dwelling units in Shawnee County in 1990, 63,768 units (92%) were occupied. Sixty-seven percent of the occupied units were owner occupied. Table III-15 summarizes the occupancy status of the dwelling units in 1990 in Shawnee County.

COMMERCIAL DEVELOPMENT

From a historical perspective, Topeka's Central Business District has been the primary regional activity center in the metropolitan area. It remains the location of the State Capital and the hub of state government. It is the location of City and County government and the location of the central offices of Topeka's major financial institutions, public utilities, and other key employers [2].

As late as the mid 1980's, the Central Business District remained a regional retail center. In 1980, Shawnee county contained approximately 1,800,000 square feet of retail space devoted to general merchandise and shoppers goods, including department store goods, furniture, apparel, housewares, jewelry, gifts, and other shoppers goods. Of the 1,800,000 square feet of floor area devoted to this retail activity, approximately 460,000 square feet of floor were located in the Central Business District, approximately 700,000 square feet were located in the White Lakes- South Topeka Boulevard corridor, and the remaining 640,000 square feet were widely dispersed throughout

Topeka, primarily in discount department stores and community or neighborhood shopping centers.

Table III-14 Dwelling Unit Density by Census Tract for Shawnee County in 1990.

Region	Census Tract (C.T.)	Area (Acres)	Dwelling Units	Dwelling Units per Acre	Density
Central	1	419	819	1.95	Low
	2	512	156	0.30	Very Low
	3	422	1,001	2.37	Low
	4	503	2,362	4.70	Low
	5	268	1,805	6.74	Medium
	6	428	1,404	3.28	Low
	14	351	380	1.08	Low
	15	650	717	1.10	Low
	16.01	550	1,716	3.12	Low
	17	413	9	0.02	Very Low
	18	540	1,657	3.07	Low
	19	498	1,505	3.02	Low
	20	464	1,661	3.58	Low
21	456	1,719	3.77	Low	
22	675	1,313	1.95	Low	
23	611	345	0.56	Very Low	
North	7	4,046	1,338	0.33	Very Low
	8	3,728	1,756	0.47	Very Low
	33	20,348	1,713	0.08	Very Low
	34	18,724	2,331	0.12	Very Low
	35	93,462	1,748	0.02	Very Low
East	9	878	1,083	1.23	Low
	10	654	1,594	2.44	Low
	11	681	1,355	1.99	Low
	12	631	900	1.43	Low
	13	653	1,815	2.78	Low
	31	2,577	2,056	0.80	Very Low
	32	3,767	446	0.12	Very Low
39.01	19,273	2,060	0.11	Very Low	
South & South-East	16.02	988	3,751	3.80	Low
	28	694	2,340	3.37	Low
	29	939	1,477	1.57	Low
	30	3,889	3,073	0.79	Very Low
	37	10,564	2,109	0.20	Very Low
	38	2,346	0	0.00	Very Low
	39.02	58,501	1,102	0.02	Very Low
West & South-West	24	3,525	2,732	0.78	Very Low
	25	607	1,383	2.28	Low
	26.01	796	1,891	2.38	Low
	26.02	1,160	2,285	1.97	Low
	27.01	565	1,522	2.69	Low
	27.02	520	1,477	2.84	Low
	36.01	71,946	1,230	0.02	Very Low
	36.02	21,095	3,792	0.18	Very Low

Source: Ref. 1

Table III-15 Housing Occupancy Characteristics in Shawnee County in 1990.

Occupancy Status	Number of Units	Percent of Total (%)
Owner Occupied	42,450	61
Renter Occupied	21,318	31
Vacant	5,223	8
Total	68,991	100

Source: Ref. 1

Since 1985 nearly 1.8 million square feet of gross leasable retail area devoted to general merchandise and shoppers, and other goods has been constructed in the Wanamaker Road corridor at the western edge of Topeka. This commercial construction boom nearly doubled the retail floor area constructed for general merchandises and shoppers goods sales. Two department stores and several specialty stores relocated from the White Lakes- South Topeka Boulevard corridor to the Wanamaker Road corridor and two department stores and several other stores relocated from the Central Business District to the Wanamaker Road corridor.

Prior to the commercial development of the Wanamaker Road corridor, the regional retail centers were in central or south central Topeka. The regional retail centers also were located relatively close to the primary concentration of employment in the county.

There have been four significant transportation related impacts of this shift of the regional retail center from central-south central Topeka to West Topeka. Since the primary regional retail center is no longer centrally located, average trip distances for shopping trips from households to the regional center have been increased. Also, since the retail center is no longer the same as or close to the primary employment center, combined work-shopping trips have decreased, resulting in an increase in the total number of trips. Traffic on east-west streets west of Topeka Boulevard, and traffic in the core area has increased as these streets carry north to west and east to west crosstown traffic to the Wanamaker Road corridor. Finally, major improvements to roads and streets near and leading to the new commercial development have been required.

In 1970, the average daily traffic in the 2000 block of Wanamaker Road was 1,080 vehicles per day. This average daily traffic rose to 4,571 by 1980 and to 27,841 in 1990. Average daily traffic on SW 21st Street, immediately east of Wanamaker Road was 2,639 in 1970, 4,616 in 1980 and 21,268 in 1990. Both SW 21st Street and Wanamaker Road have been improved from rural two lane roads to urban thoroughfares with five lanes and additional lanes for turns at intersections.

EMPLOYMENT CENTERS

Data on employment projections [1] show that the Central region of the Topeka-Shawnee County Metropolitan area will remain the largest activity center over the period from 1990 to 2010. The total employment in this region will experience a growth from 44,972 in 1990 to 48,290 in 2010 (Table III-16). However, in terms of total employment in the Metropolitan area, the Central region is losing its share of employment, declining from 56.6% in 1990 to an estimated 53.4% in 2010 (Table III-17). This can be attributed to the decentralization of land uses in the Topeka-Shawnee county area. Due to this decentralization, employment in the West and South-West region is expected to grow from 15.0% of the total metropolitan employment in 1990 to 18.5% in 2010.

Table III-16 Employment by Regions from 1990 to 2010.

Region	1990	1995	2000	2005	2010
Central	44,972	45,310	46,821	47,623	48,290
North	8,631	8,973	9,352	9,539	9,693
East	5,167	5,629	5,719	5,799	5,859
South & South-East	8,690	8,956	9,300	9,617	9,820
West & South-West	11,937	13,043	13,906	14,621	16,742
Total	79,397	81,911	85,098	87,199	90,404

Source: Ref. 1

Table III-17 Percent Distribution of Employment by Regions from 1990 to 2010.

Region	1990	1995	2000	2005	2010
Central	56.6	55.3	55.0	54.6	53.4
North	10.9	11.0	11.0	10.9	10.7
East	6.5	6.9	6.7	6.7	6.5
South & South-East	11.0	10.9	10.9	11.0	10.9
West & South-West	15.0	15.9	16.4	16.8	18.5
Total	100.0	100.0	100.0	100.0	100.0

Source: Ref. 1

LABOR FORCE PARTICIPATION

Labor force participation has increased significantly in Shawnee County since 1970. The labor force, defined as persons who are employed or seeking employment, rose from 42.8% of the population in 1970 to 51.4% of the population in 1980, and to 52.3% of the population in 1990. This increase has been attributed to two factors: an increasing proportion of the population which is sixteen years of age and older, and an increasing proportion of persons sixteen and older who are working or seeking work.

The increased percentage of the total population which is in the work force serves to increase work trips. This increases not only the total travel but also increases the week-day morning and evening peak trips. This is the travel category which places the highest demands on the street and road system, and on the capacity of the transit system.

Labor force participation in Shawnee County for the period 1970-1990 is shown in Table III-18. Table III-19 also shows the specific composition of the labor force for Shawnee County and the City of Topeka in 1990.

Table III-18 Labor Force Participation in Shawnee County, Kansas.

	1970	1980	1990
Population	155,322	154,916	160,976
Population Age 16 and Over	107,987	118,318	123,599
Percent of Population Age 16 and Over	69.5%	76.4%	76.8%
Labor Force	66,420	79,606	84,242
Percent of Persons Age 16 and Over in Labor Force (%)	61.5	67.3	68.2
Percent of Population in Labor Force (%)	42.8	51.4	52.3

Source: Ref. 2,4

Table III-19 Labor Force Participation in 1990.

	Shawnee County	Topeka City
Persons 16 years and over	123,599	93,342
In labor force	84,242	61,690
Not in labor force	39,357	31,652
Percent of persons 16 years and over in labor force	68.2	66.1
Persons 65 years and over in labor force	2,561	2,112
Percent of persons 65 years and over in labor force	2.1	2.3
Percent of labor force consists of persons 65 years and over	3.0	3.4
Percent unemployment	4.4	5.1

Source: Ref. 4

PLACE OF WORK

The 1990 Census data show that approximately 98% of the total workers (age 16 years and over) in Shawnee County and the City of Topeka work outside of their home. Also, most of the workers work in their county or area of residence (Table III-20). Only 4% of the workers in Shawnee County work outside the county. The corresponding figure for the City of Topeka is 8%.

Table III-20 Place of Work in 1990.

	Shawnee County	Topeka City
Workers 16 Years and Over	79,496	57,709
Worked at Home	1,925	1,107
Worked not at Home	77,571	56,602
Worked in County/Area of Residence	76,470	53,062
Worked outside County/Area of Residence	3,026	4,647

Source: Ref. 4

Place of work data by industries [1] for the ten year period from 1985 to 1994 in Shawnee county are shown in Table III-21. All the industries of Shawnee County in this time period have experienced a stable growth in employment. Most of the working people are employed in service producing industries which include transportation and public utilities, trade, finance, insurance and real estate, services, and government. Data show that 85% of total employment is in the service producing industries. The remaining 15% is in the goods producing industries, which include construction and mining and manufacturing.

INCOME

The median household income in Shawnee county in 1989 was \$29,879, while the median income for the City of Topeka in 1989 was \$26,774 (Table III-22) [4]. Data on income and poverty status show that the 1989 per capita income for Shawnee County was \$14,091. The corresponding value for the City of Topeka was \$13,680. In Shawnee County, 7.4% families were below the poverty level. The corresponding figure for the City of Topeka was 9.3%. The percent of persons below the poverty level in Shawnee County and in the City of Topeka was 10.0% and 12.3%, respectively.

Table III-21 Place of Work by Industries in Shawnee County.

Industry	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Goods Producing	12,900	12,800	12,700	12,500	13,100	13,700	12,800	12,800	12,900	13,900
Construction and Mining	3,400	3,600	3,900	3,500	3,600	3,900	3,400	3,600	3,500	4,000
Manufacturing	9,500	9,200	8,800	9,000	9,500	9,800	9,400	9,300	9,400	9,900
Service Producing	70,500	71,200	73,500	76,600	77,600	77,100	77,100	78,800	82,900	82,700
Transport. & Public Utilities	7,200	6,900	6,700	6,800	7,000	6,700	6,800	5,983	6,800	6,800
Trade	18,700	18,700	19,400	21,000	20,500	19,900	19,000	20,000	21,400	21,000
Finance, Insur., & Real Estate	5,800	5,900	6,200	6,400	6,600	6,600	6,400	6,400	6,200	6,400
Services	18,200	18,800	20,500	21,100	21,700	22,100	23,000	23,800	24,900	24,800
Government	20,600	20,700	20,700	21,300	21,800	21,700	22,000	22,600	23,600	23,600
Total (All Industries)	83,400	84,000	86,200	89,200	90,700	90,800	89,900	91,600	95,800	96,500

Source: Ref. 1

Table III-22 Income and Poverty Status in 1989.

	Shawnee County	Topeka City
Median income per household (\$)	29,879	26,774
Mean income per household (\$)	35,282	32,460
Median income per family (\$)	35,987	32,758
Mean income per family (\$)	41,408	38,773
Per capita income (\$)	14,091	13,680
Families below poverty level	3,197	2,897
Percent of families below poverty level (%)	7.4	9.3
Persons below poverty level	15,735	14,292
Percent of persons below poverty level (%)	10.0	12.3
Percent of persons 65 years and over below poverty level (%)	9.4	9.9

Source: Ref. 4

Table III-23 summarizes the 1989 median household income by census tract and by region for Shawnee County and the City of Topeka [1]. The values indicate that persons living in the North, South and South-East, and West and South-West regions have household incomes above the county/city median. The median household incomes of all the census tracts of the West and South-West region of Shawnee County and the City of Topeka are higher than the County/City median household income. Comparisons of household incomes by census tract relative to the City/County median income for Shawnee County and the City of Topeka are shown on Figures III-4 and III-5, respectively.

MEANS OF TRANSPORTATION

The automobile (includes car, truck, or van) is the predominant transportation mode in the City of Topeka and in Shawnee County. 1990 Census data show that the percent of workers who use the automobile as their primary means of transportation was approximately 95% in both Shawnee County and the City of Topeka. Twelve percent (12%) of the workers who used automobiles used carpooling as their means of transportation. Only 1.3% of the workers in Shawnee County used public transportation (includes bus or trolley bus, ferryboat, and taxicab). The corresponding figure for public transportation for the City of Topeka was 1.8%. The ratio of the workers who worked outside of their home to the number of automobiles (car, truck, or van) was approximately 1 to 1. Table III-24 summarizes the means of transportation used by workers in Shawnee County and in the City of Topeka.

Table 23 Median Household Income of Shawnee County and the City of Topeka in 1989.

Region	Census Tract (C.T.)	County C.T.'s Median Household Income (\$)	% of County Median	Topeka C.T.'s Median household Income (\$)	% of City Median
Central	1	11,168	37	11,168	42
	2	17,083	57	17,083	64
	3	11,511	39	11,511	43
	4	17,571	59	17,571	66
	5	17,230	58	17,230	64
	6	17,090	57	17,090	64
	14	24,559	82	24,559	92
	15	24,462	82	24,462	91
	16.01	30,915	103	30,915	115
	17	61,359	205	61,359	229
	18	29,161	98	29,161	109
	19	40,000	134	40,000	149
	20	29,747	100	29,747	111
	21	26,345	88	26,345	98
22	30,261	101	30,261	113	
23	21,797	73	21,797	81	
North	7	19,363	65	19,510	73
	8	19,000	64	18,667	70
	33	42,003	141	38,125	142
	34	43,227	145	42,500	159
	35	36,315	122	0	0
East	9	25,288	85	25,288	94
	10	24,573	82	24,573	92
	11	13,271	44	13,271	50
	12	19,855	66	19,855	74
	13	23,455	78	23,455	88
	31	18,722	63	18,581	69
	32	27,538	92	26,250	98
	39.01	46,853	157	0	0
South & South-East	16.02	33,428	112	33,428	125
	28	26,875	90	26,875	100
	29	23,414	78	23,414	87
	30	34,605	116	33,589	125
	37	31,493	105	31,913	119
	38	-	0	0	0
	39.02	36,269	121	41,250	154
West & South-West	24	30,244	101	30,275	113
	25	31,843	107	31,843	119
	26.01	33,898	113	33,898	127
	26.02	37,367	125	37,367	141
	27.01	30,222	101	30,222	113
	27.02	34,860	117	34,860	130
	36.01	38,981	130	N/A	0
	36.02	49,812	167	44,571	166
Median		29,879	100	28,774	100

Source: Ref. 1

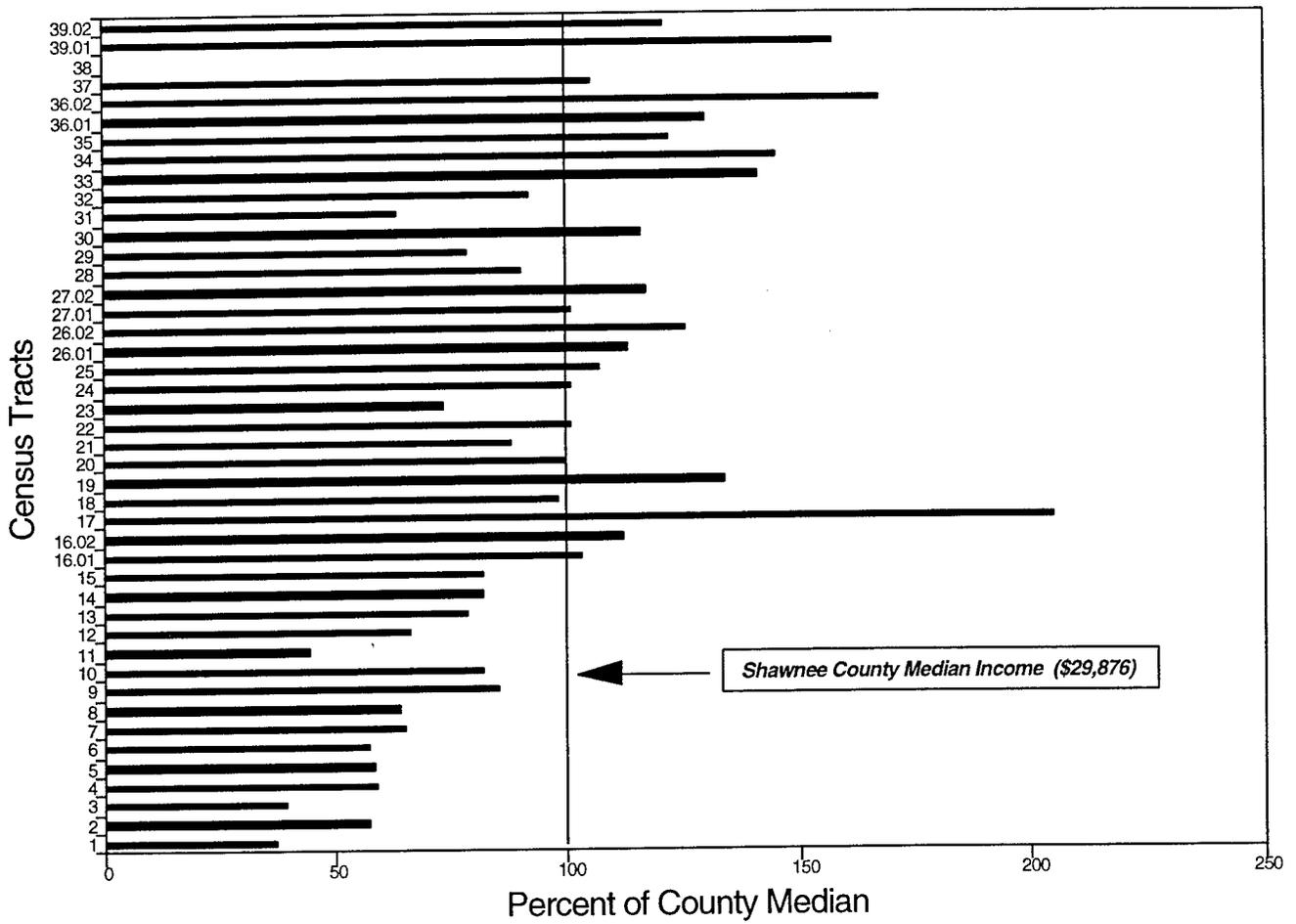


Figure III-4 Income by Census Tracts: Shawnee County, KS.

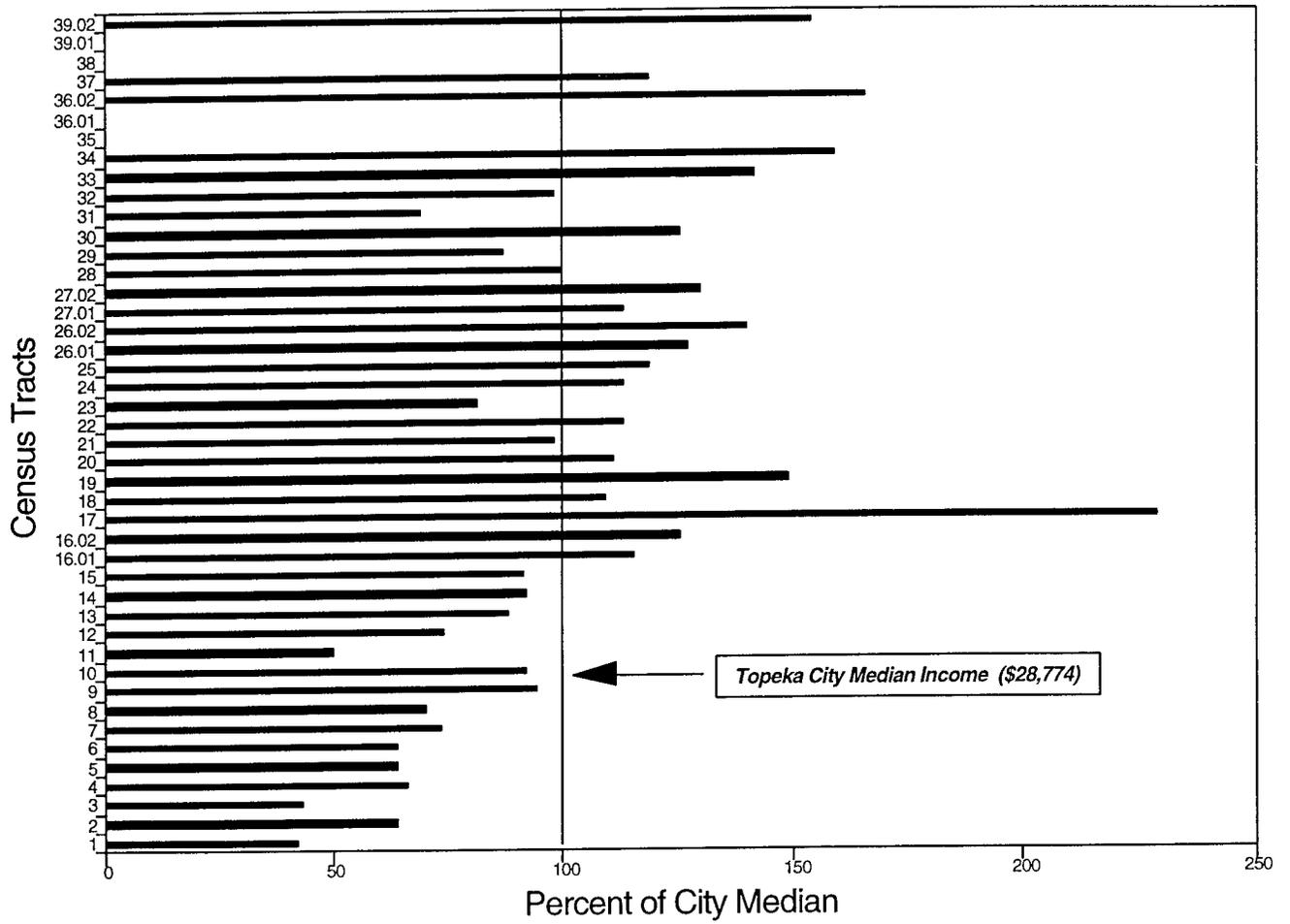


Figure III-5 Income by Census Tracts: City of Topeka, KS.

Table III-24 Means of Transportation (1990).

	Shawnee County	Topeka City
Workers who did not work at home	77,571	56,602
Car, Truck, or Van	74,102	53,502
Drove alone	64,906	46,911
Car pooled	9,196	6,591
Public Transportation	1,036	1,006
Bus or Trolley Bus	971	943
Ferryboat	2	0
Taxicab	63	63
Motorcycle	173	120
Bicycle	205	189
Walked	1,654	1,455
Other means	401	330
Persons per car, truck, or van	1.07	1.08

Source: Ref. 4

MOTOR VEHICLE REGISTRATIONS

The number of motor vehicles registered in Shawnee County increased significantly between 1970 and 1990. During the period 1970-1990 the total number of motor vehicles registered in the county increased by 36,798 vehicles. Motor vehicle registrations in Shawnee County for 1970, 1980 and 1990 are shown in Table III-25.

Table III-25 Motor Vehicle Registration in Shawnee County, Kansas.

Year	Autos	Trucks	Other Vehicles	Total
1970	79,567	16,434	7,491	103,492
1980	92,516	26,786	12,892	132,290
1990	96,919	27,810	15,561	140,290

Source: Ref. 2

The number of registered vehicles in the county increased by 35.6% between 1970 and 1990 while the population increased by 3.6%. The number of registered vehicles and the county population for 1970, 1980 and 1990 are shown in Table III-26. During the period 1970-1990 the number of vehicles per 1,000 persons increased from 666 to 871.

Table III-26 Registered Vehicles Per 1,000 Persons in Shawnee County, Kansas.

Year	Total Population	Registered vehicles	Vehicles per 1,000 Persons	Vehicles per Person 16+ Years
1970	155,322	103,492	666	0.96
1980	154,916	132,194	853	1.12
1990	160,976	140,290	871	1.13

Source: Ref. 2

TRAVEL TIME

The 1990 Census data show that the work trips made by the workers in Shawnee County and in the City of Topeka were of relatively short length. The mean travel times to work were 17 and 15.6 minutes in Shawnee county and in the City of Topeka, respectively. Data also show that approximately 4% of the workers in both Shawnee County and the City of Topeka had a work travel time of 45 minutes or higher. The mean travel times of this category in Shawnee County and the City of Topeka were 66.3 and 65.6 minutes, respectively. The peak departures of the workers in Shawnee County and in the City of Topeka occurred between 7:00 AM to 8:00 AM. Table III-27 summarizes the travel to work and departure times of the workers in Shawnee County and in the City of Topeka.

Table III-27 Travel Time to Work and Departure Time (1990).

	Shawnee County	Topeka City
Worked not at home	77,571	56,602
Minutes to work:		
Less than 10 minutes	12,839	10,913
10 to 14 minutes	17,631	15,115
15 to 19 minutes	20,162	15,615
20 to 29 minutes	17,806	9,834
30 to 44 minutes	6,078	3,011
45 or more minutes	3,055	2,114
Mean travel time to work (minutes)	17.0	15.6
Mean travel time for workers traveling 45 or more minutes (minutes)	66.3	65.6
Departure Time:		
6:00 to 6:59 A.M.	12,730	8,721
7:00 to 7:59 A.M.	32,995	23,640
8:00 to 8:59 A.M.	10,706	8,066
All other times	21,140	16,175

Source: Ref. 4

REFERENCES

1. *Topeka-Shawnee County Community Planning Profile 1995*. Topeka-Shawnee County Metropolitan Planning Agency, Topeka, KS, 1995.
2. *Topeka-Shawnee County Transportation Plan- 2015*. Topeka-Shawnee County Planning Commission in cooperation with Kansas Department of Transportation (KDOT) and Topeka Metropolitan Transit Authority (TMTA), February 1995.
3. *1990 Census of Population: General Population Characteristics (Kansas)*. Series No. 1990-CP-1-18. U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, June 1992.
4. *1990 Census of Population: Social and Economic Characteristics (Kansas)*. U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, June 1992.

CHAPTER IV: BASELINE FINANCIAL NEEDS ASSESSMENT

INTRODUCTION

This chapter presents an overview of recent trends in system revenues and operating expenses for TMTA and other paratransit service providers in Topeka. Estimates of the capital and operating costs associated with providing general public transportation and paratransit services in Topeka for the period 1997-2006 are also presented. The estimates are "baseline" estimates in that they represent the financial resources needed to maintain existing levels of transit services. Estimates of potential revenues are also presented to provide a preliminary indication of the levels of funding that may be required from the various sources available to TMTA and other transit service providers.

TMTA SYSTEM REVENUES AND OPERATING EXPENSES

TMTA revenues are derived from three primary sources: 1) a property-tax levy in the City of Topeka, 2) operating and capital grants from the federal government, and 3) system operating revenues. Historically, TMTA has obtained approximately one-third of its revenue from each of these three sources. However, federal funds have declined since fiscal year 1994 and are expected to continue this decline before stabilizing in fiscal 1998 at approximately \$560,000 per year. However, it also is possible that federal funding will decrease 25 percent each year until being phased out in 2001. Table IV-1 provides a summary of TMTA's revenue sources from fiscal year 1990 to 1996. Note that the 1996 totals are estimates.

Table IV-2 summarizes TMTA's total operating revenues from fiscal 1990 to 1996. Table IV-3 summarizes the funding obtained from each revenue source in fiscal years 1990 through 1996. Of note in Table IV-3 is the increase in revenue needed from the local mill levy to help offset decreased federal funding. Figure IV-1 shows the TMTA's operating revenues by source for the period 1990 through 1996.

Table IV-1 Breakdown of TMTA's Revenue Sources (%).

Revenue Source	FY 1990	FY 1991	FY 1992	FY 1993	FY 1994	FY 1995	FY 1996 ¹
Local Mill Levy	34%	34%	36%	37%	38%	41%	47%
Federal Operating	36%	38%	39%	39%	38%	36%	30%
Operating Revenues	30%	28%	25%	24%	24%	23%	23%
Totals	100%	100%	100%	100%	100%	100%	100%

NOTE: Operating revenues include passenger fares, charter and contract fares, advertising revenue, state grant, bus bench and miscellaneous, and interest.

¹ FY 1996 revenue figures are estimates.

Source: TMTA

Table IV-2 TMTA's Annual Operating Revenue.

Fiscal Year	Operating Revenue (\$)
1990	2,221,351
1991	2,312,342
1992	2,546,476
1993	2,684,716
1994	2,832,104
1995	2,926,644
1996	2,959,403

NOTE: FY 1996 revenue figures are estimates.

Source: TMTA

Table IV-3 TMTA Funding by Revenue Source.

Revenue Source	FY 1990	FY 1991	FY 1992	FY 1993	FY 1994	FY 1995	FY 1996
Local Mill Levy	761,113	797,948	930,754	1,002,714	1,069,704	1,189,047	1,385,334
Federal Operating	806,000	868,683	990,100	1,043,346	1,089,149	1,069,277	896,155
Passenger Fares	503,038	491,400	498,345	536,750	590,323	569,632	570,251
Charter Fares	63,517	76,269	60,680	50,525	44,895	50,956	50,522
Contract Fares	44,121	30,677	25,119	4,942	N/A	N/A	10,500
State KCC Grant ^a	N/A ^b	N/A	1,919	6,540	9,853	5,666	12,334
Advertising--Cash	10,757	11,477	13,353	15,220	4,599	8,702	9,750
Advertising--Trade	26,679	30,241	21,635	19,986	19,349	28,055	19,112
Bus Bench/ Misc.	2,680	2,691	2,724	3,270	3,012	4,107	4,246
Interest (checking)	3,446	2,956	1,847	1,474	1,220	1,202	1,200
Totals	2,221,351	2,312,342	2,546,476	2,684,767	2,832,104	2,926,644	2,959,403

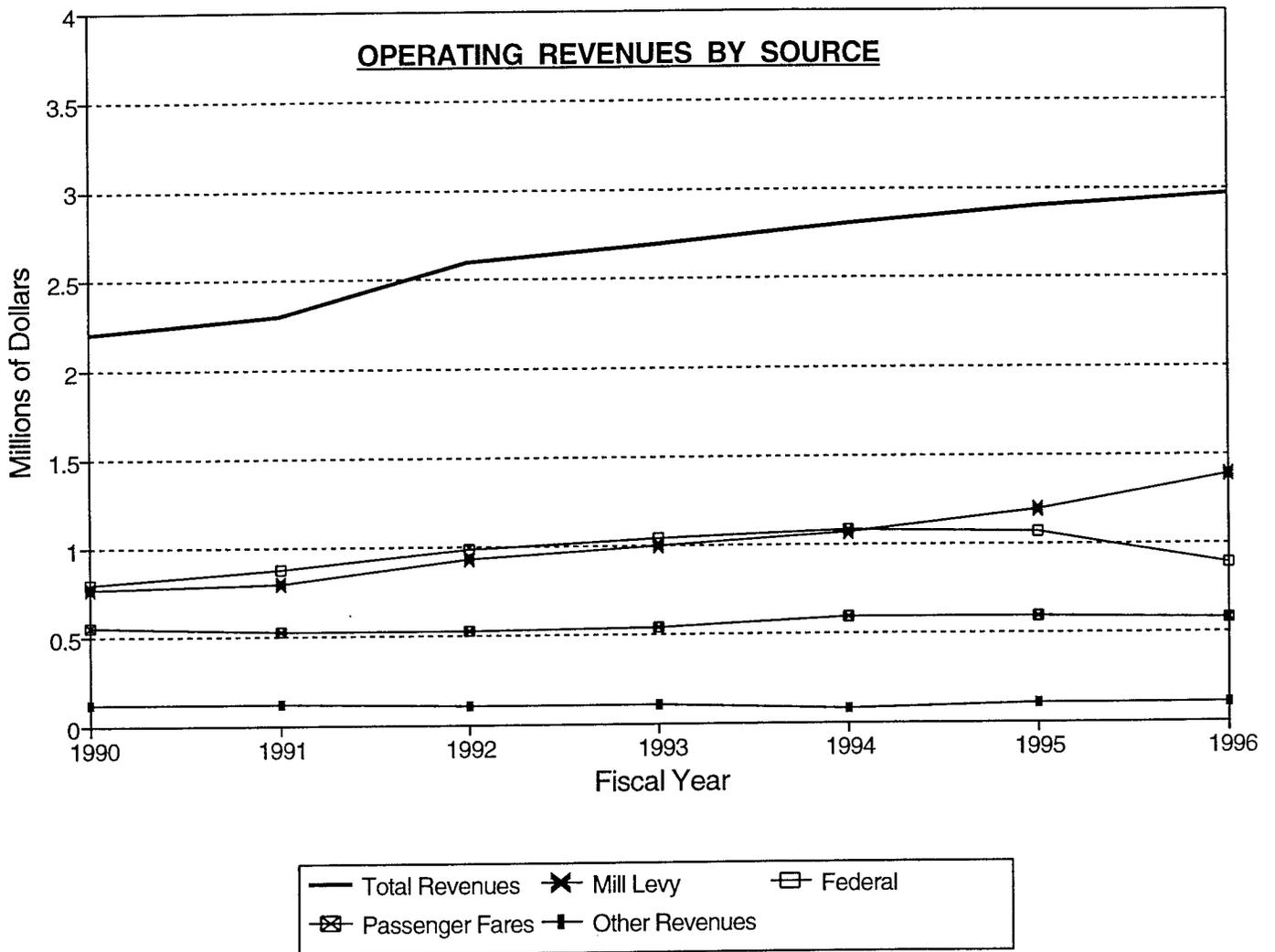
^a Kansas Corporation Commission.

^b Not applicable.

NOTE: All FY 1996 revenue figures are estimates.

Source: TMTA

The major operating expense for TMTA is salaries, which exceeded \$1.6 million in both fiscal 1995 and 1996. Consumables, fringe benefits, and services also account for substantial sums in TMTA's yearly budget. Table IV-4 lists TMTA's total annual operating expenses since fiscal year 1990. Table IV-5 provides a detailed breakdown of those expenses from fiscal 1990 to 1996. Figure IV-2 illustrates TMTA's operating expenses by source for the period 1990 through 1996.



Source: TMTA

Figure IV-1 TMTA's Operating Revenues by Source.

Table IV-4 TMTA's Annual Operating Expenses.

Fiscal Year	Operating Expenses (\$)
1990	2,221,351
1991	2,312,342
1992	2,546,476
1993	2,684,716
1994	2,832,104
1995	2,926,644
1996	2,959,403

NOTE: FY 1996 expense figures are estimates.

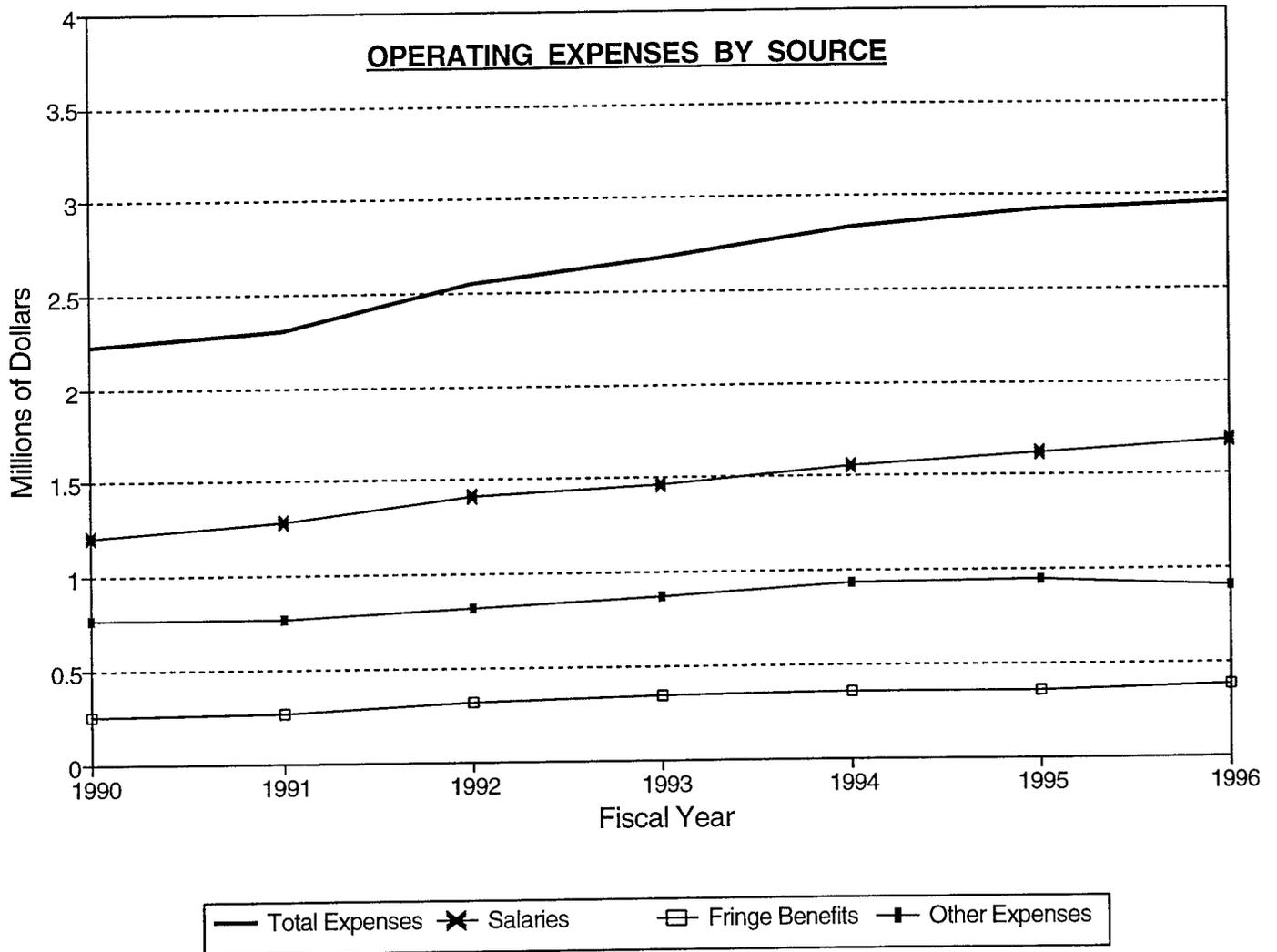
Source: TMTA

Table IV-5 Categorical Breakdown of TMTA's Operating Expenses.

Category	FY 1990	FY 1991	FY 1992	FY 1993	FY 1994	FY 1995	FY 1996
Salaries (\$)	1,205,872	1,288,514	1,415,456	1,473,484	1,554,271	1,616,576	1,679,571
Fringe Benefits (\$)	249,463	259,378	312,414	340,810	349,392	355,724	374,031
Services (\$)	102,967	103,228	106,752	141,471	110,112	128,667	92,898
Consumables (\$)	368,510	413,325	452,583	492,134	578,553	556,084	554,784
Utilities (\$)	37,406	35,460	37,895	45,092	47,045	45,905	49,277
Insurance (\$)	26,309	27,308	25,204	24,583	24,969	28,747	23,145
Self-insurance Claims (\$)	81,983	37,700	41,293	34,413	31,196	30,395	18,000
Taxes (\$)	35,110	38,082	45,624	45,697	47,001	47,080	43,533
Taxi Service (\$)	0	0	236	7,388	10,962	22,956	31,418
Travel (\$)	27,675	27,887	25,558	20,149	15,622	20,146	16,224
Advertising--Cash (\$)	14,330	15,212	25,815	16,251	18,804	18,912	17,154
Advertising--Trade (\$)	24,158	35,268	28,651	12,713	12,675	27,052	29,988
Miscellaneous (\$)	45,320	28,718	26,700	28,268	29,210	25,656	25,892
Leases (\$)	2,248	2,262	2,295	2,263	2,292	2,744	3,489
Totals (\$)	2,221,351	2,312,342	2,546,476	2,684,716	2,832,104	2,926,644	2,959,403

NOTE: All FY 1996 expense figures are estimates.

Source: TMTA



Source: TMTA

Figure IV-2 TMTA's Operating Expenses by Source.

TMTA expects to spend more than \$19.9 million for capital projects before the end of fiscal year 2006. Included in these projects are 66 new buses, the construction of a new maintenance facility, two transfer facilities, a day care center, route signs, bus shelters, and support equipment. Table IV-6 contains an itemized list of projected capital expenditures.

OTHER PARATRANSIT REVENUES AND OPERATING EXPENSES

According to KDOT's 1995 monthly ridership and mileage reports of Section 16-funded vehicles [1], the nine paratransit service providers in Topeka-Shawnee County (see Chapter II) collectively incurred annual vehicle operating expenses of approximately \$121,500 and received a cumulative annual vehicle income of approximately \$6,700. These expenses and revenues are detailed in Table IV-7.

NEEDS ASSESSMENT (1997-2006)

Baseline estimates of the capital and operating costs needed to continue to provide general public transportation and paratransit services at their current levels of service for the period 1997-2006 are presented in the following sections of this chapter. Estimates of potential revenues are also presented to provide a preliminary indication of the levels of funding that may be required from the various sources available to TMTA and other transit service providers.

TMTA Services

Trends in expenditures and revenues since 1990 provided the basis for projecting the financial needs of the TMTA through fiscal year 2006. The Topeka Metropolitan Transit Authority's total operating expenses have increased each year since 1990, with the largest annual increase (10.1 percent) occurring in fiscal 1992. Similarly, salaries and fringe benefits have experienced yearly increases. Fiscal 1992 was the year with the largest increases, as expenditures for salaries increased 9.9 percent and expenditures for fringe benefits increased 20.4 percent.

Table IV-6 TMTA Projected Capital Expenditures Through Fiscal Year 2006.

Project	Required Funding
BUSES	\$9,270,000
Purchase/inspect 66 accessible buses	\$8,720,000
Purchase spare parts	\$465,000
Purchase communication equipment	\$85,000
MAINTENANCE FACILITY	\$2,187,000
TRANSFER FACILITY	\$5,340,000
PASSENGER AMENITIES	\$2,260,000
SUPPORT EQUIPMENT	\$704,000
FACILITY IMPROVEMENTS	\$170,000
Projected Total Capital Expenditures Through FY 2006	\$19,931,000

Source: TMTA

Table IV-7 Monthly Vehicle Operating Costs and Income for Nine Topeka-Shawnee County Paratransit Service Providers During Calendar Year 1995.

Month	Cost (\$)	Income (\$)
January	8,311.63	591.85
February	7,950.93	202.21
March	9,080.93	502.43
April	6,047.92	325.80
May	14,155.38	326.22
June	12,322.60	467.20
July	13,380.94	361.98
August	8,132.59	1,332.81
September	11,184.86	1,357.09
October	13,602.74	387.01
November	10,015.48	696.01
December	7,372.11	167.10
Total	121,558.11	6,717.71

Source: Ref. 1

If the large increases in expenses that occurred in 1992 are ignored, total operating expenses have increased an average of 4.5 percent per year, salaries have increased an average of 5.0 percent per year, fringe benefits have increased an average of 4.6 percent per year, and all other expenses have increased an average of 3.7 percent per year since 1990.

These average annual increases were utilized as a starting point from which to project TMTA's operating expenses through fiscal 2006. The impacts of ADA implementation have not subsided and the paratransit service provided by TMTA has, in fact, shown continued and substantial growth in ridership. This growth impacts operating costs in salaries, fringe benefits, and contracted taxi services. An additional impact on operating costs will be the completion of the new maintenance facility in 1998. Using TMTA's approved budget for fiscal 1997 as a baseline, salaries were increased 4.5 percent annually, the annual amount projected for fringe benefits was approximately 23 percent of the amount projected for salaries, and all other expenses were increased an average of 5.1 percent annually. Based on this method, total operating expenses are projected to increase approximately 4.8 percent annually, reaching more than \$4.8 million in fiscal 2006. Not factored into these costs are any additional expenses related to service increases that would assist in meeting national goals of the Welfare to Work effort. Overall, it is projected that TMTA will incur total operating costs of approximately \$39 million during the 10-year period beginning with fiscal 1997 and ending with fiscal 2006 (see Tables IV-8 and IV-9).

Future capital expenses (Table IV-8 and IV-9) were determined on a project-by-project approach, based on cost estimates provided by TMTA officials. TMTA expects to replace its entire fleet by mid 1999, with future replacements of the 15 smaller vehicles occurring again on a four year cycle. It also expects to construct a new maintenance facility, two transfer facilities, and a day care center, as well as purchase support equipment. For the 10-year period from fiscal 1997 to fiscal 2006, it is projected that TMTA will require more than \$19.9 million to complete the desired capital projects. This figure includes more than \$8.7 million for 66 vehicle replacement, more than \$2.1 million for a new maintenance facility, \$5.3 million for two transfer facilities, \$2.2 million for bus shelters and a day care center, and more than \$1.4 million for support equipment. Overall, it is estimated that total

expenditures (operating plus capital) for TMTA will be approximately \$59 million through fiscal 2006.

In regard to operating revenues (see Tables IV-8 and IV-9), four categories were considered: local mill levy, federal operating/planning, passenger fares, and other revenues. TMTA has experienced a decline in federal operating/planning funding since fiscal 1994, and the future of federal operating/planning allocations is uncertain. Therefore, two future scenarios were developed to reflect this uncertainty. The assumptions of the first scenario (Table IV-8) are that the federal operating allocation will remain constant at approximately \$563,000 beginning in fiscal 1998, and that TMTA's 3-mill cap on revenue from the general fund will not be increased. The assumption of the second scenario (Table IV-9) are that the federal operating allocation will be reduced 25 percent each year until being phased out in fiscal 2001, and that TMTA's 3-mill cap will not be increased.

Passenger fares have fluctuated from a low of \$522,000 in fiscal 1991 to a high of slightly more than \$590,000 in fiscal 1994. With the continued growth in paratransit ridership however, TMTA officials project that revenues from passenger fares will increase approximately 1% each year through fiscal 2006. The category of "other revenues" includes charter and contract fares, advertising, bus bench, interest from checking accounts, and other miscellaneous items. This category also has fluctuated since 1990, but recent TMTA projections indicate that this category will stabilize in the \$70,000 to \$75,000 per year range. Consequently, the "other revenues" in Tables IV-8 and IV-9 were held within this range.

Because federal operating and planning funding has declined in recent years, and because passenger fares and other revenues have remained fairly constant, more money has been needed from the local mill levy in order to meet TMTA's operating expenses. TMTA received \$761,116 from the mill levy during fiscal 1990, but the approved budget for fiscal 1997 calls for more than \$1.8 million from this source. Given the increasing operating expenses and the relatively stable flow of money from other revenue sources, TMTA will require dramatic increases in revenue from the mill levy or other local and/or state sources or face an unfunded deficit.

Table IV-8 Projection of TMTA's Expenses and Revenues, FY 1997-2006, Base Case Scenario.

Category	FY 1997 Approved	FY 1998 Approved	FY 1999 Projected	FY 2000 Projected	FY 2001 Projected	FY 2002 Projected	FY 2003 Projected	FY 2004 Projected	FY 2005 Projected	FY 2006 Projected	FY 1997-2006 Projected Total
Operating Costs											
Salaries	1,754,000	1,852,000	1,955,000	2,022,000	2,113,000	2,209,000	2,308,000	2,412,000	2,520,000	2,634,000	21,759,000
Fringe Benefits	367,000	415,000	436,000	458,000	480,000	504,000	530,000	556,000	584,000	613,000	4,943,000
All Other Expenses	971,000	1,050,000	1,109,000	1,164,000	1,223,000	1,285,000	1,351,000	1,420,000	1,495,000	1,574,000	12,642,000
Total Operating Costs	3,092,000	3,317,000	3,480,000	3,644,000	3,816,000	3,998,000	4,189,000	4,388,000	4,599,000	4,821,000	39,344,000
Capital Costs											
Replace Revenue Vehicles		6,310,000	620,000	270,000		510,000	450,000			560,000	8,720,000
Communication Equipment			64,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	85,000
Spare Vehicle Parts			45,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	465,000
New Maintenance Facility	265,000	1,922,000				1,020,000	1,280,000				2,187,000
New Transfer Facility		1,840,000	1,200,000								5,340,000
Passenger Amenities	15,000		800,000	1,400,000		45,000					2,260,000
Support Equipment	47,000	145,000	264,000	36,000	6,000	31,000	121,000	31,000	11,000	11,000	704,000
Facility Improvements		125,000			45,000						170,000
Total Capital Costs	327,000	10,343,000	2,993,000	1,769,000	114,000	1,669,000	1,914,000	94,000	74,000	634,000	19,931,000
Total Expenditures	3,419,000	13,660,000	6,473,000	5,413,000	3,930,000	5,667,000	6,103,000	4,482,000	4,673,000	5,455,000	59,275,000

Operating Revenue											
Local Mill Levy											
Insurance fund	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	300,000
Employee Benefits	367,000	415,000	436,000	458,000	480,000	504,000	530,000	556,000	584,000	613,000	4,943,000
General Fund	1,229,000	1,632,000	1,767,000	1,902,000	2,045,000	2,196,000	2,328,000	2,372,000	2,417,000	2,463,000	20,351,000
Federal Operating/Planning	680,000	564,000	564,000	564,000	564,000	564,000	564,000	564,000	564,000	564,000	5,756,000
Passenger Fares	606,000	608,000	614,000	620,000	626,000	632,000	639,000	645,000	651,000	658,000	6,299,000
Other Revenue	180,000	68,000	69,000	70,000	71,000	72,000	73,000	74,000	75,000	76,000	828,000
Total Operating Revenue	3,092,000	3,317,000	3,480,000	3,644,000	3,816,000	3,998,000	4,164,000	4,241,000	4,321,000	4,404,000	38,477,000
Unfunded Operating Deficit	0	0	0	0	0	0	-25,000	-147,000	-278,000	-417,000	-867,000
Capital Revenue											
Federal	223,000	8,224,000	1,803,000	497,000	497,000	497,000	497,000	497,000	497,000	497,000	13,729,000
State	38,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	488,000
Local	66,000	2,069,000	463,000	137,000	137,000	137,000	137,000	137,000	137,000	137,000	3,557,000
Total Capital Revenue	327,000	10,343,000	2,316,000	684,000	684,000	684,000	684,000	684,000	684,000	684,000	17,774,000
Unfunded Capital Deficit	0	0	-677,000	-1,085,000	570,000	-985,000	-1,230,000	590,000	610,000	50,000	-2,157,000
Total Revenue	3,419,000	13,660,000	5,796,000	4,328,000	4,500,000	4,682,000	4,848,000	4,925,000	5,005,000	5,088,000	56,251,000
Total Unfunded Deficit	0	0	-677,000	-1,085,000	570,000	-985,000	-1,255,000	443,000	332,000	-367,000	-3,024,000

Table IV-9 Projection of TMTA's Expenses and Revenues, FY 1997-2006, Reduced Federal Funding Scenario.

Category	FY 1997 Approved	FY 1998 Approved	FY 1999 Projected	FY 2000 Projected	FY 2001 Projected	FY 2002 Projected	FY 2003 Projected	FY 2004 Projected	FY 2005 Projected	FY 2006 Projected	FY 1997-2006 Projected Total
Operating Costs											
Salaries	1,754,000	1,852,000	1,935,000	2,022,000	2,113,000	2,209,000	2,308,000	2,412,000	2,520,000	2,634,000	21,759,000
Fringe Benefits	367,000	415,000	436,000	458,000	480,000	504,000	530,000	556,000	584,000	613,000	4,943,000
All Other Expenses	971,000	1,050,000	1,109,000	1,164,000	1,223,000	1,285,000	1,351,000	1,420,000	1,495,000	1,574,000	12,642,000
Total Operating Costs	3,092,000	3,317,000	3,480,000	3,644,000	3,816,000	3,998,000	4,189,000	4,388,000	4,599,000	4,821,000	39,344,000
Capital Costs											
Replace Revenue Vehicles		6,310,000	620,000	270,000		510,000	450,000			560,000	8,720,000
Communication Equipment			64,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	85,000
Spare Vehicle Parts			45,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	465,000
New Maintenance Facility	265,000	1,922,000									2,187,000
New Transfer Facility		1,840,000	1,200,000			1,020,000	1,280,000				5,340,000
Passenger Amenities	15,000		800,000	1,400,000		45,000					2,260,000
Support Equipment	47,000	146,000	264,000	36,000	6,000	31,000	121,000	31,000	11,000	11,000	704,000
Facility Improvements		125,000			45,000						170,000
Total Capital Costs	327,000	10,343,000	2,993,000	1,769,000	114,000	1,669,000	1,914,000	94,000	74,000	634,000	19,931,000
Total Expenditures	3,419,000	13,660,000	6,473,000	5,413,000	3,930,000	5,667,000	6,103,000	4,482,000	4,673,000	5,455,000	59,275,000

Operating Revenue											
Local Mill Levy											
Insurance fund	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	300,000
Employee Benefits	367,000	415,000	436,000	458,000	480,000	504,000	530,000	556,000	584,000	613,000	4,943,000
General Fund	1,229,000	1,632,000	1,908,000	2,184,000	2,242,000	2,285,000	2,328,000	2,372,000	2,417,000	2,463,000	21,060,000
Federal Operating/Planning	680,000	564,000	423,000	282,000	141,000						2,090,000
Passenger Fares	606,000	608,000	614,000	620,000	626,000	632,000	639,000	645,000	651,000	658,000	6,299,000
Other Revenue	180,000	68,000	69,000	70,000	71,000	72,000	73,000	74,000	75,000	76,000	828,000
Total Operating Revenue	3,092,000	3,317,000	3,480,000	3,644,000	3,590,000	3,523,000	3,600,000	3,677,000	3,757,000	3,840,000	35,520,000
Unfunded Operating Deficit	0	0	0	0	-226,000	-475,000	-589,000	-711,000	-842,000	-981,000	-3,824,000
Capital Revenue											
Federal	223,000	8,224,000	1,803,000	497,000	497,000	497,000	497,000	497,000	497,000	497,000	13,729,000
State	38,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	488,000
Local	66,000	2,069,000	463,000	137,000	137,000	137,000	137,000	137,000	18,000	0	3,301,000
Total Capital Revenue	327,000	10,343,000	2,316,000	684,000	684,000	684,000	684,000	684,000	565,000	547,000	17,518,000
Unfunded Capital Deficit	0	0	-677,000	-1,085,000	570,000	-985,000	-1,230,000	590,000	491,000	-87,000	-2,413,000
Total Revenue	3,419,000	13,660,000	5,796,000	4,328,000	4,274,000	4,207,000	4,284,000	4,361,000	4,322,000	4,387,000	53,038,000
Total Unfunded Deficit	0	0	-677,000	-1,085,000	344,000	-1,460,000	-1,819,000	-121,000	-351,000	-1,068,000	-6,237,000

According to the projections for fiscal 2006 (Table IV-8), TMTA will incur operating expenses of approximately \$39.3 million during the 10-year period. If federal operating allocations remain constant, it is projected that TMTA will receive approximately \$5.8 million in federal operating/planning revenue, nearly \$6.3 million from passenger fares, and \$828,000 from "other" revenue sources. This leaves a gap of more than \$26 million, of which approximately \$25 million can be funded through the mill levy under current restrictions. This result is an amount of nearly \$1 million of operating expenses to be funded by other local and/or state revenue sources during the 10-year period if existing services are to be maintained. The required amount of local funds is available to match the projected federal and state funds for capital on an 80/20% ratio.

However, if federal operating allocations are gradually reduced and phased out in 2001, TMTA is projected to experience a revenue shortage beginning in fiscal 2001 (Table IV-9). In this scenario, federal operating funding will fall to a total of approximately \$2.1 million during the 10-year period, while revenue from the mill levy will total approximately \$26.3 million under present restrictions. The result is a budget shortfall of more than \$3.8 million for operating expenses and a shortage of \$255,000 of local revenue to match projected federal and state funds for capital on an 80/20% ratio. In either scenario the revenue required to meet funding of capital projects is considerably less than the expenses projected.

Other Paratransit Services

Data concerning the revenues and expenses for the nine other paratransit service providers (see Chapter II) in the Topeka-Shawnee County were obtained from the individual providers (via questionnaire or telephone conversation) and from the Kansas Department of Transportation (KDOT). Operating costs through the year 2006 were estimated by assuming that the combined 1996 transportation budgets of the nine providers (see Table II-10) would increase at the rate of 4.5 percent annually through fiscal 2006. The resulting estimates are summarized in Table IV-10.

The capital costs shown in Table IV-10 are based solely on vehicle replacement needs. Using

KDOT's funded-vehicle inventory, a replacement schedule was established, assuming that vehicles would be replaced at 100,000 miles or at 10 years of age. It was assumed that each provider would seek to replace its vehicle(s) according to this schedule, and that each provider would request the same type of vehicle. Vehicle replacement costs assume a 5 percent annual increase in vehicle purchase prices.

Based on this methodology, it is projected that the nine paratransit providers will collectively incur approximately \$6.3 million in operating expenses for transportation services through fiscal 2006. An additional \$950,000 will be needed for vehicle replacement during this time period.

In regard to transportation-related revenue for the nine providers, their collective vehicle income for calendar year 1995 (see Table IV-7) was increased by 4.5 percent annually, resulting in estimates of operating revenue through fiscal 2006. Federal capital revenue needed to allow vehicle replacement according to the schedule discussed above was included, and the total annual revenue is the sum of operating and federal capital revenues (Table IV-10).

**Table IV-10 Projection of Cumulative Expenses and Revenues for Other Topeka-Shawnee County Paratransit Providers,
FY 1997-2006.**

Category	FY 1997 Estimated	FY 1998 Projected	FY 1999 Projected	FY 2000 Projected	FY 2001 Projected	FY 2002 Projected	FY 2003 Projected	FY 2004 Projected	FY 2005 Projected	FY 2006 Projected	FY 1997-2006 Projected Total
Operating Costs	521,000	544,000	568,000	594,000	621,000	649,000	678,000	708,000	740,000	774,000	6,397,000
Capital Costs- Replace Vehicles	140,000	77,000	42,000	97,000	105,000	0	0	130,000	114,000	245,000	950,000
Total Expenditures	661,000	621,000	610,000	691,000	726,000	649,000	678,000	838,000	854,000	1,019,000	7,347,000

Operating Revenue Vehicle Income	7,000	8,000	8,000	8,000	9,000	9,000	10,000	10,000	10,000	11,000	90,000
State Operating	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	90,000
Other*	505,000	527,000	551,000	577,000	603,000	631,000	659,000	689,000	721,000	754,000	6,217,000
Total Operating Revenue	521,000	544,000	568,000	594,000	621,000	649,000	678,000	708,000	740,000	774,000	6,397,000
Capital Revenue Federal	112,000	62,000	34,000	78,000	84,000	0	0	104,000	91,000	196,000	761,000
Local	28,000	15,000	8,000	19,000	21,000	0	0	26,000	23,000	49,000	189,000
Total Capital Revenue	140,000	77,000	42,000	97,000	105,000	0	0	130,000	114,000	245,000	950,000
Total Revenue	661,000	621,000	610,000	691,000	726,000	649,000	678,000	838,000	854,000	1,019,000	7,347,000

* cost of transportation services are balanced with revenue from agencies' general funding sources, such as city and county governments, block grants, the United way, etc.

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**BASELINE PARATRANSIT NEEDS ASSESSMENT
MANHATTAN, KANSAS**

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PREFACE

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DISCLAIMER

The contents of this report reflect the views of the authors who are responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the views or the policies of the State of Kansas. This report does not constitute a standard, specification or regulation.

ABSTRACT

The basic objective of this research project was to estimate the capital and operating costs associated with providing general public transportation and paratransit services in Topeka, Wichita, Lawrence and Manhattan, KS over the next ten years (1997-2006). This report presents the results of the paratransit needs assessment for Manhattan. The results reported in the present study are based on a synthesis and extrapolation of existing data. The needs assessment is presented in aggregate financial terms. The present study does not explicitly address ridership, demand, routes, service configuration, or system design.

The needs assessment presented in this report attempts to quantify the financial resources needed to maintain existing levels of paratransit services in Manhattan for the period 1998-2007. In addition, data concerning local socio-demographic trends and transit service characteristics are provided in sufficient detail to allow local service providers to perform a rudimentary assessment of the potential economic and service impacts of a range of alternative service configurations.

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CHAPTER I: EXECUTIVE SUMMARY

INTRODUCTION AND PURPOSE

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) requires state departments of transportation (DOTs) and local metropolitan planning organizations (MPOs) to: 1) develop, establish and implement public transportation facilities and equipment management systems; 2) develop a statewide, long-range transportation plan; 3) develop long range transportation plans for each of the state's metropolitan areas; and 4) develop a unified planning work program to meet the state's total transportation system needs. The provisions of ISTEA require states to consider not only the expansion of current systems to accommodate increased demand, but also an assessment of capital investment and other measures necessary to preserve the existing transportation system, including rehabilitation of existing and future transit facilities.

To address the ISTEA mandates enumerated above, the Kansas Department of Transportation (KDOT) has sponsored several studies directed at assessing the state's public transportation needs for the next ten years. In addition to satisfying the requirements of ISTEA, these needs assessment studies will be valuable to local and state elected officials in developing and evaluating programs to meet the transportation needs of the citizens of the state of Kansas in an efficient and economical manner.

An assessment of the state's rural public transportation needs has been completed [1]. The transit needs of the Kansas City (KS) Tri-County Area have been assessed by that area's planning agencies [2]. The basic objective of the present two-year research project is to estimate the capital and operating costs associated with providing general public transportation and paratransit services in Topeka, Wichita, Lawrence and Manhattan, KS over the next ten years (1997-2006). The needs assessments for Topeka [3] and Wichita [4] have been completed. The present report presents the results of the paratransit needs assessment for Manhattan.

SCOPE AND LIMITATIONS

This report presents the results of the paratransit needs assessment for Manhattan for the period 1998-2007. The results reported in the present study are based on a synthesis and extrapolation of existing data. The needs assessment is presented in aggregate financial terms. The present study does not explicitly address ridership, demand, routes, service configuration, or system design.

The needs assessment presented in this report attempt to quantify the financial resources needed to maintain existing levels of paratransit services in Manhattan for the period 1998-2007. In addition, data concerning local socio-demographic trends and transit service characteristics are provided in sufficient detail to allow local service providers to perform a rudimentary assessment of the potential economic and service impacts of a range of alternative service configurations.

FINDINGS

This report provides data on existing paratransit services in Manhattan, summarizes key socio-demographic data that can affect the demand for transit services, and presents estimates of the financial resources needed to provide paratransit services in Manhattan for the period 1998-2007. The findings within each of these three basic subject areas are summarized in the following sections of this chapter.

Existing Paratransit Services

The transit services available in the City of Manhattan are demand-responsive paratransit services. Excluding the taxi services, five agencies provide paratransit services in Manhattan. The agencies are Big Lakes Development Center, Inc., Leonardville Nursing Home, Pawnee Mental Health Services, Inc., Riley County Retired and Senior Volunteer Program, Inc., and Riley County Aging Transportation Agency. As of January 1996, Big Lakes Development Center, Leonardville Nursing Home, Pawnee Mental Health Services, and Riley County Retired and Senior Volunteer Program are

members of the Coordinated Transit District 4 (CTD 4) named "Two Lakes Coordinated Transit Alliance, Inc."

Twenty-two privately owned or quasi-public paratransit vehicles, purchased with assistance from either federal section 16(b)2 grant funds or State of Kansas paratransit funds, were operating in the City of Manhattan during calendar year 1996. Of these 22 vehicles, 11 are equipped with wheelchair lifts.

Historical data on paratransit ridership in the Manhattan/Riley County area were not available. A total of 78,499 persons used the paratransit services offered by the paratransit service providers in 1996. The predominant groups using the service are disabled and elderly. Because of the nature of the agencies, Leonardville Nursing Home and Riley County RSVP did not provide any transportation to the general public (other than elderly and disabled). Approximately, thirty percent (30%) of the rides provided by Pawnee Mental Health Services were for the general public in 1996.

Factors Affecting Transit Demand

The growth of population in the Manhattan-Riley County area has been modest. The percent of people living in the City is increasing (from 48.6% in 1970 to 56.2% in 1990). The resident population in the City is becoming more dispersed resulting in a decreasing population density. The population density (persons per square mile) of Manhattan has decreased from 3,726 in 1970 to 3,428 in 1990.

The density of dwelling units in the City of Manhattan also increased during the period from 1970 to 1990 (from 1,318 units per square mile in 1970 to 1,414 units per square mile in 1990). Approximately two-thirds (68%) of the dwelling units of Riley county are located within the city of Manhattan.

Labor force participation in the Manhattan-Riley County area has increased from 51.9% of the total

population in 1970 to 56.5% in 1990. This increase has been attributed to two factors: an increasing proportion of the population which is sixteen years of age and older, and an increasing proportion of persons sixteen and older who are working or seeking work. The increased percentage of the total population which is in the work force serves to increase work trips. This increases not only the total travel but also increases the weekday morning and evening peak trips. This is the travel category which places the highest demands on the street and road system, and on the capacity of the transit system.

The 1990 Census data showed that approximately 97% of the total workers (age 16 years and over) in Riley County and the City of Manhattan worked outside of their home. A large portion of the workers (23.4%) in the City of Manhattan worked outside the city.

Approximately 80% of the working population in Manhattan-Riley County area uses automobiles as a means of transportation to and from work. Twelve percent (12%) of the population of this category use carpooling in the City of Manhattan while the corresponding figure for Riley county is 16%. Use of public transportation is extremely low (below 1%). The ratio of the workers who worked outside of their home to the number of automobiles was approximately 1 to 1. The mean travel time to work is relatively short with values of 12.9 and 13.0 minutes for Riley County and the City of Manhattan, respectively. Persons who have a travel time of 45 minutes or more constitute approximately 2.5% of the total working population. The mean work travel time of this category for Riley County is 61.8 minutes. The corresponding figure for the City of Manhattan is 63.3 minutes.

BASELINE FINANCIAL NEEDS ASSESSMENT

A summary of the estimates of the capital and operating costs needed to provide paratransit services with a range of possible levels of local, state and federal funding assistance for the period 1998-2007 is presented here. The reader is referred to Chapter IV of this report for a detailed explanation of the data sources and methodology used to develop the estimates of future financial needs.

Data concerning the revenues and expenses for the five paratransit service providers in Manhattan area were obtained from the individual providers (via questionnaire or telephone conversation) and from the Kansas Department of Transportation (KDOT). Operating costs through the year 2007 were estimated by assuming that the combined 1997 transportation budgets of the five paratransit service providers would increase at the rate of 4.5 percent annually through fiscal 2007. The capital cost estimates are based solely on vehicle replacement needs. Vehicle replacement costs assume a 5 percent annual increase in vehicle purchase prices.

It is projected that the five paratransit providers will collectively incur approximately \$3.4 million in operating expenses for transportation services through fiscal 2007. An additional \$1.8 million will be needed for vehicle replacement during this time period. The level of federal funds needed to maintain the existing paratransit services was estimated to be \$1.4 million over the next ten years.

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CHAPTER II: EXISTING PARATRANSIT SERVICES

INTRODUCTION

Manhattan, Kansas, the seat of Riley County, is a city of nearly 38,000 people in northeast Kansas. Manhattan is located approximately 50 miles west of Topeka, the state's capital, and is approximately 10 miles north of Interstate 70. The presence of Kansas State University, with approximately 21,000 students, as well as the presence of the Fort Riley military installation may influence the services offered in the city. Currently, Manhattan is without a fixed-route transit system. However, negotiations are underway with a private for-profit organization which potentially could provide public transportation using vans on three fixed routes [1]. A comprehensive transportation study is also underway. This study will review existing and expected travel patterns within the City to determine possible transit and/or expanded paratransit services which might improve mobility for the public, reduce congestion, parking demand, and safety problems.

TRANSIT SERVICE PROVIDERS

The transit services available in the City of Manhattan are demand-responsive paratransit services. Excluding the taxi services, five agencies provide paratransit services in Manhattan. The agencies are Big Lakes Development Center, Inc., Leonardville Nursing Home, Pawnee Mental Health Services, Inc., Riley County Retired and Senior Volunteer Program, Inc., and Riley County Aging Transportation Agency.

As of July 1, 1995 it is mandatory that all transit providers receiving 49 U.S.C #5310 (Section 16) or 49 U.S.C. #5311 (Section 18) funds be members of a Coordinated Transit District (CTD). As of January 1996, Big Lakes Development Center, Leonardville Nursing Home, Pawnee Mental Health Services, and Riley County Retired and Senior Volunteer Program are members of the Coordinated Transit District 4 (CTD 4) named "Two Lakes Coordinated Transit Alliance, Inc." [2].

The following is a summary of the existing paratransit service providers in Manhattan. Unless otherwise noted, the following summary of paratransit providers has been taken from the directory of Public Transportation Services in Kansas published by the Kansas Department of Transportation [2].

Big Lakes Development Center, Inc.

Big Lakes Development Center, a non-profit organization, operates a modified demand-responsive system for developmentally disabled adults and for the general public. Services include pre-scheduled regular routes with some specialized services on evenings and weekends. The service area includes Riley, Pottawatomie, Geary and Clay Counties, Manhattan, Clay Center, Junction City and Onaga.

The center prefers advance notice of 24 hours, if possible, for scheduling rides, while pickups and drop-offs are at one of the pre-scheduled stops or at the center. Fares are \$2.00 per trip in Manhattan, \$3.50 for Junction City, Onaga, and Clay Center routes. Communication between the center and its drivers is accomplished with cellular telephones in three of the center's 12 vehicles. The center receives federal and state subsidies for both operating and capital expenses. The center provides trips to medical, recreational and shopping services, and to and from Big Lakes Adult Training Centers.

Pawnee Mental Health Services, Inc.

The Pawnee Mental Health Services, Inc. provides transportation for the severely and persistently mentally ill population who, more than likely, could not find other transportation on their own. It helps these individuals to access treatment, work training and employment opportunities, housing options and other community agency resources.

The service area includes Manhattan in Riley County, Clay Center in Clay County, Junction City in Geary County, Wamego in Pottawatomie County, and Marysville in Marshall County. The agency provides free demand-responsive transportation with its six transit vehicles.

Each of the agency's clients has a travel schedule arranged in accordance with their treatment schedule; changes to the schedule require advance notice of 24 hours. Pickups and drop-offs occur at one of the pre-scheduled stops or at the agency. The agency is a non-profit private organization which receives federal capital funding for its transportation services.

Riley County Retired and Senior Volunteer Program, Inc.

The Transportation program of the Riley County Retired and Senior Volunteer Program, Inc. (RSVP) is strictly volunteer. Volunteer drivers pickup volunteers enrolled in their program and take them to and from their work sites.

The private non-profit agency's demand-responsive system requests scheduling of rides 24 hours in advance; however, efforts are made to accommodate same-day callers, if possible. The agency provides free transportation services with its one vehicle which is equipped with cellular telephones. The service area includes Riley County with Manhattan being the primary route. However, occasional trips are made to Leonardville, Randolph and Zeandale. Pickups and drop-offs are at the passenger's desired sites. The agency receives capital funding from both the federal government and the state.

Leonardville Nursing Home

Leonardville Nursing Home takes its residents to their physician or the hospital. Trips are also made for pleasure outings through the county and surrounding counties. The service area includes Riley County and the surrounding area.

This is a non-profit private agency which receives capital funding from the federal government. The agency operates one vehicle for its transportation services. Fares are \$25.00 for physician visits without a family member and \$15.00 for physician visits if accompanied by a family member.

Riley County Aging Transportation Agency

The demand-responsive system operated by the Aging Transportation Agency (ATA) provides transportation for the following Riley County citizens: Elderly (60 and over), disabled persons under 60, and the general public (primarily low-income individuals). Annual memberships are sold for \$12.00, and rides of up to five miles cost an additional \$1.00. The cost of rides increases \$1.00 for each additional five-mile increment. Nonmembers are charged a double fare.

ATA requests scheduling 24 hours in advance. However, services are provided for same-day callers on a space available basis. Pickups and drop-offs are at desired and prearranged sites. Communication between the control center and ATA's two vehicles is achieved with cellular telephones. ATA, a public agency operated by the county, receives capital funding from both federal and state governments [1].

Table II-1 gives a summary of the system characteristics of the five paratransit service providers in Manhattan, Kansas.

Table II-1. Paratransit Services Provided by Transit Service Providers in Manhattan, Kansas.

Provider	Type of Service	Target Clientele
Big Lakes Development Center, Inc.	Demand-Responsive	Disabled/Public
Leonardville Nursing Home	Demand-Responsive	Elderly/Disabled ¹
Riley County ATA	Demand-Responsive	Elderly/Disabled/Public
Riley County RSVP, Inc.	Demand-Responsive	Elderly
Pawnee Mental Health Services, Inc.	Demand-Responsive	Disabled

¹ available only to the residents of the nursing home.

Source: Ref. 3

INVENTORY OF PARATRANSIT VEHICLES

Twenty-two privately owned or quasi-public paratransit vehicles, purchased with assistance from either federal section 16(b)2 grant funds or State of Kansas paratransit funds, were operating in the City of Manhattan during calendar year 1996. Of these 22 vehicles, 11 are equipped with wheelchair lifts.

Table II-2 provides an inventory of the vehicles operating in the City of Manhattan as of June 1996.

Table II-2. Inventory of Paratransit Vehicles in Manhattan, Kansas.

Provider	Vehicle Description	Lift	Purchase Price (\$)
Big Lakes Development Center, Inc.	1993 transit bus	Yes	36,980
	1996 transit bus	No	33,845
	1995 window van	Yes	32,574
	1996 window van	No	29,071
	1983 station wagon	No	9,534
	1988 window van	No	18,970
	1989 transit bus	Yes	26,756
	1990 transit bus	No	31,626
	1991 transit bus	Yes	33,394
	1992 transit bus	Yes	31,846
	1994 window van	No	25,136
	1994 window van	No	25,136
Leonardville Nursing Home	1987 conversion van	Yes	23,360
Riley County ATA	1987 conversion van	No	21,175
	1991 transit bus	Yes	33,090
Riley County RSVP, Inc.	1995 transit bus	Yes	32,796

Table II-2 (contd.)

Provider	Vehicle Description	Lift	Purchase Price (\$)
Pawnee Mental Health Services, Inc.	1988 transit bus	No	26,660
	1990 window van	No	14,973
	1992 transit bus	Yes	34,984
	1993 window van	Yes	32,574
	1996 transit bus	Yes	33,575
	1996 window van	No	30,245

Source: Ref. 3

PARATRANSIT RIDERSHIP

Historical data on paratransit ridership in the Manhattan/Riley County area were not available at the time this study was conducted. Table II-3 shows the total paratransit ridership for all twenty-two vehicles of the five paratransit providers for calendar year 1996 [3]. A total of 78,499 persons used the paratransit services offered by the paratransit service providers in 1996 (Table II-3). The predominant groups using the service are disabled and elderly. Because of the nature of the agencies, Leonardville Nursing Home and Riley County RSVP did not provide any transportation to the general public (other than elderly and disabled). Approximately, thirty percent (30%) of the rides provided by Pawnee Mental Health Services were for the general public in 1996.

Table II-3. Paratransit Ridership in Calendar Year 1996.

Provider	Elderly	Disabled	Public	Total
Big Lakes Development Center	109	40,503	81	40,693
Leonardville Nursing Home	368	0	0	368
Riley County ATA	5,299	795	601	6,695
Riley County RSVP	2,358	460	0	2,818

Table II-3 (con.)

Provider	Elderly	Disabled	Public	Total
Pawnee Mental Health Services	664	18,307	8,954	27,925
Total				78,499

Source: Ref. 3

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CHAPTER III: FACTORS AFFECTING TRANSIT DEMAND

INTRODUCTION

It has been understood for many years that there is a close relationship between land development, population and economic patterns and the demand for transportation services. Among the various factors affecting travel demand, the most significant are the natural growth of population and the spatial distribution of residences, work, shopping, and entertainment activities. These factors change over time affecting the road and street system and other transportation services and facilities.

This chapter provides a summary of key socio-demographic trends that could have a significant impact on the demand for transit services in Manhattan and the surrounding area in coming years. These data should be useful to local transit service providers in assessing potential new transit markets and in evaluating alternative transit system configurations and service delivery schemes.

POPULATION GROWTH TRENDS

The growth of population in Riley County and in the City of Manhattan has been modest. Until recently, both the City of Manhattan and the balance of Riley County have experienced stable growth. The County and City populations as reported by the U.S. Bureau of the Census in 1970, 1980 and 1990, are shown in Table III-1 [1]. The population growth rate during the ten year period from 1980 to 1990 was 15.5% while the population growth rate during the period from 1970 to 1980 was 18.4% for the City of Manhattan. Data in Table III-1 also show that the population of the balance of the county decreased between 1980 and 1990 (from 30,861 to 29,427).

Table III-2 shows the population projections for the City of Manhattan and Riley County through 2010 [2]. The data for 1980 and 1990 in Table III-2 are the actual census counts. The population of the City of Manhattan has been projected (1995-2010) using a growth rate of 1.45% per year which was determined from the historic population growth trends of the city. The census data indicated that

the growth rate of the City population was relatively lower than that of the County [2]. Figure III-1 shows the projected growth of population in the City of Manhattan and in Riley County during the period 1990 to 2010.

Table III-1. Population of the City of Manhattan and Riley County, Kansas.

Year	City of Manhattan	Balance of County	County Total	Percent of Total Population Living in the City
1970	27,575	29,213	56,788	48.6
1980	32,644	30,861	63,505	51.4
1990	37,712	29,427	67,139	56.2

Source: Ref. 1, 2

Table III-2. Population Projections for the City of Manhattan and Riley County: 1980-2010.

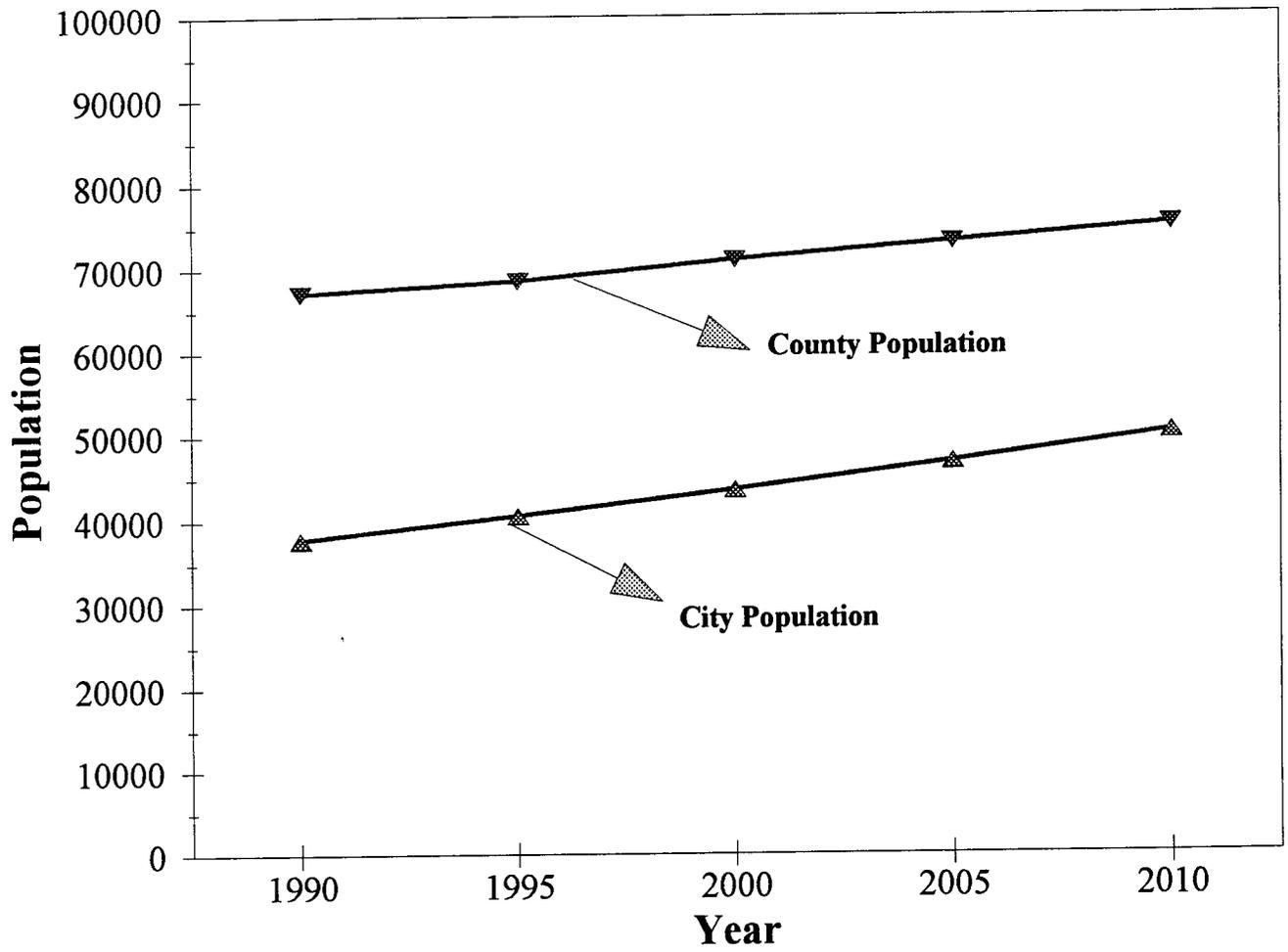
	1980	1990	1995	2000	2005	2010
County	63,505	67,139	68,575	70,970	73,083	75,066
City *	32,644	37,712	40,527	43,551	46,802	50,294
Balance of County	30,861	29,427	28,048	27,419	26,281	24,772

* 1995-2010: estimated using a growth rate of 1.45% per year.

Source: Ref. 2

POPULATION DENSITY

The percent of total county population living in the City of Manhattan is increasing (Table III-1). In 1970, 48.6% of the Riley County population resided in Manhattan. By 1990, the portion of the county population residing in Manhattan had increased to 56.2%. However, at the same time the limits of the City grew. Resident population density has thus decreased in the past two decades from 3,726 in 1970 to 3,428 persons per square mile in 1990, as shown in Table III-3.



Source: Ref. 1,2

Figure III-1. Population growth trends in the City of Manhattan and Riley County.

Table III-3. Population Density in the City of Manhattan, Kansas.

Year	Population	Area (Sq. Miles)	Population per Sq. Mile
1970	27,575	7.4	3,726
1980	32,644	9.6	3,400
1990	37,712	11.0	3,428

Source: Ref. 3, 4, 5

AGE DISTRIBUTION

Age distribution dynamics have varied substantially since 1970. The working age cohort (20-64) has increased consistently between 1970 and 1990 from 60.4% in 1970 to 63.4% in 1990. That same time period saw the decline of the number of school age children (5-19). However, the non-school age (under 5) group experienced a small increase during 1970 to 1990. The retiree age cohort (65 and over) has increased moderately since 1970 (5.4% in 1970 to 6.3% in 1990). Table III-4 summarizes the age distribution of the population in Riley County for the period 1970 to 1990. Table III-5 also shows the composition of some specific population subgroups for the City of Manhattan and Riley County in 1990. These "target population" subgroups are frequently used to estimate the demand for transit services.

ETHNIC CHARACTERISTICS

The ethnic characteristics of the population in 1990 for Riley County and the City of Manhattan show that the population is predominantly white, accounting for 83.2% and 90.0% of the total population of the county and the city, respectively (Table III-6). Census data also show that 4.2% of the total population in Riley county is of Hispanic origin irrespective of race (Table III-6). The corresponding figure for the City of Manhattan is 2.8%.

Table III-4. Population Age Distribution of Riley County: 1970-1990.

Year	Age Group				County Total
	Under 5	5-19	20-64	65 & over	
1970					
Number	4,113	15,323	34,293	3,059	56,788
Percent (%)	7.2	27.0	60.4	5.4	100.0
1980					
Number	5,010	15,687	39,321	3,487	63,505
Percent (%)	7.9	24.7	61.9	5.5	100.0
1990					
Number	5,009	15,310	42,565	4,255	67,139
Percent (%)	7.5	22.8	63.4	6.3	100.0

Source: Ref. 1, 6, 7, 8, 9

Table III-5. Target Population Subgroups: 1990.

Population Subgroups	Riley County	Manhattan City
Total Population	67,139	37,712
Elderly (65 years and over)	4,255	3,054
Elderly (65 years and over) Non-disabled	3,649	2,584
Disabled ^a	1,791	810
Youth 15-19 years	7,549	3,125
Youth 0-14 years	12,770	6,469
General ^b	41,380	24,724

^a Persons 16 years and over. Disabled population includes persons with mobility and/or self-care limitations.

^b General population is the population other than Elderly non-disabled, Disabled, Youth 0-14 years, and Youth 15-19 years.

Source: Ref. 1, 10

Table III-6. Ethnic Characteristics of the Population in 1990.

Ethnic Characteristics	Riley County		Manhattan City	
	Population	Percent of Total Population	Population	Percent of Total Population
White	55,866	83.2	33,960	90.0
Black	6,807	10.1	1,877	5.0
American Indian / Eskimo / Aleut	482	0.7	204	0.5
Asian / Pacific Islanders	2,400	3.6	1,231	3.3
Other Races	1,584	2.4	440	1.2
Hispanic Origin ^a	2,799	4.2	1,059	2.8

^a Hispanic origin total (irrespective of race). Persons of Hispanic origin are those who classified themselves in one of the following specific categories- "Mexican", "Puerto Rican", "Cuban", or "Other Spanish/Hispanic."

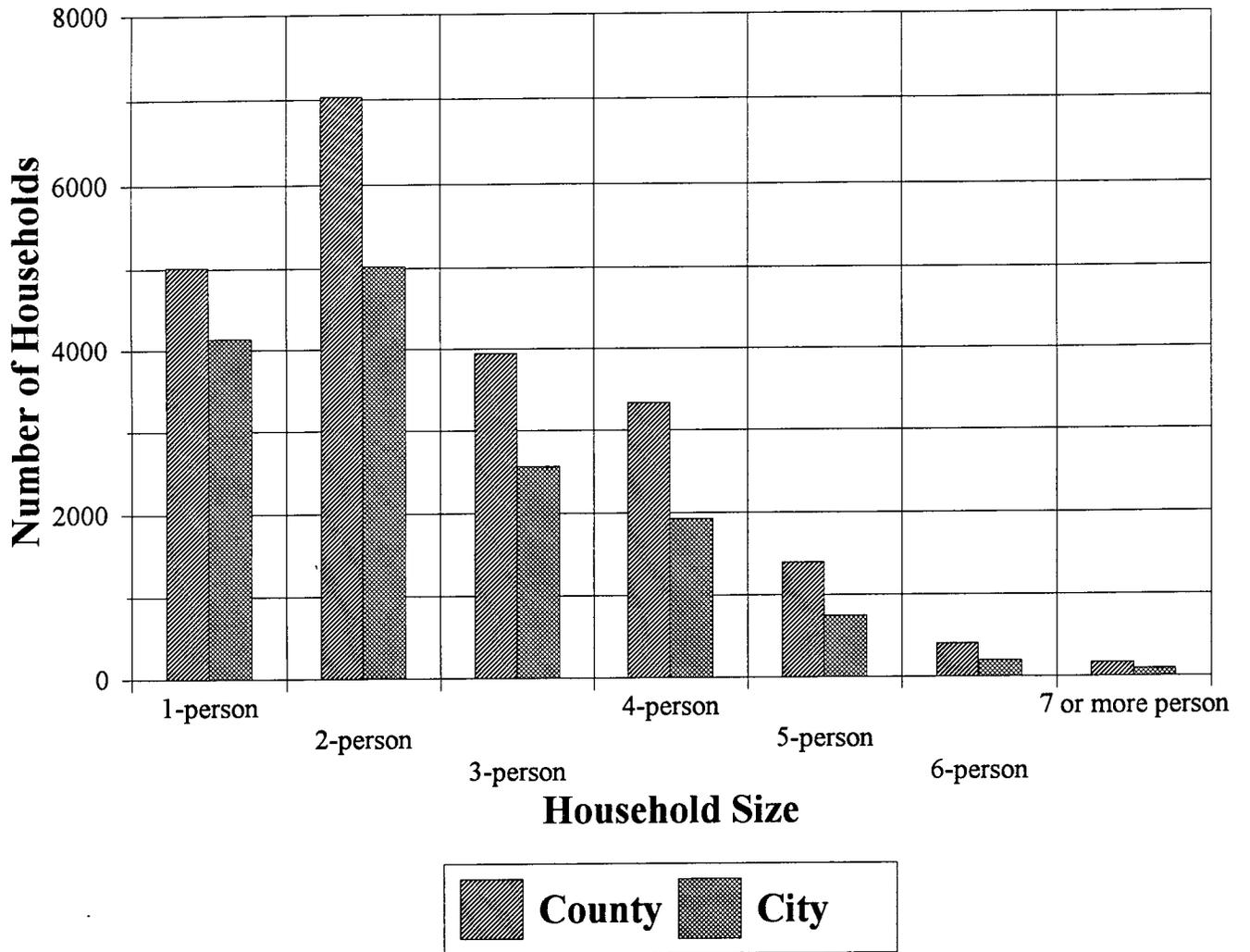
Source: Ref. 10

HOUSEHOLD CHARACTERISTICS

1990 Census data show that the total numbers of households in Riley County and in the City of Manhattan were 21,280 and 14,689, respectively. Fifty four percent (54%) of the total households in the City of Manhattan were family-households. The percentage distribution of the size of households in Manhattan was approximately 34% 2-person households, 28% 1-person households, 17% 3-person households, and 13% 4-person households. Tables III-7 and III-8 summarize the household characteristics in Riley County and in the City of Manhattan. Figure III-2 shows the number of households by household size in Riley County and in the City of Manhattan.

DWELLING UNIT DENSITY

The 1990 Census data show that the density of dwelling units in the City of Manhattan remained nearly constant during the period from 1980 to 1990 (1,422 in 1980 to 1,414 units per square mile in 1990). However, there was an increase in dwelling unit density during the period 1970 to 1980 from 1,318 in 1970 to 1,422 units per square mile in 1980. Table III-9 summarizes the density of



Source: Ref. 1, 10

Figure III-2. Number of Households by Household Size.

dwelling units in the City of Manhattan. Approximately two-thirds of the dwelling units of Riley County are located within the city (Table III-10). Table III-10 also shows that the percentage of total dwelling units located within the city is increasing.

Table III-7. Household and Family Characteristics (1990).

	Riley County	Manhattan City
Total Population	67,139	37,712
Persons in Households	54,814	35,163
Householder	21,280	14,689
Family Households	13,450	7,902
Non-family Households	7,830	6,787
Persons per Household	2.58	2.39
Persons per Family	3.12	3.00

Source: Ref. 1, 10

Table III-8. Household Size (1990).

Household Size	Riley County	Manhattan City
Total Households	21,280	14,689
1-person Household	5,013	4,140
2-persons Household	7,030	5,023
3-persons Households	3,941	2,568
4-person Households	3,334	1,925
5-person Households	1,398	747
6-person Households	404	194
7 or more person Households	160	92

Source: Ref. 1, 10

Table III-9. Dwelling Unit Density in the City of Manhattan (1970-1990).

Year	Dwelling Units	Land Area (sq. miles)	Dwelling Unit Density (units/Sq. miles)
1970	9,755	7.4	1,318
1980	13,652	9.6	1,422
1990	15,558	11.0	1,414

Source: Ref. 11

Table III-10. Dwelling Units (1970-1990).

Year	Number of Dwelling Units in Riley county	Number of Dwelling Units in Manhattan City	Percentage of Total (county) Dwelling Units Located in Manhattan
1970	14,865	9,755	65.6%
1980	20,873	13,652	65.4%
1990	22,868	15,558	68.0%

Source: Ref. 11

HOUSING OCCUPANCY STATUS

Of the 22,868 dwelling units in Riley County in 1990, 21,280 units (93%) were occupied. Forty-four percent (44%) of the occupied units were owner occupied. Table III-11 summarizes the occupancy status of the dwelling units in 1990 in Riley County.

LABOR FORCE PARTICIPATION

Labor force participation has increased consistently in Riley County since 1970. The labor force, defined as persons who are employed or seeking employment, rose from 51.9% of the population in 1970 to 52.0% of the population in 1980, and to 52.7% of the population in 1990. This increase has been attributed to two factors: an increasing proportion of the population which is sixteen years of

age and older, and an increasing proportion of persons sixteen and older who are working or seeking work.

Table III-11. Housing Occupancy Characteristics in Riley County in 1990.

Occupancy Status	Number of Units	Percent of Total (%)
Owner Occupied	9,393	41.1
Renter Occupied	11,887	52.0
Vacant	1,588	6.9
Total	22,868	100.0

Source: Ref. 12

The increased percentage of the total population which is in the work force serves to increase work trips. This increases not only the total travel but also increases the week-day morning and evening peak trips. This is the travel category which places the highest demands on the street and road system, and on the capacity of transit systems.

Labor force participation in Riley County for the period 1970-1990 is shown in Table III-12. Table III-13 also shows the specific composition of the labor force for Riley County and the City of Manhattan in 1990.

PLACE OF WORK

The 1990 Census data show that approximately 97% of the total workers (age 16 years and over) in Riley County and the City of Manhattan work outside of their home. Also, most of the workers work in their county or area of residence (Table III-14). Only 13.2% of the workers in Riley County work outside the county. However, 23.4% of workers in the City of Manhattan worked outside the city.

Table III-12. Labor Force Participation in Riley County, Kansas.

	1970	1980	1990
Population	56,788	63,505	67,139
Population Age 16 and Over	44,726	51,106	53,838
Percent of Population Age 16 and Over (%)	78.8	80.5	80.2
Labor Force	29,496	35,193	37,911
Percent of Persons Age 16 and Over in Labor Force (%)	65.9	68.8	70.4
Percent of Population in Labor Force (%)	51.9	55.4	56.5

Source: Ref. 7, 9, 10

Table III-13. Labor Force Participation in 1990.

	Riley County	Manhattan City
Persons 16 years and over	53,838	30,839
In labor force	37,911	20,886
Not in labor force	15,927	9,953
Percent of persons 16 years and over in labor force (%)	70.4	67.7
Persons 65 years and over in labor force	670	454
Percent of labor force consists of persons 65 years and over (%)	1.8	2.2
Percent unemployment (%)	6.6	6.0

Source: Ref. 10

Table III-14. Place of Work in 1990.

	Riley County		Manhattan City	
	Number	Percent (%)	Number	Percent (%)
Workers 16 Years and Over	35,438	100.0	19,438	100.0
Worked at Home	1,190	3.4	591	3.0
Worked not at Home	34,248	96.6	18,847	97.0
Worked in County/Area of Residence	30,772	86.8	14,890	76.6
Worked outside County/Area of Residence	4,666	13.2	4,548	23.4

Source: Ref. 10

INCOME

The median household income in Riley County in 1989 was \$21,700, while the median income for the City of Manhattan in 1989 was \$21,531 (Table III-15). Data on income and poverty status show that the 1989 per capita income for Riley County was \$10,067. The corresponding value for the City of Manhattan was \$11,273. In Riley County, 11.4% families were below the poverty level. The corresponding figure for the City of Manhattan was 10.1%. However, there are large numbers of persons (15 years and over, living or not living with family) who are living below the poverty level in both Riley county and in the City of Manhattan. The percent of persons below the poverty level in Riley County and in the City of Manhattan was 21.2% and 24.6%, respectively.

MEANS OF TRANSPORTATION

The automobile (includes car, truck, or van) is the predominant transportation mode in the City of Manhattan and in Riley County. 1990 Census data (Table III-16) show that the percent of workers who use the automobile as their primary means of transportation was approximately 96% in Riley County and 84% in the City of Manhattan. Approximately 15% of the workers who used automobiles used carpooling as their means of transportation. Only 0.8% of the workers in Riley County used public transportation (includes paratransit and taxicab). The corresponding figure for public

transportation for the City of Manhattan was 0.2%. The ratio of the workers who worked outside of their home to the number of automobiles (car, truck, or van) was approximately 1 to 1. Figure III-3 shows the means of transportation used by workers in Riley County and in the City of Manhattan.

Table III-15. Income and Poverty Status in 1989.

	Riley County	Manhattan City
Median income per household (\$)	21,700	21,531
Mean income per household (\$)	27,720	28,309
Median income per family (\$)	28,511	33,776
Mean income per family (\$)	34,301	39,140
Per capita income (\$)	10,067	11,273
Families below poverty level	1,557	808
Percent of families below poverty level (%)	11.4	10.1
Persons below poverty level	11,557	8,620
Percent of persons below poverty level (%)	21.2	24.6
Percent of persons 65 years and over below poverty level (%)	7.6	7.0

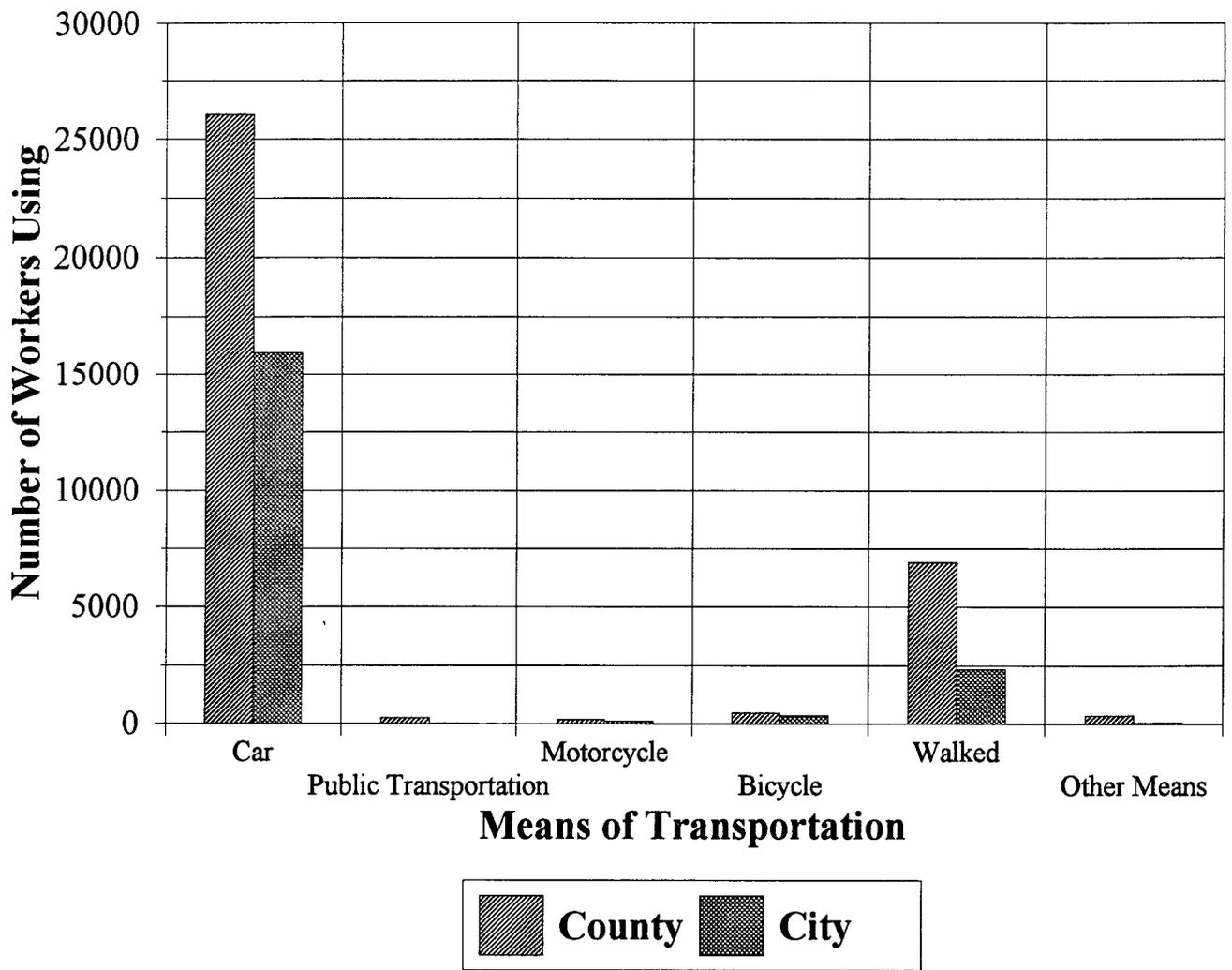
Source: Ref. 10

Table III-16. Means of Transportation (1990).

Means of Transportation	Riley County	Manhattan City
Car, Truck, or Van	26,036	15,917
Drove alone	21,868	13,983
Car pooled	4,168	1,934
Public Transportation	272	37
Paratransit	246	18
Taxicab	26	19
Motorcycle	188	113
Bicycle	457	382
Walked	6,917	2,333
Other means	378	65
Total ^a	34,248	18,847
Persons per car, truck, or van	1.10	1.07

^a workers who did not work at home.

Source: Ref. 10



Source: Ref. 10

Figure III-3. Means of Transportation Used by Workers.

MOTOR VEHICLE REGISTRATIONS

The number of motor vehicles registered in Riley County decreased significantly between 1971 and 1991. During the period 1971-1991 the total number of motor vehicles registered in the county decreased by 8,261 vehicles. Motor vehicle registrations in Riley County for 1971, 1981 and 1991 are shown in Table III-17.

Table III-17. Motor Vehicle Registrations in Riley County, Kansas.

Year	Autos	Trucks	Other Vehicles	Total
1971	32,440	4,520	3,681	40,641
1981	22,567	10,536	5,097	38,200
1991	22,176	6,930	3,274	32,380

Source: Ref. 13, 14, 15

It is interesting to note that between 1971 and 1991, the number of registered vehicles in the county decreased by 20.3%, while the population increased by 18.2%. However, the reason for this decline in vehicle registration cannot be explained with the available census data (Table III-17).

TRAVEL TIME

The 1990 Census data show that the work trips made by the workers in Riley County and in the City of Manhattan were of relatively short length. The mean travel times to work were 12.9 and 13.0 minutes in Riley County and in the City of Manhattan, respectively. Data also show that approximately 2.5% of the workers in both Riley County and the City of Manhattan had a work travel time of 45 minutes or higher. The mean travel times of this category in Riley County and the City of Manhattan were 61.8 and 63.3 minutes, respectively. The peak departures of the workers in Riley County and in the City of Manhattan occurred between 7:00 a.m. to 8:00 a.m. Table III-18 summarizes the travel to work and departure times of the workers in Riley County and in the City of

Manhattan.

Table III-18. Travel Time to Work and Departure Time (1990).

	Riley County	Manhattan City
Worked not at home	34,248	18,847
Minutes to work:		
Less than 10 minutes	13,515	6,972
10 to 14 minutes	9,090	5,580
15 to 19 minutes	4,428	2,385
20 to 29 minutes	3,453	1,818
30 to 44 minutes	2,799	1,669
45 or more minutes	963	423
Mean travel time to work (minutes)	12.9	13.0
Mean travel time for workers traveling 45 or more minutes (minutes)	61.8	63.3
Departure Time:		
6:00 to 6:59 a.m.	6,319	2,405
7:00 to 7:59 a.m.	10,412	6,242
8:00 to 8:59 a.m.	5,179	3,381
All other times	12,338	6,819

Source: Ref. 10

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CHAPTER IV: BASELINE FINANCIAL NEEDS ASSESSMENT

INTRODUCTION

This chapter presents an overview of recent trends in system revenues and operating expenses for paratransit service providers in the Manhattan area. Estimates of the capital and operating costs associated with providing paratransit services in Manhattan for the period 1998-2007 are also presented. The estimates are "baseline" estimates in that they represent the financial resources needed to maintain existing levels of paratransit services. Estimates of potential revenues are also presented to provide a preliminary indication of the levels of funding that may be required from the various sources available to the paratransit service providers.

PARATRANSIT REVENUES AND OPERATING EXPENSES

According to KDOT's 1996 monthly ridership and mileage reports of Section 16-funded vehicles [1], the five paratransit service providers in Manhattan area collectively incurred annual vehicle operating expenses of approximately \$210,000 and received a cumulative annual vehicle income of approximately \$12,000. These expenses and revenues are detailed in Table IV-1.

NEEDS ASSESSMENT (1998-2007)

Baseline estimates of the capital and operating costs needed to continue to provide paratransit services at their current levels of service for the period 1998-2007 are presented in the following sections of this chapter. Estimates of potential revenues are also presented to provide a preliminary indication of the levels of funding that may be required from the various sources available to the paratransit service providers in the Manhattan area.

Data concerning the revenues and expenses for the five paratransit service providers in the City of Manhattan were obtained from the individual providers (via questionnaire or telephone conversation)

Table IV-1. Monthly Vehicle Operating Costs and Income for the Paratransit Service Providers in Manhattan Area During Calendar Year 1996.

Month	Cost (\$)	Income (\$)
January	16,557.18	1,036.35
February	15,033.40	850.59
March	16,455.22	393.99
April	17,210.92	1,798.97
May	17,541.58	1,145.57
June	16,645.16	1,826.85
July	20,759.00	1,149.16
August	18,987.16	1,265.34
September	18,383.84	1,180.96
October	18,633.99	1,115.85
November	14,831.59	203.65
December	19,065.76	240.99
Total	210,104.80	12,208.27

Source: Ref. 1

and from the Kansas Department of Transportation (KDOT). Paratransit service providers in the Manhattan area also provided their annual transportation budgets for the year 1997. Table IV-2 shows the transportation budgets for the five paratransit service providers in Manhattan.

Using KDOT's funded-vehicle inventory, which includes monthly vehicle mileage, a replacement schedule was established by assuming that vehicles would be replaced at 100,000 miles or at 10 years of age. The detailed vehicle replacement schedule for each transit vehicle operated by the paratransit service providers is shown in Table IV-3.

Operating costs through the year 2007 were estimated by assuming that the combined 1997 transportation budgets of the five providers (see Table IV-2) would increase at the rate of 4.5 percent annually through fiscal 2007. The resulting estimates are summarized in Table IV-4.

**Table IV-2. Transportation Budgets of the Paratransit Service Providers in Manhattan/
Riley County Area.**

Provider	Transportation Budget ¹
Big Lakes Development Center, Inc.	\$ 170,350.00
Leonardville Nursing Home	0.00
Riley County Aging Transportation Agency (ATA)	73,000.00
Riley County Retired and Senior Volunteer Program (RSVP), Inc.	3,661.00
Pawnee Mental Health Services, Inc.	18,367.00
Total Transportation Budget	265,378.00

¹ Transportation budget (operating) figures supplied by providers via mailed questionnaire or telephone conversation

The capital costs shown in Table IV-4 are based solely on vehicle replacement needs (Table IV-3). It was assumed that each provider would seek to replace its vehicle(s) according to the replacement schedule in Table IV-3, and that each provider would request the same type of vehicle. Vehicle replacement costs assume a 5 percent annual increase in vehicle purchase prices.

Based on this methodology, it is projected that the five paratransit providers will collectively incur approximately \$3.4 million in operating expenses for transportation services through fiscal 2007 (Table IV-4). An additional \$1.8 million will be needed for vehicle replacement during this time period (Table IV-4).

In regard to transportation-related revenue for the five transit service providers, their collective vehicle income for calendar year 1996 (see Table IV-1) was increased by 4.5 percent annually, resulting in estimates of operating revenue through fiscal 2007. State operating assistance was estimated to be \$46,000 per year. Of this amount, Big Lakes Development Center receives \$40,000 while three other agencies (Pawnee Mental Health, Riley County ATA and Riley County RSVP) each receives state funding of \$2,000 per year. Federal capital revenue needed to allow vehicle replacement

according to the schedule discussed above was included. The total annual revenue is the sum of operating and federal capital revenues (Table IV-4). It is projected that the state operating assistance for the next ten-year period (1998-2007) would be \$460,000. During the same time period (1998-2007), the level of federal funds needed to maintain the existing paratransit services was estimated to be \$1.4 million (Table IV-4).

Table IV-3. Replacement Schedule of the Paratransit Vehicles in Manhattan, Kansas.

Provider	Vehicle Description	Lift	Purchase Price (\$)	Annual Mileage	Projected Year to be Replaced ¹
Big Lakes Development Center, Inc.	1993 transit bus	Yes	36,980	33,000	1998, 2001, 2004, 2007
	1996 transit bus	No	33,845	48,000	1999, 2002, 2005
	1995 window van	Yes	32,574	33,000	1999, 2002, 2005
	1996 window van	No	29,071	7,000	2007
	1983 station wagon	No	9,534	3,000	1998
	1988 window van	No	18,970	8,000	1998
	1989 transit bus	Yes	26,756	31,000	1998, 2002, 2006
	1990 transit bus	No	31,626	24,000	1998, 2003
	1991 transit bus	Yes	33,394	10,000	2001
	1992 transit bus	Yes	31,846	6,000	2003
	1994 window van	No	25,136	7,000	2005
	1994 window van	No	25,136	7,000	2005
Leonardville Nursing Home	1987 conversion van	Yes	23,360	7,000	1998
Riley County ATA	1987 conversion van	No	21,175	9,000	1998
	1991 transit bus	Yes	33,090	17,000	1999, 2005
Riley County RSVP, Inc.	1995 transit bus	Yes	32,796	9,000	2006
Pawnee Mental Health Services, Inc.	1988 transit bus	No	26,660	9,000	1998
	1990 window van	No	14,973	20,000	1998, 2003
	1992 transit bus	Yes	34,984	15,000	1999, 2006
	1993 window van	Yes	32,574	27,000	1998, 2002, 2006
	1996 transit bus	Yes	33,575	16,000	2003
	1996 window van	No	30,245	21,000	2003, 2007

¹ based on vehicle age and average annual mileage; vehicle replaced at 10 years of age or 100,000 miles.

Source: Ref. 2

Table IV-4. Projection of Cumulative Expenses and Revenues for the Manhattan Area Paratransit Service Providers, FY 1998-2007.

Category	FY 1998 Estimated	FY 1999 Projected	FY 2000 Projected	FY 2001 Projected	FY 2002 Projected	FY 2003 Projected	FY 2004 Projected	FY 2005 Projected	FY 2006 Projected	FY 1998-2007 Projected Total
Operating Costs	277,000	290,000	303,000	316,000	331,000	346,000	361,000	377,000	394,000	3,407,000
Capital Costs- Replace Vehicles	333,000	177,000	0	109,000	192,000	217,000	63,000	257,000	248,000	1,771,000
Total Expenditures	610,000	467,000	303,000	425,000	523,000	563,000	424,000	634,000	642,000	5,178,000
Operating Revenue										
Vehicle Income	13,000	14,000	15,000	15,000	16,000	17,000	17,000	18,000	19,000	164,000
State Operating	46,000	46,000	46,000	46,000	46,000	46,000	46,000	46,000	46,000	460,000
Other ¹	218,000	230,000	242,000	255,000	269,000	283,000	298,000	313,000	329,000	2,783,000
Total Operating Revenue	277,000	290,000	303,000	316,000	331,000	346,000	361,000	377,000	394,000	3,407,000
Capital Revenue										
Federal	266,000	142,000	0	87,000	154,000	174,000	50,000	206,000	198,000	1,417,000
Local	67,000	35,000	0	22,000	38,000	43,000	13,000	51,000	50,000	354,000
Total Capital Revenue	333,000	177,000	0	109,000	192,000	217,000	63,000	257,000	248,000	1,771,000
Total Revenue	610,000	467,000	303,000	425,000	523,000	563,000	424,000	634,000	642,000	5,178,000

¹ Cost of transportation services are balanced with revenue from agencies' general funding sources, such as city and county governments, block grants, the United Way, etc.

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