

Transit Operations Analysis of New Section 5307 Agencies

Final Report

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**Conducted for the Public Transit Office
of the Florida Department of Transportation**

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Foreword

The Florida Department of Transportation (FDOT) administers block grants to public transportation agencies throughout the state for the purpose of providing alternatives to private passenger transportation for use by the general public. It also administers the delivery to Florida public transportation agencies of federal funds pursuant to Section 5307 of the Mass Transit Act and intended for the same purposes as the state block grant funds. In recent years as previously rural counties attained urban status, agencies that had been created to provide specialized transportation for disadvantaged persons became eligible to receive block grants and Section 5307 funds in exchange for providing general public transportation services in addition to their original missions. The Florida Department of Transportation commissioned this study to learn the various ways in which five of the new Section 5307 transit agencies have been providing public transportation services for the general public.

The study was carried out under the direction of Mr. Ike Ubake of FDOT's Office of Public Transportation by Dr. Gregory L. Thompson of the Department of Urban and Regional Planning at Florida State University. The start date was 6 August 1998. On 22 July 1999 Dr. Thompson published a draft final report and circulated it for comments to the five systems, various offices in FDOT, the Florida Commission for the Transportation Disadvantaged, and other agencies that had requested copies, including the West Florida Regional Planning Council and Okaloosa County. Comments were received from Mr. Marcin Gadek of FDOT District 4, Mr. Ubaka, Ms. Mary Robinson of the West Florida Regional Planning Council, and Ms. Christy Godwin of the Okaloosa County Planning Department. The Commission for the Transportation Disadvantaged and all transit systems except that in Martin County were contacted again in late November 1999 to find out if any had last minute comments, but none did. This report incorporates the comments that were received.

It is intended to make a copy of this report, except for the maps, available on the FDOT, Office of Public Transportation web site for downloading. Map files (in ArcView) also will be located on the web site for downloading.

The opinions, findings and conclusions expressed in this publication are those of the author and not necessarily those of the State of Florida Department of Transportation.

This report was prepared in cooperation with the State of Florida Department of Transportation.

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Executive Summary

The Transit Operations Study examines trends in public transportation service and usage in five smaller Florida urban areas that are growing rapidly. Three of the urban areas are located in south Florida: Stuart in Martin County, Ft. Pierce in St. Lucie County, and Vero Beach in Indian River County. The other two are located on the Gulf of Mexico in Florida's panhandle: Panama City in Bay County, and Ft. Walton Beach in Okaloosa-Ft. Walton Counties. As of 1990 the counties' populations ranged between 90 to 200 thousand people with annual growth rates over the period between 1975 and 1995 ranging from 2.5 to 4.5 percent. The intent of the examination is to estimate general demand for public transportation and the extent to which that demand is being met by existing service funded by the Florida Department of Transportation. It is hoped that lessons learned from the experiences of the five systems may guide the development of general purpose public transportation in these and other areas undergoing rapid urbanization.

For several years each of the five transit systems has engaged in two separate short-range planning activities required by state and federal funding sources that the systems have chosen to use. Each year each of the systems is responsible for preparing a Service Plan for the Transportation Disadvantaged (TDSP), or a TDSP Update, for the State of Florida's Commission for the Transportation Disadvantaged, which is charged with the responsibility of having transportation provided to the state's transportation disadvantaged populations. Also each year, each of the systems is responsible for preparing Short Range Transit Development Plans (TDPs) or TDP annual updates, which are reviewed by the Florida Department of Transportation's Public Transit Office and which are intended to provide direction to the expansion of public transportation to the general public as the state's population and economy expand. In some cases the transit systems contract with consultants to prepare one or both documents; in others they pass the responsibility for plan preparation to the metropolitan planning organization (MPO) that has jurisdiction in the transit system's service area. This study does not duplicate the TDSPs or TDPs but summarizes methods and data from them to address the question that is the charge of this study, are the systems serving general public transport demand adequately?

Determining Service Adequacy

The correct way for determining service adequacy is to measure the social benefits minus the social costs of transit service in any given area and then find whether any possible change to service, investment, or policy could improve net benefits. If changes to the existing investment, service, or policies would improve net social benefits, the existing service is deemed inadequate (Weimer and Vining 1992).

None of the planning studies examined in this study have engaged in this method of adequacy determination, largely because doing so is so extremely expensive as to be beyond the scope of any but the largest scale planning efforts. Even then the analysis would require so many value judgments and assumptions as to invite controversy; consensus over the study's conclusions likely would be elusive. Such an examination of adequacy also would fail to consider the question of fairness or equity to disadvantaged segments of the population,

and equity is the primary rationale of transportation for the disadvantaged (Thompson 1998, 1999). Consequently, the TDSPs and TDPs examined in this study use more *ad hoc* methods for determining adequacy.

How TDSPs and TDPs Address Service Adequacy

The five transit systems examined in this report accommodate three categories of passengers, and the TDSPs and TDPs use different methods to assess the adequacy of service for each category. One category is the program passenger. This category includes clients of social services or agencies that require their clients to travel to obtain services. The agencies or services contract with the transit agency, based on a rate that is the cost of accommodating one passenger multiplied by the number of passengers carried for each agency and each program. Generally it is assumed that program passenger demand will increase in proportion to total population and that funding from agencies and programs will finance needed transportation for program passengers.

The second category is the non-sponsored passenger, who is defined as a transit disadvantaged person who demands transportation outside of that provided by programs and agencies. The Commission for the Transportation Disadvantaged provides funding to each of the systems in this study for accommodating non-sponsored transit disadvantaged passengers. Low income and disabled persons are identified as one level of transit disadvantaged persons (TD persons), and these plus all remaining children and elderly are identified as another level (Potential TD persons). These numbers, multiplied by the number of trips per year assumed to provide transit disadvantaged person adequate mobility, yield an estimate of transit demand for the transit disadvantaged, against which actual transit patronage can be compared. Inadequate service is indicated when actual patronage is less than the calculation of potential patronage, which is the usual case for the five counties examined in this report. The indication of inadequate service for non-sponsored travel is suspect, however.

Bay County provides a typical example of why. Overall, for FY 1995 the TDP for Bay County (CUTR 1997) estimated a potential TD population in Bay County of 48,553 and a TD population of 11,799. Using the TD method, one comes up with an annual demand for paratransit trips in Bay County in FY1995 for 289,711 trips, but the coordinator actually accommodated 173,015 trips, suggesting an unfulfilled demand of 116,696 trips (CUTR 1997, p. 204).

On the one hand these figures suggest that paratransit service should be expanded considerably. On the other hand, if we look at the FY 1995 Annual Operating Report to the Commission for the Transportation Disadvantaged, a different picture emerges. The report for FY 1995 shows only 166 trip requests being denied out of a total number of 170,396. The FY 1996 report shows 98 trips being denied out of a total of 136,923 trip requests. This number falls to 58 out 132,603 requests in FY 1997 and 0 out of 147,960 requests in FY 1998. The AOR figures suggest that in the overwhelming majority of cases, when persons request paratransit service, they get it. This finding applies to the other four counties, as well.

It is unclear how persons who call with requests for service outside of business hours and are denied services are recorded. They might be included in the above totals, or they might not be counted at all. We were unable to obtain an answer to this question from the Commission for the Transportation Disadvantaged before the report was published.

The third category is the general public passenger, who is anybody wishing to use public transportation, whether it be demand-responsive service or fixed route service. None of the planning documents examined for this study attempts to estimate demand for this category of passenger, although four of the five TDPs attempt to forecast ridership for possible fixed-route transit service. The method, variations of which are used in all four studies, that appears to us to have the most promise is based on peer analysis. The approach is to identify comparable regions that have well-developed fixed route services and assume that if such services were established in the counties of this study, similar levels of transit usage would occur. The best of these studies is done on a census tract basis. For example, in Martin County it is assumed that each mile of fixed-route transit service operated in the county's densest census tracts, which are in the City of Stuart, would attract about 1.5 passengers per vehicle mile, because that is how many passengers each mile of fixed route service attracts in similar areas in Brevard County (which has fixed route service). Each mile of fixed route service in more rural census tracts would attract far fewer passenger trips.

This method strikes us as crude but at the same time thoughtful and the results plausible. We can think of no better method for estimating transit ridership potential for fixed routes other than a full-scale running of a transit analysis using models, either direct demand models, or those that are of the Urban Transportation Model family, such as FSUTMS, or by actually trying out the recommended fixed route concept for a couple of years. The main problem with the method is that it does not predict who the new transit riders will be. It is based on transit experience that certain types of services in certain types of environments will attract ridership in somewhat predictable volumes.

All of the TDPs examined present large quantities of socio-economic data mapped at the census tract level, but by and large the TDPs do not use such data in their analyses and discussions of demand. Some do use population density by census tract to estimate trips per vehicle mile, as noted above, and all use such data to show relative (as opposed to actual) transit demand. That is, they make statements such as, "Census tract A has greater than average demand potential compared to the average county census tract and merits service, but census tract B has less than average potential and does not merit service." The problem with such a statement is that by not considering absolute demand, it is impossible to know whether either census tract A or B merit or do not merit service. The TDPs also use maps of transit dependent population to help in determining where to lay out proposed fixed routes. Otherwise, the maps of socio-economic data are wasted, and so long as there is no network modeling of transit service and trips, we can think of no way to use such data more effectively.

Approach Used in This Study

In this study we analyze existing transit service in the five counties to determine whether existing traffic and expense patterns indicate latent (unmet) demand for transit service. We assume that program passenger demand is analyzed and met by the various programs and agencies purchasing transportation service. Whatever service they need, they get within the constraints of their budgets. We also assume that non-sponsored trip demand is accommodated by the Commission for the Transportation Disadvantaged. What we focus on is provision of service to the general public through Section 5307 and block grant funds administered by the Florida Department of Transportation.

The question addressed is whether existing general purpose passenger trips are an expression of demand, or whether they are a fraction of some potentially larger latent demand that supply restrictions have prevented from flowering. Possible supply restrictions are inconvenient service, unreliable service, inadequate passenger information, inadequate passenger amenities, and excessive cost. If we find relatively good service relative to peer situations, but little ridership, we conclude that there is little demand from the general public for transit. If we find that there is poor service but growing ridership, we conclude there is latent demand. The general standard of minimum fixed route service that we use are:

1. Generally direct routes operating at least once per hour at the same time for each bus trip at each stop;
2. Scheduled (or timed) transfers between all or most routes.
3. Operation throughout the weekday; generally from around 6:00 a.m. to about 8:00 p.m..
4. Clearly-marked stops.
5. Clear and widely-available map and timetable information in addition to phone information.

If service is provided with equal or better qualities to those in the standards, and there is little ridership (less than about 1.0 passenger trip per vehicle mile), we conclude there is little demand. If service is worse than indicated by the standards, but ridership is growing, we conclude that there is potential for increased ridership from better service.

Performance Measures

Part of the analysis is based on performance measures. We use cruder measures than typically are used in conjunction with the National Transit Statistics (formerly Section 15 data), but we apply them to finer disaggregations of service for each system. This is made possible by the very good historical records contained in the Commission for the Transportation Disadvantaged's Annual Operating Reports.

Performance measures are based upon three concepts of service provision and utilization:

- Service inputs, such as labor, materials, fuel, or more generally, dollars;
- Service outputs, such as bus miles or bus hours;
- Service utilization, such as passenger trips per year, or passenger miles per year.

A transit operator uses service inputs (money) to produce bus miles and may do so with varying degrees of efficiency. The operator decides how to deploy the bus miles and also may do so with varying degrees of astuteness. Whether the public views the bus miles as worthwhile or

not is manifested by how much public is in the service area, what their demographics are, and to what degree they choose to use the bus miles, and/or what they or their sponsors are willing to pay to have the service. Generally service efficiency is measured by the amount of service produced for a unit of input, such as vehicle miles per dollar. Service effectiveness is measured by utilization divided by outputs, such as passenger miles per bus mile or passenger trips per bus mile. Sometimes service efficiency and service effectiveness are combined into one measure, such as cost per passenger mile, or cost per trip (Fielding 1987).

There are two basic measures of service output: bus hours and bus miles. If systems are being compared that operate at approximately the same speed with the same type of equipment, it does not matter whether bus miles or bus hours are used; using both is redundant. There also are two basic measures of utilization: passenger trips and passenger miles. A passenger trip is sometimes referred to as a boarding and is counted each time a passenger boards a vehicle. A passenger mile is a boarding multiplied by the distance that the passenger rides the bus.

Using passenger miles generally is preferable to passenger trips, because it reveals how many passengers actually are on board a bus each mile it travels. For example, a bus might travel 10 miles. If at the beginning of the run, 20 passengers boarded the bus and rode only to the next stop, one quarter mile away, the bus would be empty most of the time and would appear to be providing unneeded service. The statistic of passenger miles per vehicle mile would indicate 0.5 passengers on board the bus each mile that it operated, capturing the quality of low average passenger load. The statistics of passenger trips per vehicle mile would indicate 2.0 passengers per vehicle mile, a misleadingly high representation for a bus that had an average of 0.5 passengers on board.

On the other hand, if each of the 20 passengers rode the full length of the line, another passenger got on), there would be an average load of 20 passengers on board the bus for every mile that it operated, and it would appear to be performing a heavy service. Whether the benefits warrant the cost is another story. The statistic of passenger miles divided by vehicle miles would indicate 20, revealing the true average number of passengers on the bus. The statistic of passenger trips per vehicle mile would indicate 2.0 as in the former example, under-reporting the true effectiveness of the bus service.

While passenger miles is the preferable statistic for assessing service effectiveness, it is not easily obtained, whereas passenger trips is a statistic that is easily collected. Surveys must be used to determine passenger miles, and surveys leave a lot of room for error. Many statisticians of smaller systems also do not understand the definition of a passenger mile and confuse it with other statistics. For these reasons, passenger trips per vehicle mile or vehicle hour is usually used to assess service effectiveness, and we use it here, despite its potential for yielding misleading information on service effectiveness.

Unlike profits, performance measures used alone do not yield much insight into how well a system is doing. They must be plotted over time or against performance measures from other systems to yield insights. Indicators over time indicate performance trajectories, which can be assessed to be good or bad. Indicators compared to those of other systems indicate how well the system in question compares to the rest of the pack. Generally when comparing a system with other systems, one chooses a slate of "peers" which have characteristics, such as size, urban area population, or demographics, that are similar to the system in question.

The Five Transit Systems

Demand-responsive transit began in each of the five counties during the 1970s and

early 1980s as an outgrowth of non-profit organizations providing social programs with private, local, state, and federal funds. Section 16 (b)(2) of the Surface Transportation Assistance Act of 1978 provided federal funds to the governor of each state for allocation to private non-profit corporations and associations to provide transportation to elderly, disabled, and low income persons in urbanized areas who otherwise had no public transportation that met their needs. Section 18 provided federal funds to the governor of each state for allocation to other than urban areas to improve all public transportation, including that for the transit disadvantaged. To better coordinate special-purpose transportation provided by different funding sources, the Florida Legislature enacted Chapter 427, F.S. in 1979.

Chapter 427, Florida Statutes, and subsequent Administrative Rule 41-2, Florida Administrative Code, laid out a framework for providing transportation to the elderly and disabled and the economically disadvantaged in every Florida county. The act and rule established the Commission for the Transportation Disadvantaged (CTD) at the state level. The CTD (known for awhile as the Transportation Disadvantaged Commission, but now known again as the Commission for the Transportation Disadvantaged) designates in every county a Designated Official Planning Agency (DOPA), which usually is the board of county commissioners. The DOPA in turn appoints a Transportation Disadvantaged Local Coordination Board (TDLCB) according to state guidelines, and the LCB appoints a Community Transportation Coordinator, which operates directly and/or contracts for transportation disadvantaged service. Funding requests pass from the Community Transportation Coordinator ultimately to the state Commission for the Transportation Disadvantaged through this chain of command. The state commission requires an annual Service Plan for the Transportation Disadvantaged (TDSP) from every Community Transportation Coordinator. The LCB with approval from the DOPA approves the plan and also evaluates the performance of the Community Transportation Coordinator.

Subsequent to the establishment of the transportation disadvantaged institutional structure, additional population growth led to programs for support of general public transportation service. For those parts of the five counties that have attained urbanized status, the Federal Transit Administration of the U.S. Department of Transportation apportions Section 5307 (previously known as Section 9) moneys to the Florida Department of Transportation, which in turn allocates the funds to transit operators in each urbanized area. Part of the funds for each urbanized area must be used for capital purchases, and each dollar of Section 5307 funds must be matched with 20 cents from local or state sources. Part of the Section 5307 funds may be used for either capital purchases or operating support at the discretion of the transit operation. Every dollar of such federal funds must be matched by a dollar of local or state support.

Additionally, beginning in the mid-1990s, the Florida Legislature provided for formula block grants to transit operators in urbanized areas, and each dollar of state block grant must be matched with a dollar from local sources. The block grants must be used for general public transportation, either capital or operating support. Pursuant to Section 341.052, Florida Statutes and Rule 14-73, Florida Administrative Code, transit operators receiving such block grants are required to prepare Transit Development Plans (TDPs), which are documents that analyze demand for general purpose public transportation and provide for a five-year program of public transportation improvement. In practice the metropolitan planning organizations (MPOs) for each urbanized area usually prepare such plans.

In each of the five counties of this study, the CTC that already had been formed to serve the transit disadvantaged viewed itself the logical agency to operate general purpose public

transportation. Each CTC modified its services to accommodate the general public in addition to transportation disadvantaged persons. Each coordinator did so in different ways, however, and evaluating the differences has been of interest to this study.

In Fiscal Year 1998 (1 July 1997 through 30 June 1998) the **Indian River Council on Aging** was the local transportation coordinator for Indian River County and directly operated a fleet of 20 vans and small buses in advanced registration and demand responsive service and 5 small buses in limited fixed route service in a county whose 1990 population was 90,200 people. The population is composed largely of well-off retirees who migrated to the previously agricultural area in recent years. Part of the service that the Council on Aging provided was for advanced registration passengers, who generally were participants of various social programs and who were required to maintain a registration with the system. Such passengers generally were scheduled to make one or more routine trips each week. To the extent that they were able to do so, dispatchers also accommodated last minute dial-a-ride requests for travel from non-sponsored transit dependents and the general public. Such passengers also were required to first register before phoning in requests for service, and if they wished to travel from one part of the county to another, they were required to transfer to the fixed route service to complete their trips. Members of the general public also could use the fixed route service just by boarding at regular stops, although the service operated only during week day mid-day hours. In addition, several agencies and programs providing their own transportation contracted with the Indian River Council on Aging to provide client registering and dispatching services. Finally, the Council on Aging contracted with the school board to provide transportation of children to summer activities.

The **Martin County Council on Aging**, the designated local transportation coordinator for Martin County, operated during FY 1998 24 small buses and 4 additional vans mostly in advanced registration service in a county whose 1990 population was 100,900. The system markets itself as "Community Coach," and this type of name has been adopted by other councils on aging paratransit services within Florida. As in Indian River County, the population is composed largely of well-off retirees who are relatively recent migrants to the previously agricultural area. Although Martin County operated almost as many vehicles as Indian River County, it did not broker any additional social service transportation nor did it contract with the school board for the transportation of children to summer programs. Consequently, it reported smaller passenger traffic than Indian River County, but it is possible that other social service and children summer program transportation was occurring outside of the auspices of the official transportation disadvantaged structure. The system did not operate fixed route service, except for a very limited shuttle service that it began in the central Stuart area during mid-day hours.

St. Lucie County, 1990 population 150,200, lies between Indian River County on the north and Martin County on the south, but it differs demographically by virtue of Fort Pierce having been for years a significant urban settlement with industrial and port activity. The population is much more diverse than that in either Martin or Indian River County, and median household income is about half the level of that of the other two counties. Unlike the other two counties, the St. Lucie Council on Aging is not the designated local transportation coordinator, but rather the **St. Lucie County Board of County Commissioners** has that designation. However, the board contracts with the Council on Aging to carry out transportation disadvantaged service obligations, which the Council on Aging does under the name, "Community Transit" with its own fleet (40 vans and small buses in FY 1998). While Community Transit is not the local transportation coordinator, it is the designated public transportation

provider in St. Lucie County from the perspective of the Florida Department of Transportation and is the recipient of Section 5307 and state block grant funds. Community Transit also brokers transportation services operated by social service agencies and over the past three years has been aggressive in identifying all such services in the county and bringing many of them under its umbrella. In FY 1998 about half of the public transportation vehicle miles in the county was provided by such services, and a small additional amount was provided by the school board for transportation of groups of children to summer activities. Community Transit operates no fixed route service; most of its service is advanced registration door-to-door service available for client transportation. It also provides door-to-door service for use by non-sponsored passengers and members of the general public generally with 24 hour advance notice.

As is St. Lucie County's population, Bay County's 127,000 people (1990) are more diverse than Martin's or Indian River County's, and the median income is approximately that of St. Lucie County. Bay County's principle city, Panama City has been an important port, industrial center, and military center for many years, while the area's beaches have attracted recreation-oriented development. The **Bay County Council on Aging** is the designated local transportation coordinator, which with a fleet of 43 small buses and vans provided in FY 1998 door-to-door advanced registration service for clients of social agencies, the non-sponsored, and the general public throughout the county. Since FY 1996 the Council on Aging also operates an additional four buses (including one left in reserve) in fixed-route service throughout the urbanized area. Called Bay Town Trolley, the fixed routes operate from early morning into the early evening. Although service on each of the six routes is irregular and infrequent, the Council on Aging markets the service with an attractive timetable and map folder.

A constellation of military, recreational, and retirement activity has caused rapid growth in Okaloosa County, whose population reached 143,000 people in 1990. Median income is similar to that in Bay and St. Lucie Counties. The Okaloosa County Council on Aging originally was the designated local transportation coordinator, but in the early 1990s its transportation function was reorganized as the **Okaloosa Coordinated Transportation, Inc.**, which now is the local transportation coordinator. In FY 1998 OCT operated 52 small buses and vans entirely in door-to-door service primarily for clients of social service agencies, but also accommodating non-sponsored passengers and members of the general public, who were required to register before phoning for service. In FY 1998 OCT brokered a relatively small number of vehicle miles in addition to those that it directly operated.

Findings

Table E1 summarizes operating environments, services, passengers, operating and capital expenses, and Section 5307 and state block grant funds used both for operating support and capital support for each of the five systems. Most data are for Fiscal Year 1997-1998 (FY 1998), but capital data are for FY 1999 and are estimates of expenditures and revenues rather than actual expenditures and revenues. The difference derives from our inability to find a source presenting actual capital expenditures that could be compared to actual operating expenditures. We comment further on this disparity below. The purpose of Table E1 is to serve as a reference as trends in operations of the five systems are discussed below.

Figures beginning with Figure E1 provide comparisons of trends in various operating

statistics between the five transit systems. While individual charts are too small to be read clearly, they are large enough to show similarities and differences in trends between systems. Between-system comparisons could not be shown if the charts were larger, requiring them to be spread over several pages. For more detailed information on each system, the reader may consult the body of the report for identical charts printed full size.

Figure E1 summarizes trends in vehicle miles for each of the five systems. There is substantial difference in the types of service provided as well in growth trends. The aggressiveness of St. Lucie County's efforts to bring previously independent social service transportation into the transportation-dependent family through brokerage stands out. The relative importance of brokered transportation in Indian River and Okaloosa County also stands out. The apparent absence of brokered transportation in Bay and Martin Counties suggests that the systems in those counties directly operate more services for program passengers than the other counties, or that more such services exist completely outside of the transportation dependent umbrella. We see no problem with either possibility. Indian River and St. Lucie Counties also operate small amounts of mileage under agreement with their respective school boards in group transportation of children to summer activities, while the other three systems do has been sharply upward despite a slight decline in FY 1998. In contrast, unit costs for both the Bay and the Okaloosa coordinators have been relatively low and stable. It also is evident that

**Table E1: Comparison of Services and Operating Results for Five Transit Systems
Fiscal Year 1997-1998 Unless Otherwise Noted**

Operating Characteristics	County				
	Martin County	Okaloosa County	Indian River County	Bay County	St. Lucie County
Population of County (1995)	112,000	162,700	100,300	139,200	171,200
Population Growth Rate, 1975-95	4.2%	2.3%	3.8%	2.2%	4.5%
Per Capita Income of County (1995)	\$34,529	\$19,795	\$31,845	\$18,229	\$17,747
Type of Service	Mostly demand responsive and advanced reservation; a small amount of shuttle service	Demand responsive and advanced reservation	Mostly demand responsive and advanced reservation; a limited amount of fixed route service	Mostly demand responsive and advanced reservation; a small but expanding fixed route system	Demand responsive and advanced reservation
Service Coverage	County; limited service to outside destinations; shuttles in central Stuart and considered by operator as part of demand responsive	County; limited service to outside destinations	County; fixed route service in coastal area; connects with fixed route service in Brevard County	County; limited service to outside destinations; fixed routes cover most of urbanized area	County
Vehicle Miles					
Directly Operated Fixed Route	0	0	295,240	154,476	0
Directly Operated Demand Responsive	374,000	689,282	202,234	676,275	491,260
Contracted Demand Responsive	0	62,567	268,615	0	443,912
School	0	0	30,639	0	29,761
Annual Passengers					
Directly Operated Fixed Route	0	0	33,229	48,888	0
Directly Operated Demand Responsive	91,901	116,102	39,241	147,660	125,244
Contracted Demand Responsive	0	62,567	46,315	0	124,598
School	0	0	106,978	300	58,500
Annual Operating Expense	\$952,300	\$928,490	\$1,291,664	\$971,218	\$1,719,643
Section 5307 Operating Subsidy	\$200,000	\$17,315	\$323,812	\$140,000	\$447,760
State Block Grant Operating Subsidy	\$65,000	\$0	\$122,501	\$311,000	\$206,199
Estimated Annual Capital Expense (FY 1999)	\$393,000	\$1,123,864	\$360,500	\$1,153,600	\$1,288,325
Section 5307 Capital (FY 1999)	\$393,000	\$899,091	\$189,150	\$726,456	\$1,030,660
State Block Grant Capital (FY 1999)	\$0	\$112,386	\$47,287	\$181,614	\$257,665

brokered transportation in a relative bargain in two of the three south Florida systems, but that it is more expensive than the coordinator's costs in the panhandle counties. This may be explained by the type of transportation that is brokered in the various counties, which was not investigated.

Unit costs for fixed route service are slightly higher than for door-to-door service in Bay County. This may reflect larger vehicles in fixed route service as well as the more demanding stop-and-go nature of fixed route service. It was not possible to make such a comparison for the Indian River coordinator.

Figure E1 - Trends in Vehicle Miles

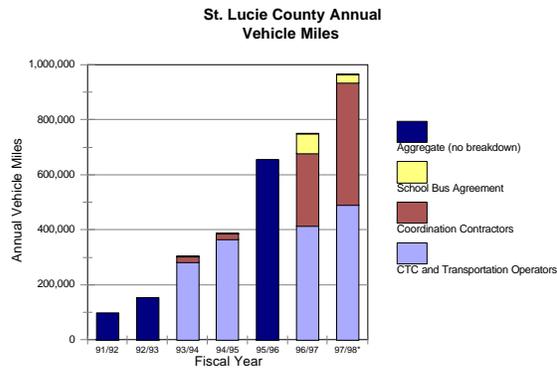
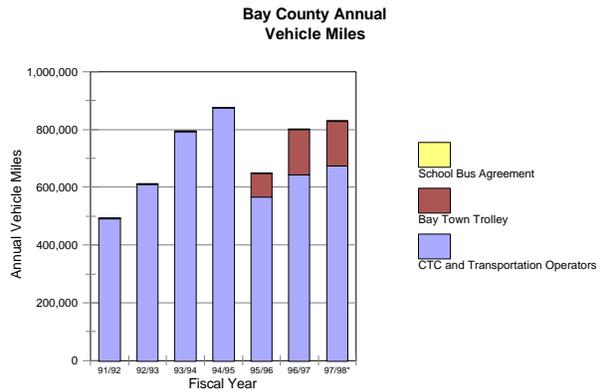
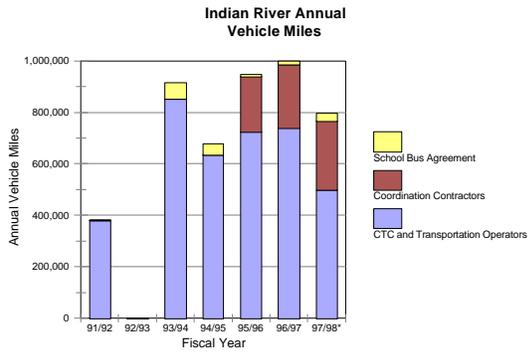
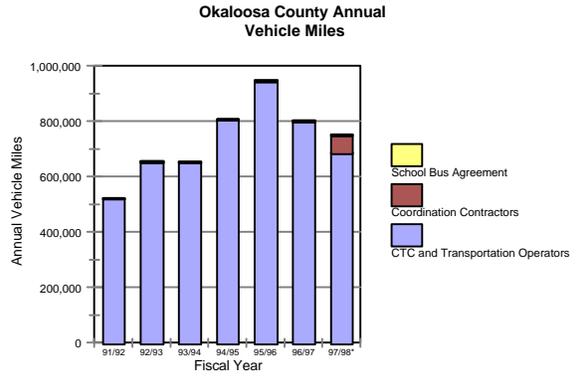
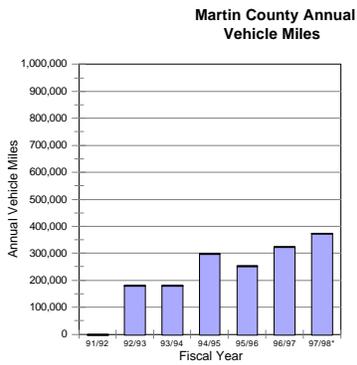
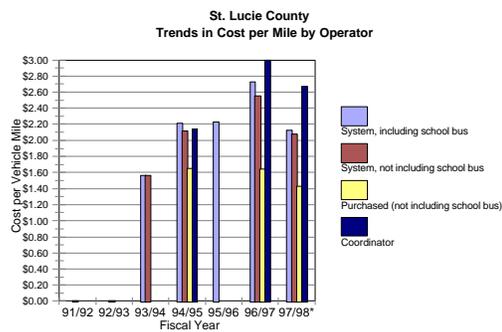
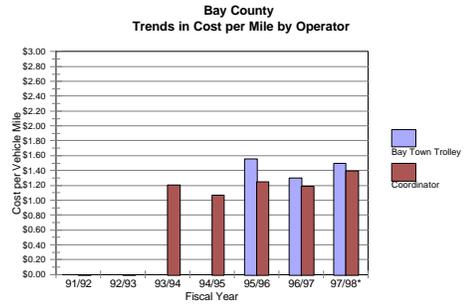
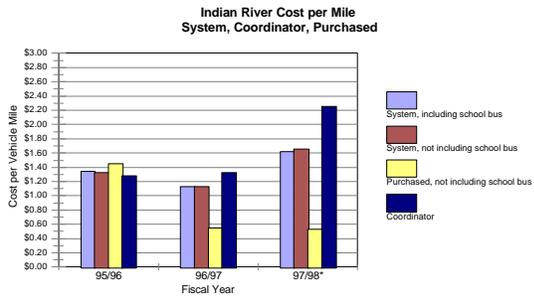
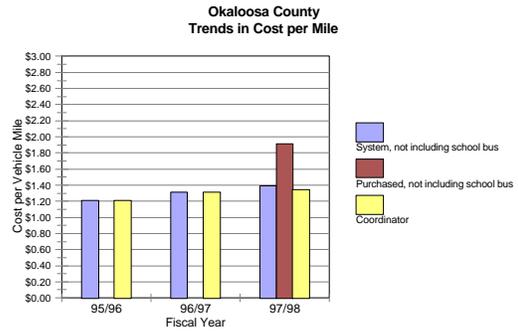
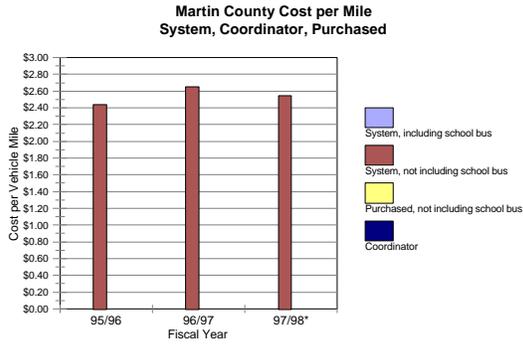


Figure E2 - Trends in Expenses per Vehicle Mile



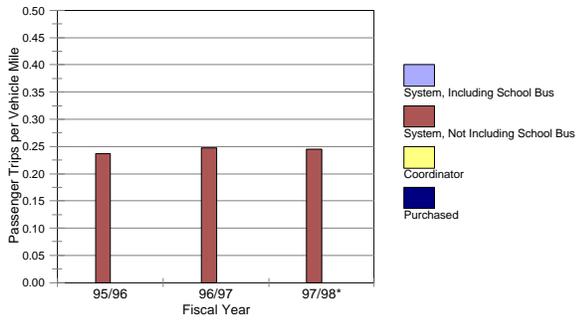
Service effectiveness (Figure E3) differs between door-to-door service and fixed route service. The Bay Town Trolley is experiencing a significant upward trend in passenger trips per vehicle mile, though at about 0.32, it is far from the 1.5 passenger trips per vehicle mile that seems achievable. In FY 1998, though, it was more effective than any of the door-to-door services. With service improvements, it has potential for reaching effectiveness levels above 1.0 passengers per vehicle mile. The door-to-door services indicate that they are capable of passenger trips per vehicle mile of .30, though levels below .25 are more likely. The relatively low level for Okaloosa County is attributed to the bifurcated nature of the population distribution resulting from Eglin Air Force Base separating two nodes of population. A similar situation exists in Indian River County, though not resulting from a military installation.

Trends in passenger traffic are shown in Figure E4. In general, passenger traffic has been growing in all of the counties until this past year. In the past year program cutbacks have caused declines (Okaloosa), while increasing costs of service may have affected passenger growth in Indian River and St. Lucie Counties. In those two counties, while school board contract service constitutes a small part of the service provided, it accounts for a large part of the passenger traffic. Growth patterns of remaining traffic are not as favorable, though St. Lucie County has the largest relative traffic base of the five counties.

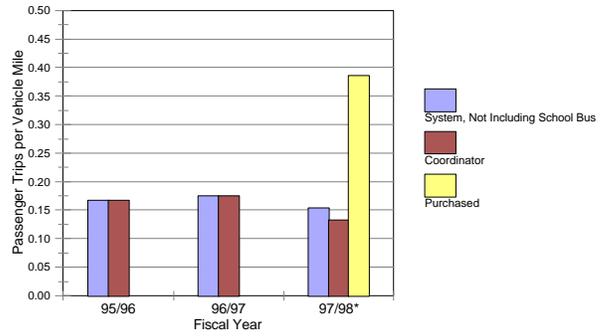
Because the Florida Department of Transportation is interested primarily in transit ridership from the general public, we made an attempt to separate general public traffic trends from those of programs. We did this by using the passenger traffic categories contained in the Commission for the Transportation Disadvantaged Annual Operating Reports since FY 1996. We counted all disabled and low income passengers as program passengers and all others as general public passengers. We then subtracted school board passengers from both categories in Indian River and St. Lucie Counties. These are the only two counties that had significant numbers of children using the service. We subtracted all non-disabled and non-poor children from the general public passengers in those two counties. Disable and poor children we subtracted from the program passengers. Because the Annual Operating Reports for Bay County did not include the Bay Town Trolley, we added those passengers to the general public passengers in Bay County. The Annual Operating Report for Indian River County already included fixed route passengers.

Figure E3 - Trends in Passenger Trips per Vehicle Mile

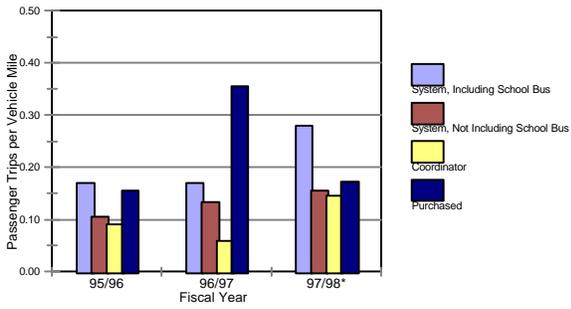
Martin County
Passenger Trips per Vehicle Mile



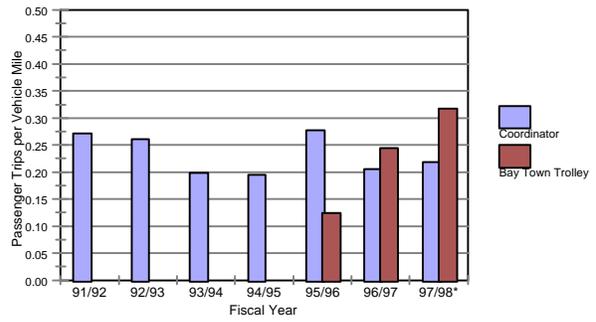
Okaloosa County
Trends in Passengers per Vehicle Mile



Indian River Passengers/Mile
System, Coordinator, Purchased



Bay County Trends In
Trips per Vehicle Mile by Operator



St. Lucie County Trends In
Trips per Vehicle Mile by Operator

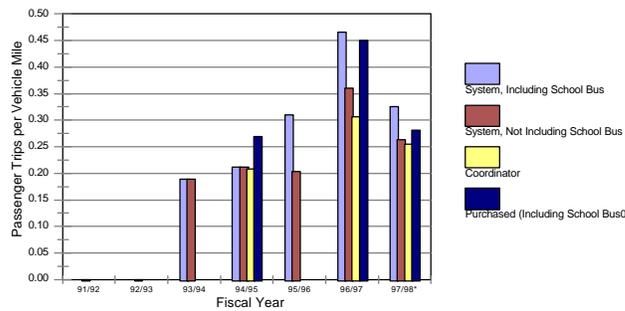
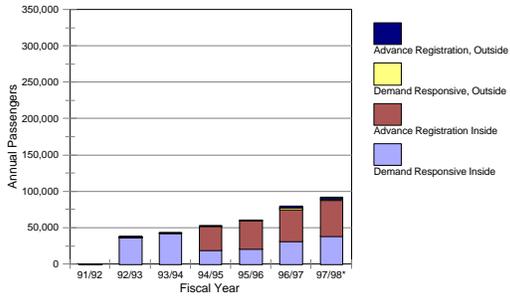
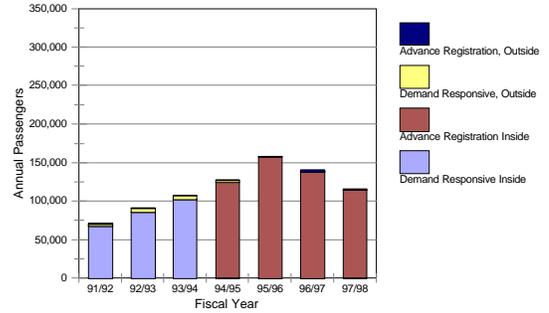


Figure E4 - Trends in Passenger Trips

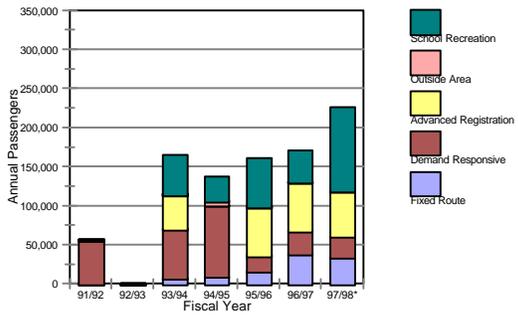
Martin County Passengers



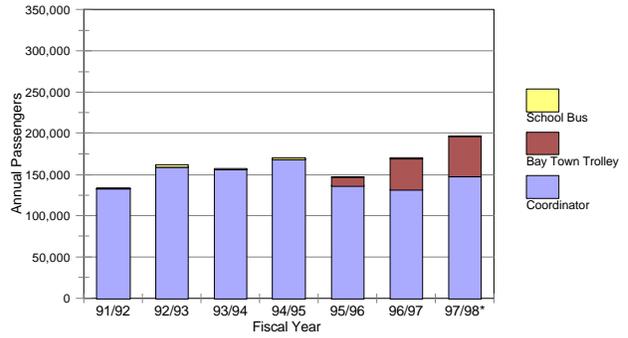
Okaloosa County Passengers



Indian River Passengers



Bay County Passengers By Operator



St. Lucie County Passengers By Operator

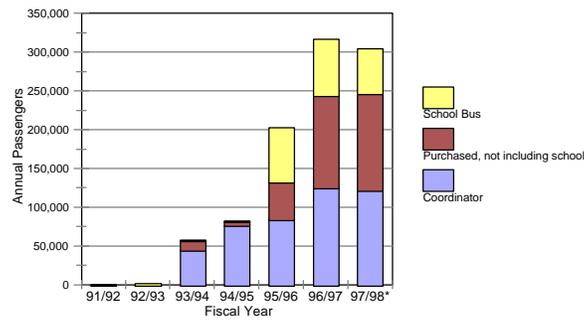


Figure E5 shows the per capita results based on the 1990 county populations. Not surprisingly, program passengers account for most of the passenger traffic in all of the counties. General public patronage is particularly light for Martin and Indian River Counties compared to the other three counties. St. Lucie showed the largest general public traffic in FY 1997, though Bay County showed the most sustained growth and the largest general public traffic in FY 1998. Growth in general public traffic in Bay County is partly attributable to the Bay Town Trolley. Program traffic for all of the counties is considerably heavier, and its growth has been more consistent. The exception is Okaloosa County, which has experienced program funding cutbacks, according to the system's general manager, Ruth Lovejoy (1998).

Figure E5 - Trends in General Purpose and Program Trips per Capita

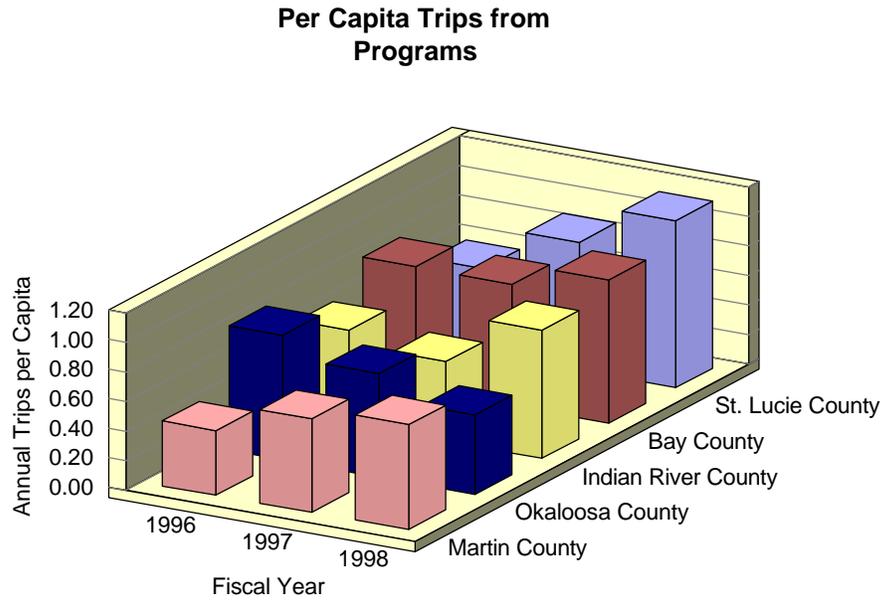
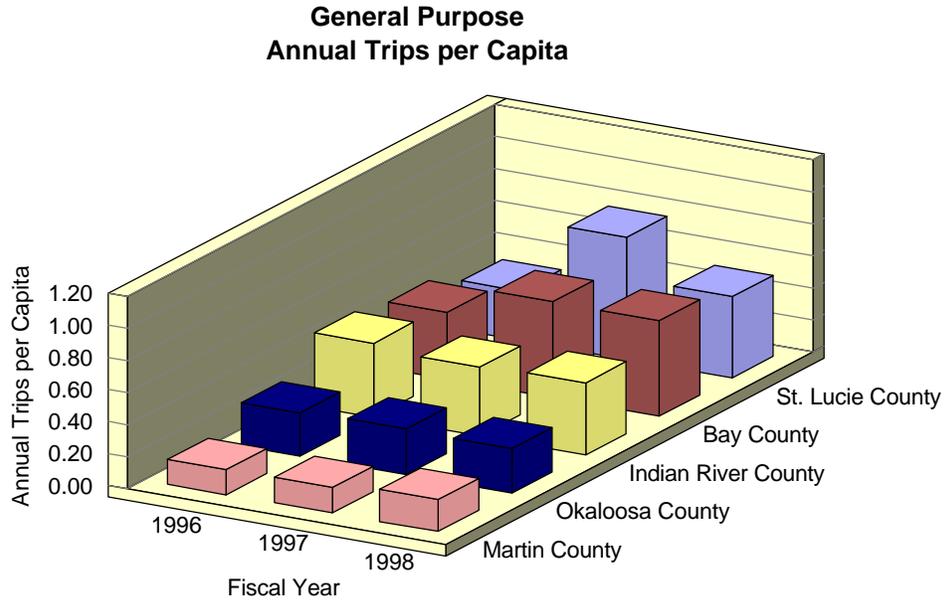


Figure E6 shows trends in maintenance costs. Although the Section 15 statistics summary contained in Chapter 2 suggests relatively abnormal maintenance expenses for some systems, Figure E6 does not confirm this. There is a range of maintenance expenses, but not an unreasonable one. The only abnormality is in Indian River County, which had unusually low maintenance expenses for most of the period, with a huge jump in expenses in FY 1999. We do not know the reason for this. Bay County opened its own shop around 1990; however, it contracts out major maintenance work on the trolleys, because they are too big to fit into the bays.

Figure E6 - Trends in Maintenance Expenses per Vehicle Mile

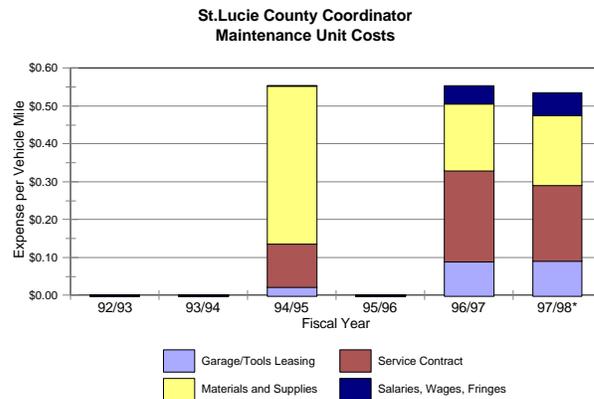
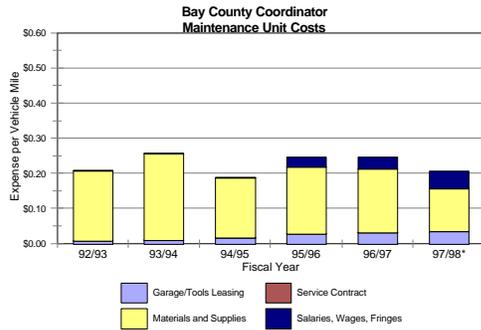
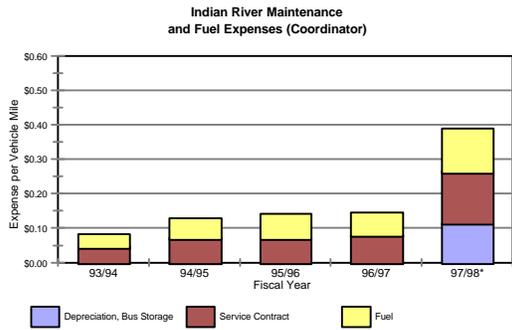
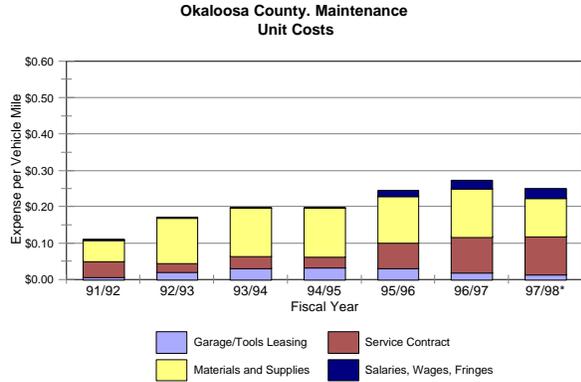
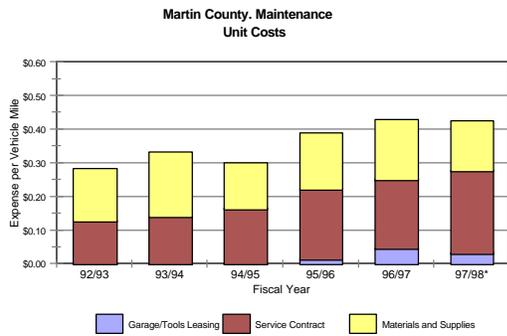


Figure E7, showing growth in funding sources for operations of the transit systems (but not for capital) is taken from the Transportation Disadvantage Commission's Annual Operating Reports for the five systems (as are most of the other figures). We added to the Annual Operating Report financial data for Bay County sources of operating revenue for the Bay Town Trolley, which we obtained from the West Florida Regional Planning Council. Figure E7 indicates that in general program funding for transit in the five counties has been fairly stagnant, although as shown earlier program passengers have been increasing steadily. Through FY 1997 U.S. and Florida DOT funds accounted for much of the funding increases, although these leveled off in FY 1998. As indicated earlier, general public passengers have not increased by much, except in Bay and St. Lucie Counties. It would be helpful to include capital expenditures and funding sources in this analysis, as well, but we could not find a readily available source for historic capital programs. The Annual Operating Reports, which are a superb historical record in most respects, do not include historic capital information; the TDPs do not do so in a consistent manner, either.

Fluctuations in DOT funding (including both state block grant and Section 5307 funding) for Okaloosa County results from delays in filing and processing funding applications. Some years represent two-year's-worth of DOT money, while adjoining years show none.

Figure E7 - Trends in Financing of Operations

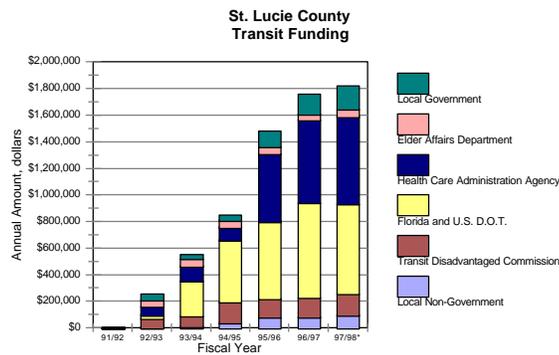
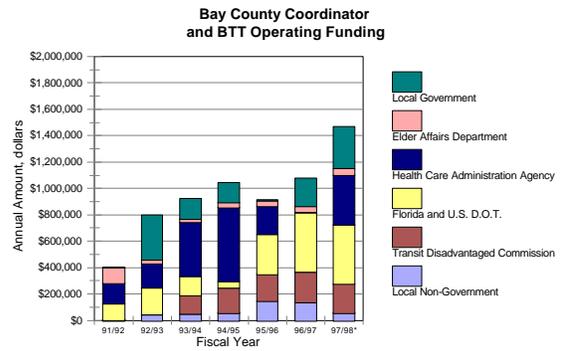
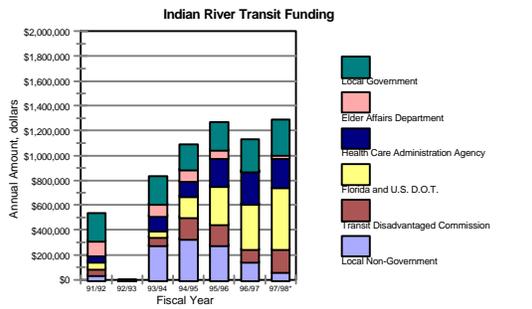
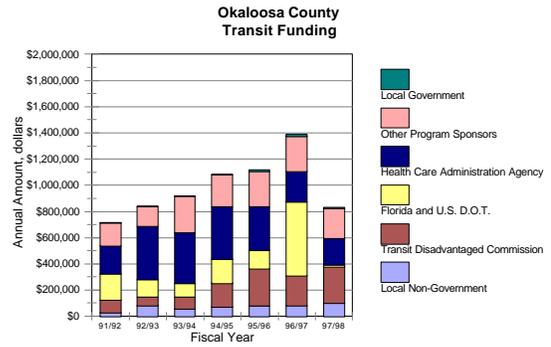
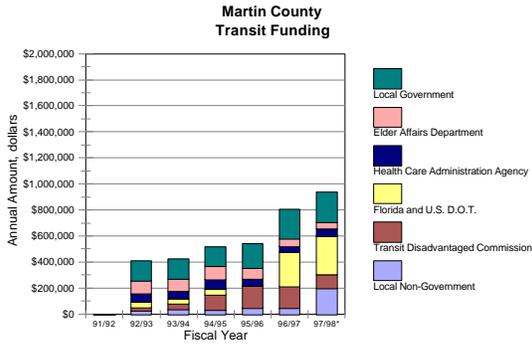


Figure E8 projects operating expenses and revenues for a decade into the future. Revenues are based on FDOT block grant allocations for the next five years and trends from them thereafter, the FY 1998 governor's allocation of Section 5307 funds for both operations and capital, projected into the future, and recent past trends in other funding sources, which generally have been stagnant or declining. With the exception of Bay County, operating expenses are based on the existing door-to-door systems, that are projected to expand each year in proportion to population growth. Bay County financial figures are based on an illustrative improved fixed route service for the Bay Town Trolley, as discussed in the recommendations. We assume that service needs will increase in proportion to population growth. Unit costs per vehicle mile are projected to increase in accordance with past trends.

In making financial projections, we used the same approach for all five systems. This approach varies to some extent from the way that some of the systems use various funding sources for matches to federal and state grants, but except for our not using toll credits, we do not think that the total financing in any given year would be much different from that used by various local systems. The first step that we took in making the financial projections was to estimate capital needs, which almost entirely were new buses and vans. Each year we programmed the replacement of existing vehicles whose service life was reached. We also added new vehicles to provide service growth. We based bus purchase prices on FY 1998 prices inflated at three percent per year. We used Section 5307 funds to finance 80 percent of the bus purchases and used state block grants to provide the 20 percent match. State block grant allocations that we did not use for capital, we applied to finance operations. We restricted Section 5307 funds for operations to the operating caps set in the FY 1998 allocation.

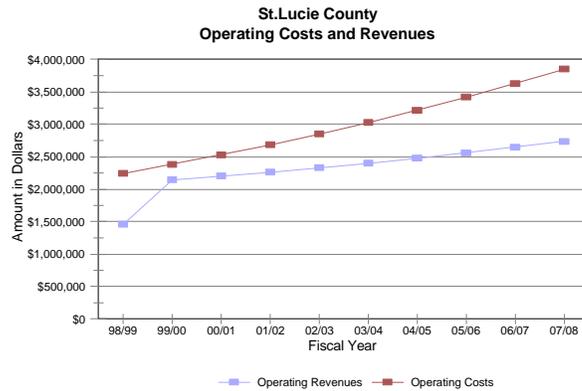
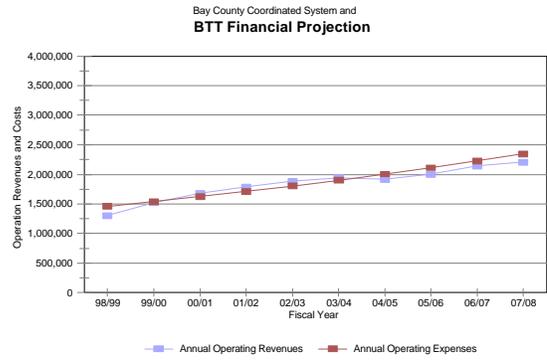
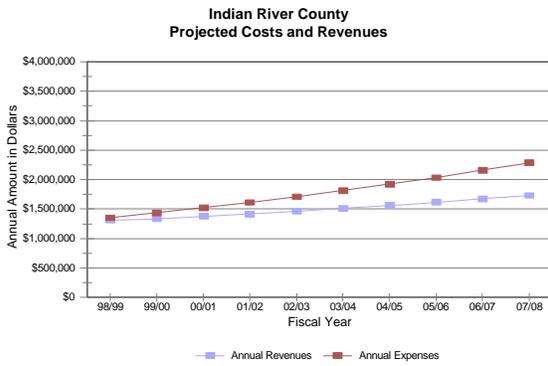
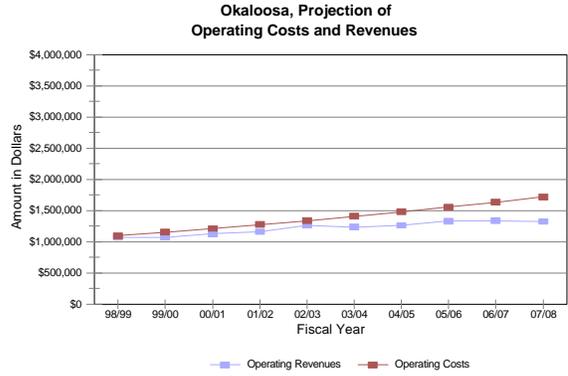
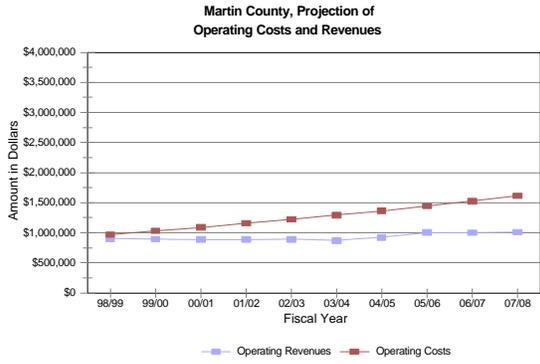
Local funds generally provided the fifty percent match for state block grant and Section 5307 funds that are applied to operations and twenty percent that are applied to capital. In the case of Okaloosa County, we assumed the use of no local funds for matching 5307 funds and used toll credits instead. Okaloosa County has been following this approach, which allows for the infusion of state and federal money.

Bay County is different, in that we viewed the increasing patronage on an irregular and infrequent service as indicative of latent demand for improved general public transit service. Consequently, we provided for an illustrative system with expanded service (discussed in recommendations), which requires approximately a doubling of fixed route vehicles and vehicle miles. With this level of service we assumed that passenger effectiveness would gradually increase from .32 passengers per vehicle mile to 1.5 passengers per vehicle mile, and that passenger fares, now at \$0.50, would increase to \$1.00 (the same as the co-pay for the coordinated system), and then would increase with inflation. These assumptions produce sizable and growing passenger revenue.

In some cases Figure E8 shows operating deficits from the outset. This is attributable to some systems having a large number of buses beyond retirement age. We assume that all such buses are replaced in FY 1999, which in some cases exhausts state block grant money that could be used to finance operations.

In general we find that existing funding sources are almost sufficient to meet capital needs, but they are not sufficient to meet forecasted operating needs for the existing systems. The primarily problem is the failure of funding from programs to meet transportation needs of program clients, which we assume to increase with population. Increased service for the general public would require new sources of funding, or redirection of existing DOT funding away from program services to general purpose services.

Figure E8 - Projections of Operating Expenses and Revenues



Conclusions

1. While there are some anomalies, such as the large increase in unit operating and maintenance costs in Indian River County in FY 1998, it appears to us that resourceful managers and the reporting system and overview of the Transportation Disadvantage Commission insure efficient operation for most Council on Aging systems. In general, operating, maintenance, and administrative efficiency is not an issue.
2. Having said that, we note that those systems with lower costs per vehicle mile (Bay and Okaloosa County systems) carry proportionally more passengers per dollar of funding. This truism helps explain the more optimistic financial projections for the two northern systems, although because of an absence of local funding in Okaloosa County, the outlook there is none too bright.
3. The demand for program transportation is increasing at a rapid rate, while agency and program funding for such transportation is declining. Projection of costs of service needed to accommodate increasing social service transportation exceeds the projection of funds that social service agencies are likely to make available for the transportation of their clients, if recent trends are any indication. If these trends continue, social service transportation will have to be cut back or find other funding sources. To some extent, it already is finding other funding.
4. FDOT block grant funding and U.S.DOT Section 5307 funding appear to have encouraged little increase in transportation of the general public but rather has displaced program funding. Partial exceptions to this statement are Bay County and Lucie County. The absence of a comprehensive accounting of how Florida and U.S. DOT money is spent in each county makes conclusions difficult. The Annual Operating Reports of the Commission for the Transportation Disadvantaged present useful summaries of DOT funds that support operating expenditures for transportation disadvantaged services, but the AOR summaries do not include capital, nor do they include DOT funding for services outside of the transportation disadvantaged system, such as the Bay Town Trolley or shared ride programs. (The West Florida Regional Planning Council supplied us with Bay Town Trolley data, which are included in the above figures.) Despite this, the trend in the AOR figures suggests considerable growth in DOT funding to the five systems over the past several years, at the same time as social service and agency funding has remained stagnant or actually declined. This finding, together with the general stagnation in growth in general public riding and the rapid growth in program riding suggests that DOT funds are replacing program funds for the transportation disadvantaged and are failing to achieve their objective of increasing general public use of the systems.
5. General public demand, measured as per capita general purpose usage per year, varies between the five counties in part because of demographic differences in the counties. The two counties with the greatest per capita usage (Bay and St. Lucie) are two of the three counties with the larger populations and the lower average incomes.
6. Service and policy variables affect demand, as well. Okaloosa County has roughly

similar demographics to Bay and St. Lucie Counties, but much lower general public riding per capita. This may reflect an absence of local funding, that limits capital renewal and the level of operations. Bay County, the only county with growing general public per capita transit use, is the only county that introduced fixed route service over the full weekday (though not in the evenings).

7. The experience in St. Lucie and Bay Counties with larger levels of general public transit riding suggests that there is latent general public demand in the other counties, and probably untapped latent demand in both St. Lucie and Bay Counties. Bay County's higher level derives from its new (1996) fixed route service, the Bay Town Trolley. While the service is infrequent and irregular, its usage is increasing steadily and in FY 1998 was more productive than any of the door-to-door services. Based on peer comparisons made by authors of various transportation development plans, we believe that this system has room for considerably more growth if it is made more frequent, regular, and with timed connections between routes. A roughly doubling of fixed use vehicle miles per year could achieve the improved level of service. Productivity for the improved service has the potential of growing from its current rate of about .32 passenger trips per vehicle mile to about 1.5 for a total growth in fixed route passengers of about five-fold. Because of the very limited service (ending at 2:00 p.m.) and much lower levels of public information compared to Bay County, the limited use of the Indian River fixed route service does not dissuade us in our conclusion.
8. The St. Lucie Council on Aging service is the only door-to-door service in the five that we examined that accommodates a significant amount of general public riding. We suspect that the general public riding results from a more flexible organization of the service than those in the other counties. The service in St. Lucie County is based on zones, and buses are assigned to zones in different patterns each day depending upon demands received from the public the previous day. A sizable part of the total ridership is composed of those who make reservations during the previous day. It is not clear to us whether general public passengers must be registered with the system before they make their travel requests.
9. There appears to be limited growth potential for general public use of door-to-door service. The experience in the five counties suggests that the maximum limit of service effectiveness is about .35 passenger trips per vehicle mile, and the experience in St. Lucie County in FY 1997 (when the system served almost all trip requests), suggests that the upper limit of general public door-to-door demand is about one trip per year per capita.
10. Past transit development plan proposals to place bus benches and shelters that are self-financed from advertising revenues strike us as very good suggestions, but we have found an almost universal opposition of local public officials to such proposals. The stated objective is opposition to advertising on the streets.
11. The Bay Town Trolley map and timetable folder, with alterations to make the map more readable, in conjunction with clearly marked bus stops, is a possible model that could be followed for other fixed route services.

Recommendations

1. To allow assessment of the effectiveness of DOT fund use, more revealing performance monitoring is needed. Evaluators need to know the number of general public passengers carried for each system for each year for each dollar of DOT funding. We suggest the following be required for the short range transit plans:

A full accounting of DOT funding is used within each MPO each year. How much is used for operating support for each system, how much is used for capital support. Plot time series for the past 10 years.

Accounting of general public passengers carried each year for each system. Goal is to have an on-going time series spanning a 10-year period.

2. While we are encouraged by recent trends from the Bay Town Trolley, we believe that the only way to determine whether there is further latent general public transit demand is to provide a higher level of service than that operated by either the Bay Town Trolley or service in Indian River County. Accordingly, we recommend a two-year demonstration of hourly service on routes having timed transfer connections with each other, and service hours extending from early morning to at least mid-evening, in one of the counties studied. The attached map for Bay County illustrates the type of service trial that we envision. While the Transit Development Plan now in preparation for Bay County will propose a more definitive route and service system, this illustration provides for a ball park estimate of the financial resources that a trial would require. Each of the routes (except for the interurban beach route, which would have two-hour service) would have hourly service throughout the week day and into the evening. The financial projections presented above and in the financial chapter include the level of service described here. To the extent that additional funding is required, we recommend that FDOT provide it during the period of the demonstration. If service has not made an effectiveness threshold — we recommend 1.0 passenger trips per vehicle mile — after two years, it should be cut back or abandoned.
3. We also recommend that the existing Indian River fixed route service be subject to a two-year demonstration of fixed route potential similar to that in Bay County. Service hours should be at least from 06:00 a.m. to 8:00 p.m., with hourly service the Vero Beach - area routes. Regular stops and benches would be required as well as a brochure and map as used in Indian River County.
4. In regard to the provision of bus benches and shelters, we recommend that the issues of providing them and financing them be considered separately. Benches should be provided at most stops; shelters at transfer points and stops with heavy usage. Because of widespread opposition to financing such amenities from advertising, we recommend that they be financed with other funding sources. Because existing Section 5307 and state block grant funding sources are fully-utilized in supporting operations, maintenance and bus and shop purchases, we recommend that additional funding

sources be sought. Transportation enhancement funds made available through the Transportation Efficiency Act would be appropriate for funding not only benches and shelters, but also sidewalks between along roads with bus stops as well as connecting stops (including benches and shelters) with important destinations.

5. We recommend that state law be changed to require any public body using DOT funding to match it with hard local money (rather than by toll credits). In kind services could be matches if they are of material use to the provision of transit service.

Map Illustrating Bay Town Trolley Improvements Contained in the Financial Projections Follows
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Chapter 1: Introduction

The Transit Operations Study examines trends in public transportation service and usage in five smaller Florida urban areas that are growing rapidly. Three of the urban areas are located in south Florida: Stuart in Martin County, Ft. Pierce in St. Lucie County, and Vero Beach in Indian River County. The other two are located on the Gulf of Mexico in Florida's panhandle: Panama City in Bay County, and Ft. Walton Beach in Okaloosa-Ft. Walton Counties. The counties containing the urban areas under study have populations in the range of 100 to 200 thousand people and annual growth rates ranging from 2.5 to 4.5 percent. The intent of the examination is to estimate general demand for public transportation and the extent to which that demand is being met by existing service funded by the Florida Department of Transportation. It is hoped that lessons learned from the experiences of the five systems may guide the development of general purpose public transportation in these and other areas undergoing rapid urbanization.

Demand-responsive transit began in each of the five counties during the 1970s and early 1980s as an outgrowth of non-profit organizations providing social programs with private, local, state, and federal funds. Section 16 (b)(2) of the Surface Transportation Assistance Act of 1978 provided federal funds to the governor of each state for allocation to private non-profit corporations and associations to provide transportation to elderly, disabled, and low income persons in urbanized areas who otherwise had no public transportation that met their needs. Section 18 provided federal funds to the governor of each state for allocation to other than urban areas to improve all public transportation, including that for the transit disadvantaged. To better coordinate special-purpose transportation provided by different funding sources, the Florida Legislature enacted Chapter 427, F.S. in 1979.

Chapter 427, Florida Statutes, and subsequent Administrative Rule 41-2, Florida Administrative Code, laid out a framework for providing transportation to the elderly and disabled and the economically disadvantaged in every Florida county. The act and rule established the Commission for the Transportation Disadvantaged (CTD) at the state level. The CTD (now known as the Commission for the Transportation Disadvantaged) designates in every county a Designated Official Planning Agency (DOPA), which usually is the board of county commissioners. The DOPA in turn appoints a Transportation Disadvantaged Local Coordination Board (TDLCB) according to state guidelines, and the LCB appoints a Community Transportation Coordinator, which operates directly and/or contracts for transportation disadvantaged service. Funding requests pass from the Community Transportation Coordinator ultimately to the state Commission for the Transportation Disadvantaged through this chain of command. The state commission requires an annual Service Plan for the Transportation Disadvantaged (TDSP) from every Community Transportation Coordinator. The LCB with approval from the DOPA approves the plan and also evaluates the performance of the Community Transportation Coordinator.

Subsequent to the establishment of the transportation disadvantaged institutional structure, additional population growth led to programs for support of general public transportation service. For those parts of the five counties that have attained urbanized status, the Federal Transit Administration of the U.S. Department of Transportation apportions Section 5307 (previously known as Section 9) moneys to the Florida Department of Transportation, which in turn allocates the funds to transit operators in each urbanized area. Part of the funds for each urbanized area must be used for capital purchases, and each dollar of Section 5307 funds must be matched with 20 cents from local or state sources. Part of the Section 5307 funds may be used from either capital purchases or operating support at the discretion of the transit operation. Every dollar of such federal funds must be matched by a dollar of local or

state support.

Additionally, beginning in the mid-1990s, the Florida Legislature provided for formula block grants to transit operators in urbanized areas, and each dollar of state block grant must be matched with a dollar from local sources. The block grants must be used for general public transportation, either capital or operating support. Pursuant to Section 341.052, Florida Statutes and Rule 14-73, Florida Administrative Code, transit operators receiving such block grants are required to prepare Transit Development Plans (TDPs), which are documents that analyze demand for general purpose public transportation and provided for a five-year program of public transportation improvement. In practice the metropolitan planning organizations (MPOs) for each urbanized area usually prepare such plans.

In each of the five counties of this study, the CTC that already had been formed to serve the transit disadvantaged viewed itself the logical agency to operate general purpose public transportation. Each CTC modified its services to accommodate the general public in addition to transportation disadvantaged persons. Each coordinator did so in different ways, however, and evaluating the differences has been of interest to this study.

The study is divided into three chapters. Chapter One describes the evolution of transit service in each county, summarizes peer review analyses of each system's performance, and examines the degree to which each system is achieving goals and objectives as set forth in the transportation development plans. Chapter Two more closely examines service performance by dis-aggregating system performance measures into those describing performance of different parts of the systems. Chapter Two also examines demand for each system, passenger amenities provided by system, each system's cost structure, and each system's maintenance procedures. Chapter Three analyzes trends in funding sources and expenditure requirements for existing services. The over-arching chapter comparing each of the systems and drawing conclusions about the demand and supply of transportation in Florida's urbanizing counties, and making recommendations, is found in the Executive Summary.

Chapter 2 - Performance Evaluation

Part 1 - System Descriptions

Indian River County Council on Aging - Service Description

In the early 1990s Indian River County Council on Aging either directly or through contract offered two types of demand-responsive service as well as group trips for children. One type of demand-responsive service was group shopping, requiring 24 hour advanced reservation. Group shopping vehicles are assigned to zones. Clients living in a particular zone may take a vehicle to a shopping center of their choice located in that zone. Drivers help load and unload passengers and their belongings. The other type of demand responsive service was door-to-door Medicaid service, available 7 days per week, 24 hours per day. The Council on Aging also contracted with the school district to operate school buses to take children to recreational destinations during the summer.

In addition to demand-responsive and school bus transportation, beginning in 1993 Indian River County Council on Aging also provided deviated fixed-route service for the general public, utilizing nine vehicles and funded by Section 9 money. Drivers assisted passengers and their belongings on and off vehicles. On 1 November 1997 the Council on Aging further restructured the fixed route service into a smaller system coordinated with dial-a-ride.

The restructured fixed route service does not deviate from routes nor do drivers assist passengers. It consists of an East-West service using two buses, a North-South service using two buses, and beginning 15 May 1998, a route linking Vero Beach with Sebastian using one bus. On 21 September 1998 an additional experimental service started with one bus, operating two days per week in one neighborhood and 3 days per week in another. Fares for fixed route service were eliminated at the beginning of FY 1999.

Karen Wood, the system's operating manager, stated that the Council on Aging implemented the changes in 1997 and 1998 to improve load factor. Visual inspection showed that many of the trips of the first route structure attracted no passengers. She said that the intent of the new fixed route design is to connect most of the major destinations in Indian River County but not most of the residential areas where trips begin. Passengers are expected to travel in either direction between their homes and the fixed route service on zoned dial-a-ride. This means that most passengers wanting general transportation need to take dial-a-ride from their homes to a fixed route before continuing to a destination, which may require a second transfer. Passengers wishing to make use of the dial-a-ride are required to schedule both directions of their trip 24 hours in advance, presumably so direct connections can occur between dial-a-ride and fixed-route vehicles. (Karen Wood and *Community Coach Report, July-August 1998*)

Service for the East-West and North-South service operates weekdays with departures from outer terminals hourly on the hour except at noon from 8:00 a.m. to 2:00 p.m. Buses meet in central Vero Beach at Pocahontas Park, the main hub on the half hour. The Sebastian shuttle also operates hourly from 8:00 to 2:00 from Sebastian (where a connection is made with transit in Brevard County) to central Vero Beach. Two trips operate express and connect with the other routes; the remaining trips operate as locals and arrive too late in Vero Beach to make connections.

Martin County Council on Aging - System Description

The Public Transportation Element of the Martin County Comprehensive Plan, as amended in 1993, notes that county studies conducted in 1975 and 1980-81 recommended the creation of county-wide fixed-route transit service using state and federal funds. The county

government rejected the proposals. Instead, it favored the continuation of specialized public transportation that was being provided by the Martin County Council on Aging.

The 1974 charter of the Martin County Council on Aging identified transportation for the over-60 segment of the population as one of the goals of the organization. Shortly thereafter the council purchased a 15-passenger van, and in the next several years received donations of three additional vans and a station wagon. Civic groups also raised money for wheel chair lifts. Through funding provided by the Community Care for Disabled Adults beginning in 1982, the Council on Aging opened its services to all disabled persons over 18 who were clients of Tri-County Rehabilitation. The Council also began once-weekly service between Indiantown and Stuart. Pursuant to the enactment of Chapter 427, F.S. in 1979, requiring the coordination of transportation services for the transportation disadvantaged throughout Florida, the Martin County Board of County Commissioners was designated the planning agency for coordinating transportation for the transportation disadvantaged in Martin County, and in 1983 the Local Planning Organization for Martin County designated the Martin County Council on Aging, Inc., as the coordinator for such transportation. The designation made Section 18 funds available to the Council on Aging, which as a consequence was required to open services to the general public. The Council also expanded its transportation between Indiantown and Stuart to three days per week and inaugurated internal service within Indiantown one day per week. New social programs, additional donations, and increasing funding from the U.S. and Florida Departments of Transportation enabled the Council to expand service to additional designated clients as well as to the general public. Pursuant to the 1990 Census, more densely-settled parts of Martin County were designated as urbanized areas, for which the governor appointed a Metropolitan Planning Organization in the mid-1990s. This action cut out much of the rurally-oriented Section 18 funding, but it made available Section 9 funding to subsidize urban transit service beginning in fiscal year 1996-97, to which the state added transit block grant funding.

As of mid-1996 the Martin County Council on Aging stated its transportation goals:

The major goal of the Council on Aging of Martin County is to coordinate and provide various transportation services to the sponsored, non-sponsored and general public riders of Martin County. Other goals are the education of public and service-oriented agencies/programs concerning available transportation services and the analysis of service delivery in order to improve the public transportation system in Martin County (Council on Aging of Martin County, Inc.. 1997, Exhibit A).

The Martin County Council on Aging operates a fleet of 24 buses and four vans mostly in several types of demand-responsive or pre-registered door-to-door services:

6. In the eastern one-third of the county;
7. Between all above points and Port St. Lucie in neighboring St. Lucie County to the north; and,
8. Between all above points and West Palm Beach in Palm Beach County to the south.

The Council on Aging also operated two deviated fixed route services:

9. Within the Indiantown area;
10. Between Indiantown and Stuart;

Finally, it operates a shuttle one day per week within Stuart, and another shuttle one day per week between Stuart and the Treasure Coast Mall, a regional mall near the northern limits of the county.

The demand-responsive service in the eastern third of the county is organized into three "routes" which provide two daily departures from various parts of the county, and two daily returns from central Stuart, weekdays only. At 8:30 each weekday morning one bus or van starts at the north and the south ends of the county and heads toward central Stuart, picking up all passengers in the north and south areas who made reservations. After dropping passengers off at destinations within Stuart in the mid-morning, the buses circulate within Stuart, providing local demand-responsive and will-call riders between 10:00 and 11:00. The vehicles then pick up passengers headed toward the southern and northern parts of the county. The cycle repeats in the afternoon. During the entire service day, another bus or van circulates within Stuart, picking up and dropping off local trips. The Palm City route (between Palm City in the central part of the county and Stuart) is classified differently from the north and south and local routes, but it appears to operate twice-daily in much the same manner. Another, new service on SR76 operates in the same fashion.

The deviated fixed-route service between Indiantown and Stuart operates somewhat differently. The route has two buses. The first leaves Stuart at 6:30 am and heads to Indiantown, where it provides local service between fixed stops. It then returns to Stuart at 8:55, dropping off Indiantown passengers at various destinations in Stuart. The bus assists in local service within Stuart before again departing for Indiantown at about 12:30. The bus then returns to Stuart, where it assists in local Stuart transportation. The second bus begins its day at Stuart at 8:30 a.m., and follows the schedule of the first bus two hours later.

The Stuart shuttle operates on a fixed looped route within Stuart serving identified stops at five scheduled times on Tuesdays only. The Treasure Coast Mall (TCM) shuttle takes passengers door-to-door from anywhere in the county (except Indiantown) to the mall on Thursdays only. Users are allowed about 5 hours at the mall, and they must register three days in advance.

The Council on Aging also operates three vehicles to meet specialized needs of individual riders on a door-to-door basis, Monday through Friday. Subscription users of the specialized services include those in Adult Day Care, the Meal Site, and those using the Kidney Center. The system works demand-responsive trips into the schedule depending upon seat and vehicle availability. It operates an additional three buses in what it calls Early Bird service. Early Bird service is similar to specialized needs service, but it caters more to last minute medical-related demands. Finally, the council continues one of the early bird buses between 4 and 7 p.m. to take care of demands from residents of the central Stuart area for medical purposes as well as to and from soup kitchens.

In 1998 the Council started new services. Two are fixed route. Beginning 17 December 1997, the Downtown Express (actually a shuttle) began serving designated stops along two routes in Stuart. A third route is planned. Service is every 10 minutes on one route and every 15 minutes on the other route, but the hours of operation are limited between 11:00 a.m. and 2:00 p.m., weekdays. The services appear to link central Stuart job sites to edge shopping centers, which include peripheral parking lots. Sponsored by the City of Stuart, the service is free.

The Hotel Hopper operates Tuesday through Saturday, oriented to tourists and business people. It links coastal hotels with central Stuart, which has boutiques. Adults must pay a full fare.

For those able to pay, and for agencies that pay for clients, the regular fare for regular routes is \$12.28, and the fare for specialized transportation is \$14.50. Shuttle route fares range from \$2.00 to \$5.00. Those who cannot pay full fares for regular or specialized service pay between \$3.00 and \$5.00.

Most users are required to register for the service to establish their sponsor or non-sponsor status and to request service by phone. The exceptions are for users of shuttles, who may board at any designated stop, and the Indiantown services, where telephones and the use of English are limited. Here drivers register passengers who can afford the \$2.00 fare. Those who cannot may register with local social service agencies and obtain wooden tokens to ride.

Some trips require reservations three days in advance and are termed "advanced registration trips." These may be shopping or medical trips. Other trips require a 24-hour advance registration. These and emergency medical trips for Medicaid recipients, which are accommodated as quickly as possible, are termed "demand responsive" trips. Most demand-responsive trips are handled by the regular three routes, but demands requiring extra care for the passenger are accommodated by specially-dispatched vehicles, and those made after hours, on holidays, or on weekends are accommodated by cab companies under contract.

Users of any of the shuttle services or who access the Indiantown services at designated stops are not required to make reservations.

St. Lucie County Council on Aging

The only transit service that ever operated in the county has been paratransit, most likely beginning in 1974 when the Board of Directors of Council on Aging of St. Lucie, Inc., inaugurated a limited van service for its members. In 1990 the Council on Aging organized its transportation services into a department called Community Transit.

Also in 1990 the Florida Department of Transportation designated the St. Lucie Board of County Commissioners as the County Transportation Coordinator, with the county's Human Services Department, Grace McNeil Director providing staff services. The Board in 1991 contracted with the Council on Aging's Community Transit paratransit service to provide general transportation service for the transportation disadvantaged. Community Transit operated its own fleet of buses and vans, and it also contracted with other operators to assist in its responsibilities, particularly in the transportation of Medicaid clients outside of Community Transit's normal operating hours (08:00 to 4:30, Monday through Friday). At the same time, numerous public and private agencies operated their own transportation services as part of their various missions and programs, in many cases with government assistance. Over time, Community Transit persuaded some of these agencies to contract with Community Transit for transportation services in lieu of the agencies providing their own services. It persuaded others to coordinate their services through community transit, though they continued to operate their own vehicles. A number of such agencies never came under the Community Transit umbrella.

When it was organized in 1990, Community Transit applied for a FDOT block grant and federal section 18 money, in order to provide general transportation service to anyone requesting it. The grant was approved. The organizational implications are that while Community Transit is not the county's Transportation Coordinator (the Human Services Department is), it is the county's general transportation provider.

In 1996 consultants preparing the MPO's transit development plan surveyed 46

agencies and institutions in St. Lucie County about transportation services that they may have been providing to their own clients. Twenty-nine institutions responded, revealing that in total they were operating 289,250 vehicle miles and carrying 105,520 annual passenger trips. Half of the passenger trips were carried by four agencies and institutions who were part of the coordinated system, and they spent \$50,266 on transportation services. The remaining 54,458 passenger trips, \$84,716 in operating expenses, 130,000 vehicle miles, and 17 vehicles were not part of the system (BRW 1996).

Community Transit organizes its demand responsive services through three service regions: North, Central, and South county. In each region, Community Transit designates cities, and within each city, zones. It assigns particular vehicles to particular zones for particular purposes, based on requests for service identified the previous day. Passengers may call for reservations at least 24 hours in advance, or they may subscribe for a particular type of service on a regular schedule. Community Transit also operates deviated fixed route service and a limited amount of specialized paratransit service, largely for medical purposes, including to destinations outside of the county.

Bay County Council on Aging and Bay Town Trolley

Pursuant to Chapter 427 Florida Statutes and Chapter 41-2 Florida Administrative Code, the Panama City Urbanized Area Metropolitan Planning Organization in 1983 designated the Bay County Council on Aging, Inc. as the Community Transportation Coordinator to serve the transportation disadvantaged in Bay County under the overall umbrella of the state Commission for the Transportation Disadvantaged. The Bay County Board of County Commissioners became the Designated Official Planning Agency (DOPA), overseeing transportation disadvantaged policy in the county, and the DOPA appointed a Local Coordinating Board (LCB) to execute the DOPA responsibilities. The Council on Aging's transportation organization also relies on planning and policy staff support from the West Florida Regional Planning Council in Pensacola, which serves as staff for the Panama City Urbanized Area Metropolitan Planning Organization (TDSP 1997).

Compared to the other transit systems examined in this report, the Bay County Coordinated Transit began the 1990s with a relatively large operation. By FY 1995 it expanded by another 52 percent. With the establishment of fixed route service in FY 1996, coordinated service was cut back, but in FY 1997 and FY 1998 coordinator service again expanded not quite to the level achieved in FY 1995. Usage of the coordinated system also increased as mileage increased, but not nearly as fast as mileage. Overall the trend in passenger trips per vehicle mile has been decreasing, before and after the introduction of the Bay Town Trolley. In the past couple of years the number of vehicles in the system increased from 46 to 47 (including 4 assigned to the Bay Town Trolley).

Today the coordinated system directly operates demand responsive service throughout the county between 6:00 a.m. and 6:00 p.m. on weekdays. It also offers (perhaps through contractors) Medicaid service 24 hours per day seven days per week for eligible participants. According to the TDP (CUTR 1997) and system managers (Burnett 1998; Warner 1998), the system organizes its demand responsive service around 20 variable origin and destination routes covering the urbanized area each day. The system also dispatches two to three trips per day to rural areas and offers service one to two times per week to social and medical services of agencies participating in the system that are located in Pensacola, Tallahassee, Jacksonville, and Gainesville. Those wishing transportation must be pre-registered and those who wish to make random trips must phone at least 24 hours in advance for service. Persons who make

habitual trips one to five days per week only need to phone to set up or change their schedule. Each afternoon dispatchers set up specific runs for each of the 20 routes to accommodate the various trip demands. Medicaid trips are scheduled on a daily basis; shopping trips are scheduled on Tuesdays and Thursdays.

Agencies and programs purchase transportation from the coordinator based on vehicle mileage associated with agency clients' use of the system. It appears that agencies can save on rates if they coordinate their trip demands with trip demands from other agencies (TDSP 1997, pp. 68-72). Non-sponsored passengers also may use the coordinated system if they cannot meet their transportation needs with the Bay Town Trolley. The coordinator does not register non-sponsored passengers, but dispatchers determine whether the trip purpose and/or destination cannot be served by the Bay Town Trolley, in accordance with guidelines established by the local coordinating board. Non-sponsored passengers co-pay to the driver \$1.00 for each one-way trip (Warner, 1999).

The 1996 TDSP states that the coordinator assesses rates to purchasing agents for ambulatory clients based upon a flat rate per vehicle trip ranging from \$2.88 to \$7.50, depending upon the number of members in the traveling group as well as on the type of service expected. Vehicle trips oriented to more fragile passengers or those accommodating stretchers cost more. Also, trips longer than 10 miles receive a supplemental assessment of \$1.60 per vehicle mile (TDSP 1997, pp. 68-72).¹ System managers stated that they divide the urban area into zones and bill clients after the service was provided on the basis of mileage (Burnett 1998 and Warner 1998).

Fixed route transit service operated in Bay County from just after World War II to May 1982, when it was discontinued (CUTR 1996, p. 211). The 1992 TDP recommended the reestablishment of fixed route bus service on five designated routes, and the FDOT later agreed to designate Section 5307 and block grant funds for a three-year demonstration of the concept without the need for local funding match (required in relevant legislation for the funding of permanent services). Panama City Metropolitan Planning Organization agreed to operate three buses in fixed route service, with a fourth bus held as a spare. It is not clear who planned the final service, but the decision was made to establish six routes covering the entire metropolitan area, over which the three buses would navigate. Because there were more routes than buses, each bus when finished with one route would immediately begin navigating another route, in such a way that the buses were mostly moving. In this manner, one of the six routes received eight trips per day, two receive five trips per day, and the remaining three routes received four trips per day, all at irregular intervals. All of the routes converged at a Target store near the major shopping mall in the region, but the decision to keep the buses in constant motion had the side effect of making them miss each other at the focal point, so passengers could not easily transfer from one route to another (unless passengers were on a bus whose next assignment was the route to which they desired to transfer). This service was given the name Bay Town Trolley, because the three buses that were purchased to operate it were made to look like historic streetcars. The fourth vehicle, which is kept in reserve, is a Council on Aging bus. The service began in December 1995 and continues on roughly the same pattern, although the north route, which was poorly patronized, received the axe by the new mayor of

¹These statements are made from our reading of the TDSP (1997), but the TDSP uses different language. The TDSP refers to a flat cost per trip and a supplemental charge per passenger mile, but in the context of the text it appears that "trip" means "vehicle trip" and "passenger mile" means either "vehicle mile" or "revenue mile."

Lynn Haven, and the east route, which was a gigantic one-way loop, recently was broken into two two-way routes. General fares are \$0.50 per ride within the urban area and double that for trips to the beaches. Senior citizens and transportation disadvantaged persons pay half fares. All fares are eliminated on the first Tuesday of each month (free Tuesday).

Okaloosa Coordinated Transportation

After surveys conducted in 1976 revealed favorable public sentiment toward establishing public transit in Okaloosa County, FDOT provided funding for a two-year trial. Service, including two fixed routes, subscription service, and dial-a-ride began in 1978 but was terminated at the end of the demonstration two years later. Patronage was too light to arouse public enthusiasm for continuing the project with local funding that was needed to match federal Section 18 funding available for permanent operation (CUTR 1996).

Seven years later the Transportation Disadvantaged Service Commission sought bidders for the position of transportation coordinator for Okaloosa County. Unable to find any, the commission persuaded the Okaloosa County Council on Aging, Inc. to organize a disadvantaged transportation function within the county. The Board of County Commissioners designated the Council on Aging as the County Transportation Coordinator in 1987, and that year the CTC began a limited paratransit service. The transportation function of the council soon was reorganized as a separate entity, the Okaloosa Coordinated Transportation, Inc., and in 1990 the new organization was recommended by the Board of County Commissioners to the Commission for the Transportation Disadvantaged as the CTC. The Commission for the Transportation Disadvantaged so concurred (OCT 1997).

At the end of FY 1998 the coordinated system operated 52 vehicles in paratransit service that primarily was oriented to serving clients of medical and social service programs (AOR FY 1997). A year earlier the vehicle fleet was 45 (OCT 1997); the expansion was in private operators, including Bridgeway and Headstart. With funding provided by the Commission for the Transportation Disadvantaged, OCT also serves a limited number of non-sponsored transportation disadvantaged people, and as a requirement for receiving Section 5307 and state block grant funds, the system also makes its services available to the general public. The system operates for the most part out of an office in Fort Walton Beach, but it maintains a satellite office in Crestview, where several vans are stationed, and several vehicles remain the night in Niceville, where several drivers live.

Limitations of services of funding agencies create excessive travel demands. For example, there is only one dentist in the county, located in Ft. Walton Beach. Some services only are provided in Crestview, far removed from the center of population and activity. OCT provides advanced registration service between Crestview and Ft. Walton Beach in both directions on Monday, Wednesday, Friday. It provides out-of-county service to Pensacola on Monday, Tuesday, Thursday.

Clients of social service or medical agencies who need transportation pursuant to the agency or program in which they participate must be registered with OCT and reserve their trips by 1:00 p.m. of the prior day or at least 16 hours in advance, although OCT will accommodate immediate demands from the general public if vehicles are available. OCT bills agencies and programs for transporting clients after the fact, using a distance-related mileage system. It divides the county into square-mile grids and then calculates how many grid-miles a particular trip required (irrespective of actual vehicle distance, which might be adversely affected by picking up other passengers who were out-of-direction). Rates are \$1.23 per grid-mile for ambulatory passengers, and they range between \$1.03 and \$1.23 per grid-mile for non-

ambulatory passengers, in addition to special loading fees which range from \$4.85 for wheel chairs. A private operator provided stretcher service in 1998 only (service was not provided earlier and is not provided in mid-1999) at a rate of \$20.56 per stretcher movement. The rate of \$1.23 per mile is approximately OCT's cost for providing a mile of service. Multi-loading by the same organization or to the same destination is charged a rate of \$0.80 per grid-mile per passenger. Heavy subscription users can negotiate lower rates. Shopping trips are available during off-peak hours for a \$1.00 fare each way, and customers can choose one of three shopping centers to which to travel. OCT provides out-of-county trips on fixed days for groups of three or more (OCT 1997).

Part 2: Performance Indicators

Because most transit systems are viewed as social or transportation services rather than profit-making services, it is difficult to determine how well they are doing their jobs. Performance indicators have been developed to assist in the evaluation of the efficacy of funds spent on transit. Such indicators are based upon three concepts of service provision and utilization:

- Service inputs, such as labor, materials, fuel, or more generally, dollars;
- Service outputs, such as bus miles or bus hours;
- Service utilization, such as passenger trips per year, or passenger miles per year.

A transit operator uses service inputs (money) to produce bus miles and may do so with varying degrees of efficiency. The operator decides how to deploy the bus miles and also may do so with varying degrees of astuteness. Whether the public views the bus miles as worthwhile or not is manifested by how much public is in the service area, what their demographics are, and to what degree they choose to use the bus miles, and/or what they or their sponsors are willing to pay to have the service. Generally service efficiency is measured by the amount of service produced for a unit of input, such as vehicle miles per dollar. Service effectiveness is measured by utilization divided by outputs, such as passenger miles per bus mile or passenger trips per bus mile. Sometimes service efficiency and service effectiveness are combined into one measure, such as cost per passenger mile, or cost per trip (Fielding 1987).

There are two basic measures of service output: bus hours and bus miles. If systems are being compared that operate at approximately the same speed with the same type of equipment, it does not matter whether bus miles or bus hours are used; using both is redundant. There also are two basic measures of utilization: passenger trips and passenger miles. A passenger trip is sometimes referred to as a boarding and is counted each time a passenger boards a vehicle. A passenger mile is a boarding multiplied times the distance that the passenger rides the bus.

Using passenger miles generally is preferable to passenger trips, because the statistic "passenger miles per revenue or vehicle mile" indicates the average number of passengers on board a bus each mile that it operates. Passenger trips per vehicle or revenue mile does not yield such a number (called average load factor when compared to capacity of the bus), because the bus might operate a long distance, but each passenger who uses it might ride a short distance. For example, a bus might travel 10 miles. If at the beginning of the run, 20

passengers boarded the bus and rode only to the next stop, one quarter mile away, the bus would be empty most of the time and would appear to be providing unneeded service. On the other hand, if each of the 20 passengers rode the full length of the line (or if each time a passenger got off, another passenger got on), there would be an average load of 20 passengers on board the bus for every mile that it operated, and it would appear to be performing a useful service. (Whether the benefits warranted the cost is another story.)

While passenger miles is the preferable statistic for assessing service usefulness, it is not easily obtained, whereas passenger trips is a statistic that is easily collected. Surveys must be used to determine passenger miles, and surveys leave a lot of room for error. Many statisticians of smaller systems also do not understand the definition of a passenger mile and confuse it with other statistics. For these reasons, passenger trips per vehicle mile or vehicle hour is usually used to assess service effectiveness.

Unlike profits, performance measures used alone do not yield much insight into how well a system is doing. They must be plotted over time or against performance measures from other systems to yield insights. Indicators over time indicate performance trajectories, which can be assessed to be good or bad. Indicators compared to those of other systems indicate how well the system in question compares to the rest of the pack. Generally when comparing a system with other systems, one chooses a slate of "peers" which have characteristics, such as size, urban area population, or demographics, that are similar to the system in question.

In exchange for receiving Section 5307 funds for either operations or capital, the Federal Transit Administration of the US Department of Transportation requires each fund recipient to tabulate statistics each year that can be used in performance evaluations. The FTA makes available annual reports of such statistics, which now are called the National Transit Statistics (formerly Section 15 Statistics). The Florida Department of Transportation has contracted with the Center for Urban Transportation Research (CUTR) to use NTS in evaluating Florida transit systems with peers within the state as well as in other parts of the country. Peers are defined by how many buses the systems operate. Peer evaluations typically differentiate between different types of services that a system operates (such as demand responsive or fixed route).

CUTR evaluated the five systems in this study in terms of both fixed route service for the two systems that operated fixed route service, and door-to-door service for all five systems. Table 1 presents the results in 1996 for fixed route service in Indian River County and in Bay County with a slate of peers operating nine or fewer buses. Systems reporting incomplete information are deleted. Table 2 presents the results in 1996 for door-to-door services that operated between one and nineteen buses, while Table 3 presents the results in 1996 for door-to-door services that operated between 20 and 49 buses. In the latter two tables, only services directly operated by the councils on aging (the transportation coordinators) are indicated.

In examining Tables 1 through 3, one should keep in mind that the figures are for 1996 and that conditions in some cases have changed since then. As discussed later, fixed route service in Indian River County changed considerable after 1996, while performance of Bay County's fixed route service, which started in the middle of 1996, has changed considerably since then.

Table 1 generally indicates that the two Florida systems are cheaper to operate than those in the peer groups, partly because labor is paid less. In the case of Bay County, each person of labor produces less service than the peer group, but Indian River County is about typical. What is most noteworthy in both Bay and Indian River County is the low level of service effectiveness: a fraction of one passenger per vehicle mile in contrast to over one passenger

per vehicle mile for the peer group. Another aspect of the tables that is not so obvious is that at least for Indian River County the statistician equated passenger miles and revenue miles; Karen Wood, the system's general manager, confirmed that a former clerical employee did not understand the definition of passenger mile (Wood, 1998). A similar error might have occurred for the other systems; for that reason, we do not use passenger miles in the remainder of the report.

Table 1 - NTS Fixed Route Peer Comparison

1996 Fixed Route Peer Analysis for 1 to 9 Motorbus Vehicle Category			
	Average of 8 Other Systems	Bay County	Indian River
Operating Expense	\$918,759	\$127,500	\$286,210
Operating Employees	15.0	5.0	5.7
Maintenance Expense	\$207,086	\$5,820	\$33,360
Maintenance Employees	2.6	0.0	0.4
Vehicle Miles	356,085	82,000	165,180
Passenger Miles	1,606,183	53,800	159,520
Total Employees	19.3	5.4	7.9
Passenger Trips	410,965	10,200	20,260
Number of Veh. in Maximum Service	7	3	8
	Average of 8 Other Systems	Bay County	Indian River
Operating Expense per Operating Employee	\$61,404	\$25,500	\$50,212
Maintenance Expense per Maintenance Employee	\$81,210		\$83,400
Vehicle Mile per Maintenance Employee	139,641		412,950
Vehicle Mile per Operating Employee	23,798	16,400	28,979
Operating Expense per Passenger Mile	\$0.57	\$2.37	\$1.79
Passenger Mile per Employee	83,168	9,963	20,192
Passenger Mile per Vehicle Mile	4.51	0.66	0.97
Passenger Trip per Vehicle Mile	1.15	0.12	0.12
Maintenance Expense per Veh. in Maximum Service	\$30,122	\$1,940	\$4,170
Maintenance Expense per Vehicle Mile	0.58	0.07	0.20

*Bay County lists zero Maintenance employees

Table 2 - NTS Demand Responsive Peer Comparison (Small Systems)

1996 Demand-Response Peer Analysis for 1 to 19 Vehicle Category

	Average of 12	Martin	St. Lucie Coordinator	Indian River Coordinator
Operating Expense	\$477,950	\$563,820	\$804,660	\$543,320
Operating Employees	13.3	24.0	17.4	11.6
Maintenance Expense	\$58,554	\$55,719	\$16,830	\$161,667
Maintenance Employees	0.3	0.0	0.8	0.6
Vehicle Miles	255,029	322,454	370,000	327,664
Passenger Miles	309,799	255,947	694,250	289,000
Total Employees	16	25	22	
Passenger Trips	53,048	79,871	87,000	44,890
Vehicles Operated in Maximum Service	12	19	15	12

	Average of 12	Martin	St. Lucie Coordinator	Indian River Coordinator
Operating Expense per Operating Employee	\$36,072	\$23,493	\$46,245	\$46,814
Maintenance Expense per Maintenance Employee	\$167,297		\$21,038	\$97,000
Vehicle Mile per Maintenance Employee	728,656		462,500	545,416
Vehicle Mile per Operating Employee	19,247	13,436	21,264	28,211
Operating Expense per Passenger Mile	\$1.54	\$2.20	\$1.16	\$1.88
Passenger Mile per Employee	19,774	10,238	31,557	19,379
Passenger Mile per Vehicle Mile	1.21	0.79	1.88	0.882
Passenger Trip per Vehicle Mile	0.208	0.248	0.235	0.137
Maintenance Expense per Veh. in Maximum Service	\$5,092	\$2,933	\$1,122	\$13,472
Maintenance Expense per Vehicle Mile	\$0.23	\$0.17	\$0.05	\$0.49

Unlike Table 1, Table 2 indicates that the three systems with small door-to-door services are in the same order of magnitude as their peers in terms of service effectiveness, but two of them may be more expensive to operate. Martin and St. Lucie systems are somewhat above average, while the Indian River Coordinator's service is somewhat below average. Unlike in Table 1, two of the Florida systems pay their employees more than the peer average, while Martin County is below average. On the other hand, Martin County's and Indian River County's cost per passenger mile is higher than the peer average. A problem of definition of passenger miles may be a problem here, but we are concerned with what appears to be internal inconsistencies with the statistics.

The pattern for the larger two door-to-door systems is somewhat different than for the smaller systems. Like the smaller three systems, they are more effective than the average of their peer group, and unlike two of the smaller systems, they are more efficient, as well. Still, there appears to be internal difficulties with the data. The high maintenance expense per maintenance employee for Okaloosa County (as well as in Indian River County in Table 2) seems suspect to us, perhaps because of how maintenance employees are defined in activity that largely is contracted out.

Overall, we are concerned about making statements about performance of the five systems based on NTS data. There appears to be a degree of variance in how statisticians of the five systems interpreted some of the statistics, and there is some internal inconsistency within the statistics. Part of the confusion may relate to the complexity of the systems and how they were divided up for the purposes of NTS preparation. Part of the problem may lie with different definitions given by different statisticians for part time labor, or accounting for the time of managers engaging in maintenance along with other activities. In the next chapter we define a small set of crude but tractable performance measures that we use to compare the various parts of each system with similar part of the other systems, as well as over time.

Table 3 - NTS Demand Responsive Peer Comparison (Medium Systems)

1996 Demand-Response Peer Analysis for 20 to 49 Vehicle Category			
	Average of 8 Systems	Bay	Okaloosa
Operating Expense	\$1,545,816	\$656,990	\$1,022,380
Operating Employees	29	31.3	39.4
Maintenance Expense	\$219,304	\$80,390	\$178,100
Maintenance Employees	3.4	1.5	0.9
Vehicle Miles	1,108,939	573,800	802,460
Passenger Miles	1,041,876	533,810	1,117,640
Total Employees	34	34.4	41.8
Passenger Trips	119,243	124,510	125,080
Number of Buses in Maximum Service	29	32	45
	Average of 8 Systems	Bay	Okaloosa
Operating Expense per Operating Employee	\$53,932	\$20,990	\$25,949
Maintenance Expense per Maintenance Employee	\$64,265	\$53,593	\$197,889
Vehicle Mile per Maintenance Employee	324,964	382,533	891,622
Vehicle Mile per Operating Employee	38,690	18,332	20,367
Operating Expense per Passenger Mile	\$1.48	\$1.23	\$0.91
Passenger Mile per Employee	30,677	15,518	26,738
Passenger Mile per Vehicle Mile	0.94	0.93	1.39
Passenger Trip per Vehicle Mile	0.11	0.22	0.16
Maintenance Expense per Veh. in Maximum Service	\$7,562	\$2,512	\$3,958
Maintenance Expense per Vehicle Mile	0.198	0.140	0.222

Part 3: Goals and Objectives from Transit Development Plan

Another area of evaluating the overall performance of Florida transit systems with respect to state and federal department of transportation funds that they receive is to examine the degree to which county transit systems or other units of government are meeting goals and objectives contained in the Transit Development Plans (TDP) of each metropolitan planning organization. Chapter 14-73 of the Florida Administrative Code requires each of the systems to prepare a Short Range Transit Development Plans (TDP) or TDP annual update. The TDPs or TDP Updates are reviewed by the Florida Department of Transportation's Public Transit Office and are intended to provide direction to the expansion of public transportation to the general public as the state's population and economy expand. In some cases the transit systems contract with consultants to prepare one or both documents; in others they pass the responsibility for plan preparation to the metropolitan planning organization (MPO) that has jurisdiction in the transit system's service area.

Indian River: Goals and Objectives from Transit Development Plan

The *Transit Development Plan Minor Update* for Fiscal Years 1998/1999 Through 2002/2003 of the Indian River County Metropolitan Planning Organization sets forth the most recent goals and objectives for the transit system and how well the system is meeting the goals and objectives. These are summarized below:

Goal: A safe, efficient, and accessible transit system which provides a viable choice among alternative modes of travel.

Objectives: (the following are those that were current at the time of the 1998 Minor Update.)

Objective 1. Provision of services to the community

1.1 The total number of one-way passenger trips in the coordinated system will increase from 161,000 trips per year in 1996 to 200,000 trips per year in the year 2001, representing a 24 percent increase from 1996 to 2001.

The 1998 Minor Update shows that this objective was exceeded in 1997/98 when the system carried 225,762 passengers, though more than 100,000 of this number is comprised of school children taken to summer activities under contract with the School Board.

1.2 By the next major TDP revision in 1998, Indian River County will have criteria by which to measure the adequacy of transit service. These criteria may be developed using criteria to be established in upcoming revisions to the Transportation Element of Indian River County's comprehensive plan, or in the Indian River County MPO's upcoming Long Range Transit Plan. By 2003, adequate service, as defined by the 1998 criteria, will be available to meet the demand in all areas of the county.

The 1998 Minor Update states that, "... the MPO's consultant is currently

developing such criteria, which will be included in the TDP major update and in the new Long Range Transit Plan.” (P. 11).

1.3 By 1998, the hours of operation for the Community Coach will accommodate employment transportation needs.

This objective is not met, because the fixed route service operates only from 8:00 am to 3:00 PM., with an hour break in service for lunch.

1.4 By 1999, the headway between Community Coach buses along the four fixed routes will be twenty minutes.

There currently are six routes (by Indian River terminology), five of which operate daily. Headway is still one hour for the four core routes.

Objective 2. Marketing

2.1 The Council on Aging will maintain a marketing plan that identifies methods to inform the public of the availability of transit service and to increase transit usage.

The 1998 Minor Updates states that the, Council on Aging has hired a public relations individual who has marketing as one responsibility (p. 12). As of my visit in mid-October, a marketing plan was not available, nor was there a system map. Zeroxed schedules for the fixed routes were available, as well as a brochure that was sent to shopping centers, senior centers, and establishments frequented by those without cars.

2.2 All bus stop areas in Indian River County will be attractive to potential riders, through the use of informative signs and aesthetically maintained surroundings. Bus shelters will be included where feasible.

This objective has not been met. The 1998 Minor Update states that some stops have shelters, but I was told that none of the stops have benches, except at the main transfer stop at Pocahontas Park, where benches are provided by the shopping center (Wood 1998). Most bus stops have signs. A real problem here is that more than 80 percent of the designated thoroughfares in Indian River County do not have sidewalks, according to the county Comprehensive Plan (1998, p. 14).

Objective 3. Planning

3.1 By 1998, the MPO 2020 Long Range Transportation Plan will include a transit element. This transit element will evaluate current and future land use patterns throughout the county which affect the viability of fixed route transit service.

This objective has been accomplished in the Comprehensive Plan's Transportation Element adopted in March 1998.

Objective 4. Transit Support

4.1 By the 1998 TDP update, a transit funding plan based on projections of federal, state, and local funding will be in place which maintains and enhances the present fixed-route transit system and paratransit system.

The 1998 Minor Update states that this objective is being met by the consultant preparing the 1998 TDP update.

4.2 By 1998, the dial-a-ride program will be available to potential transit riders.

This objective was met concurrent with the fixed route reorganization implemented in November 1997.

4.3 By 2000, user fares for the fixed-route Community Coach will constitute 15 percent of the cost to provide service. In 1996, user fares for the fixed-route Community Coach comprised 2.3 percent of the cost to provide service.

The Community Coach is opposed to this objective and became fareless in June 1998, with strong local political support, according to Karen Wood (1998).

Objective 5: Coordinated System

5.1 By 2000, the coordinated system will include all local major providers of transportation service.

Chapter 427, F.S. adopted in 1979 and subsequent Rule 41-1 require that a Community Transportation Coordinator operate and/or coordinate all transportation services for the disadvantaged in each county. The Indian River County Council on Aging has fulfilled that role in Indian River County since 1990.

Objective 6: Intergovernmental Coordination

6.1 By 1998, mass transit service will be available that will transport riders between Indian River County and Brevard County.

In May 1998 Indian River Council on Aging began a fixed route service between Vero Beach and Sebastian (6 trips per day) that makes a transfer with Brevard County transit service at Riverwalk Shopping Plaza (though the Indian River schedule dated Nov. 3 1998 does not indicate

the possibility of a transfer).

Martin County: Goals and Objectives from Transit Development Plan

Martin County adopted its transit development plan in 1998 (BRW 1998). The TDP contains a mission statement as well as goals and objectives for transit development, all of which are presented in a chapter that begins by reviewing relevant goals and objectives in several other planning documents that pertain to Martin County transportation. The other plans include the Martin County Comprehensive Plan, the Martin County Year 2020 Long Range Transportation Plan, the Martin County Coordinated Transportation Development Plan (I believe that they mean the Service Plan for the Transportation Disadvantaged for Martin County—see Council on Aging 1997), and the City of Stuart Comprehensive Plan.

The Transit Development Plan contains the following mission statement.

Mission Statement:

To provide an efficient and cost-effective transit system in Martin County which meets the future mobility needs of residents and visitors, particularly the transportation disadvantaged, which is both coordinated with and complimentary to the services provided by other transportation providers both within the County and regionally and provides services consistent with the land uses of the area served.

Goals and objectives in the Transit Development Plan largely are adopted from other planning documents. The following list repeats them (BRW 1997, pp. 3-6 to 3-8) and comments upon progress being made toward their achievement:

Goal 1

Develop, operate, and maintain an efficient and cost effective public transportation network (roadway, transit, railway, bicycle and pedestrian facilities) that provides for ease of mobility and meets adopted level-of-service standards.

Objective 1.1

Continue Martin County's support of the Council on Aging for the provision and coordination of demand responsive paratransit trips for the Transportation Disadvantaged.

The Martin County Board of County Commissioners continues to recognize the Council on Aging as the transportation disadvantaged coordinator.

Objective 1.2

Increase planning coordination for the future public transportation needs of Martin County residents, including the transportation disadvantaged.

The meaning of this objective is unclear to us. It needs to be more specific, pointing out what planning coordination means and what agencies should pay more attention to public transportation in what plans.

Objective 1.3

Provide for the protection of existing and future public transportation rights-of-way and exclusive public transportation corridors, as appropriate, as part of the long range planning process.

The Martin County Council on Aging is not responsible for meeting this objective. A responsible agency should be identified.

Objective 1.4

Provide public transportation services to existing and planned mixed use developments and other areas of high relative concentrations of residents and employees.

Most of the Council on Aging service is advanced reservation and demand responsive, with most vehicles concentrated in the central part of the county, where "relative" densities are highest. Unless the objective means something different (in which case it should be clarified), this objective has been met all along.

Objective 1.5

Direct urban growth to those areas where urban public facilities and services, including transit services, are or can be made available in an efficient and cost effective manner.

This objective is beyond the responsibility of the Martin County Council on Aging. The Traffic Circulation Element of the Martin County Comprehensive Plan discourages development in the coastal hazard zone. Goal G and Objective G-1 of the Martin County Comprehensive Plan encourage future development in accordance with Objective 1.5.

Objective 1.6

Implement improvements, especially automated/computer based systems, to reduce labor costs and other operating expenses.

The Council on Aging has kept its dispatching and registration software current, and in general unit costs for the system have risen less rapidly than inflation, as shown later in this report.

Objective 1.7

Make the maximum use of transit facilities and equipment, both public and

private, by increasing the multi-loading of vehicles reducing any idle time of vehicles and utilizing other available vehicles in the community at specific times of the day.

The Council on Aging has attempted to get more use from vehicles and drivers assigned to the longer-distance services into central Stuart. In the middle of the day, Community Coach assigns these vehicles and drivers to Stuart local service, the area of Martin County with highest transit demand. This effort has been successful and has contributed to the control of unit operating costs noted above.

Goal 2

Establish an integrated transportation system (roadway, transit, railway, bicycle and pedestrian facilities) consistent with future development plans.

Objective 2.1

Identify communities where the implementation of public transit services would avoid neighborhood displacement or disruption by a planned roadway improvement.

The TDP should identify what agency is responsible for this objective, which is beyond the responsibility of the Council on Aging. The new Downtown Express, which began service on 17 December 1997 on two shuttle routes with 10 and 15 minute headways, is oriented to commuters to central Stuart. It could be construed as falling within this objective, although its limited service hours between 11 a.m. and 2 p.m. may limit the effectiveness of this service.

Objective 2.2

Identify areas with constrained roadways in established communities where increased public transit services would reduce the negative impact of existing traffic conditions on local roadways or would limit the need for roadway improvements which would negatively impact upon these areas in the future.

Comments for the previous objective apply here as well.

Goal 3

Promote a variety of transit services to service the diversity of user needs.

Objective 3.1

Identify the most appropriate service type for geographical areas and transit trip purposes.

The Council on Aging has identified a diversity of geographic and purpose demands and has tailored a variety of very specific services to meet them. The agency is showing a willingness to experiment with fixed route service, as well, although results are not yet in.

Objective 3.2

Assemble the most appropriate vehicles and facilities to support various service types

The Council on Aging has a fleet of vehicles with different capacities and capabilities for handling the disabled. These are assigned to services based on demands.

Objective 3.3

Implement a variety of transit service types.

See the previous two objectives.

Goal 4

Coordinate the transit system and its improvements with transportation planning efforts of all government entities.

Objective 4.1

Coordinate with local governments for the construction of accessible sidewalks, bus stops and other transit related improvements.

The Traffic Circulation Element of the Martin County Comprehensive Plan calls for the construction of sidewalks along most major roads, though it does not indicate the percentage of centerline miles currently without sidewalks. This program does not include bus stop improvements, though it might be able to do so. The Council on Aging has limited or no funds that could be used for bus benches and shelters, though a social agency, Healthy Start, is contributing benches to stops in Indiantown. The Council on Aging is look for funds for bus shelters in Indiantown. There is no effort underway to provide benches or shelters for the Stuart area shuttle services.

Objective 4.2

Integrate transit needs in the land use planning process.

This is beyond the responsibility of the Council on Aging. As noted above, the Land Use Element of the Comprehensive Plan encourages higher density development within the Urban Services Area. The TDP needs to be more specific in identifying which agencies should be responsible for including transit stops and circulation paths and their consistency with the county-wide system in review of LDRs and site plans.

St. Lucie County

The St. Lucie Metropolitan Planning Organization adopted its transit development plan in 1996, which was prepared by a consulting firm (BRW 1996). The current annual update was

adopted in 1998 and was prepared by Community Transit staff (St. Lucie MPO and Community Transit 1998). The TDP contains a mission statement as well as goals and objectives for transit development, all of which are presented in a chapter that begins by reviewing relevant goals and objectives in several other planning documents that pertain to St. Lucie County transportation. The other plans include the Mass Transit Element to the St. Lucie County Comprehensive Plan, and the St. Lucie County Coordinated Transit Development Plan (I believe that they mean the Service Plan for the Transportation Disadvantaged for St. Lucie County). The St. Lucie County Year 2020 Long Range Transportation Plan is just now being prepared and so was not referenced in either the 1996 TDP or the 1998 Annual Update.

The mission statement contained in the 1996 TDP reads:

Ensure the operation of a safe, efficient, and cost effective transportation system to meet all of the mobility needs of the transportation disadvantaged and the general public in St. Lucie County.

The 1998 annual update contains no mission statement, so the above statement appears to be current. The update does discuss progress made in accomplishing the 1996 goals and objectives, though it uses a different vocabulary, calling goals and objectives "recommendations" (St. Lucie MPO and Community Transit 1998). The update concludes with a section called "Revisions to FY98/99 Recommendations," which appear to be the currently active goals and objectives. These are:

1. Initiate phase one fixed route bus service. Implement fixed route bus service with one hour headways for the phase one fixed route bus system. This includes fixed route connections in and around Fort Pierce. Bus stops with signage will be established. Staff, vehicles, and the necessary funding will be secured.

It is not clear who is responsible for obtaining the necessary funding, but the necessary funding has not been obtained. Community Transit states that it will not proceed with this recommendation until such time as it has necessary funding. The objective needs to specify who is responsible for obtaining the funding; that is, who is best positioned to take a leadership role in establishing a fixed-route service?

2. Accommodate ADA demand responsive trips required for fixed route bus system. Expansion of the fixed route system requires that ADA paratransit be provided for these areas.

Community Transit already provides paratransit throughout the county, so the objective seems superfluous. If fixed route service were implemented, the paratransit system would have to change, however. The change would be to identify those able-bodied paratransit users who live and travel to points within three quarters of a mile of any fixed route services that are implemented. Such people will be ineligible to use the paratransit service during such hours as the fixed route service is in operation. Identification of such persons will require the establishment of a screening process, and it also will require considerable community outreach. The MPO should modify the recommendation to direct transit operators who are contemplating fixed route transit to establish such

paratransit screening and outreach activities, or alternatively, the MPO should conduct these activities.

3. Vehicle acquisition. Two additional vehicles are required to accommodate the growth in the number of projected trips.

Community Transit states that it is more-than meeting the objective, because it is ordering eight new vehicles. It states, however, that all eight of the vehicles are replacement vehicles. The recommendation applies to expansion vehicles, so we conclude that the recommendation is not being met.

4. Accommodate TD trip demand. Accommodate the forecast growth in general public and TD sponsored trips based on population growth in St. Lucie County. This amounts to an additional 800 annual trips when compared to FY 97/98 levels.

Community Transit is responsible for accommodating both general public and TD sponsored trips, and as shown in the next chapter, has been doing so at a rate considerably faster than population growth.

5. Public awareness/education. Initiate public education efforts focused on the use of fixed route transit services. Target groups most likely to use phase one fixed route transit service.

During 1997/98 Community Transit convened at least one dozen meetings for public comments. It appears, however, that the meetings were oriented to existing paratransit service, so whether the objective has been met is questionable. If there is no decision to move forward on fixed-route service, this objective is not necessary.

The 1998 annual update also contains four new recommendations, all based on the premise that fixed route transit service will be implemented in FY 00/01:

Continue public education/awareness efforts relating to fixed route service.

Accommodate general public demand for the fixed route system.

Refine fixed route service to provide optimum levels of service for the fixed route service area.

Acquire sufficient vehicles to accommodate fixed route demand and replace worn out vehicles.

It is unclear whether staff is devoting significant effort to any of these objectives. What is clear is that Community Transit does not view itself as the agency in a position to make a decision on the implementation of fixed route transit service, though it views itself as the agency to operate such service if some other body deems that fixed route transit service should be implemented and finds the necessary local matches to make it happen. Who that other body is, and who will provide staff support for that decision is not clear. Until a decision-making body is identified in a

position to decide that fixed routes will be implemented, and only if it actually makes that decision, most of the recommendations in the 1998 annual update are irrelevant to Community Transit, and Community Transit is unlikely to act upon them.

Bay County Council on Aging and Bay Town Trolley

The Bay County Transit Development Plan 1996-2001 (CUTR 1997) recommended goals and objectives for transit development. It also identified actions to carry out the goals and objectives and persons responsible for carrying out the actions. It based the goals and objectives on meetings with area officials, citizens, and also on a distillation of goals and objectives contained in other planning documents. The other planning documents include the 1992 Bay County Transit Development Plan, the Local Comprehensive Plan, the Long Range Transportation Plan, the West Florida Strategic Regional Policy Plan, and the Florida Transportation Plan.

Goal 1: Establish transit service as a viable transportation option in Bay County.

Objective: Examine redesigning certain routes and schedules for Bay Town Trolley (1997).

CUTR currently is preparing a new transportation development plan and is examining alternative route configurations as part of their scope of work. Other than discontinuance of the north route and breaking the east loop into two routes, there has been no change in service to date, however.

Objective: Enhance the level of connectivity between routes for Bay Town Trolley (1997).

This objective refers to having buses make scheduled connections at the Target transfer center. Carrying out this objective would require a significant redesign of the bus system, and that has not happened; thus, the objective has not been met. See above.

Objective: Optimize the transit system and facilities, for both fixed-route and paratransit operations, to provide current level of service or better throughout the area (1997).

This objective is unclear. If it means that the system should operate more efficiently, the system is operating efficiently, based on the analysis in the next chapter.

Objective: Establish performance targets for BTT based on the average of its peers (1997, 1998).

Passenger trips per revenue hour; also passenger trips per revenue mile:
After two years of service (1997) BTT should attain 50 percent of

the peer (systems with five or fewer vehicles) average.

Based on its first four months of operation in 1996, BTT was operating 0.89 vehicle miles per capita and carrying .12 passenger trips per vehicle mile. This compared to the 1994 peer averages of 3.20 vehicle miles per capita and 0.82 passenger trips per revenue mile.

After three years of service (1998) BTT should attain 75 percent of the peer average.

In FY 1998 BTT operated 0.84 vehicle miles per capita (a decrease), but was carrying .24 passengers per vehicle mile, although a substantial increase, still only 29 percent of the 1994 peer mean, and thus far below objective.

Operating expense per passenger trip:

After two years of service (1997) BTT should attain 175 percent of the peer average.

Based on its first four months of operation, BTT operating expenses per passenger trip were \$12.11 compared to the peer average of \$3.56.

After three years of service (1998) BTT should attain 150 percent of the peer average.

In FY 1998, BTT's operating expense per vehicle mile was \$1.50, a substantial improvement from FY 1996. This is lower than the 1994 peer average, showing that BTT is very efficiently operated.

In FY 1998, BTT's operating expense per passenger trip was \$4.74, a substantial improvement from FY 1996. This is double the 1994 peer average of \$2.30, though it is probable that the 1998 peer average would have increased by 1998. A 3.0 percent annual increase would have brought the 1994 peer average expense per passenger trip to \$2.58 by FY 1998. The BTT figures is 184 percent of this, still not within the objective, but the trajectory is favorable.

Goal 2: Intensify marketing efforts and increase visibility of Bay Town Trolley.

Objective: Increase the availability of information regarding the routes and schedules through a formal marketing program (ongoing).

Objective: Promote community outreach/education efforts (ongoing).

Goal 3: Maintain low capital and operating costs to support public transportation in the long term.

Objective: Develop internal performance measures to track system utilization and transit demand for Bay Town Trolley (1997).

Objective: Evaluate the potential for incorporating computer-assisted scheduling, automatic vehicle location, electronic fare medium, and other appropriate technologies (1999).

Goal 4: Provide a transit system that is, to the extent possible, financially feasible by securing adequate funding.

Objective: Maintain state, federal, and other funding sources (1997).

Objective: Identify and evaluate alternative funds available through state, federal, and other sources (1997).

Objective: Identify public/private sponsorship options (1997).

Objective: Evaluate advertising as a revenue source (on bus exterior, at bus stops, and on the ride guides) on Bay Town Trolley (1997 for bus stops and ride guides, 1998 for bus exterior).

Okaloosa County Goals and Objectives

Based on reviewing other planning documents referring to transportation development in Okaloosa County as well as meeting with public officials in Okaloosa County and conducting surveys of OCT passengers, CUTR staff recommended several goals and objectives for developing transit in Okaloosa County. These were revised in the 1999-2003 TDP, adopted in mid-1999. The following list is from the revised TDP.

Goal 1: Meet Need for Trips

Objective: Meet public transportation need through the most effective and efficient mix of fixed-route, expanded paratransit, and transportation demand management strategies, with a focus on people who are transit dependent.

The term cost-effective needs to be defined in a way that it is usable for measuring this objective. As it stands its meaning differs between people, or it has no meaning at all, but to attach a meaning to it is all but impossible. The term efficiency, on the other hand, has a precise formal meaning that can guide policy. In this context maximizing efficiency means maximizing net community benefits from transit investment. Is this what is wanted?

Policy 1.1: Continue to provide public transportation that is simple and dependable.

We agree that this objective is desirable, but we can see no way in which this objective can be measured.

Policy 1.2: Continue to provide increased service to meet the need for trips.

Even if cost for meeting trips far exceeds community benefits from doing so? There might be instances where in the interest of fairness the answer to this question would be yes, but there is no process in place to make such a determination, other than the usual political process for making decisions.

Policy 1.3: Identify unmet needs.

The TDSP has a section that identifies unmet needs of the transportation disadvantaged.

Policy 1.4: Continue to comply with requirements of the Americans with Disabilities Act (ADA).

This policy currently guides all aspects of service design, vehicle purchases, and daily operation decisions.

Policy 1.5: Continue to consider alternative transportation strategies in conjunction with the existing paratransit service.

Consider implementing fixed route transit is what is meant here, and every planning document that we have seen analyzing transit development potential, including the document from which this objective is obtained, has done so.

Policy 1.7: Continue to support the county's Emergency Management function.

Policy 1.8: Explore the provision of service to Okaloosa Regional Airport.

This can be done in the on-going TDP update process.

Policy 1.9: Initiate planning to provide a mix of transportation services in projected growth areas, particularly northern Okaloosa County.

This is being done in the on-going TDP updates.

Policy 1.10: Continue to provide a reasonable network of paratransit services to adjoining counties.

Some service is provided. Whether or not it is reasonable is in the eye of the beholder.

Policy 1.11: Reevaluate the use of Section 5307 funded vehicles in projected

growth areas such as northern Okaloosa County.

This objective's meaning needs clarification.

Goal 2: Cost-Effective and Safe Transportation Service

Objective: Develop public transportation services which use a variety of funding sources and provides cost-effective and safe service.

Policy 2.1: Continue to apply for state, federal, and other funding sources.

This objective seems to mean developing a local funding source of sufficient magnitude to provide required local matches for state and federal grants that are available on an annual basis. Lately toll revenue rebates to the state of Florida have been serving this purpose. In general, staffs of the MPO, County Planning Department, and OCT appear to be on top of this.

Policy 2.2: Identify public/private sponsorship options;

If this means advertising on buses, benches, shelters, and maps, it is not getting far because of community opposition to advertising on public facilities. We are unaware of other initiatives in this area.

Policy 2.3: Select public transit provider through the FTA Competitive Procurement Process.

As of Fall 1998 we were unaware of official work in this area, but we were aware of interest in doing this.

Policy 2.4: Conduct annual review of fare and/or pass system;

OCT collects Medicaid co-payments, and general passengers pay a fare, even though the budget reports show zero fare revenue (Godwin 1999). (Fare revenues are rolled into other budget categories.) We believe that general passengers must be pre-registered, and OCT is working on an arrangement where general purpose passengers, and perhaps even clients, could use coupons in lieu of registrations.

Policy 2.5: Continue to monitor overall system performance.

Doing so is a requirement of the Commission for the Transportation Disadvantaged, and every county transportation coordinator routinely meets this objective.

Policy 2.6: Evaluate advertising as a revenue source (on bus exterior and

other locations)

See above.

Policy 2.7: Continue to pursue a dedicated funding source from within Okaloosa County.

See above. OCT would like to see this happen but as of yet has not seen a way to mobilize community support behind this objective (Lovejoy 1998).

Policy 2.8: Continue to promote local efforts to raise funds for public transportation.

OCT's Executive Director, Ruth Lovejoy, represents the system's interests before community and business groups, and she sits on the MPO's Technical Advisory Committee.

Policy 2.9: Evaluate the potential for incorporating automatic vehicle location, electronic fare medium, and other appropriate technologies into existing and any proposed public transportation services.

OCT's Director of Operations, Barry Peterson, evaluates software for use in managing the system and currently is having a new system installed. We are not aware of other hi-tech technologies being investigated for the system. It is not self-evident that such technologies would be beneficial and should only be pursued if there is clear reason to believe that they would lower operating costs significantly without worsening system performance, or would raise system performance significantly without raising costs. The ideal new technology would increase performance and lower costs, but new transit technology generally has not met this standard.

NOTE: The following policies are new; at the time of our interviews we did not inquire as to what progress was being made with them:

Policy 2.10: Explore the possibility of conducting a marketing and/or fare policies study.

Policy 2.11: Explore the feasibility of using alternative fuels.

Policy 2.12: Explore the various possibilities of selling current and future fare media using vending machines, coupons by mail, and the Internet, for example.

Policy 2.13: Establish service standard of a maximum of a 30-minute wait time, to the extent feasible.

“To the extent feasible,” makes this policy meaningless. We suggest specifying a cost constraint in the place of, “to the extent feasible.”

Goal 3: Encourage Multimodal Public Transportation

Objective: Coordinate the expansion of the public transportation system with improved connectivity to such modes as walking, bicycling, and waterborne public transportation service to lessen dependency on the single-occupant vehicle.

Section 5307 funds are being used to establish van pool service between Crestview, where many moderate and low income people live, and Ft. Walton Beach, where there is a shortage of affordable housing but a high number of service jobs. This is not being done through OCT (Godwin 1999).

Section 5307 funds also will be used to fund a temporary work-oriented express bus service that will be operated in conjunction with the widening of SR20.

Policy 3.1: Continue to provide comfortable and useful facilities at major destinations including benches, shelters, trees, and bicycle facilities.

This has not happened to a large scale.

Policy 3.2: Continue to expand availability of sidewalks/bike paths associated with public transit; and,

There is no fixed route service, so this has not happened.

Policy 3.3: Explore the feasibility of bike racks on vehicles.

We do not believe that this has been done.

Policy 3.4: Explore the feasibility of a park-n-ride program and express bus service that serves outlying residential areas and employment centers in the county.

See above.

Policy 3.5: Explore the feasibility of a trolley system.

We presume that “trolley” means “fixed route bus” and not a rail system. The TDP examines the feasibility of fixed route bus systems, any of which could use buses that are made to resemble historic streetcars..

Goal 4: Land Use

Objective: Establish land uses and urban patterns that support public transportation and

promote ridership.

The community of Seaside serves as a prototypical higher-density, mixed use community that is supposed to encourage non-auto use, but it has not widely been emulated in Okaloosa County, and there is widespread disagreement over how effective such types of development can be in altering travel behavior. There have been community workshops educating the public and community leaders on advantages of this type of development in Okaloosa County, and there is increasing interest in it throughout the United States. Eglin Air Force Base's tying up much potentially-developable land ultimately may increase pressures on development, with the effect of increasing densities, and there could be more of the Seaside type of development in the future, but for the foreseeable future, classic sprawl is likely to prevail in Okaloosa County.

Policy 4.1: Encourage higher land-use densities near identified urban service areas.

As of Fall 1998, comprehensive plans do not delineate public transportation corridors.

Policy 4.2: Connect adjacent residential areas with other land uses by removing barriers that restrict bus, pedestrian, and bicycle circulation;

Policy 4.3: Require developers, through the established permitting process, to include public transportation compatible designs in their projects; and,

Policy 4.4: Promote a mixture of land uses at public transportation facilities and private employment centers to encourage use of bus and ridesharing services.

Goal 5: Public Information and Involvement.

Objective: Establish a proactive public information/involvement process at all stages of the development and maintenance of public transportation.

Policy 5.1: Continue proactive public information/involvement process (i.e., town meetings, surveys, and periodic interviews with passengers at least once every two years and drivers at least once a year);

Surveys regularly are conducted as part of the TDSP process; other surveys are conducted as part of the TDP process. OCT management meets with the Citizens Advisory Committee to the MPO and other groups.

Policy 5.2: Continue to initiate on-going public information programs to increase citizen knowledge about the system and range of

services offered by the system;

OCT prepared and keeps up to date a brochure, which it circulates in higher-use areas, hospitals, on vehicles, and to people requesting information about the system. OCT also circulates a newsletter, and it has benefitted from a newspaper story. In 1998 OCT ran a TV ad for 13 weeks but canceled it when it decided that the ad was not producing results commensurate with costs.

Policy 5.3: Continue community support and knowledge of the public transportation system by promoting community efforts to raise money for local subsidy.

OCT has been trying to do this, so far without success. Lovejoy (1998) would like to obtain internship services from the University of West Florida Marketing Department not only to better market the system to the public, but also to forge a better link with the county commission. As of September 1998 she was in communication with the department to this end.

Policy 5.4: Evaluate the potential for changing the name of OCT to one that is more identifiable with the type of service offered.

OCT believes that a change of name and adoption of a uniform color standard is necessary.

NOTE: The following policies are new as of mid-1999.

Policy 5.5: Continue to use interns from local colleges as marketing staff.

Policy 5.6: Begin Safe Place Program on vehicles.

Policy 5.7: Explore the possibility of hiring a full-time marketing person.

Policy 5.8: Continue to maintain and update OCT's Internet site.

Policy 5.9: Develop marketing plan targeted at attracting specific groups including choice riders.

Policy 5.10: Expand sponsorship of trips to special events and attractions.

Chapter 3 - Service Analysis

Part 1. System Performance - In Whole and By Parts

Analyzing the performance of a transit system consists of breaking down the service provided into categories and then calculating operating statistics for each category. The categories used here vary between each of the five systems, because of different record-keeping activities of the systems. If a system operates fixed routes and keeps statistics on the routes, an analysis may be made between the various fixed routes. If detailed records are not kept, an analysis may be based on comparison of fixed routes as a whole with demand-responsive service as a whole. If a system operates different types of demand-responsive service, it may be possible to make a comparison between those different types. If a system directly operates some service but contracts for other service, it may be possible to base an analysis upon the directly operated and contracted services. Most of these types of analyses are performed for the five transit systems in this study.

Indian River County System Performance

In searching the annual operating reports of the Indian River Council on Aging, we found one table breaking down the service by parts. It is taken from the FY 1998-99 TDSP and is reproduced below (Table 4).

Table 4 - Indian River Expense Allocation

Indian River County Council on Aging Allocation of Service and Expense
Fiscal Year 1997-98

	Expense	Trips	Miles	Cost/Trip	Average Cost/Mile	Calculated Cost/Mile	Calculated Cost/Trip	Passengers Per Mile
Total	\$1,291,664	225,762	796,728	\$5.72	\$1.62	\$1.62	\$5.72	
Less School Bus Utilization Agreement	(\$26,457)	(106,978)	(30,639)			\$0.86	\$0.25	
Total Adjusted	\$1,265,207	118,784	766,089	\$10.65	\$1.65	\$1.65	\$10.65	
Fixed Route/Fixed Schedule	\$320,376	33,229	295,240	\$9.64	\$1.65	\$1.09	\$9.64	0.11255
Group Trip	\$473,162	54,699	299,795	\$8.65	\$1.65	\$1.58	\$8.65	0.18245
Individual Medical Trip	\$276,552	22,509	123,365	\$12.29	\$1.65	\$2.24	\$12.29	0.18246
Wheelchair Trip	\$189,075	8,199	44,936	\$23.06	\$1.65	\$4.21	\$23.06	0.18246
Stretcher (in and out of area)	\$6,042	148	2,753	\$40.82	\$1.65	\$2.19	\$40.82	0.05376
Total Adjusted	\$1,265,207	118,784	766,089					

Source: Indian River County COA TDSP 98/99 Report Allocation of Costs and Revenues----Se

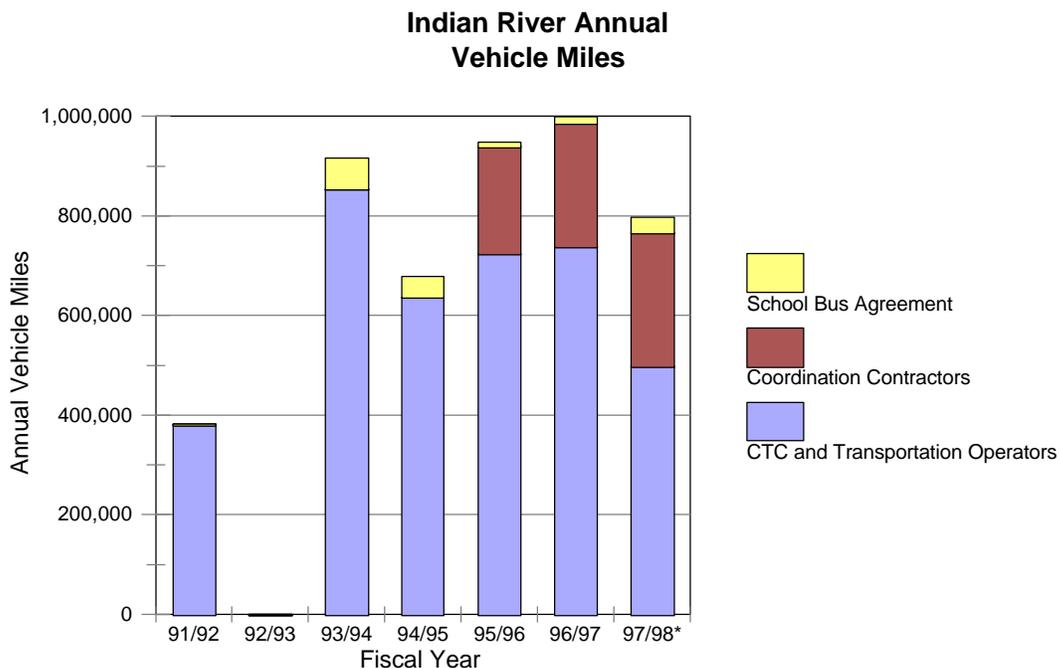
The table indicates how much school bus transportation of children to special events affects overall system performance statistics. While the removal of school bus transportation from the total does not affect by much the overall cost per vehicle mile, it almost doubles the cost per passenger trip. School buses in the coordinated transportation system account for very little service in Indian River County, but they carry almost half of all coordinated passenger trips.

We have yet to determine how the remaining breakdown was made. Expenses for the various categories of service are neither proportional to trips or miles. We also are uncertain about how the mileage is calculated. The table, for example, shows 295,240 miles in fixed route service. Our rough calculations made from the existing schedules operated for a full year suggest that only about 110,000 miles are operated in fixed route service. The mileage figure for fixed routes in the table may include the dial-a-ride mileage associated with fixed route service, but this is not clear.

Data presented in the annual operating reports suggests that it might be possible to make approximate breakdowns by different categories of service, and we attempt to do so here. In addition to school bus contracted service, the AORs distinguishes between service directly operated by the Coordinator and that purchased from contractors. To create the following tables, we begin with total expenses, passengers, and miles for the coordinated system and then deduct appropriate figures for School Service and Purchased Transportation in the spirit of the above table. Our results follow.

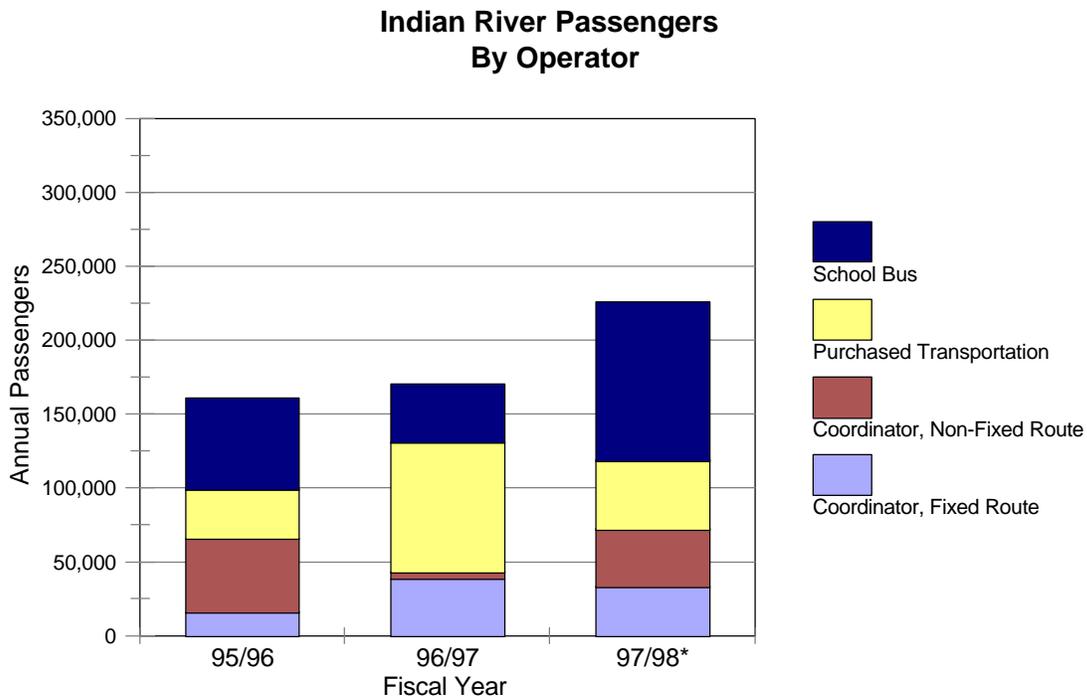
Since Fiscal Year 1993/94 there has been no trend in the total amount of transit service in Indian River County, measured in annual vehicle miles. It has fluctuated up and down from year-to-year between about 650,000 and 1,000,000 miles per year. The latest fluctuation was downward by about 20 percent (Figure 1). In addition, the amount of service operated by contractors increased. During the most recent Fiscal Year, the amount of service provided by contractors approached that operated directly by the Council on Aging. School bus miles were a relatively small part of the total .

Figure 1 - Indian River Vehicle Miles



While school buses operated a small share of the service over the past several years, they accounted for a large share of the riders. Aside from this point, passenger trends largely follow service trends (Figure 2). If school trips are subtracted from the total, there has been relatively constant transit patronage since 1993/94, but there has been a shift in composition. The proportion of passengers carried on fixed route service has increased until this past year. The Coordinator increased its share of the overall number of passengers this past year,

Figure 2 - Indian River Passengers



even though the number of fixed route passengers declined.

Another measure of usage is unduplicated passenger head count for the paratransit service. The Commission for the Transportation Disadvantaged requires this statistic, which indicates the number of people who make use of the service at least once during a given fiscal year. For Indian River County the unduplicated passenger head count was 39,000 for fiscal year 1995/96, 40,000 for fiscal year 1996/97, and 17,000 for fiscal year 1997/98 (rounded to the nearest thousand). At this point I have no explanation for the very substantial drop for fiscal year 1997/98.

Still another measure of usage is the number of trip requests that could not be honored because of vehicle unavailability or full occupancy. A large number indicates the existence of

unmet demand. For Indian River County, unmet trip requests were 285 for fiscal year 1995/96, 315 for fiscal year 1996/97, and 281 for fiscal year 1997/98. Compared to the roughly 30,000 paratransit trips handled by the Coordinator in fiscal year 1997/98 and 50,000 trips per year in fiscal year 1995/96, these numbers are insignificant. They are more significant for fiscal year 1996/97, when the Coordinator handled relatively few paratransit trips.

At the beginning of the 1998/99 fiscal year (1 July 1998), the Coordinator eliminated fares on its fixed route services, causing fixed route usage to increase to levels greater than those shown in Figure 2. *The Community Coach Report for July-Aug-Sep 1998* is devoted to showing increased productivity, which it implies was caused by the service change, but which appears to have been greatly influenced by the elimination of fares. Time-series show fixed route boardings over 11 months, Nov. 1997 through September 1998. The report also compares July, August, September patronage between 1997 and 1998. Finally, it shows average monthly boardings per vehicle for July, August, September for both 1997 and 1998. The figures show that despite the reduced service on a month-by-month basis (for July, August, September 1997 compared to the same months in 1998) patronage is 20 to 40 percent higher. The figures also show monthly rides per vehicle in July, August, and September 1998 to be two to three times greater than those for the same months in 1997, when there were more vehicles but fewer riders.

Trends in performance indicators for the entire system (Figure 3) show generally worsening performance through fiscal year 1995/96, substantial improvement in all indicators for fiscal year 96/97, and then a resumption of adverse unit cost trends (except in administrative expenses) in fiscal year 1997/98, though system effectiveness in attracting riders to each vehicle mile operated continued to increase. Subsequent figures attempt to examine performance of the various parts of the system.

Figure 3 - Indian River Performance Indicators

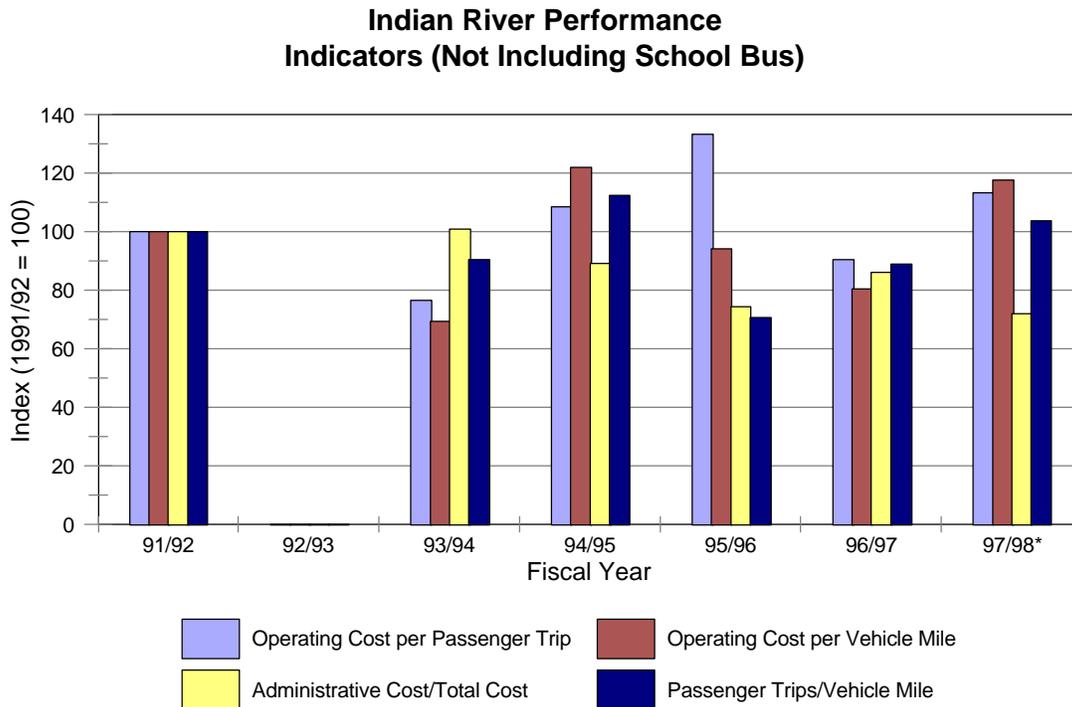
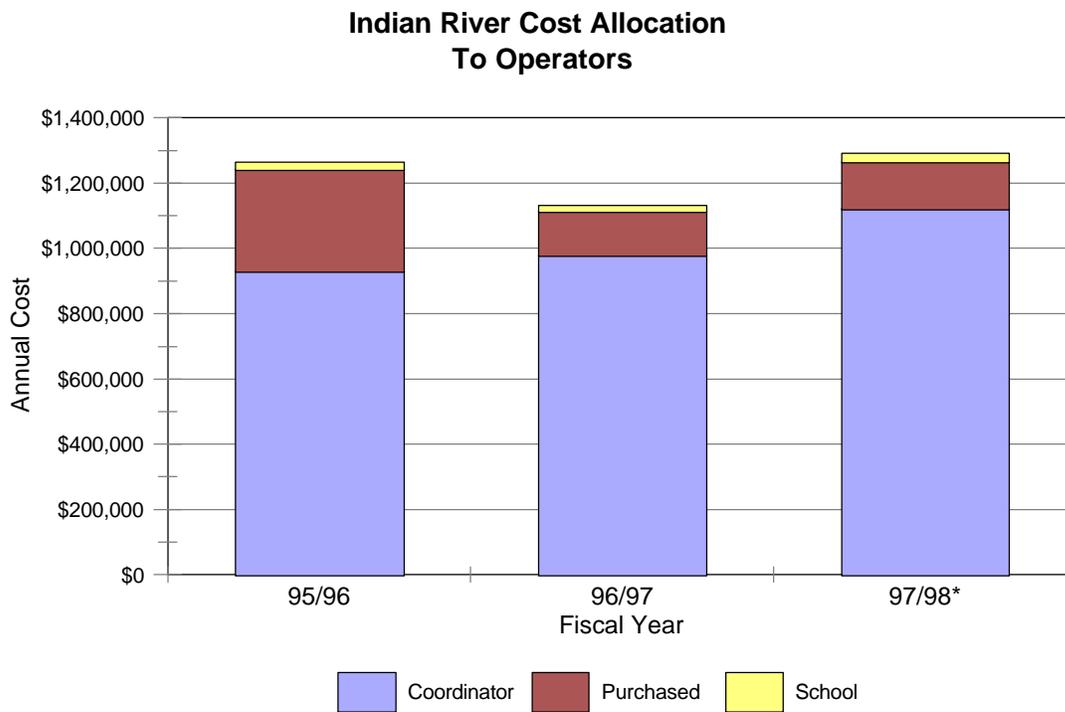


Figure 4 shows operating, maintenance, and administrative cost trends for the Coordinator, school bus agreement, and other contractors. Although the school contract accounted for about half of the riders in fiscal year 1997/98, it accounted for almost none of the costs. Other contractors also accounted for a much smaller share of costs than their share of passengers.

The cost of running a vehicle one mile varied very little among the operators in fiscal year 1995/96. The very small variation between cost per vehicle mile for the system with and without school bus indicates that the cost of running school buses one mile is almost the same as the average over all operators. In fiscal year 1996/97 the cost per mile for contractors other than school bus fell dramatically, while the cost per mile for the Coordinator rose slightly. The

Figure 4 - Indian River County Expense Allocation



cost per mile for the Coordinator rose dramatically in fiscal year 1997/98. As the section on maintenance shows, part of the cause for the increase is in maintenance, but driver wages per vehicle mile increased, as well. It appears that the Coordinator did not cut back its operations budget by the same percentage that it cut back its operations in fiscal year 1997/98.

The fact that the Coordinator accounts for the largest part of the operating budget while it carries fewer than half of the passengers suggests that its operations, maintenance, and administrative costs per passenger are higher than those for the school contract and the other contractors. Figure 5 confirms this inference, which partly is caused by the coordinator's large increase in unit costs (Figure 6). The figure also shows that the Coordinator's costs per passenger soared dramatically in fiscal year 1996/97, while the costs for contractors other than

Figure 5 - Indian River Operating Expense per Passenger Trip

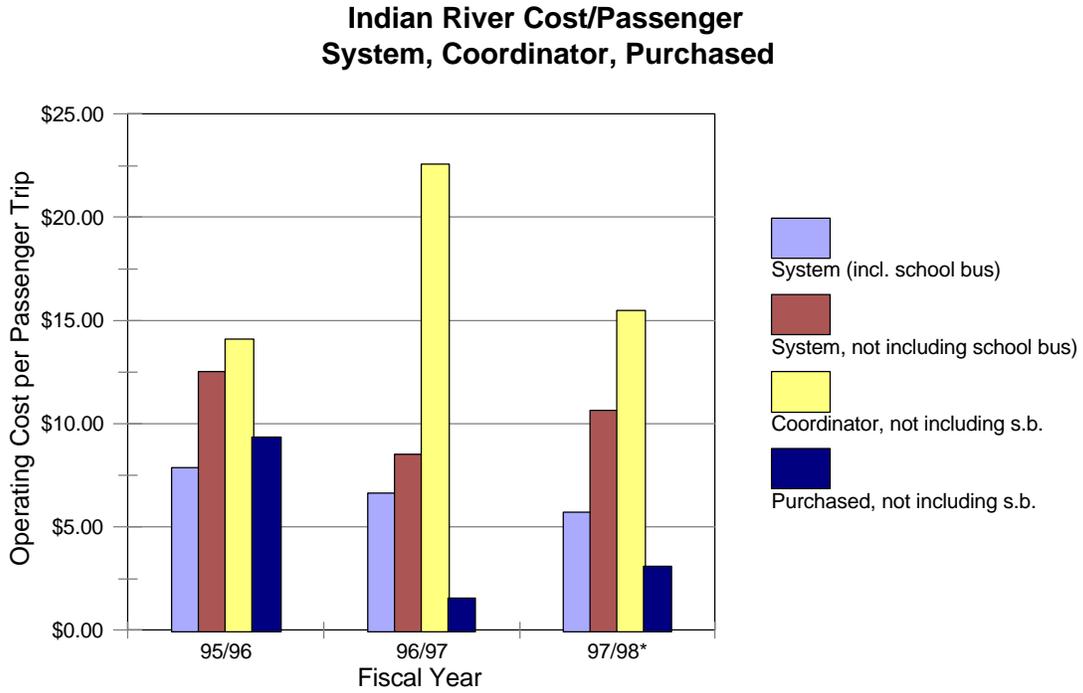
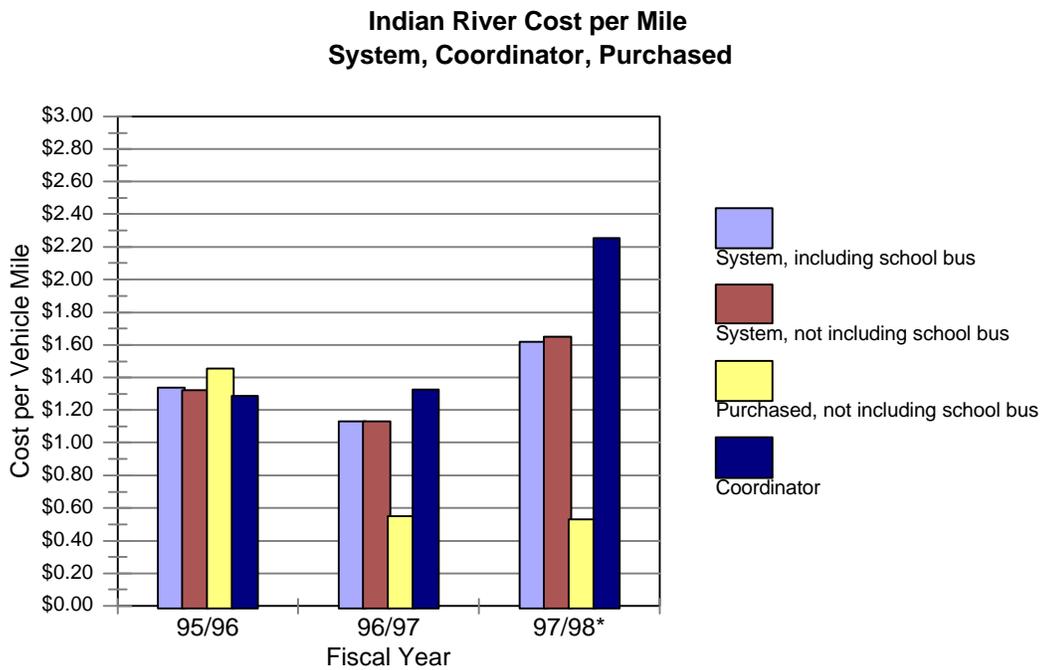


Figure 6 - Indian River Service Efficiency



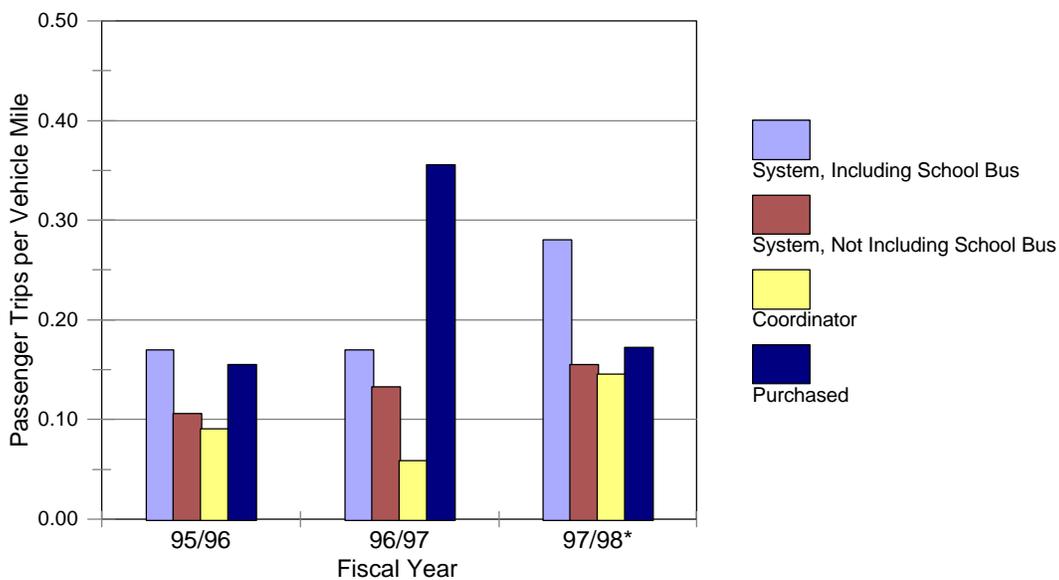
the school contract declined sharply. Fiscal year 1997/98 saw the Coordinator's costs per passenger fall somewhat, and those for the contractors increase, but a wide gap remained. In terms of service effectiveness, the number of passengers attracted to each vehicle mile operated, the Coordinator has steadily improved its position (Figure 7). By fiscal year 1997/98 there was very little difference in effectiveness between the Coordinator and its contractors (other than the school contractor). The route restructuring did in fact improve load factors for the Coordinator, which contributed to lowering the cost per passenger. Because of increased Coordinator ridership subsequent to the fare elimination at the beginning of FY 1999, it is likely that the Coordinator's existing effectiveness (as well as cost per passenger) are considerably better than those depicted here.

Figure 7 - Indian River Service Effectiveness

Martin County System Performance

The Martin County Council on Aging directly operates all transit in Martin County except for some spillover to cab companies. It also operates a small amount of special transportation

**Indian River Passengers/Mile
System, Coordinator, Purchased**



between Martin County and parts of both St. Lucie and Palm Beach Counties. There appears to be no data on the magnitude or the cost of the spillover, which we assume to be insignificant. The system does report enough data to examine differences in performance between the various types of service that it operates, however. This section examines trends for the past several years for several indicators of system-wide performance and then makes an attempt to understand the performance of various parts of the system as it currently stands.

As shown in Figure 8, vehicle miles operated increased for most years since fiscal year 1991/92. The downturn in fiscal year 1995/96 apparently resulted from a temporary hiatus in federal funding associated with the creation of an MPO within the county. Increases since then reflect increased federal funding pursuant to the county's eligibility for Section 9 funds, as well as the recent availability of state block grants.

Figure 8 - Martin County Vehicle Miles

Passenger growth generally has followed growth in vehicle miles, as shown in Figure 9. Another measure of usage is unduplicated passenger head count for the paratransit service. The Commission for the Transportation Disadvantaged requires this statistic, which indicates the number of people who make use of the service at least once during a given fiscal year. For Martin County the unduplicated passenger head count was 8,000 for fiscal year 1995/96, 10,000 for fiscal year 1996/97, and 11,000 for fiscal year 1997/98 (rounded to the nearest thousand). These figures are roughly proportional to growth in passenger trips. Compared to Indian River County, Martin County's unduplicated passenger head count is a much small proportion of total passenger trips.

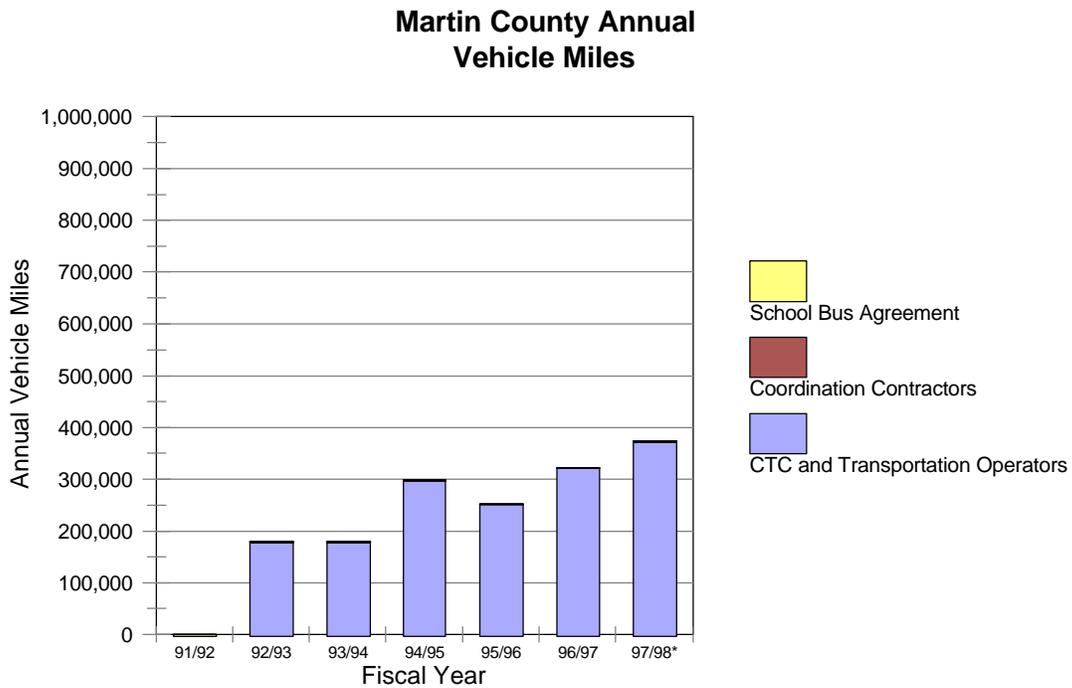


Figure 9 - Martin County Passengers

Still another measure of usage is the number of trip requests that could not be honored because of vehicle unavailability or full occupancy. A large number indicates the existence of unmet demand. For Martin County, unmet trip requests were 337 for fiscal year 1995/96, 556 for fiscal year 1996/97, and 391 for fiscal year 1997/98. Compared to growth in paratransit passenger trips during this period, these numbers are insignificant, indicating no unmet demand.

Since fiscal year 1992/93 operating, maintenance, and administrative costs per vehicle mile have increased at an average rate of about 3.6 percent per year, as shown in Figure 10, although there actually was a slight decline in unit costs between fiscal year 1996/97 and 97/98. Increases result from increases in unit labor costs, leases, interest and rental costs, and maintenance costs. Unit administrative costs have declined, as they have in Indian River County. While Martin County costs have increased very modestly, while costs for Indian River

Martin County Passengers

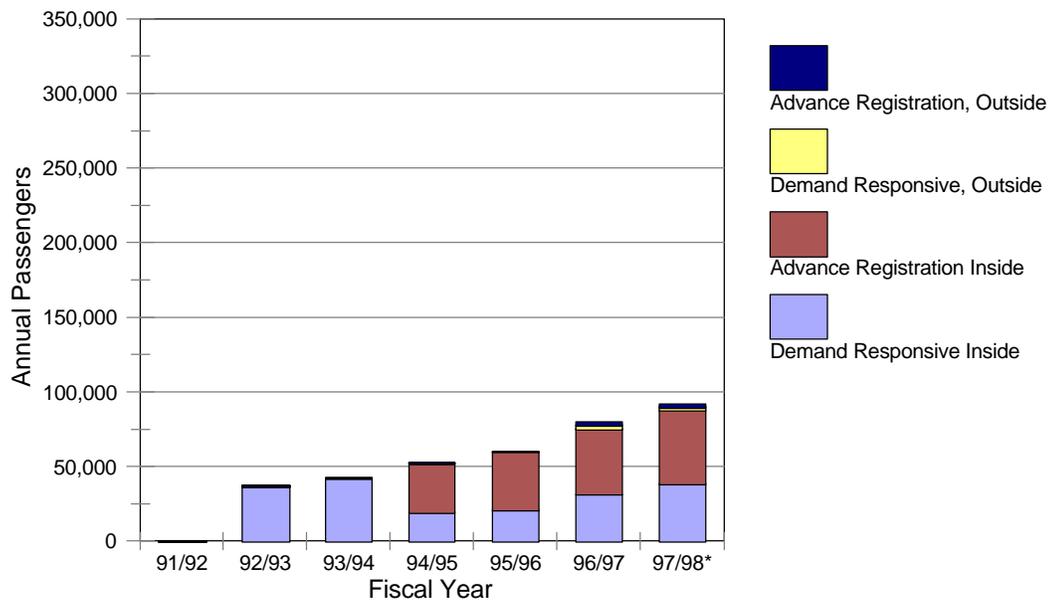
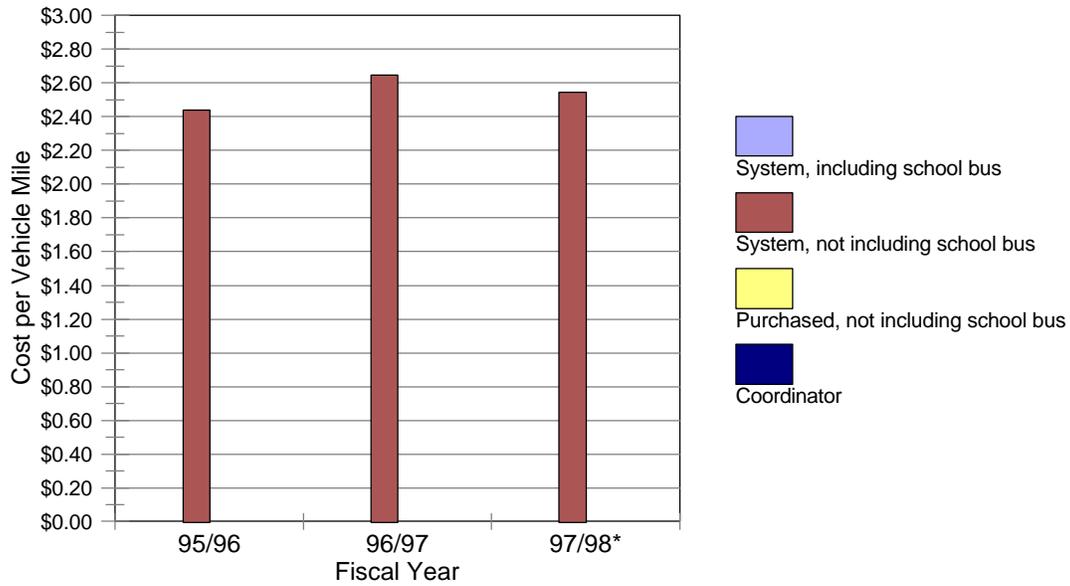


Figure 10 - Martin County Service Efficiency

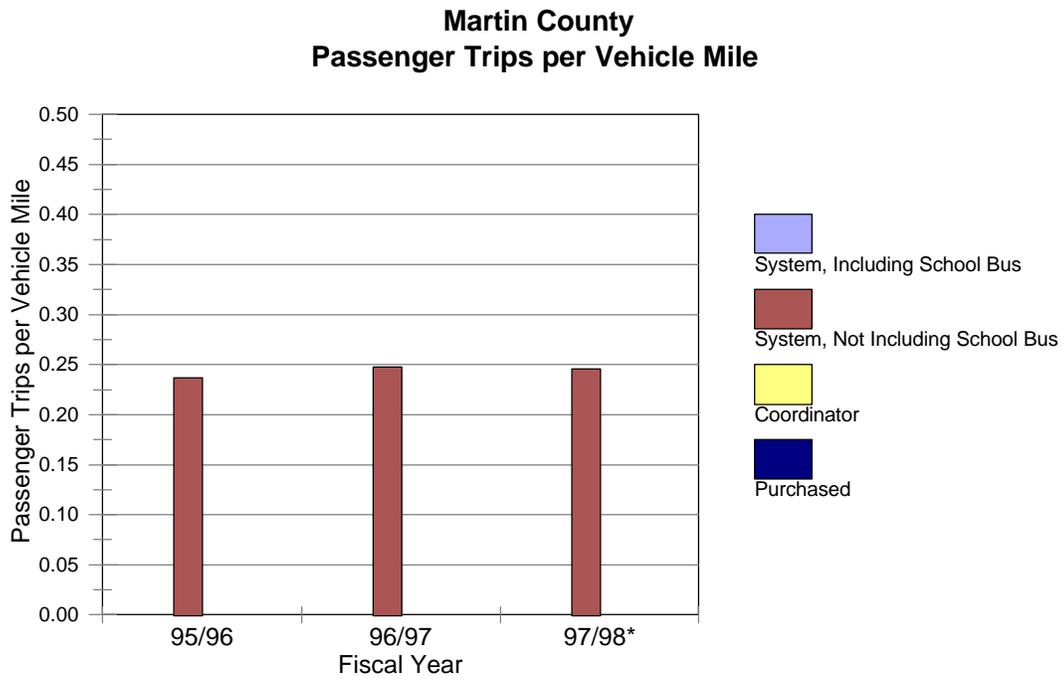
Martin County Cost per Mile System, Coordinator, Purchased



have increased dramatically, costs per vehicle mile for Indian River County still are slightly lower than those for Martin County.

System effectiveness, measured by the number of passengers attracted to each vehicle mile, and the cost for carrying each passenger have fluctuated to some extent over the past several years, but the secular trend for both indicators is between nil and a very slight increase (Figure 11). Slight increases in passengers per vehicle mile apparently have compensated for slight increases in the cost per vehicle mile.

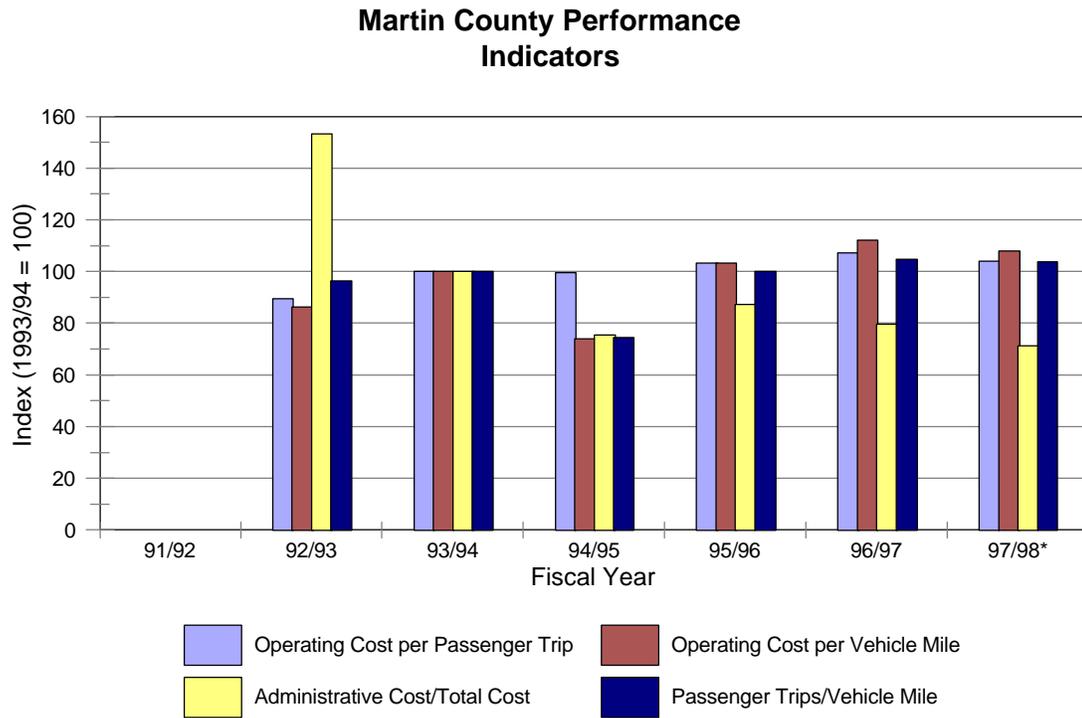
Figure 11 - Martin County Service Effectiveness



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12 summarizes overall performance trends for the system. These indicate relative stability in all indicators, except for administrative costs as a percent of total operating costs. That ratio has declined substantially. As the system expanded its service, passengers attracted to the service grew proportionally. Efficiency did not decline. These are favorable performance indicators for transit systems, where usually passenger growth is accompanied by declining efficiency.

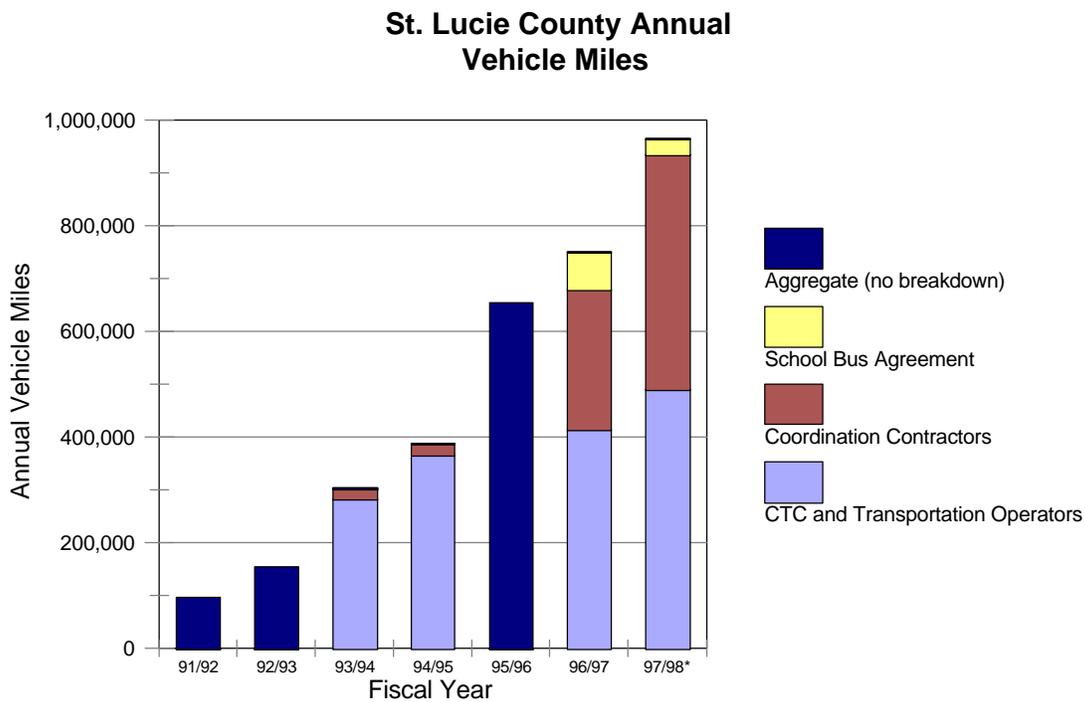
Figure 12 - Martin County Performance Indicators



St Lucie County

Over the period examined total paratransit service operated under the Coordinated Transit umbrella, measured in vehicle miles, increased each year compared to the year before, as shown in Figure 13. The single largest operator, CTC and Transportation Operators (Community Transit), accounts for part of the year-to-year increase and represents at least in part new paratransit service being operated within the county.² A larger part of the increases, represented by coordination contractors, does not represent new service but comes from including more and more social service agency transportation providers under the coordination umbrella. Such agencies continue to operate their own transportation for their own clients, but they utilize Community Transit’s dispatching and reservation systems.

Figure 13 - St. Lucie County Vehicle Miles



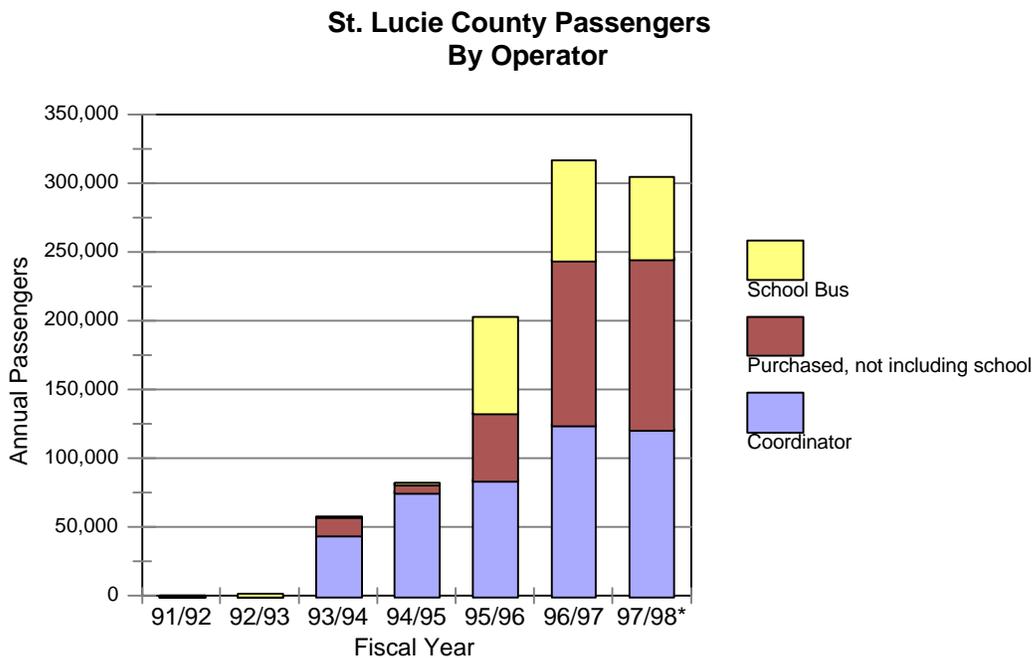
Community Transit offers two types of service: demand responsive and advanced registration. Both types of trips require passengers to phone in requests ahead of time, with a

²Annual mileage also increases for Community Transit when it persuades an agency that previously operated its own transportation system to purchase service from Community Transit instead.

minimum of 24 hour notice. The difference lies in the regularity with which the passenger makes the trip. A passenger who makes the same type of trip on a regular schedule registers to be picked up automatically according to that schedule. Passengers who suddenly anticipate a need to travel phone in their request as they anticipate the need, but they already must be registered with the coordinator. Another distinction between types of passengers are those who are sponsored and those who are general passengers. Sponsored passengers are those whose travel is paid for by a social service agency or program. Such passengers may be transported directly by that agency or program, or they may be transported by Community Transit on a reimbursable basis. General purpose passengers are those who wish to travel for their own reasons and not as part of a program or agency service. These can be of two types. Those who are registered as transit disadvantaged are paid for by the Transit Disadvantaged Commission. Those who are members of the non-transportation disadvantaged community are the remaining passengers. Community Transit must carry such passengers as a requirement for receiving Section 5307 (formerly Section 9) funds and FDOT block grant funds.

The 1996 TDP (pp. 64-67) reported the results of a survey that revealed the magnitude of passenger trips accommodated by social agencies and programs. The consultants surveyed 46 agencies or programs where there was the potential of some type of accessory transportation. Of the 46, 29 responded, revealing that in aggregate they were providing 289,250 vehicle miles of service, which accommodated 105,520 annual trips. Four of the 29 surveyed agencies and programs participated in the coordinated transportation system, accounting for 159,250 vehicle miles and 51,012 passenger trips, consistent with purchased transportation for FY 1996 shown above. The remaining 130,000 vehicle miles accommodating 54,458 passenger trips were outside of the system.

Figure 14 - St. Lucie County Passengers



Passenger trips carried each year increased steadily through FY 1997 and then fell back somewhat in FY 1998, as shown in Figure 14. The increases represent a combination of real passenger growth as well as accounting for trips that previously were made but not accounted for. According to Daryl Drummond, Assistant Director of Transportation (19 October 1998), the decrease in Community Transit patronage in FY 1998 resulted from the system running out of Section 9 funds, necessitating a service cutback, which in turn caused ridership to decline.

Performance of the coordinated system in St. Lucie County generally improved over the past several years, as shown in Figure 15. Overall the cost of putting a vehicle mile on the street declined, while the use of each vehicle mile increased. An examination of individual system performance within the coordinated system reveals that school costs per vehicle mile generally remained the same, purchased costs declined, and Community Transit costs per vehicle mile increased about seven percent over the past three years (Figure 16). The cost for accommodating each passenger trip remained between \$9 and \$10 for Community Transit, while the cost per passenger for purchased transportation remained between \$5 and \$6 (Figure 17). Increased costs per vehicle mile for Community Transit result from greater administrative expense, likely due to managing a larger coordinated system whose miles are not reflected in Community Transit, increased unit maintenance costs, examined further below, and increased driver and dispatching expenses (Figure 18). Service effectiveness increased steadily through FY 1997 and then declined (Figure 19).

Figure 15 - St. Lucie County Efficiency

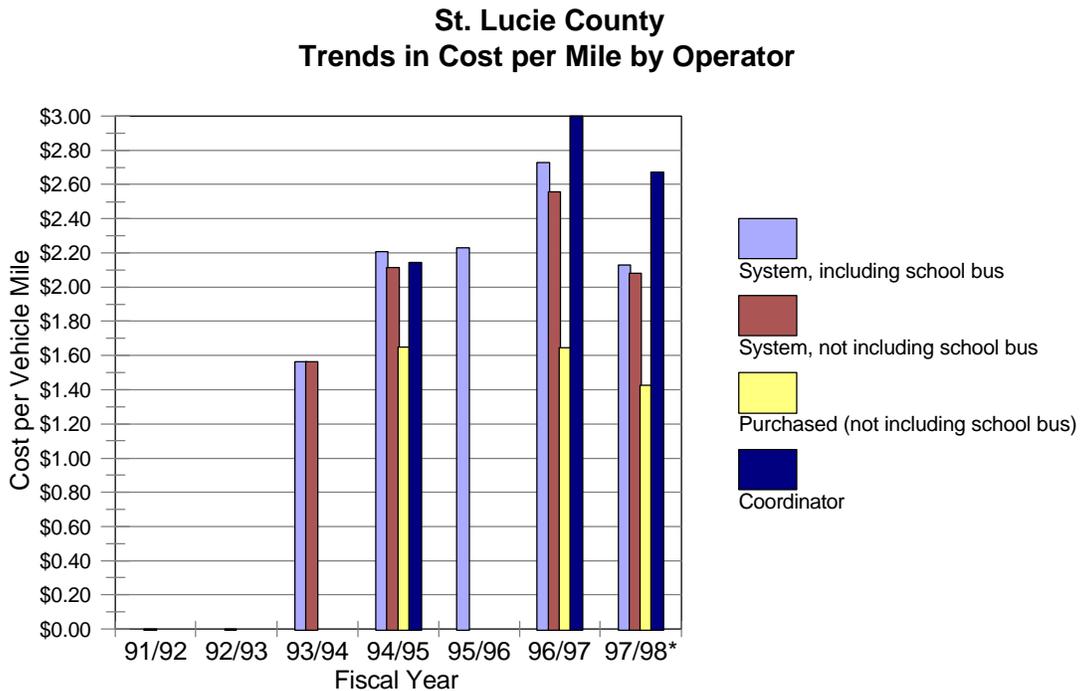


Figure 16 - St. Lucie County Performance Indicators

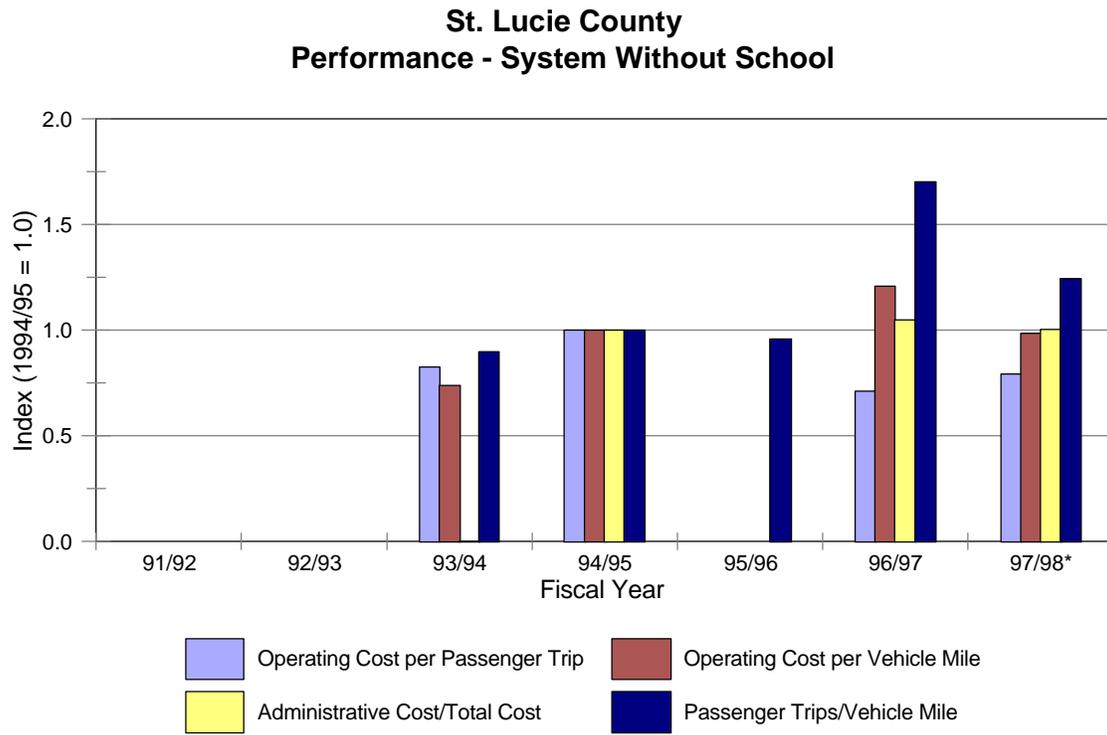


Figure 17 - St. Lucie County Operating Expenses per Passenger

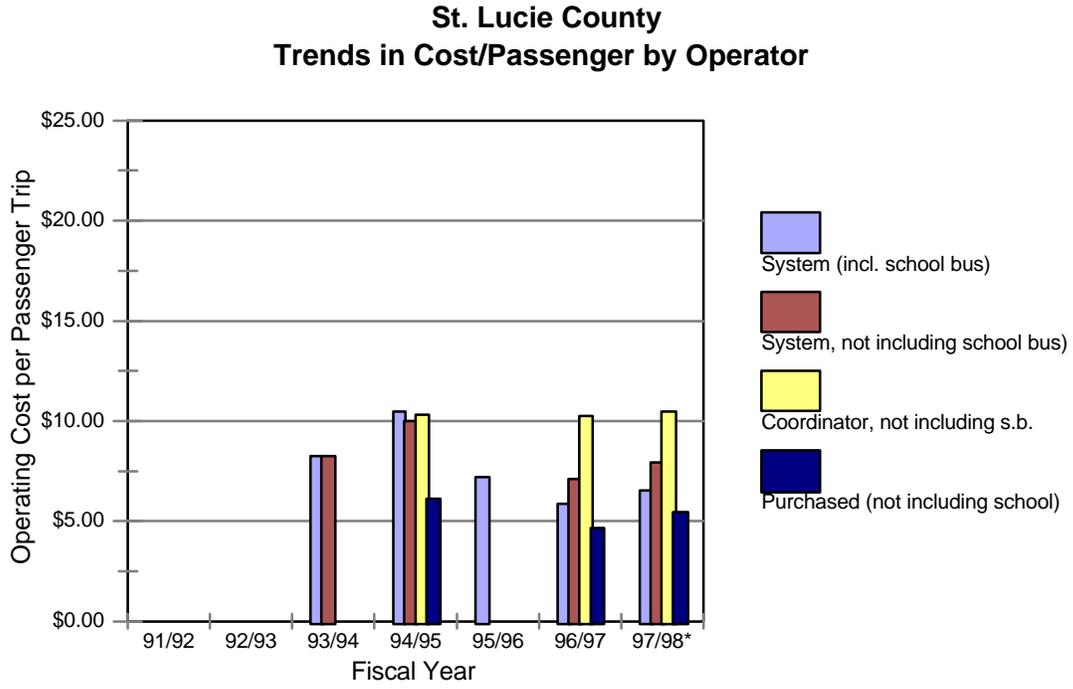


Figure 18 - St. Lucie County Trends in Unit Costs

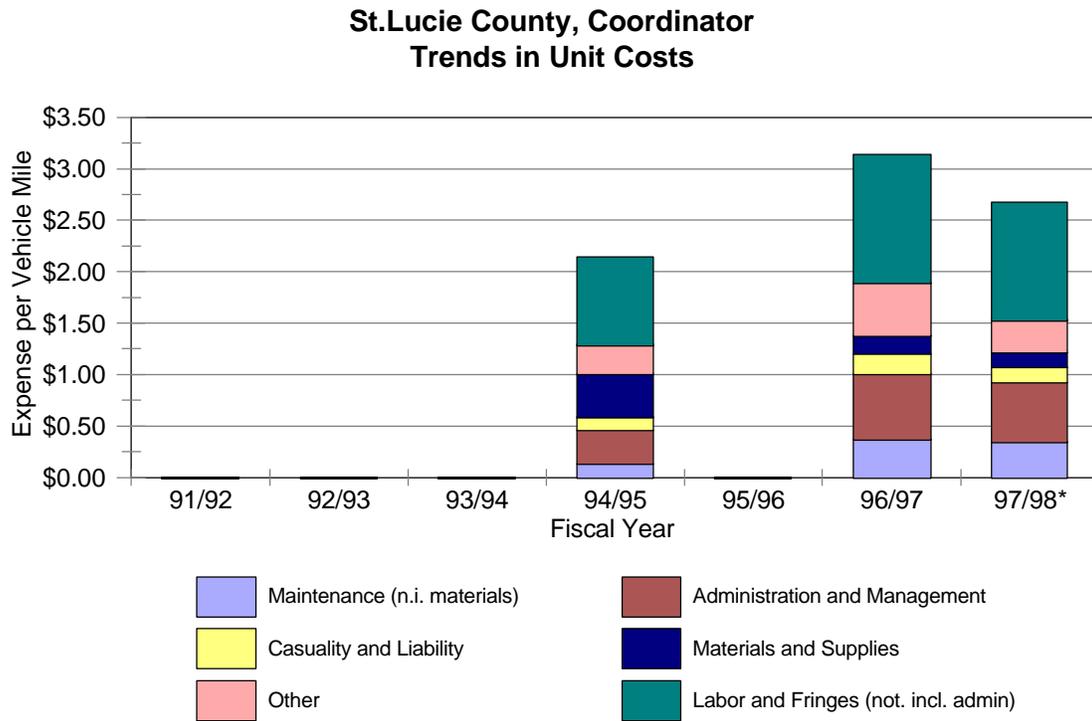
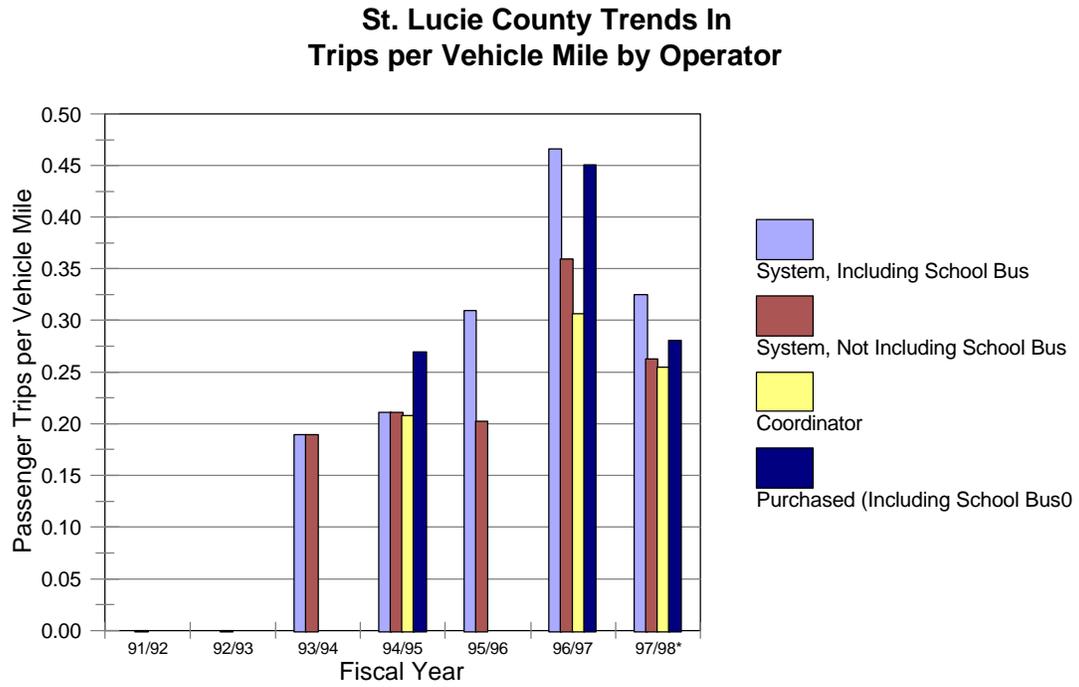


Figure 19 - St. Lucie County Trends in Effectiveness

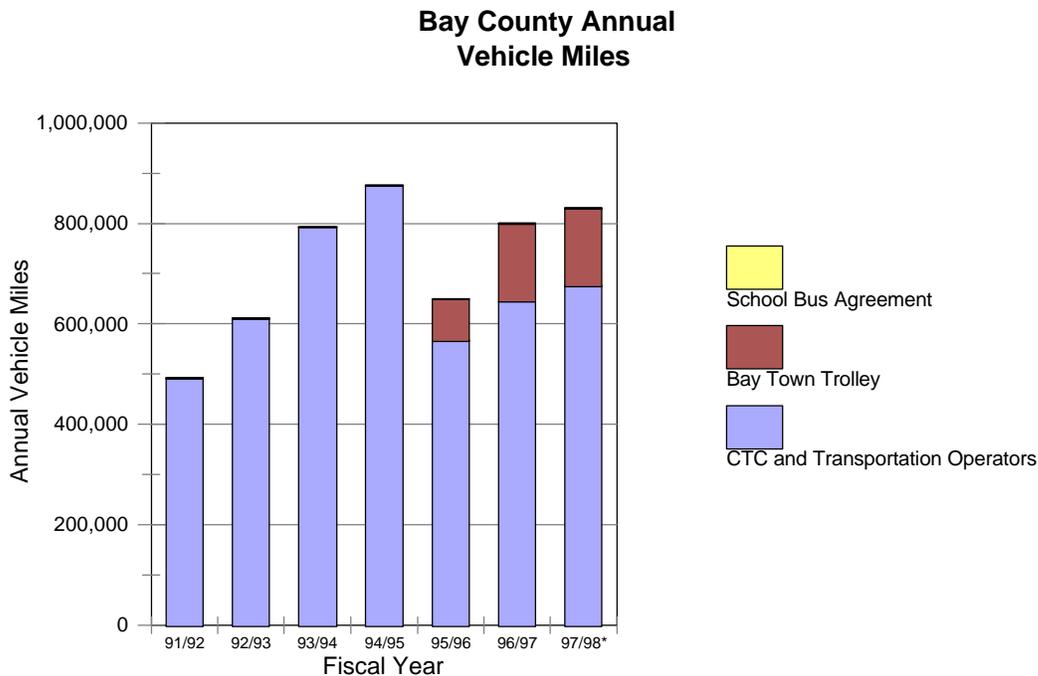


Bay County

The Bay County Council on Aging operates two transit services. One is the coordinated paratransit system, which is part of Florida’s transportation disadvantaged transportation service operated under the auspices of the Florida Commission for the Transportation Disadvantaged. The second is a limited fixed route service called Bay Town Trolley that began service in FY 1996. While the Council on Aging operates both systems, it does not keep unified statistics on total transit operations, nor is the Bay Town Trolley reflected in the Transportation Disadvantaged Annual Operating Reports. The figures that follow, which try to present a comprehensive picture of transit development, were pieced together from the Commission for the Transportation Disadvantaged AORs for the coordinated paratransit service, and by phone for the Bay Town Trolley from CUTR (Perk 1999).

As can be seen in Figure 20, paratransit service grew substantially from FY 1992 through FY 1995. With the opening of Bay Town Trolley, paratransit service was cut back, and total transit service did not reach the level of a year earlier. In the last two years, paratransit service increased modestly, while Bay Town Transit service remaining relatively constant, and total service still is below the level experienced in FY 1995.

Figure 20 - Bay County Vehicle Miles



Tr

ansit passenger usage also grew through the 1990s, but less rapidly than vehicle mileage, as shown in Figure 21. Since Bay Town Trolley began operation in FY 1996, it has accounted for

all passenger growth, despite the fact that its service has not expanded. Figures supplied by the West Florida Regional Planning Council show that the Bay Town Trolley's passenger growth is continuing strongly in FY 1999, running ten to twenty percent of comparable months in FY 1998. Paratransit use has declined slightly, despite the increase in paratransit vehicle mileage.

Figure 21 - Bay County Passengers

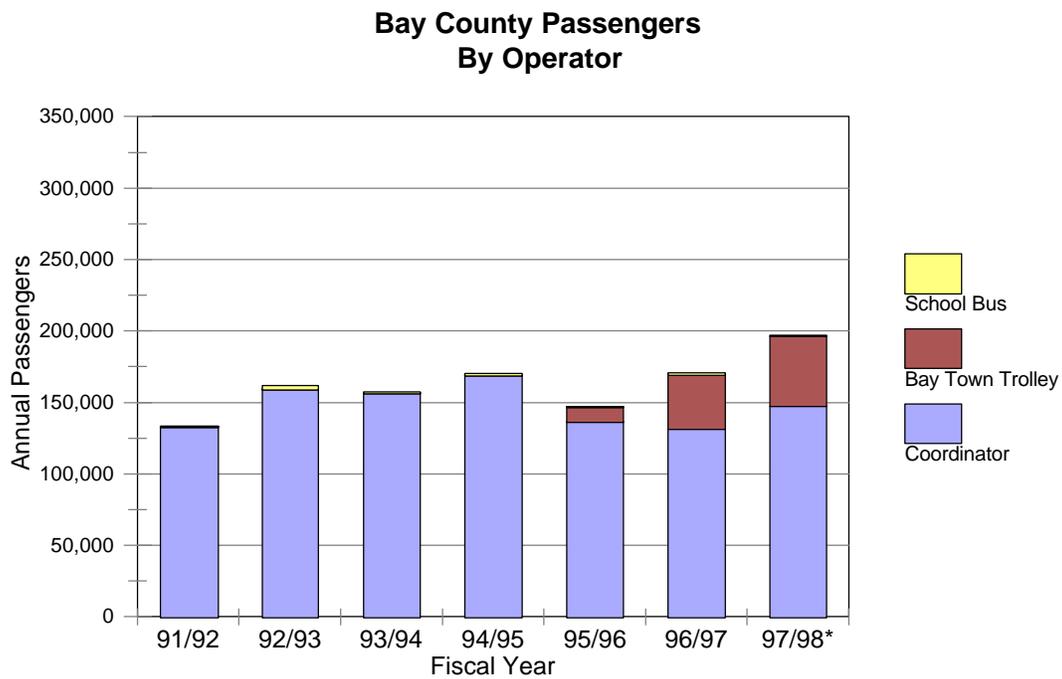
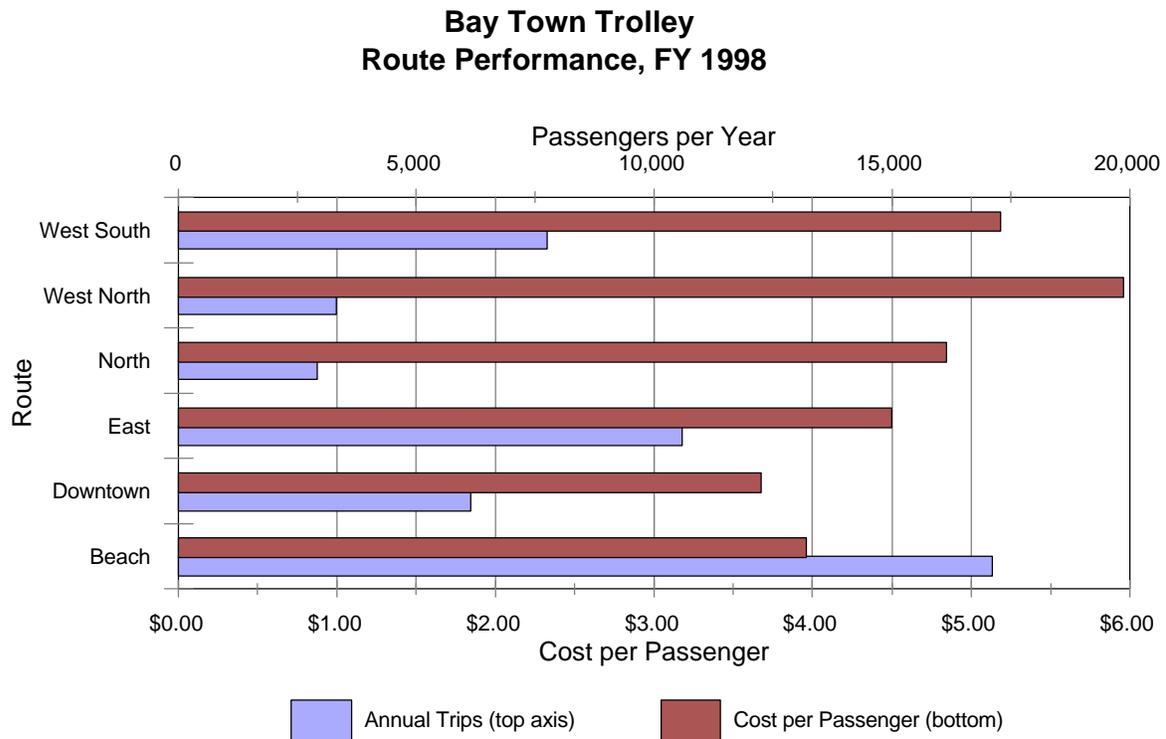


Figure 22 using data supplied by the West Florida Regional Planning Council, shows a breakdown of patronage for the Bay Town Trolley by its six routes, as well as the cost for carrying passengers on each route. Although it does not serve the heaviest transit dependent territory, the Beach Route carries the most passengers and has the second lowest cost per passenger.

Figure 22 - Bay Town Trolley Route Performance



Total Bay Country transit performance can be estimated by grouping coordinator and Bay Town Trolley miles, passengers, and operating costs together and then calculating trends in total transit operating cost per vehicle mile, operating cost per passenger trip, and passenger trips per vehicle mile. We also include administrative cost as a percent of total system costs, but the results could be deceptive. The administrative costs are only those reported in the AORs; there could and probably are other administrative costs associated with Bay Town Trolley, reflected in total operating costs for the county, but not in administrative costs.

The results, indexed to FY 1996, are shown in Figure 23. What stands out is a relativeness constancy of indicators over the period for which we could obtain data. Passengers per vehicle mile increase somewhat, as do costs per vehicle mile, but costs per passenger remain relatively flat. Only administrative expenses as a percentage of total expenses drops significantly, but this could result from our not knowing the administrative expenses for Bay Town Trolley. Overall, though, the indicators are on a very favorable trajectory.

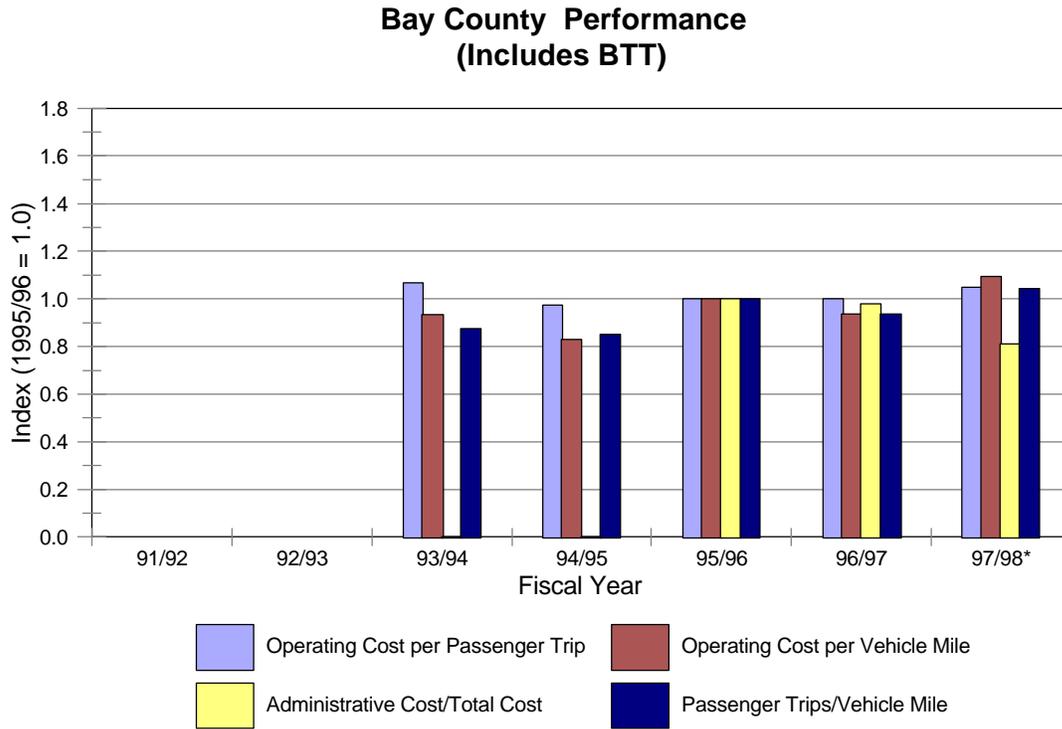


Figure 23 - Bay County Performance Indicators

Breaking down operating costs per passenger trip between the coordinated service and Bay Town Trolley, we see that costs decreased for the coordinated service prior to FY 1995, but since then they have increased modestly (Figure 24). Bay Town Trolley, on the other hand, began service with extraordinarily high costs per passenger, which have since dropped markedly. Now they are lower than those for the coordinated system, but they still are high for fixed route service because of the relatively low usage of Bay Town Trolley per vehicle mile compared to most fixed route services.

Bay County Trends in Cost/Passenger by Operator

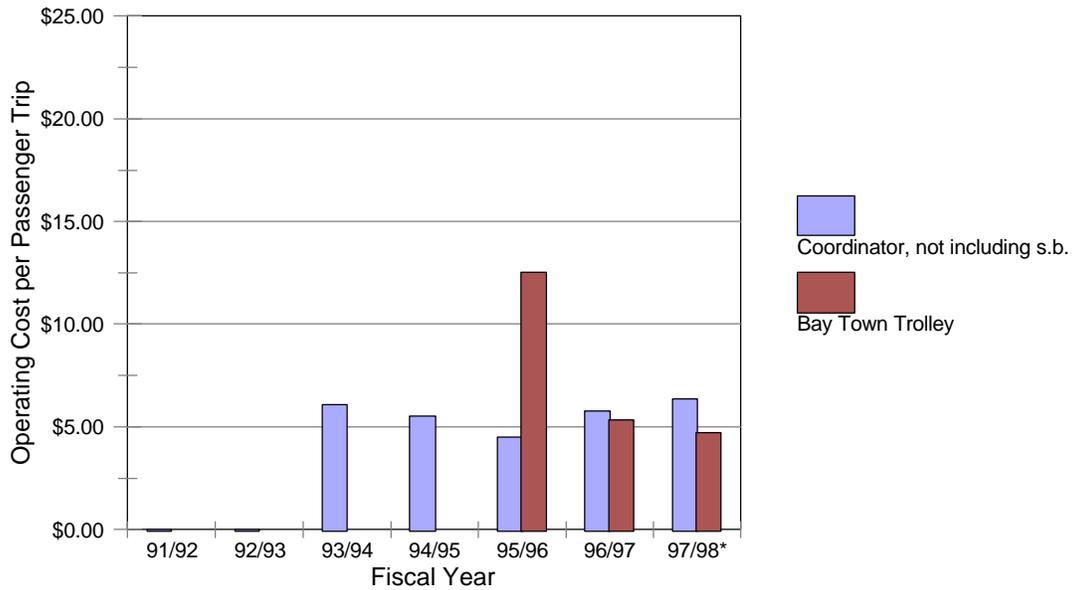


Figure 24 - Bay County Operating Expenses per Passenger

In terms of cost per vehicle mile, Bay Town Trolley is more expensive than for the coordinated system (Figure 25), perhaps because the average size of its vehicles is larger and they engage in more strenuous stop and go service. Still, overall costs per vehicle mile are low for both the trolley and the coordinated system, and they are well-controlled.

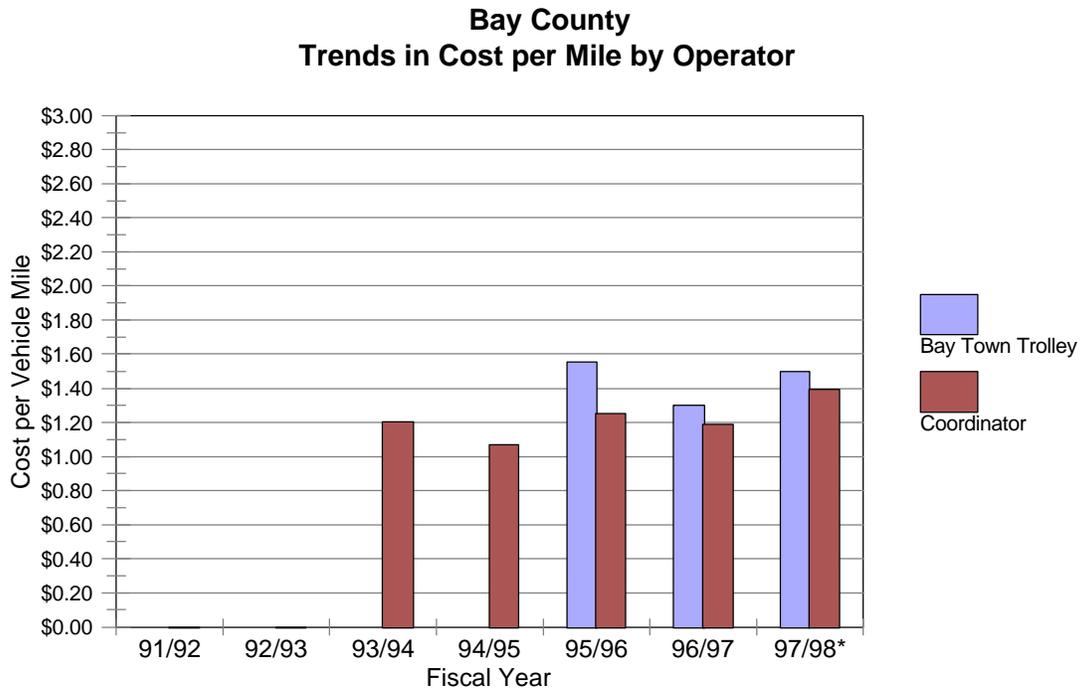


Figure 25 - Bay County Service Efficiency

Service effectiveness, measured by passenger trips per vehicle mile, has been increasing markedly for the trolley as it has matured but still is very low for a fixed route system, as discussed later (Figure 26). The coordinated system's service effectiveness has been declining. We do not know why, but it could be caused by diverting from the coordinated system to the trolley some passengers in the densest service territory and who can be carried most productively in the coordinated system. Still, from FY 1997 to FY 1998 service productivity increased considerably for the trolley, and it also increased for the coordinated system, indicating a strong managerial grip on service effectiveness.

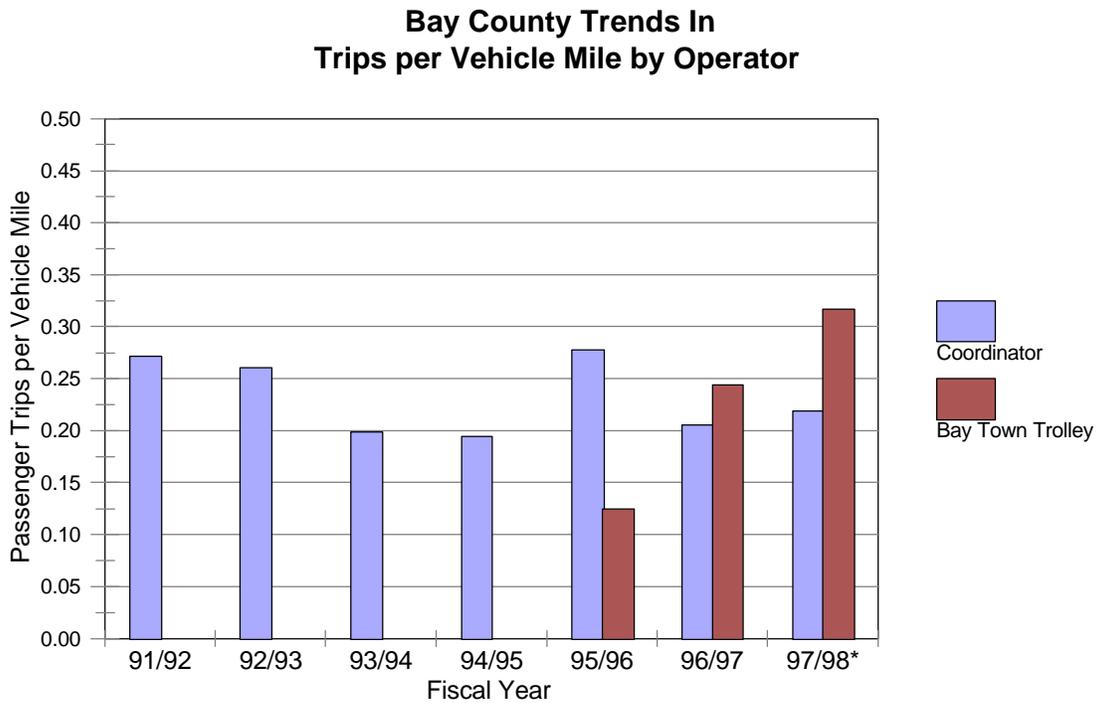


Figure 26 - Bay County Service Effectiveness

The trend in transit operating expense is shown in Figure 27 and because the operating expense per vehicle mile has remained relatively constant, the trend in operating expense generally reflects the trend in vehicle miles operated. What is significant is the major reduction in FY 1996, which may have been caused by a funding reduction. Operating expenses in FY 1998 are still lower than those in FY 1995, even though in the more recent year they include the Bay Town Trolley expenses. Another point here is that the Bay Town Trolley expenses are a relatively small part of the total.

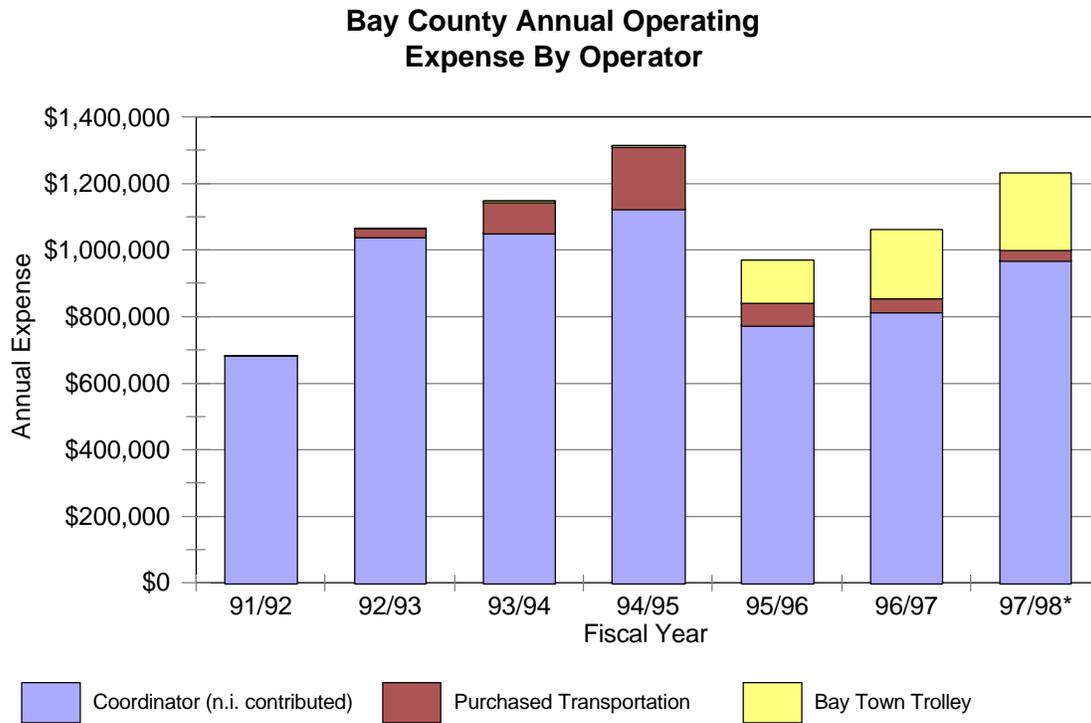


Figure 27 - Bay County Annual Operating Cost

Figure 28 shows a breakdown of operating costs just for the coordinated service. Most growth in unit expenses, which have remained remarkably stable over the period, has been in labor and fringe expenses for drivers, dispatchers, and call intakers. Maintenance remains a very small part of total expenses.

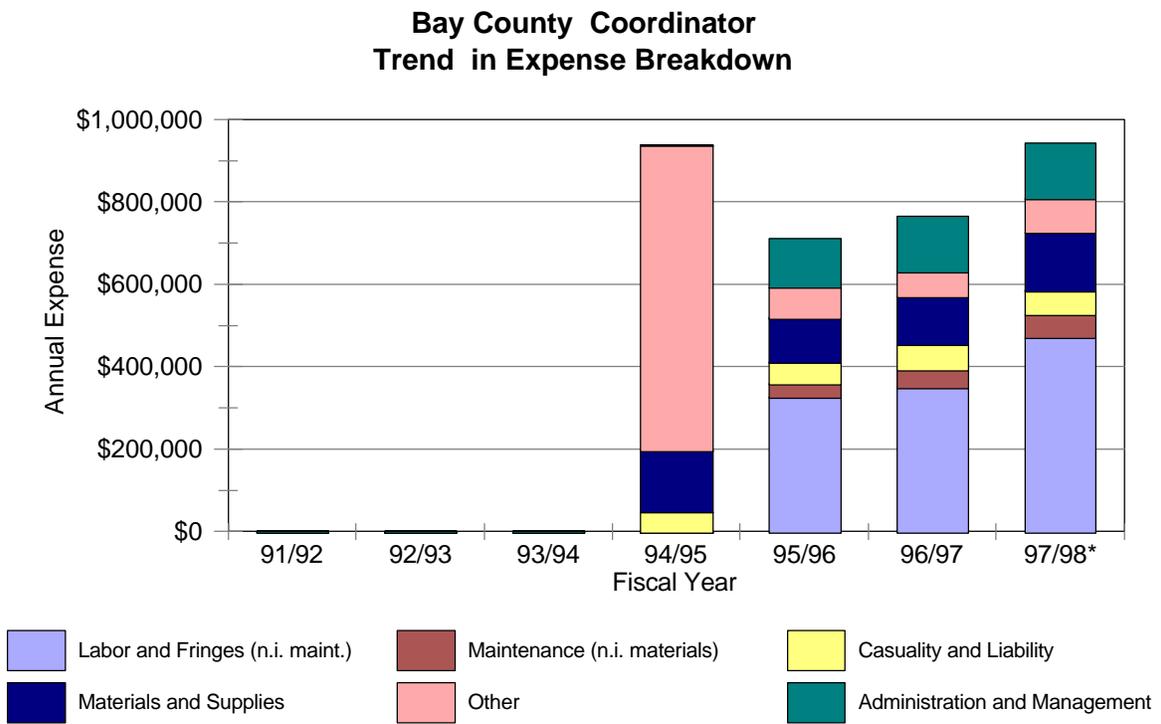


Figure 28 - Bay County Expense Breakdown

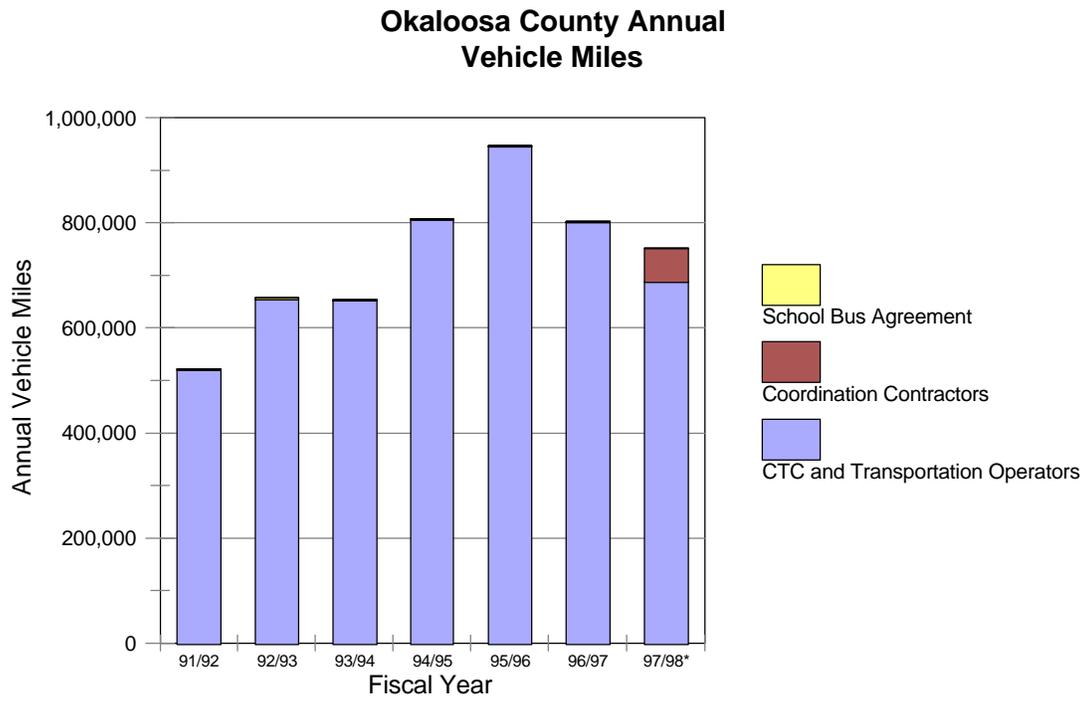
Overall, the figures portray strong managerial control over costs and service effectiveness. There does not seem to be much potential for transit patronage growth on the paratransit side of the equation, however. Patronage growth was much less rapid than service before the beginning of Bay Town Trolley, and since then, most patronage growth has been on the trolley. They also show that the Bay Town Trolley began life as a quite sickly child but has improved markedly since then. It still has a long way to go.

Okaloosa Coordinated Transit

Established in the late 1980s, Okaloosa Community Transit rapidly expanded service through FY 1996 as client programs requiring transportation expanded, while at the same time funding from FDOT and USDOT for general-purpose transportation increased. After FY 1996 the Medicaid program was cut back substantially, resulting in fewer requests for service, which in return resulted in fewer vehicle miles, as shown in Figure 29. Figure 30 below shows the reduction in passenger trips since FY 1996, primarily reflecting the cuts in social programs.

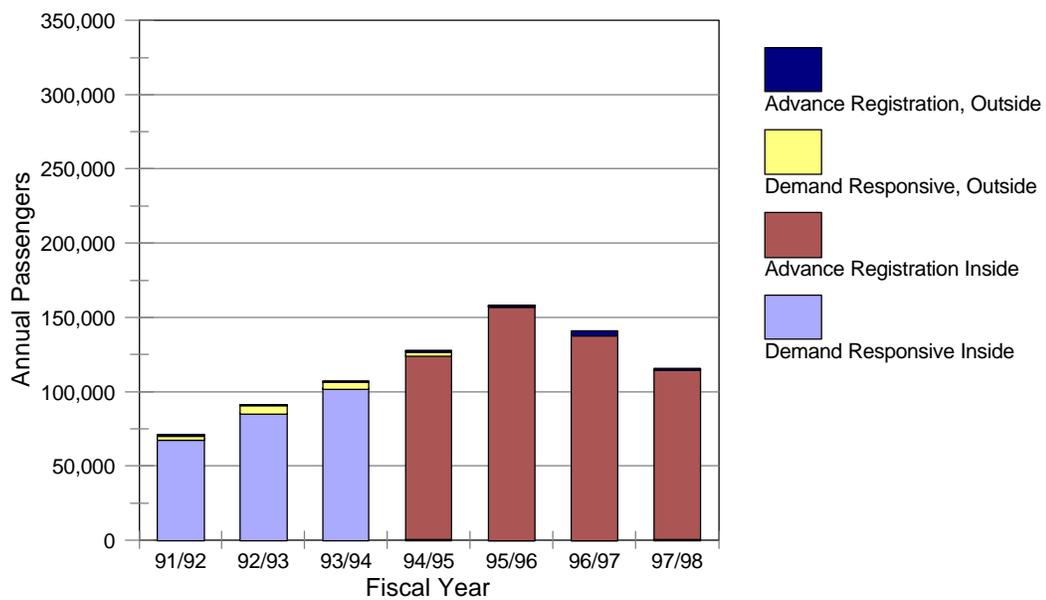
Figure 29 - Okaloosa County Vehicle Miles

Figure 30 - Okaloosa County Passengers



OCT has performed generally well over the past decade. Operating costs per vehicle mile have fluctuated from year to year, but the general trend is only slightly upward (Figure 31), indicating tight management of the operations. Until the last year, passengers carried per vehicle mile have trended slightly upward, another indication of good management. The decline in FY 1998 could reflect the possibility that as social service programs have curtailed trips, they

Okaloosa County Passengers

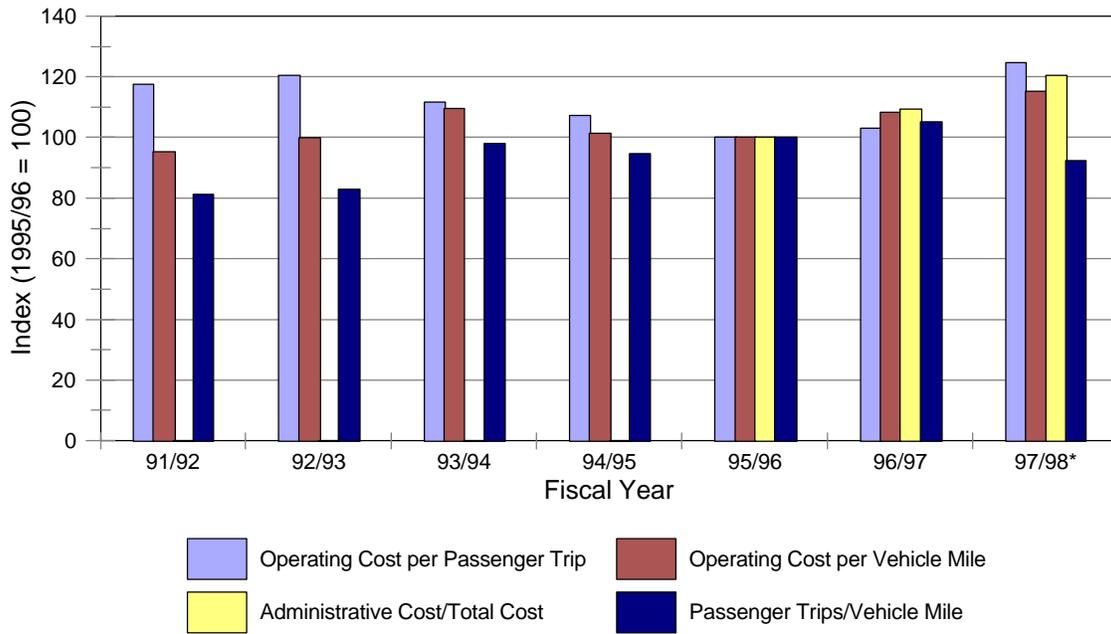


have continued to pay for longer trips, that are costlier to provide. Operating cost per passenger trips has fluctuated up and down with no general trend. The rather substantial increase in FY 1998 reflects the modest increase in cost per vehicle mile multiplied by the decrease in passengers carried per vehicle mile. The increase in administrative costs as a percent of total shows that administration remained relatively constant as service was cut back.

Figure 31 - Okaloosa County Performance Indicators

F In

Okaloosa County Performance Indicators

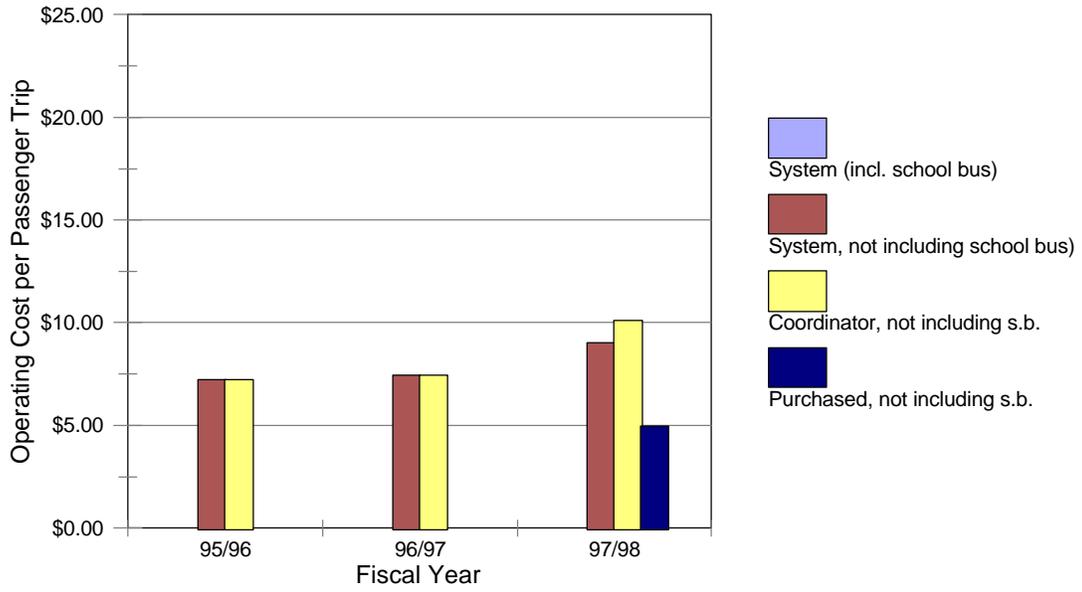


Y 1987 OCT contracted with another carrier to provide approximately ten percent of total coordinated mileage. Figure 32 shows that while the cost per passenger increased

modestly for OCT, the cost per passenger for the contracted service was substantially less. The lower figure could reflect the type of service contracted out, which may be characterized by more group loading. This possibility is strengthened by Figure 33, which shows trends in cost per vehicle mile. It shows that OCT's cost per vehicle mile not only has been quite flat, in FY 1998 it was substantially lower than the contractor's.

Okaloosa County Trend in Cost per Passenger

Figure 3.2 - Okaloosa County



y Operating Expense per Passenger

Figure 33 - Okaloosa County Service Efficiency

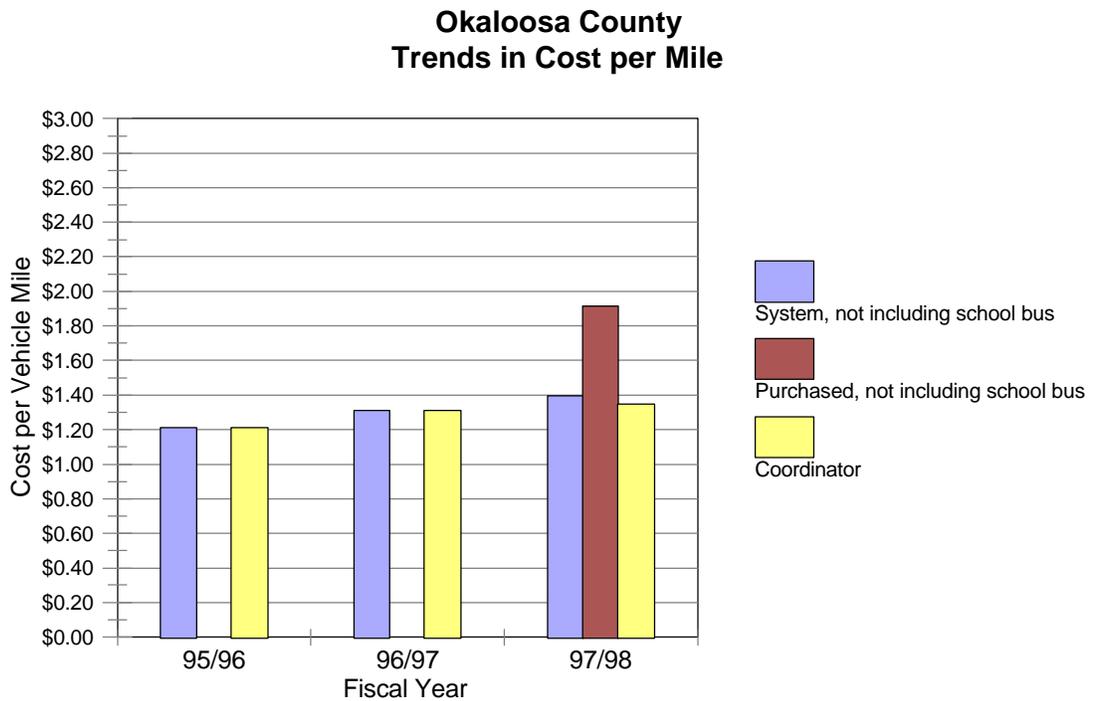
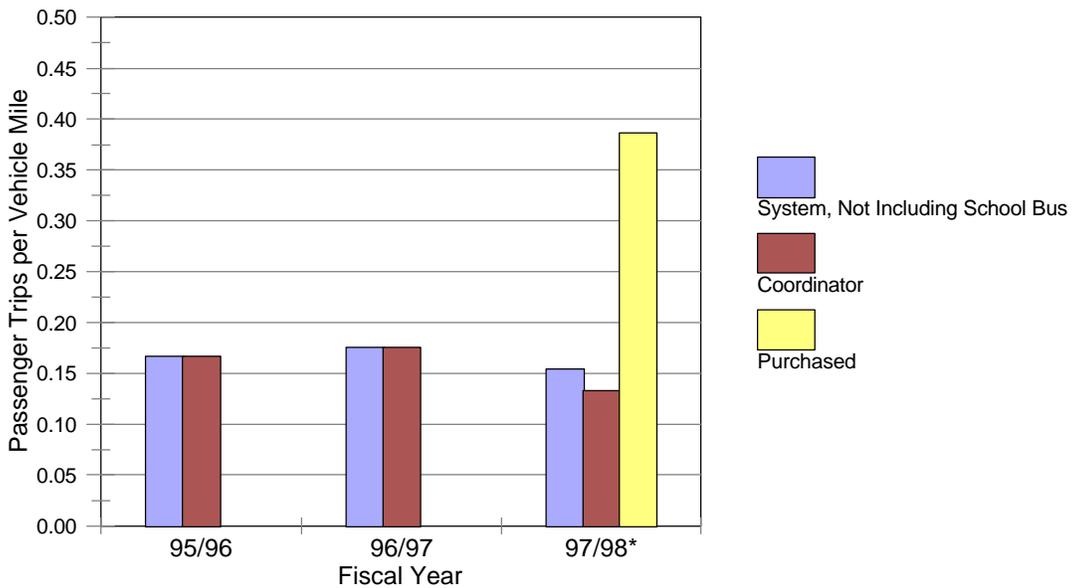


Figure 34 lends further support to the higher group loading hypothesis for the contracted service. The contracted service passengers per vehicle mile were more than double OCT's, suggesting that the contractor was performing more specialized service to a more concentrated pool of clients than OCT.

Figure 34 - Okaloosa County Service Effectiveness

Over the past decade total annual operating expenses have increased from year to year

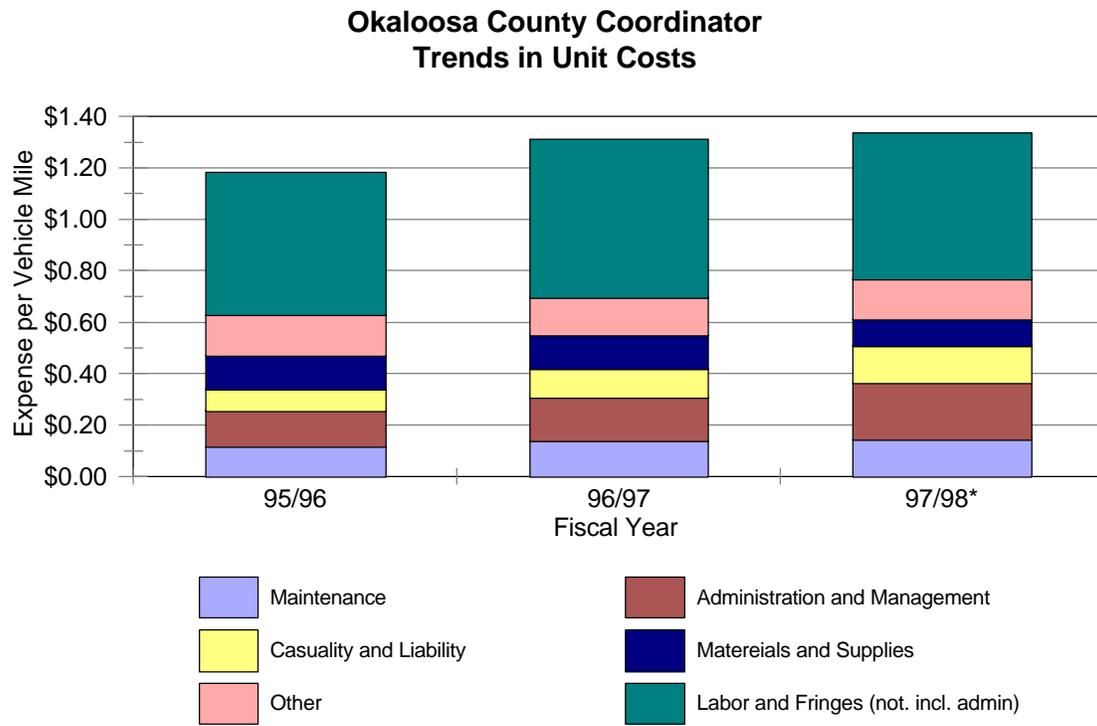
**Okaloosa County
Trends in Passengers per Vehicle Mile**



as the amount of client services expanded, resulting in more passenger trips. Operating costs generally are in proportion to clients carried, although the distance that each passenger is carried makes a difference, too. Costs did not decline in FY 1998, even though passengers and vehicle miles did, most likely because each remaining passenger was carried a longer distance.

Figure 35 showing the trend in unit operating costs for OCT (not including contractor expenses) shows that over the past three fiscal years as operations were scaled back, labor, maintenance, materials (including fuel), and other expenses were cut back. However, casualty and management expenses increased. In part the increase in management expenses may reflect OCT devoting some of its administrative efforts to contract services. Although the overall cost per mile is low and remained relatively constant over the past three fiscal years, decreases in labor costs and materials cost per mile were replaced by increases in administration and liability costs.

Figure 35 - Okaloosa County Unit Costs



Part 2: Route Structure/Market Potential for Fixed Route and Demand Responsive Service

Demand for public transportation derives from characteristics of the population and employment. Although the overwhelming majority of people in all socio-economic categories use automobiles, including surprisingly the transportation disadvantaged, it is the transit disadvantaged groups that create most transit demand in smaller and lower density areas (Pucher et al 1998). The transit disadvantaged include the elderly, the poor, children, and minorities. As areas grow in size, increasing congestion and parking scarcity on the destination end of trips prompts some travelers who have autos available also to use transit instead of driving. To assess transit demand, it is thus desirable to examine trends in population and income growth as well as concentrations of transit disadvantaged groups.

Table 4 shows population growth trends for counties containing the five transit systems of this study, while Table 5 shows growth trends in per capita income. In 1995 all counties were in the 100 to 200 thousand population range, but those in the south had grown between 60 and

Table 4 - Population Trends by County

Population By County (In thousands, rounded to hundreds)					
	Bay	Indian River	Martin	Okaloosa	St.Lucie
1975	89.9	47.4	49.5	102.4	71.2
1980	97.7	59.9	64.0	109.9	87.2
1985	119.5	76.4	80.9	136.4	116.2
1990	127.0	90.2	100.9	143.8	150.2
1995	139.2	100.3	112.0	162.7	171.2
Annual Growth Rate	2.21%	3.82%	4.17%	2.34%	4.48%

*1980 and 1990 are actual U.S.Census counts - Remaining years are estimates

**Source: Florida Statistical Abstract

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percent faster than those in the panhandle between 1975 and 1995. Not only did counties in the south grow more rapidly, but so did the incomes of two of them. By 1995 the per capita incomes of Indian River and Martin Counties were almost double that of St. Lucie County, sandwiched between them, and also almost double the incomes of the two panhandle counties. This was due in large part to wealthy retiree migrants making up much of the population growth of Indian River and Martin Counties. These figures suggest that demand for transportation disadvantaged service should be greatest in St. Lucie County, and greater in the two panhandle counties compared to either Indian River or Martin Counties. On the other hand, rapid population growth in all three of the southern counties may create demands for alternative transportation to denser activity centers. To say more about demand requires examination of each of the five areas.

Table 5 - Per Capita Personal Income by County

Per Capita Personal Income - Selected Counties 1975-1995										
Column	Bay		Indian River		Martin		Okaloosa		St. Lucie	
	A	B	A	B	A	B	A	B	A	B
1975	\$4,522		\$5,777		\$5,557		\$4,441		\$4,543	
1980	\$7,844		\$1,247		\$12,499		\$7,811		\$9,215	
1985	\$11,210	\$11,663	\$15,362	\$16,843	\$18,351	\$19,273	\$11,128	\$12,049	\$10,994	\$11,573
1990		\$15,091		\$25,418		\$28,894		\$16,269		\$15,142
1995		\$18,229		\$31,845		\$34,529		\$19,795		\$17,747

*Source: Column A: *Florida Statistical Abstract, 21st and 22nd Editions (1987 and 1988)*, Table 510 in both cases.

Column B: *Florida Statistical Abstract, 31st edition (1997), Table 510.*

Indian River County

The Transportation Element to the Indian River County Comprehensive Plan, adopted 17 March 1998, analyzes the fixed routes that existed before the service changes of 1997-98. It also identifies a critical transportation area around Vero Beach where a congestion management plan is required. While it examines transit as a possible solution to congestion, it rules transit out in the near future, primarily because the county does not have enough density. In particular, it notes that the county worked with the Council on Aging to develop a transit marketing plan, including the formation of focus groups of potential transit users. It then notes, "Based upon the results of those planning efforts, it appears unlikely that the County's fixed route system will be a viable alternative to the automobile for most County residents in the near future (p. 43)." It also notes that all users of the then-existing fixed route service were transit dependent, not surprising given the very limited hours during which it operates. It does see a possible role for transit in the future, however, because the County is promoting neo-traditional development which may increase densities in areas that transit can serve. The MPO's long-range planning effort was amended in the 97/98 UPWP to support transit development beyond the level required by the transit dependent.

The TDSP for 1998/99 also sees no role for transit as an alternative to congestion in the near future. It notes that population growth has come primarily from well-off white retirees with a high affinity for automobiles. It does estimate a large transit dependent population, however. Transportation Disadvantaged Category I Population includes all persons who are elderly, disabled, or low income. Category II Population is defined according to Chapter 427, F.S. to include all persons who are unable to transport themselves or to purchase transportation, and children who are high risk or at risk. The TDSP defines these categories as persons less than 16, those over 60, the disabled population, and others who cannot transport themselves. Based on these definitions, it estimates 50,298 TD category I persons and 27,142 category II persons (TDSP, pp. 30-31). The Transportation Disadvantaged Annual Operations Reports list the number of unduplicated passenger head count (paratransit only) in the course of a year. For fiscal year 1997-98 16,859 persons fell into this category, indicating that the system is used at

least some times by a large percentage of both TD I and TD II persons. It should be kept in mind, however, that the 1995 National Passenger Transportation Survey shows that the large majority of trips made by the young, old, poor, and minorities are in automobiles (Pucher et al 1998).

The following maps depict the relationship of the fixed route service to population and employment concentrations in Indian River County. These are the best data available at the TAZ level for Indian River County, because the Vero Beach area did not attain MPO status until after 1990, too late for the preparation of Census Transportation Planning Package data for the area. However, rougher population and employment data for 1990 are available from ZDATA 1 and 2 files, and were provided to the study by Post Buckley. For these tabulations, service and commercial employment from ZDATA 2 are aggregated to form a Trade category, which can be compared to a similar employment category from the Census Transportation Planning Package used for St. Lucie, Bay, and Okaloosa Counties.

The maps show that the fixed routes do what Karen Wood said they were intended to do: connecting most of the more important destinations together, represented by higher employment densities, but not directly serving all areas of higher population density. There are a number of low to mid-density employment density zones that are unserved, however. There also is an unserved higher density employment zone about a mile south of the East-West route in central Vero Beach, however. Most of the zones with low auto ownership also are low population density, suggesting that they may be inhabited by elderly in patio homes. There are a few zones with low auto ownership and high population density; these may be pockets of low income. Several zones in central Vero Beach, and TAZ 78, located about eight miles west of central Vero Beach, stand out in this regard.

Indian River Demographic Maps follow here

Martin County

The Transit Development Plan for the Martin County Metropolitan Planning Organization (1998) contains a thoughtful analysis of ridership potential for the existing service and various alternatives for service expansion. Its analysis is in three parts. One part is an analysis of aggregate person trip desire lines as forecasted by FSUTMS in the area's long range transportation plan. Another part is a calculation showing the transit disadvantaged potential of each block group in Martin County relative to the average for Martin County. The third part is a forecast of transit ridership for various transit development scenarios, based upon assumed ridership levels for each bus mile in each area of transit disadvantaged transit potential.

The determination of relative transit disadvantaged potential is made by tabulating where each census block group stands in comparison to the Martin County average for each of several socio-economic variables. The variables include densities for population, employment, persons 60 and over, 13 to 60, zero auto households, and impoverished households. The result is an aggregate statistic for each block group that tells the reader how each block group compares to the Martin County average in terms of aggregate transit disadvantaged potential. Block groups that are above average are those which the consultants believe should receive the most transit service.

With one exception, the results look very similar to the population and employment density by Traffic Analysis Zone, shown in the following maps for Martin County. The areas of greatest employment density occur in Stuart and in Jensen Beach. These areas, as well as some territory along U.S. 1 about five miles south of Stuart, also contain the higher population density zones, as well as the larger concentrations of persons 16 years old and younger. While no Traffic Analysis Zone in Martin County averages less than 1.1 autos per household, the largest concentrations of zero auto households also occur in central Stuart, Jensen Beach and in the south coastal area. The TDP authors conclude that these areas have the highest potential for producing transit traffic in Martin County, though it is important to keep in mind that the potential is relative to the Martin County average.

The exception is an area about 20 miles west of Stuart—the migrant farm worker community of Indiantown. Indiantown has its own Urban Services Boundary stretching about eight miles east to west and five miles south to north. The area within the boundary has scattered settlements. The one in the southeastern corner is quite dense and poor. The TDP accurately portrays the southeastern corner of Indiantown as an area of high transit dependent potential.

The TDP also presents a graphical representation of FSUTMS-estimated person-trips for the year 2020 between most pairs of 11 analysis zones covering all of Martin County and one zone in St. Lucie County. The figure does not show travel within zones, which at least for the Stuart zone probably is the largest demand in the region. Of what it does show, the largest person trip flows are forecasted to occur between Stuart and Palm City on the one hand, and St. Lucie County on the other (BRW, Figure 4.1). The forecasts are for all travel, but the TDSP also notes that social service agencies are being relocated from both Stuart and Ft. Pierce (in northern St. Lucie County), to Port St. Lucie in southern St. Lucie County and that the relocated agencies are causing increasing demand for Community Coach service to destinations in Port St. Lucie. Two other areas of heavy forecasted travel are between St. Lucie County and Treasure Coast Mall area, Stuart and West Stuart/Palm City.

To forecast actual transit traffic for various alternative scenarios of development presented in the TDP, the consultant uses two methods. The consultant assumes that

paratransit demand will grow proportionally to population growth, reaching 90,900 riders in 2002. It estimates ridership on fixed routes by estimating the number of vehicle miles operated in each census tract and then applying an assumed ridership per vehicle mile to the vehicle miles. The assumed rate varies from .5 riders per mile for rural zones, 1.0 riders per mile for low density zones, 1.5 riders per mile for moderate density zones, and 2.0 riders per mile for high density zones (by Martin County standards). While similar rates are observed on some smaller bus systems, the assumed rates greatly exceed the observed rate for Martin County's current bus service, which is about .25 passengers per vehicle mile. Whether fixed routes in Stuart would carry anywhere close to 2.0 passengers per vehicle mile can only be determined by demonstration. The current Stuart Express could be that demonstration if its hours of operation were stretched out to cover a full service day (BRW 1998, Chapter 4).

The breakdown of ridership on Martin County's various services for fiscal year 1996-97 is shown in Figure 36, whose source is the TDP (BRW 1998, Table 2-7). What immediately is apparent is that the local service in Stuart accounts for about half of total ridership. If costs are allocated to the various routes based upon estimates of the number of buses assigned to them (little more than guesses from the written descriptions of the services), the cost per passenger breakdown appears as in Figure 37. Figure 37 is a very crude approximation of cost allocation, made in Table 6, but it is unlikely that refinements would change the overall picture shown. The figure shows that the cost for carrying passengers within Stuart is a small percentage of the costs for carrying passengers for any other type of service.

Figure 36 - Martin County Distribution of Passengers by Service Area

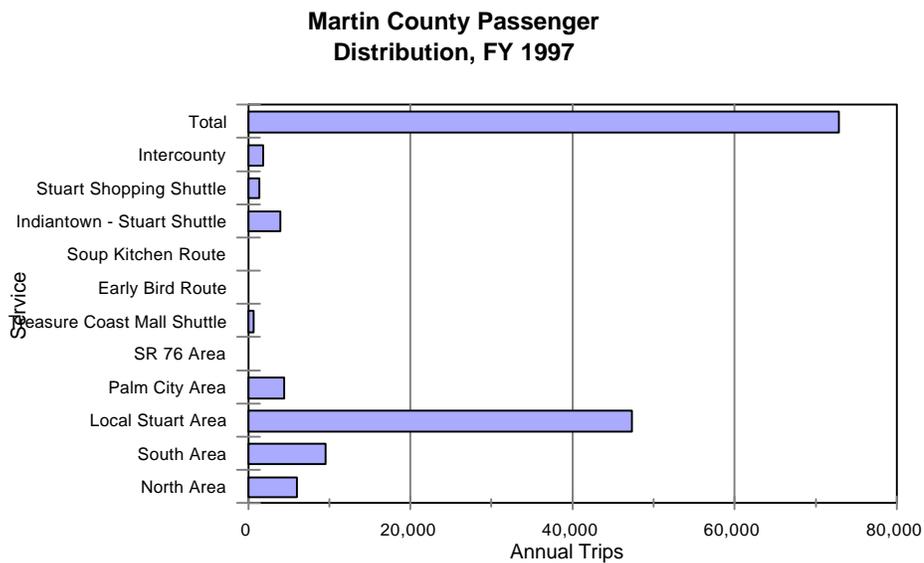


Figure 37 - Martin County Cost per Passenger Trip by Service Area

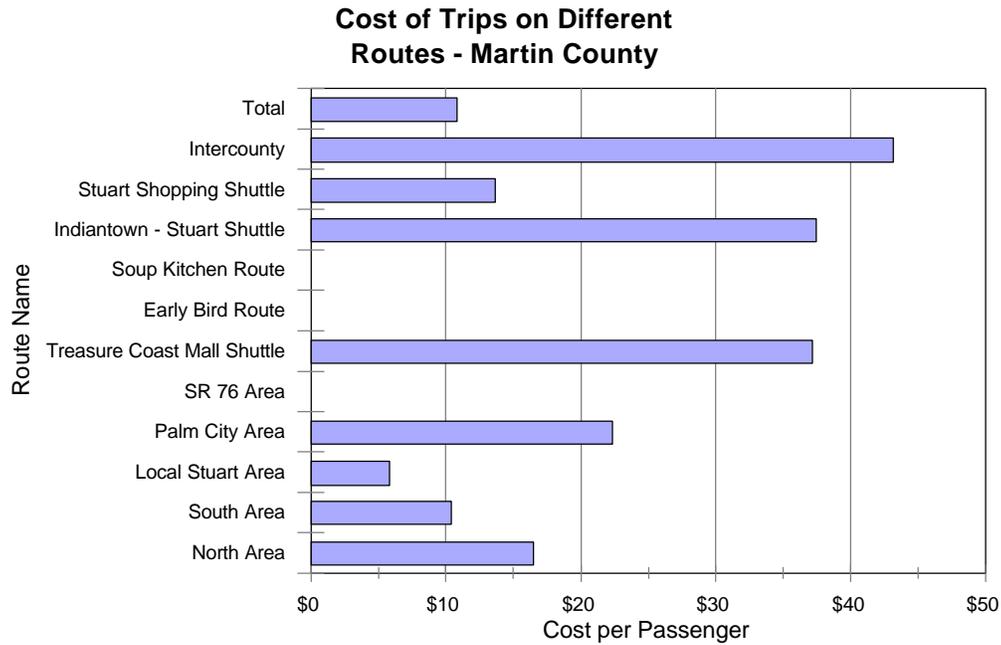


Table 6 - Estimation of Martin County Operating Expense per Passenger by Service Area

Martin County Council on Aging	Passenger and Cost Distribution to Type of Service, 7/1/96 - 5/31/97			
	Passenger Trips (11 months)	Daily Buses From Written Descriptions	Allocated Expense	Allocated Expense per Passenger
North Area	5,754	1.40	\$94,478	\$16.42
South Area	9,156	1.40	\$94,478	\$10.32
Local Stuart Area	46,977	4.00	\$269,938	\$5.75
Palm City Area	4,244	1.40	\$94,478	\$22.26
SR 76 Area			\$0	
Treasure Coast Mall Shuttle	364	0.20	\$13,497	\$37.08
Early Bird Route			\$0	
Soup Kitchen Route			\$0	
Indiantown - Stuart Shuttle	3,606	2.00	\$134,969	\$37.43
Stuart Shopping Shuttle	994	0.20	\$13,497	\$13.58
Intercounty	1,567	1.00	\$67,485	\$43.07
Total	72,662	11.60	\$782,821	\$10.77
Op. Expenses, 96/97			\$853,986	
11 month basis			\$782,821	
11 Mo. Op. Expenses per Bus (based on total)			\$67,484.53	

Source: Passengers from Martin County MPO TDP 1998: p.2-30; original source is MC COA

Martin County Demographic Maps follow here

St. Lucie County

Three studies contain references to mass transit ridership potential in St. Lucie County. These include the Transit Development Plan (BRW 1996), the Mass Transit Element to the Comprehensive Plan, adopted in January 1999, and a Mass Transit Element to the Long Range Transportation Plan, for which an RFP is being released. The St. Lucie MPO's Unified Planning Work Program for fiscal year 1999 budgets \$167,000 for mass transit planning. Outside of \$624,000 budgeted for study of the South Hutchinson Island Bridge, the mass transit element is the largest item in the work program.

The mass transit element of the comprehensive plan, adopted 9 January 1999, sees no prospect for transit (outside of paratransit) in their five year time horizon. The reason is low population density—only 1.2 persons per acre in the urbanized area, and less than 0.1 person per acre in the rest of the county. It does recognize a possible future need for fixed route transit in the urbanized area as population continues to grow, and it also notes the possible desirability of creating a transit district serving the urbanized areas in Indian River, St. Lucie, and Martin Counties.

The most thorough general public ridership analysis that has been done in St. Lucie County to date was done by the consultants who prepared the Transit Development Plan (BRW 1996). BRW was the same firm that prepared the Transit Development Plan for Martin County the following year, and they used the same method in both studies. That method is described in the ridership analysis for Martin County, and there is no need to repeat the description here, but a couple of additional summary comments about the method applied to both counties occur to us. The first is that the method shows relative transit potential for census tracts in terms of variables commonly assumed to be associated with transit use. The result is interesting but does not reveal absolute transit potential, which really is what is needed. It is possible that even the zone with the highest relative potential transit demand does not have enough absolute transit patronage potential to warrant the cost of transit service. Our analysis of census data done at the TAZ level, shown in the following St. Lucie County maps, show to a finer level of detail much the same information about relative transit potential, indicating highest potential centered along U.S. 1 linking Ft. Pierce and Port St. Lucie. Employment is in particular concentrated along the corridor. Again, however, the maps do not reveal absolute ridership potential.

Second, the consultants appeal to the FSUTMS output showing total person trip interchanges between various parts of St. Lucie County to gain insight into relative potential transit corridors. They could have used these figures to estimate transit traffic for different assumed route networks, but they did not go any further in this direction than saying that an assumption of a one percent transit modal split indicates a fair amount of transit traffic in the Fort Pierce to Port St. Lucie corridor.

Their ultimate estimate of transit traffic is not based on a ridership analysis at all, but rather on an assumption that each vehicle mile of scheduled transit service operated in the area of heaviest relative transit demand will generate up to 2.0 passengers, about 8-fold greater than what Community Transit's paratransit service achieves. The assumption is based on the observation that scheduled transit service in Brevard County operating in areas of comparable density achieve such load factors (BRW 1996, p. 104). Another assumption is that a sizable part of the existing paratransit trips that begin and end within three quarters of a mile of proposed fixed routes will switch to fixed route service, causing a sizable reduction in the scale of the paratransit system, and saving \$10.00 for every diverted trip. The savings would help pay for the fixed route service.

The BRW method strikes us as crude but at the same time thoughtful and the results plausible. We can think of no better method for estimating transit ridership potential other than a full-scale running of a transit analysis using models, either direct demand models, or those that are of the UTM family, such as FSUTMS, or by actually trying out the recommended fixed route concept for a couple of years. The main problem with the method is that it does not predict who the new transit riders will be. It is based on transit experience that certain types of service in certain types of environments will attract ridership in somewhat predictable volumes, but who are the riders, and what importance they have to society, no one knows. On the other hand, we do know who the transit riders are that will be disrupted.

As noted earlier the average cost experienced by Community Transit for transporting each passenger is about \$10.00. The Martin County experience suggests that there is a wide range in the cost of carrying different types of passengers, particularly in relation to the distance that they travel, but we have no data that enables us to even attempt to discern what the differences are.

St. Lucie County Demographic Maps follow here

Bay County Council on Aging and Bay Town Trolley

Transit demand forecasting in Bay County is similar to that for the other counties examined above. Again, the most thorough analysis occurs in the Transit Development Plan (CUTR 1997). For estimating paratransit ridership, the TDP uses methodology originally developed by CUTR for the Commission for the Transportation Disadvantaged. In using the method, one first estimates transit disadvantaged population in two categories and then applies annual trip rates to each category. The first category is the transit dependent population, to which program trips are assumed to be correlated. The second category is the potential transit dependent population, which includes the transit dependent population as well as all children and all elderly and all poor people who otherwise are not included in the first category. Demand for program trips is not a policy concern, because it is assumed that various programs will grow in proportion to transportation disadvantaged populations, and funding for those programs will pay for the cost of transportation as it is needed. On the other hand, the potential transportation disadvantaged population who are not in programs will want transportation, too. These people are the ones who create demand for non-sponsored transportation disadvantaged trips, and there are no programs to provide for them, other than the Commission for the Transportation Disadvantaged. Their demand is assumed to be proportional to their population. Overall, for FY 1995 the TDP (CUTR 1997) estimated a potential TD population in Bay County of 48,553 and a TD population of 11,799. Using the TD method, one comes up with an annual demand for paratransit trips in Bay County in FY 1995 for 289,711 trips, but the coordinator actually accommodated 173,015 trips, suggesting an unfulfilled demand of 116,696 trips (CUTR 1997, p. 204).

On the one hand these figures suggest that paratransit service should be expanded considerably. On the other hand, if we look at the FY 1995 Annual Operating Report a different picture emerges. The report for FY 1995 shows only 166 trip requests being denied out of a total number of 170,396. The FY 1996 report shows 98 trips being denied out of a total of 136,923 trip requests. This number falls to 58 out of 132,603 requests in FY 1997 and 0 out of 147,960 requests in FY 1998. The AOR figures suggest that in the overwhelming majority of cases, when persons need paratransit service, they get it.

The TDP presents three methods for forecasting fixed route transit ridership:

1. Peer analysis based on trips per capita. This analysis determines that the average annual trips per capita for the peer group is 2.62 (BTT's was 0.18 in FY 1996 and was about 0.54 in FY 1998) and then applies it to the BTT's population that is forecasted each year to FY 2001 within .75 miles of a route. This method indicates ridership for Bay Town Trolley of 229,447 for FY 2001, when population in that system's area is forecasted to be 87,565 (CUTR 1997, p. 194).
2. Peer analysis based on trips per vehicle mile. This analysis determines that the average annual trips per vehicle mile for the peer group was 0.78 trips per vehicle mile. Applied to BTT's vehicle mileage, this method indicates ridership potential of 77,175 trips for the existing system
3. Fare and service elasticities. This method cannot estimate potential ridership for the existing system, but if one assumes that the existing ridership is stable, one can use this method for estimating ridership changes in response to either small fare changes or small service changes (represented by changes in vehicle miles traveled). The TDP

cites a report showing a representative fare elasticity for a small system as -0.43 and a representative service elasticity as 0.61. The TDP then applies these elasticities to hypothetical fare and service level changes for BTT. This method indicates only marginal patronage changes to fairly drastic fare changes and marginal service changes. Of particular note, this method indicates that while service increases will increase patronage, they will do so less rapidly than service expansion, meaning that trips per vehicle mile (service efficiency) will perpetually worsen as the system is made ever larger. In general, though, elasticity methods give inaccurate results for forecasting patronage changes resulting from large service or fare changes (Meyer and Miller 1984; Manheim 1979). In the case of Bay County, service is so infrequent, irregular, and lacking convenient connections between routes (and is far less in vehicle miles per capita), I am convinced that its existing usage per vehicle mile is not a valid indicator of potential stable patronage, and thus the elasticity method does not apply here. Methods one and two, which CUTR appears to favor if service in Bay County were similar to that of its peers, and which is what consultants used for Martin and St. Lucie County TDPs, are more appropriate.

The TDP also shows start-up patronage, revenue mile, and trips per revenue mile trajectories over three year periods for two other small Florida systems. There is no consistent pattern, although both of the other systems have much larger first year ridership and trips per mile compared to Bay County. Finally, the TDP presents a case study of a start-up in Johnson City, Tennessee, in the mid-1980s. In 1994 the Johnson City system served a population of 49,381 and attracted 389,601 riders, indicating an annual riding habit of 9.9 transit trips per capita.

At first appearance, none of these methods yield results similar to the others, but on closer analysis methods 1 and 2 yield similar results if one takes into account widely different service levels between Bay County and the peer systems. In FY 1998, Bay County provided its citizens in the urbanized area 0.84 vehicle miles of fixed route transit service, while the peer mean was 3.8 times greater at 3.20 annual vehicle miles per capita. If Bay County provided each of its 87,565 citizens within the existing area served by Bay Town Trolley with 3.20 vehicle miles of service, the annual total vehicle miles would be 280,208. If each vehicle mile attracted 0.78 trips (method 2 above), annual ridership would be 218,562. This figure is very close to the 229,447 passengers estimated in method 1 above.

The similarity between the two methods shows that there are three interrelated issues pertaining to transit development in Bay County. One is how many vehicle miles the community will choose to support. The second is how well would the public make use of the miles. That is, if the community decided to improve service to the point where it was like service in its peer communities, would the improved service attract passengers to the same level as its peers? The third is whether the users of the system deserve the support necessary to get them to ride.

As mentioned under method 3 above, we believe that an elasticity analysis of BTT's existing patronage will not yield a satisfactory answer to the question of whether better service would attract more passengers per vehicle mile, because the elasticity method is valid for examining the results of only the smallest incremental changes to existing service. It theoretically cannot forecast results from major changes in service, and making BTT operate like its peers would constitute a doubling of service. From statements in the TDP, service in the peer communities is offered on hourly headways with timed transfers between routes. On the other hand, if Bay County decided to provide 310,000 vehicle miles of fixed service per year, about 15 percent more than what the average of its peers provide on a per capita basis,

planners in Bay County would have enough material to work with to make a system covering all of the territory now covered by BTT, but with hourly headways on all the routes except the beach route from early morning to early evening and with timed transfers. For this to happen without loss of coverage, the timed transfer center would have to be relocated from Target to the medical center close to downtown. This is because Target sits close to one edge of the service territory. The timed transfer center could be kept at Target, however, with some loss of coverage, or very great increase in operating expense (if 2 buses have to be used for routes that are marginally too long for one bus). The beach route would have two hour headways and would make timed transfers at the timed transfer point every second hour. If this were done, we believe that the service could attract 0.78 passenger trips per vehicle mile, and given the healthy increasing ridership for the existing service, probably more. Whether this magnitude of ridership is worthwhile or not cannot be addressed in this study but must be taken up in debates before the MPO.

The TDP contains one other major piece of analysis pertaining to demand for transit service. As do the TDPs for Indian River, Martin, and St. Lucie Counties, the TDP for Bay County analyzes volumes of census and economic data by census tract to determine transit potential for each tract. Based on synthesizing population densities, gender, ethnic, income, and auto availability indices for each census tract, the consultants classify all census tracts as either primary tracts (tracts far above average in indices of the transit dependent compared to all census tracts), secondary tracts (above average transit dependent potential), tertiary tracts (average potential), and all others. Only one tract is primary, and only one is secondary; both of these are in central Panama City. Six tracts have tertiary potential.

As in the other TDPs examined in this study, the Bay County TDP hardly makes use of the socio-economic data, obviously collected and mapped at great expense to fulfill some legislative requirement, other than to note that all three classifications of tracts with transit potential are served by the existing route structure (CUTR 1997, p. 200). This is not an important finding, because the issue in Bay County is not the coverage of Bay Town Trolley, but rather its frequency of service, its directness of routing, and its care in accommodating transfers between routes. We also have collected and mapped socio-economic data by TAZ rather than census tract, shown in the following maps for Bay County, and have come to conclusions similar to CUTR. The existing routes structure serves all of the traffic analysis zones with higher indices of transit dependency.

Where the maps do come in handy is in the art of laying out alternative route structures. The socio-economic maps assist the planner in linking high trip generators with high trip attractors. How well planners do in this regard can be measured by accessibility indices that make use of both the socio-economic data and the structure of the route layout (Thompson 1998 and 1999), but doing so requires coding transit networks, which is beyond the scope of this study as well as beyond the scopes of the TDPs analyzed in this study.

To illustrate what could be accomplished in Bay County, we drafted a hypothetical transit network for Bay Town Trolley based on the following objectives:

1. All routes would have one hour headways from 6:00 a.m. to 8:00 p.m., except for the interurban beach route, which would have two hour headways over the same time period.
2. All routes would make timed connections at Target on the hour (except the interurban beach route, which would make timed connections every two hours).

3. The route structure would be set up to make the following destinations easily accessible from all parts of the urban area:
 1. Panama City Mall
 2. Downtown Panama City
 3. Gulf Coast Community College
 4. Bay Medical Center
 5. Gulf Coast Medical Center
 6. Beaches

4. Both medical centers would be connected to each other, to downtown Panama City, and to Panama City Mall by a direct route.

Accomplishing these objectives would require some sacrifices in coverage, where the coordinated paratransit system would have to take up the slack. To provide hourly headways and make timed connections at Target, a bus setting out on any given route would have to return to Target in slightly less than one hour (or two hours in the case of the interurban beach routes). This means that the two routes to the southeast would not go quite as far as they currently do. On the other hand, full coverage to the southeast could be restored if a third route were added. The north route to Lynn Haven, which recently was discontinued on request of that community's mayor, would remain in the territory served by the coordinated paratransit system.

Such a system would require six buses, twice as many as the current BTT. Operating costs also would be about double existing costs, or about \$463,000. Financial implications for such a system are laid out in the chapter on financial analysis.

Bay County Demographic Maps follow here

Okaloosa County

The TDP (CUTR 1997) for Okaloosa County contains a chapter on demand which:

1. Uses the Commission for the Transportation Disadvantaged method for estimating transit disadvantaged population (10,961), potential transit disadvantaged population (44,634), and unmet paratransit demand (114,152 trips) (p. 149).
2. Uses a table of recommended residential household and commercial square foot densities for fixed route bus system, originally appearing in Pushkarev and Zupan (1976) to show that Okaloosa County densities are too low to warrant fixed use service, even of 60 minute headway.
3. Does not presents or analyze alternatives for fixed route bus service.
4. Rules out water-borne transit on the grounds that important origins and destinations are too far from the shore to make a system practical without supplemental (and costly) shuttle transportation.

Our examination of Annual Operating Reports shows that despite the unmet paratransit demand of 114,152 trips, OCT has accommodated almost every request for service. In FY 1998, for example, OCT was unable to meet 260 requests out of total requests of 93,270 (not including those for contractor trips). The probability that a request for a trip would have been denied in FY 1998 was 3 in a thousand. The probability that a person who requested a trip actually would stand the system up was four times greater. This suggests to us that there is not an unmet need for paratransit service.

In terms of demand for fixed route service, we note that densities of general population and transit disadvantaged populations are as high in Okaloosa County as in the other four counties that we examined. A comparison of the following Okaloosa County maps with maps of the other counties shows this. As shown earlier, Okaloosa County actually has the largest population of the five in this study, and because of Eglin Air Force Base occupying much potentially developable land behind the gulf and bay shores, the area in which Okaloosa's population and employment actually is concentrated is smaller. Moreover, there is a large number of service jobs along the shore, insufficient affordable housing, but a cluster of lower income workers living around Crestview north of Eglin Air Force Base, creating a demand for travel from north of the base to south of the base. These patterns can be seen in the Okaloosa County maps, including those for the Crestview area. The extent to which "objective" demographic figures warrant or fail to warrant fixed route services in the other counties in this study equally apply to Okaloosa County. The TDP correctly notes that the decision to implement fixed route transit is a political one, but one that we feel should be informed by an analysis of alternative route structures and levels of service for the county.

An examination of the distribution of population densities for various groups as well as employment density suggests that fixed route service should be considered for the crescent of development running from Destin to Ft. Walton Beach and then to Niceville. Three or four routes focused on a timed transfer center in Ft. Walton Beach is the pattern of service that suggests itself to us. Peak service linking Crestview to a timed transfer center in the Ft. Walton Beach area also might be considered.

Okaloosa County Demographic Maps follow here

Part 3: Rider Services

Rider Services: Indian River:

Fixed route information is conveyed by timetable and telephone information. There is no system map. The timetable dated 15 November 1998 is a set of xeroxed pages depicting the Sebastian Shuttle, the North-South routes, and the East-West routes. The experimental service is not included. Karen Wood, the Coordinator's general manager, stated that the schedule brochures are placed in club houses, shopping centers.

As to passenger amenities; there are designated bus stops, but not all of them have signs. The Coordinator places no benches, because the cities and the county do not want benches, apparently because of fear of encouraging loitering. There are benches at the main transfer center at Pochontas Park in Vero Beach, but these were placed there by the shopping center management. The Transportation Element of the County Comprehensive Plan reports that fewer than 20 percent of thoroughfare road miles have sidewalks (p. 14), and it recommends that the County apply for ISTEA enhancement funds as well as a one cent sales tax to build sidewalks for general pedestrian circulation (p. 41). Such improvements could improve transit stops in the future, and perhaps funds should be used explicitly for improving transit stops.

The system's general manager, Karen Wood (1998) stated that effective 1 July 1998 the fares were eliminated for the fixed routes. Previously, fares were \$1.00 for adults and \$.60 for seniors 60 and over. Children always were free. Wood noted that there is strong political support for free service—a feeling that fares killed demand. Prior to fixed route restructuring, people were calling in to go to work, on demand responsive, but there was no room for them. (Note: It is unclear to me how passengers would use the existing service to go to work, given its limited hours.)

Drivers of fixed route services do not assist passengers on or off the bus, nor do they load or unload belongings. Route deviation and driver assistance appears to have ended with the major route restructuring in November 1997. Passengers needing assistance can make use of demand responsive service.

Rider Services: Martin County

Barbara Timmerman, the Director of Transportation for the Martin County Council on Aging, conducts an aggressive schedule of activities directed at informing riders and potential riders of services as well as seeking funding and political support for Community Coach. She seeks out all agencies having transportation needs inquiring as to whether Community Coach could meet their needs for a fee, and she visits community organizations seeking support and/or publicity for Community Coach. She works particularly closely with organizations in Indiantown, where most residents do not speak English, and where many do not have phones.

The primary medium of information is a double-sided folder that shows all of the services that Community Coach offers. The folder shows general pick-up and return times for the five services offering door-to-door transportation and informs potential users that they need to make reservations via telephone (Transportation Hotline), with some reservations requiring a three-day lead. The brochure also gives pick-up times at designated stops for the several shuttles, including those in Indiantown, and informs potential users that no reservations are required of passengers waiting at stops. Community Coach distributes folders to all client-based organizations in Martin County, as well as to chambers of commerce, mall managements, medical institutions, senior centers, and other groups.

The Downtown Express, which began service on 17 December 1997 on two routes, is promoted by another folder, which is one-sided. The folder informs potential passengers that both routes operate from 11 am to 2 PM Monday through Friday, that one has roughly 15 minute headway while the other has roughly 10 minute headway, and that passengers may board at designated stops, which it lists for each route. Each stop is designated as a building or as a mall with no finer-detailed information. Passengers also may flag down shuttles, which are identified by pink "downtown express" signs. There is no map for this or any of the other services.

Bus stops in Indiantown and for the Stuart shuttles are marked. The system's operation director, Rick Ovens (1998) said that several need to be moved, though the reasons are not clear to me at this time. As noted earlier, the Council on Aging has limited or no funds that could be used for bus benches and shelters, though a social agency, Healthy Start, is contributing benches to stops in Indiantown. The Council on Aging is looking for funds for bus shelters in Indiantown. There does not appear to be an effort underway to provide benches or shelters for the Stuart area shuttle services.

Rider Services: St. Lucie County

Community Transit's Assistant Transit Director, Darrell Drummond, stated that system representatives make six presentations per month promoting the system. Presumably the presentations are to community and civic groups, as well as social service agencies. The system also runs ads in local newspapers, and it has prepared two types of folders describing the availability of service, and how one would go about using it. One type of folder is more general offers two phone numbers for service, depending upon whether prospective clients lived in the south or north parts of the county.

The other type of folder is printed in variations intended for residents in particular parts of St. Lucie County. One of the variations is directed to residents of Ft. Pierce and surrounding areas. It advertises the availability of service for medical appointments every week day between 9:00 a.m. and 2:30 p.m. and service for shopping in several area centers on different days of the week. Shoppers in most areas must be ready by 9:00 a.m., and they are allowed one and a half to two hours, depending upon the shopping center. The Ft. Pierce brochure also advertises the ability to travel to appointments in Port St. Lucie one or twice a day, depending upon the day of the week. It advertises the time that the bus will arrive in Port St. Lucie (10:00 a.m. and 12 noon) and asks clients to schedule appointments accordingly.

The other variation of the brochure is oriented to residents of the Port St. Lucie area. It largely is a mirror image of the Ft. Pierce brochure, except that there are three departures every day for Ft. Pierce, and residents are constrained to go to particular shopping centers, depending upon where they live.

The Downtown Business Association of Ft. Pierce, Inc. recently indicated an interest in helping to support a fixed route bus service linking Hutchinson Island with Ft. Pierce. The interest was motivated by the discovery that resorts on Hutchinson Island market Vero Beach as the village destination most relevant to their needs. The letter from Edward W. Fisher, President of the Downtown Business Association of Ft. Pierce, Inc., to Ed Scarlett, Director of Community Transit, dated 27 April, 1998, did not indicate what support would be offered, and Community Transit's reaction is not known. Such service was not included in the 1996 TDP proposals, because the TDP did not examine tourist-related transit demand. Based on the variables that the TDP did consider, there is almost no transit potential indicated for this corridor.

Management also determines the types of areas from which ridership comes and distributes folder racks in those areas. Finally, it gets business to advertise on buses. Because there are no fixed routes, there are no bus stops or shelters. Timetable and map information also is not needed.

The system spends part of its outreach efforts on social service agencies and programs that provide their own transportation to their own clients. Community Transit desires that such agencies confront the real costs that they are incurring in providing transportation and then contract with Community Transit to provide that service, presumably at a rate somewhat less than what the agency or program was spending on transportation.

Rider Services: Bay County

The Bay Town Trolley is marketed primarily by an attractive, glossy color map that shows bus routes for the whole urban area and timetables for each route. The map also provides an information number, fare schedule, and a picture of a typical bus stop sign and states clearly that there is no service on listed holidays, but it does not say that there is no service on Saturdays or Sundays. Finally, the map states that buses are air conditioned and accommodate bicycles and wheel chairs. The system circulates the map widely to all public libraries, all city halls, at the Panama City Mall, at tourist information centers, and at hotels.

In using the map, we found the timetables easy to read, but the map itself to be incomprehensible. It really is not a route map at all, but rather a diagram that shows the path followed by each of the three buses as it navigates around the urban area each day over six routes. The map is color-coded, not by routes but by bus runs, and it is intended to help the public by showing when they can get a bus that will take them directly from one route to another. This is a novel and useful feature, but in our opinion, too much else is lost in trying to convey that one piece of information. The map also does not show direction of travel of buses on one-way segments, nor does it indicate the location of stops that are listed in the timetables. We indicate what we believe is a more readable map format in the map contained in the executive summary, which is the illustration of an improved Bay Town Trolley.

The Bay Town Trolley as of October 1998 had signs at all but 15 of its stops. The signs show times that the buses arrive at each stop, although they do not indicate the absence of service on Saturdays, Sundays, and holidays. Although the TDP recommended the construction of eight bus rider shelters, self-financed by advertising revenue, none have been built. The TDP also called for the placement of bus benches, also self-financed by advertising, but few of these have been placed. According to Warner (1998), communities are opposed to advertising and thus will not allow the placement of advertising-financed passenger amenities.

We concur with the TDP in the recommended locations for shelters. These are at the major transfer center at Target, at the two medical centers, at two subsidiary transfer sites near the downtown, at Gulf Coast Community College, and two in the beach area. Transfer sites are important locations for shelters, as are major trip generators. A shelter also might be provided in the far South East, where passengers from even farther out could be dropped off at the bus, or where paratransit could interface with the bus. The city hall of Callaway, located next to the Callaway Plaza (Cherry and Tyndall), is an appropriate location.

The MPO staff has been very encouraging in making the Bay Town Trolley a success. The most recent funding grant extending the trolley experiment for another year required that the transit system embark upon an active marketing strategy. System staff have set up an active marketing committee with representatives from local business people, high school students, the college, the county chamber of commerce, and beach interests. The committee

has consulted media folks for communication ideas. High school students who do volunteer work for disadvantaged groups, exceptional kids in the words of Bill Warner, have become trolley supporters and made a moving presentation in support of the trolley at a meeting deliberating its continuation. According to Warner, they are children of influential people in the community and have been having an impact on building trolley support. The day after I spoke with Bill Warner, the trolley was to be featured in the high school home coming. Warner added that there is a big network of human services organizations in Bay County. The network is very helpful in getting the word out about the trolley as well as about the Council on Aging coordinated paratransit service. The system also makes itself felt through MPO committees. Sharon Burnett sits on the Technical Coordinating Committee of the MPO and also sits on the Bicycle/Pedestrian Committee of the MPO.

Rider Services, Okaloosa County

OCT maintains telephone call intakers who supply information, register persons wishing to ride, and enter trips requests. The system also distributes brochures to areas of the county with greatest usage of the system. Drivers also distribute brochures. OCT ran a TV ad this year aimed at the general public, but the ad produced no increased ridership and was discontinued after 13 weeks (Lovejoy 1998). This year the system also has been marketing itself to the general public as a means to reach concerts. General public users of the system are not required to register themselves with OCT before they are eligible for service; they pay a fare of \$1.23 per grid mile, presumably calculated by the driver. The financial section of the OARs show no fare revenues, but Christine Godwin (1999) states that fares are collected and are rolled into another budget account. Currently this is PSAs, interest income.

Drivers are trained to help passengers in and out of vehicles and to provide emergency assistance. There are no designated bus stops, benches, or shelters.

Passenger perceptions are deciphered several ways. Passengers sometimes phone in complaints or complements, and the operations manager responds to these. Client agencies do likewise. There also are surveys. The Local Coordinating Board periodically runs surveys. CUTR periodically runs surveys. The Commission for the Transportation Disadvantaged periodically runs surveys (Lovejoy 1998, Peterson 1998).

Ruth Lovejoy (1998) would like to obtain internship services from the University of West Florida Marketing Department not only to better market the system to the public, but also to forge a better link with the county commission. As of September 1998 she was in communication with the university marketing department to this end.

Buses still are painted in different colors, and the service identity is weak, according to Ruth Lovejoy. She intends improvements in these areas.

Part 4: Ridership Analysis

The section on route performance also addresses ridership analysis. Here we note further the composition of riders documented in the Transportation Disadvantaged Operations Reports.

Rider Composition: Indian River County

The Indian River County Council on Aging 1997-98 Transportation Disadvantage Operations Report shows that 84 percent of riders, presumably not including users of school bus trips, were elderly, three percent were children, and 13 percent were other. The breakdown is as follows:

Elderly, disabled	45 percent
Elderly, low income	22 percent
Elderly, other	17 percent
Children, disabled	0 percent
Children, low income	2 percent
Children, other	1 percent
Other, disabled	1 percent
Other, low income	12 percent
Other, other	0 percent

Thus, excluding school board trips, the market currently is primarily in four categories: elderly, disabled; elderly, low income; elderly, other; and adult, low income. The category, “elderly other,” is the only category that appears to correspond with general public ridership, although some of the elderly other may be medicaid riders. The report also shows that 29 percent of users do so for medical reasons and 66 percent do so for life-sustaining reasons, which I presume is visiting the store or engaging in other necessary personal business. Only four percent of riders used the service for nutritional reasons, and less than one percent for employment. The report also notes that 59 percent of trips are non-sponsored and identified as Council for Transportation Disadvantaged trips, while 13 percent are non-sponsored, identified as DOT trips (likely general public passengers). Only eight percent of trips are sponsored by Medicaid.

Thess figures, depicting ridership during the period when the fixed route changes were made, indicate that the claim made in the Transportation Element of the Comprehensive Plan that all fixed route riders are transit dependent likely continues to hold for the new route structure. It appears that the transit dependent ridership is increasing only modestly, and that general public use of the system is quite small.

Ridership Composition - Martin County

The Martin County Council on Aging 1997-98 Transportation Disadvantage Operations Report shows that 38 percent of riders were elderly, ten percent were children, and 52 percent were other. The breakdown is as follows:

Elderly, disabled	13 percent
Elderly, low income	21 percent
Elderly, other	04 percent
Children, disabled	00 percent
Children, low income	09 percent
Children, other	01 percent
Other, disabled	14 percent
Other, low income	22 percent
Other, other	16 percent

Thus, the market currently is primarily in five categories: elderly, disabled; elderly, low income; adult disabled; adult low income; and, adult other. Adult other likely approximates general public riding on the system. The report also shows that 15 percent of users do so for medical reasons, 36 percent do so for life-sustaining reasons, which I presume is visiting the store or engaging in other necessary personal business, 12 percent do so for employment, 9 percent do so for nutritional reasons, 5 percent do so for education and training, and 23 percent do so for other reasons.

Community Coach classifies only four percent of its riders being sponsored by DOT, although the “other, other” category suggests a greater percentage of general public trips than four percent. Forty-three percent of riders are sponsored by private agencies, which are unspecified, while 24 percent of riders are sponsored by non-private agencies that are unspecified. Only three percent of trips are sponsored by Medicaid. The report also notes that 11 percent of trips are non-sponsored and identified as Council for Transportation Disadvantaged trips.

Thess figures show a significantly different ridership from that of Indian River County,

even though both counties have similar demographics. In Martin County, while the elderly are a significant part of the ridership, they are not the dominant ridership, as in Indian River County. In Martin County non-elderly adults of all categories make up somewhat more than half of the ridership. Low-income riders, in all three age categories, also make up more than half the ridership, and the remaining nearly half of the ridership is split between disabled and other. What is surprising here is that 22 percent of the ridership is non-low income, non-disabled. These figures suggest that Martin County is attracting a significant ridership from the general population. However, the fact that the overwhelming majority of passengers are sponsored suggests that this is not the case.

Ridership Composition, St. Lucie County

The St. Lucie County Council on Aging 1997-98 Transportation Disadvantage Operations Report shows that 34 percent of riders, presumably not including users of school bus trips, were elderly, 42 percent were children, and 24 percent were other. The breakdown is as follows:

Elderly, disabled	08 percent
Elderly, low income	09 percent
Elderly, other	17 percent
Children, disabled	08 percent
Children, low income	27 percent
Children, other	07 percent
Other, disabled	10 percent
Other, low income	06 percent
Other, other	08 percent

Two categories account for almost half the ridership: low income children, and able-bodied elderly who are not poor. The remaining ridership is spread fairly evenly among all of the remaining categories. The report also shows that 32 percent of users do so for medical reasons, 11 percent do so for life-sustaining reasons, which I presume is visiting the store or engaging in other necessary personal business, 3 percent do so for employment, 8 percent do so for nutritional reasons, 43 percent do so for education, training, and daycare, and 3 percent do so for other reasons. Zero percent of the 304,000 trips are shown as sponsored by DOT. On the other hand, 32 percent of the ridership is able bodied and non-low income, which may be an indication of general purpose passengers.

Ridership Composition, Bay County Coordinator and Bay Town Trolley

Most people who use the coordinated paratransit system participate in social programs or agencies that contract with the coordinator for the provision of transportation that is incidental to the program or agency. The coordinator also receives funding for operations from the Commission for the Transportation Disadvantaged for the transportation of transportation disadvantaged persons who otherwise are not sponsored by an agency or program. The system also receives USDOT Section 5307 (formerly Section 9) funds for capital acquisitions (but not operations) and FDOT block grant moneys both for operations and capital. Receipt of such funds requires that the system also must accept demands from the general public, but it appears that in Bay County the separate fixed route bus system satisfies the general public requirement and that the coordinator does not accommodate general public transportation

demands.

All persons wishing to use the coordinated paratransit system must be registered with the coordinator, usually via the program or agency in which they participate. Non-sponsored transit dependent persons register on their own. According to Burnett (1998) and Warner (1998), eligibility requirements for the non-sponsored are not strict, perhaps too lax. They stated that the non-sponsored program suddenly has become popular to the point of becoming a problem. They added, however, that although they are running at maximum capacity, they have denied no one who wants service. Still, because of heavy demand, service quality is deteriorating, with wait times for many trip demands reaching an hour or more.

The annual operating reports for the Bay County Coordinated Transit System summarize characteristics of its riders. The report for FY 1998 shows 148,000 passenger trips categorized as follows:

Elderly, disabled	03 percent
Elderly, low income	10 percent
Elderly, other	11 percent
Children, disabled	01 percent
Children, low income	04 percent
Children, other	01 percent
Other, disabled	42 percent
Other, low income	25 percent
Other, other	05 percent

The tabulation shows that the system is used primarily by disabled and low income adults, and secondarily by low income and able-bodied senior citizens. Sixteen percent of the ridership is composed of elderly other and other other. These two categories approximate riding by the general public. The Bay Town Trolley also likely caters to the general public.

Those who inaugurated the Bay Town Trolley in FY 1996 anticipated that riders would come primarily from senior citizen and low income groups. As it has turned out, riders come mostly from low income, younger people. Surveys show that the typical passenger is an African-American female in her mid-30s going to school. The staff to the MPO have tabulated past surveys of trolley riders, and CUTR is conducting another on-board survey as part of its preparation of the new TDP. Although the typical passenger does not use the trolley for commuting to work, ridership none-the-less is most pronounced during peak periods. The largest trip attractor is the Panama City Mall, near the focal point of the system. Bill Warner characterized the trolley ridership as a core of very dedicated riders who desire better service but understand the constraints under which the system operates (Burnett 1998 and Warner 1998).

As a promotional effort, the Bay Town Trolley is free on the first Tuesday of each month. For the first couple of years free Tuesdays were the heaviest traffic days. Now, however, traffic on any week day is similar to that on free Tuesdays, and free Tuesdays are no longer the heaviest traffic days of the month consistently (Burnett 1998 and Warner 1998).

Ridership Composition, Okaloosa Community Transit

Most people who use the coordinated paratransit system participate in social programs or agencies that contract with the coordinator for the provision of transportation that is incidental to the program or agency. The coordinator also receives funding for operations from the

Commission for the Transportation Disadvantaged for the transportation of transportation disadvantaged persons who otherwise are not sponsored by an agency or program. The system also receives USDOT Section 5307 (formerly Section 9) funds for capital acquisitions (but not operations) and FDOT block grant moneys both for operations and capital. Receipt of such funds requires that the system also must accept demands from the general public. The system has not made an aggressive effort to reach the general public, and it appears that any member of the general public wishing to use the system must register with OCT by phone before making trip requests. However, the Ruth Lovejoy (1998) is trying to obtain a marketing intern from the University of West Florida, both to market the system to the general public as well as improve visibility of the system before the board of county commissioners. Recently the system has been promoting itself primarily to senior citizens as a way of attending evening concerts (Godwin 1998).

All persons wishing to use the coordinated paratransit system must be registered with the coordinator, usually via the program or agency in which they participate. Non-sponsored transit dependent persons as well as members of the general public presumably register on their own.

The annual operating reports for the Okaloosa County Coordinated Transit System summarize characteristics of its riders. The report for FY 1998 shows 116,102 passenger trips categorized as follows:

Elderly, disabled	11 percent
Elderly, low income	07 percent
Elderly, other	08 percent
Children, disabled	01 percent
Children, low income	25 percent
Children, other	07 percent
Other, disabled	11 percent
Other, low income	11 percent
Other, other	19 percent

The largest category of users is low income children, followed by adults who are neither poor nor disabled. Non-elderly adults who are poor or who are disabled also use the system, as do the elderly disabled. These figures suggest that a substantial component of the system's ridership is the general public, while the system also is important to transportation disadvantaged groups.

Part 5: Maintenance Analysis

Indian River County Council on Aging

The Indian River County Council on Aging *Service Plan for the Transportation Disadvantaged* (1998) contains a vehicle inventory (pages 59 and 60) for 1998 indicating the characteristics of each vehicle, and date purchased, the then-current mileage, and the anticipated date of replacement. The inventory shows 25 vehicles in total, with three being Ford diesel buses, each seating 18 passengers, two being gasoline trolleys (actually shuttle buses designed to resemble historic streetcars) seating 25 passengers each, and most of the balance being gas-powered vans, each seating 13 to 18 passengers. The Ford buses and many of the

vans have one to three of the seats designed to accommodate non-ambulatory passengers, and the oldest vehicle in the system can accommodate a stretcher. Nine of the vehicles were purchased in 1997, six in 1996, and six in 1995. Diesel buses and the trolley-like shuttle buses are listed with service lives of seven years; the remainder four years. Four of the vehicles were past their scheduled retirement dates.

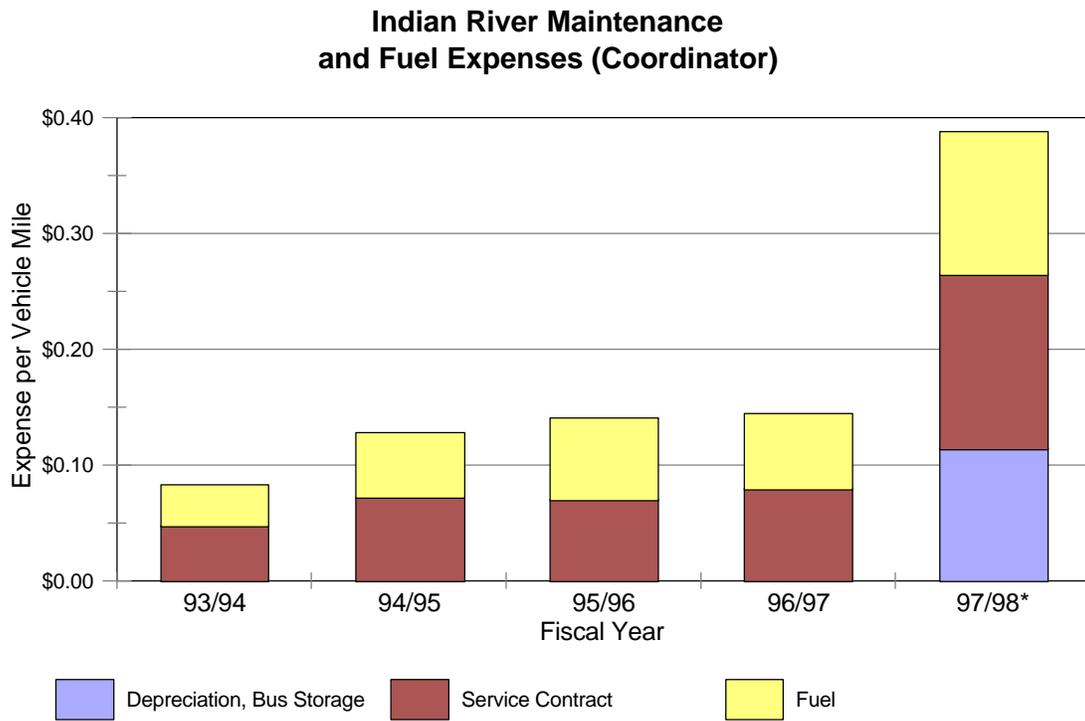
Over the past three years there were 21 road calls and 3 accidents in fiscal year 1995/96, 14 road calls and 5 accidents in fiscal year 1996/97, and 18 road calls and 7 accidents in fiscal year 1997/98. It is not clear whether the road calls apply only to the Coordinator or to the Coordinator and contractors. The trend in accidents is clearly up; the trend in road calls depends upon which operators to which they apply. If they apply only to the Coordinator, the road calls per mile of service increased over the past year.

The Coordinator's general manager, Karen Wood (October 1998) stated that the system as of October 1998 owned 26 vehicles, indicating that at least one has been purchased since the inventory. She also said that the system used between 16 and 19 vehicles each operating day and that the system contracts with the county (presumably Public Works) to maintain them at a rate of \$25.00 per hour. Presumably vehicle dealers maintain vehicles under warranty for two to three years after purchase, though Karen Wood did not state this. She did say that the Coordinator has a preventative maintenance program in place, requiring vehicle inspections each 4,000 miles and major annual inspections. The TDSP (1998, p. 77) states that a log is kept on each vehicle, indicating types of inspections, maintenance and lubrication services, and mileages and that maintenance records are kept for at least four years.

It is not clear to us whether any of the Coordinator's employees is devoted to maintenance, or whether Karen Wood handles maintenance management as part of her operations responsibilities. None of the system's salaries, wages, and fringes are allocated to maintenance.

Figure 38 shows cost trends for contract maintenance, materials (mostly fuel), and charges for the bus storage area. What is unusual is the large increase in cost per vehicle mile in every category for FY 1997/98. At that time most buses in the fleet were near-new, so one would expect maintenance costs per mile to decline, both due to the newness of the buses as well as their being under warranty. One also would expect fuel costs to go down, since fuel prices in general were declining during this period. At this point the cost increases are unexplained. The price of fuel has been declining nationally over the period, so the increases shown here are difficult to explain. The large increase in the service contract also is difficult to explain.

Figure 38 - Indian River Maintenance and Fuel Expenses per Vehicle Mile



Martin County Council on Aging

As of October 1998 Martin County Council on Aging owned 28 vehicles, 24 of which were classified as buses, and 18 of these were lift-equipped. Twenty of the buses are Ford diesels on Ford chassis, purchased new, and two are Ford gas buses. Nine of the Fords seat 14 passengers; most of the rest seat 16, though one seats 12 and another 24. There also are two Chevy gas buses, each seating 24 passengers. As of October 1998, the Coordinator's vehicle roster showed that the two Ford gas buses dated from 1994, five Ford buses dated from 1995, the two Chevy buses and three Ford buses dated from 1996, eight Ford buses dated from 1997, and four Ford buses dated from 1998 (System Vehicle Roster, 1998). The system's roster notes, "All vehicles are rotated on demand response and deviated fixed routes."

Over the past three years there were 10 road calls and 10 accidents in fiscal year 1995/96, 9 road calls and 2 accidents in fiscal year 1996/97, and 19 road calls and 1 accident in fiscal year 1997/98. Road calls were up in the past year; accidents rates for the past two years have been low.

Each Ford bus has a 3-year, 36,000 mile warranty, during which time the local Ford dealer maintains it. After the warranty period, the Coordinator contracts with Martin County Public Works Department motor pool shop for maintenance of each vehicle, on an hourly-reimbursed basis. The motor pool shop maintains county vehicles, except police and fire vehicles, which are maintained by their respective departments. Before 1992 Community Coach contracted with the school board at the rate of \$12.00 per hour. When the School Board canceled the agreement, Community Coach contracted with Martin County Public Works at \$25.00 per hour (TDSP). Later (it is not clear when), Public Works raised the maintenance rate to \$38.00 per hour (TDSP, p. 96).

A preventive maintenance program requires 3,500 mile checks, though Ovens said that he would like to increase the interval between inspections to 5,000 miles. Problems that arise on the road are addressed as soon as the Public Works shop can get to them. Ovens added that he farms out air-conditioning, hydraulic lift, and transmission maintenance.

Ovens said that the county rates are comparable to other shops in the region, but he also added that the county had been raising the rates. As the county garage loses other business, such as police and fire vehicle maintenance, it reallocates fixed and operating expenses to the Coordinator. Ovens said that he keeps mileage records on each vehicle and also keeps maintenance and repair records on each vehicle. Maintenance bills are kept in folders for each vehicle. The system assigns each bus to a driver, in order to motivate drivers to extend greater care in the operation and cleanliness of vehicles.

The spare ratio is determined by the number of drivers available to operate buses. As of October 1998 there were only 17 drivers, including the lead driver, so only 17 vehicles were scheduled. Ovens would like to schedule 18 vehicles per day.

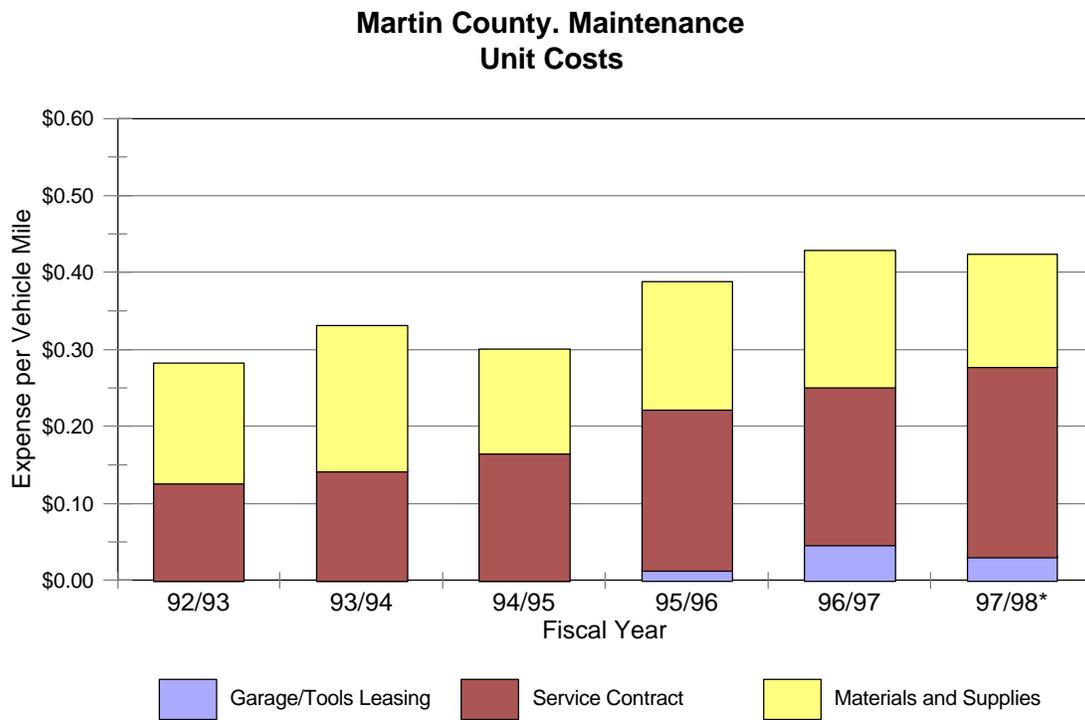
Ovens said that there is no procedure in place for replacing old buses except as may be required by grants. The roster of vehicles shows a retirement date for each vehicle in the fleet, indicating that buses are expected to be retired after seven years of service. The Coordinator disposes of old vehicles by selling or donating them.

There are no staff members of Community Coach assigned to maintenance. Ovens directs overall maintenance activities and keeps its records, which he does alongside his responsibilities as director of operations. No staff salary or wages are assigned to maintenance; Ovens' salary and fringes are allocated to management.

Figure 39 shows trends in maintenance and fuel expenses. The most obvious trend is the increasing share of total maintenance and supplies budget taken by the maintenance

service contract with the county. The service contract per vehicle mile has about doubled between 92/93 and 97/98, while the cost of materials per mile has decreased modestly. Part of the service contract increase also may be due to the larger number of road calls in fiscal year 1997/98. The decline in materials expense per mile is easy to decipher: this category is made up mostly of fuel, and nationally fuel prices have declined over the period. The reason for the garage/tools leasing category is unclear, since maintenance is contracted out.

Figure 39 - Martin County Maintenance and Fuel Expenses per Vehicle Mile



St. Lucie County Council on Aging

In July 1998 the Florida Department of Transportation, District Four, conducted a safety compliance review of St. Lucie County Council on Aging. The review appears to have focused on Community Transit and succinctly summarizes maintenance procedures:

St. Lucie County Council on Aging uses the State of Florida Department Bus Fleet preventative maintenance and inspection form that is based on mileage. Intermediate maintenance and bus safety inspections are performed at 6,000, 12,000, and 24,000 miles.

All drivers are responsible for proper maintenance of the vehicle to which they are assigned. A daily pre-trip and post-trip inspection must be completed before the vehicle parking yard (p. 4).

If drivers discover problems in their pre- or post-trip inspections, they fill out a maintenance request form, which they submit to their supervisor. The supervisor then determines whether immediate maintenance is needed or whether the vehicle should continue in operation but be scheduled for maintenance. The report further states that the system keeps four types of maintenance records:

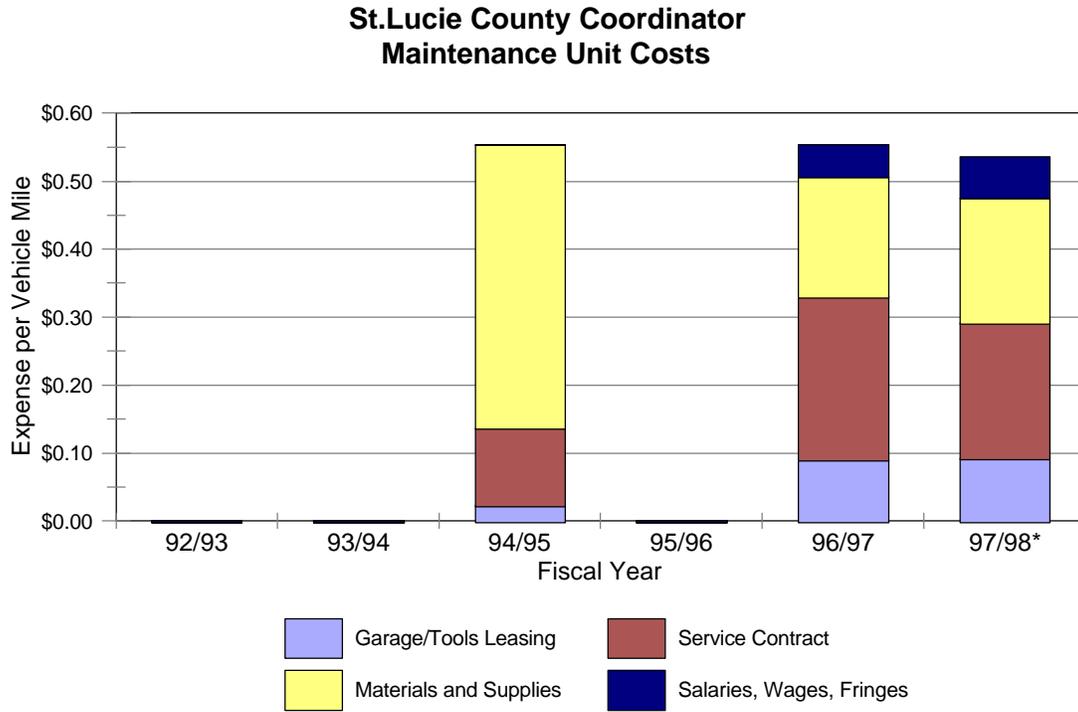
5. Types of maintenance, inspection;
6. Intervals at which maintenance is to be performed;
7. Performance of preventative maintenance; and,
8. Information require in 14-90.004 (d).

All maintenance is contracted out, but the system does earmark part of its management salary and benefits to maintenance. The FY 1998 Annual Operating Report shows \$23,465 in labor and \$6,229 in fringe benefits allocated to vehicle maintenance, suggestive of one management employee devoted to maintenance oversight. The principal contractors include Freightliner Trucks of South Florida (preventative maintenance), Sunrise Ford (for warranty service), and Yavorsky's Truck Service, Inc.. Labor rates are \$35.00 per hour (Drummond 1998).

As of October 1998 Community Transit owned 40 vehicles, according to its then-current roster sheet. The roster shows 37 vehicles but indicates in pencil the arrival of three additional vehicles, with none of the others being retired. The FY 1998 Annual Operating Report shows that the system owns 47 vehicles. There were 24 road calls and 9 accidents in fiscal year 1996/97 and 37 road calls and 4 accidents in fiscal year 1997/98.

Figure 40 shows trends in maintenance and fuel expenses. The materials and supplies category was in fiscal year 1998 composed 78 percent fuel and 22 percent in other. The previous year materials and supplies were composed 87 percent in fuel and 23 in other. In fiscal year 1994/95, however, fuel, lubricants, and tires accounted for 39 percent, inventory purchases (agency match) accounted for 48 percent, and other accounted for 13 percent. The most obvious trend is the increasing share of total maintenance and supplies budget taken by the maintenance service contract with the county. The service contract per vehicle mile more than doubled between fiscal years 94/95 and 96/97. The opening of a the second operations center in Port St. Lucie may account for the substantial increase in garage/tools leasing. The fact that total maintenance expenses per mile have had a slight downward trend may indicate some trade-off between categories in different years.

Figure 40 - St. Lucie County Unit Maintenance and Fuel Expenses



Bay County Council on Aging

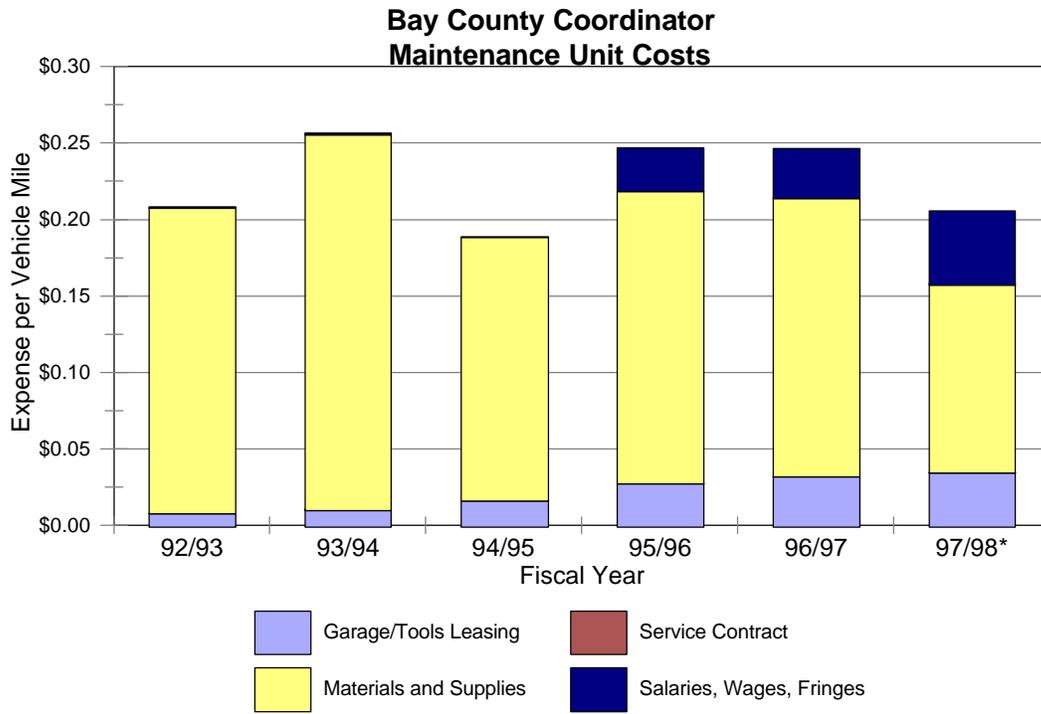
Of the systems examined Bay County is the only one that has its own maintenance facility. Last year, using what Bill Warner termed "MPO funds" (presumably Section 5307 and state block grant funds), as well as land that the county donated, the system built an administrative center, 3-bay shop, and purchased various tools to serve the 47 vehicles used both by Bay County coordinator and Bay Town Trolley. The system also hired a maintenance service manager, who is a certified master mechanic, and two other full-time mechanics. All maintenance is done in one full-day shift each day. Bill Warner believes that this arrangement is cheaper than using dealerships to provide maintenance. The maintenance staff undertakes preventative maintenance, using a master board on which mileage for each vehicle is indicated, to schedule vehicles. The maintenance staff also receives vehicle inspection sheets from drivers and schedule work accordingly.

Some points about the maintenance arrangement remain unclear. One is how costs, particularly capital costs, are split between the coordinator and the BTT. Because we as of yet have no cost breakdown for BTT, we address this question. A second question concerns work that is too involved for in-house maintenance. As the system purchases more tools, it needs to farm less work out, but it still has to farm some work out. In Figure 41, which show maintenance cost breakdowns from the Annual Operating Report for the coordinated system (does not include Bay Town Trolley), we can find no cost account that indicates contract maintenance for work farmed out.

Currently the system owns 47 vehicles all powered by gasoline engines. Warner said that he is satisfied with the gas vehicles for coordinator service but thought that diesels might perform better for fixed route service. Thirty-two of the vehicles have 14 or more seats (up to 25), and 29 of these are equipped with lifts. Four trolley type buses (all Fords), purchased in November 1995, cost \$93,871 each at that time, while 22-seat Ford buses purchased a year later cost \$43,814 each. Presumably the 22-seaters are lighter duty vehicles. The 1997 TDSP vehicle inventory shows 46 vehicles, make, seating capacity, purchase date, cost, and funding agency. In all instances the funding agency is listed as the MPO. The inventory does not indicate when the vehicles are due to be retired.

Figure 41 for Bay County indicates a very low unit cost for Bay County. The large drop in unit costs in FY 1998 reflects the opening of the new garage. As noted above, however, we currently are uncertain whether the figures capture the full maintenance expense story and need to know about contract maintenance as well as division of maintenance costs between the coordinator and Bay Town Trolley.

Figure 41 - Bay County Unit Maintenance and Fuel Expenses



Okaloosa Coordinated Transportation

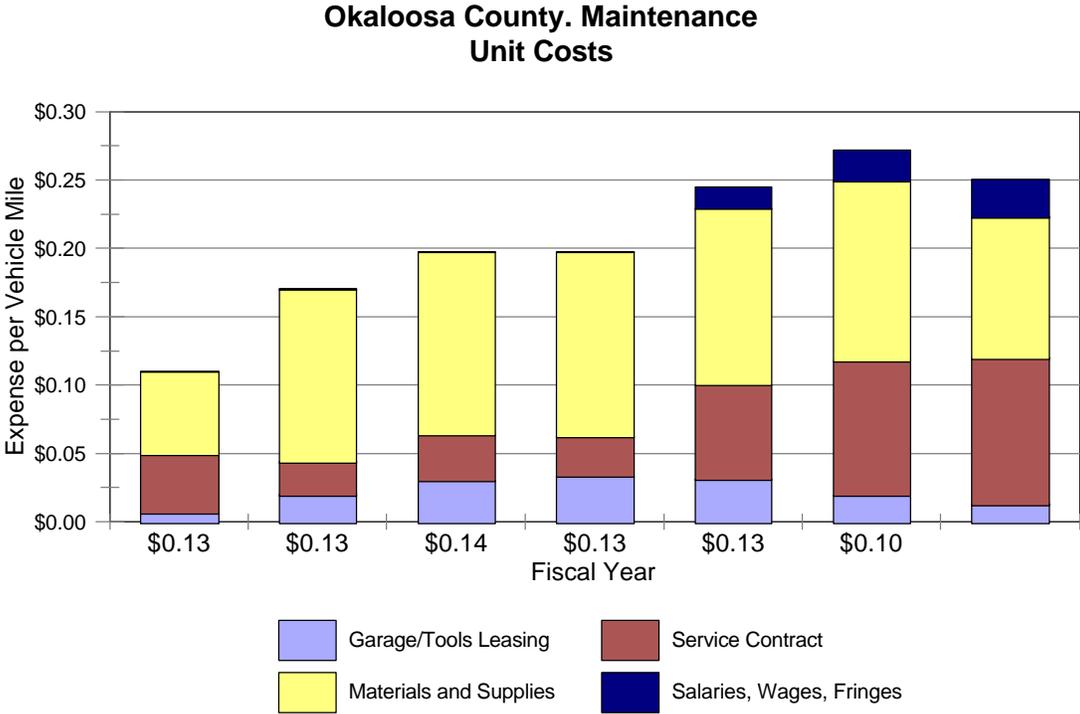
OCT currently operates a fleet of 45 vehicles, though private operators operate an additional seven (TDSP 1997; Godwin 1999). The system does not have its own maintenance facility, though it does have programmed the construction of a 3-bay garage that will conduct routine preventative maintenance. OCT also employs a maintenance supervisor. OCT owns three 30-passenger and one 25-passenger diesel buses purchased new in 1995. The remaining vehicles are gas vans and mini-vans. Most of those purchased before 1997 have four to six seats, but 13 vans purchased in 1997 have 12 or 15 seats. Another van purchased in 1996 is a 16-seater. Peterson (1998) said that he would like to convert the fleet to one that is all-diesel. Most of the vehicles were purchased with federal Section 5307 funds.

OCT contracts with private garages for maintenance at a rate of \$42.00 per hour. Holmes Auto in the south end of the county does heavy work and also handles road calls. It does drug testing, too. At the current time OCT believes that private contracting produces higher quality work at lower cost than alternative arrangements. OCT gets priority, high-quality service, and the work is guaranteed. Currently the county is acquiring land for the construction of a new shop; eventually, the coordinator hopes to have its own mechanics working in the shop.

Figure 42 presents trends in maintenance unit costs. The service contract trend may be misleading as it currently stands. Before FY 1996, maintenance service was shown as a separate line under Professional and Technical services. Beginning in FY 1996, maintenance service expenses were no longer identified in the AORs. We assumed that the entire amount in Professional and Technical Expenses went to maintenance, but this may be in error.

Despite the higher labor rate charged by the private contractor that OCT uses, overall maintenance expenses are as low or lower than those for the other systems that we examined. The maintenance program appears to be effective, as well. The system had 8 road calls and 2 accidents in FY 1998, 13 road calls and 4 accidents in FY 1997, and 9 road calls and 11 accidents in FY 1996.

Figure 42 - Okaloosa County Maintenance and Fuel Expenses



Chapter 4 - Financial

Whether transit service can continue at its current level or expand depends on trends in each system's operating and maintenance expenses in comparison to growth in funding sources. This section examines the ability of existing funding sources to fund each of the five transit systems at their present level of operations per capita over the next 10 years. It is assumed that service of each system will match population growth but will not expand in extent or quality or type. It also is assumed that each system's operating costs per vehicle mile will continue increasing in accordance with past trends. Finally, each funding source for each system is assumed to grow or decline in proportion to past experience, or in accordance to projections in the transit development plans.

Indian River County Council on Aging

The financial analyses contained in the Indian River County Metropolitan Planning Organization Transit Development Plan (1995) and TDP Minor Update (1998) consist of estimates of capital needs for five years into the future and growth in estimated funding sources. Though the plans do not show by how much bus miles will grow, the plans assume that the expansion is modest and can be financed within the forecasted growth of funding.

There seem to be several implicit assumptions in the funding growth forecasts. Although Section 5307 funds could vary widely from year to year and cannot be predicted, the TDP assumes that they remain at \$508,000 per year, with \$172,720 earmarked for capital and the balance of \$335,280 for operations. Another assumption is that toll revenues collected in the county can be used as a "soft match" for Section 5307 capital funds, reducing the total capital funds that can be used. The third assumption is that local revenues and state block grant revenues together will be larger than the required 50 percent match for the \$335,280 annual allocation of Section 5307 operating funds and will grow slightly, reaching \$536,406 for FY 2002/03. The fifth assumption is that the revenues will be more than sufficient to meet the capital and operating needs of the system for the five year period, though the plan does not identify the operating needs.

The TDP Minor Update bases capital need primarily on new vehicles to be purchased each year, both to replace existing vehicles as well as to allow for system expansion. It does not differentiate between replacement and expansion vehicles, however, so that it is impossible to determine whether the forecasts in vehicle purchases are based on what the consultants think the system can afford rather than what it will need.

To estimate trends in operating and capital expenses in comparison to growth in funding sources, we generally follow the approach used in the TDP, but we do introduce some changes primarily in estimating operating and capital expenses. We estimate that total vehicles miles will expand in proportion to forecasted population growth. We assume that new buses will need to be purchased in proportion to vehicle mile growth, and we use vehicle retirement rates from the Indian River County Board of County Commissioners *Service Plan for the Transportation Disadvantaged Fiscal Year 1998-1999* (1998).

The TDSP contains a vehicle inventory (pages 59 and 60) for 1998 indicating the characteristics of each vehicle, and date purchased, the then-current mileage, and the anticipated date of replacement. The inventory shows 25 vehicles in total, with three being Ford diesel buses, each seating 18 passengers, two being gasoline trolleys (actually shuttle buses

designed to resemble historic streetcars) seating 25 passengers each, and most of the balance being gas-powered vans, each seating 13 to 18 passengers. The Ford buses and many of the vans have one to three of the seats designed to accommodate non-ambulatory passengers, and the oldest vehicle in the system can accommodate a stretcher. The inventory does not indicate purchase cost, but the TDP and Minor TDP Update indicate that buses cost about \$60,000 each, vans about \$37,000, and trolley-type buses about \$98,000 each. The TDSP also indicates that the coordinator anticipates that vans have a service life of four years, while buses and trolley-type buses have service lives of seven years.

The TDP presents figures from BEBR showing a population growth rate to 2010 from 1995 at an average of a little more than two percent per year, considerably less than the historic growth rate presented earlier. We expand FY 1998 bus miles for both the Coordinator and the contractors from the BEBR annual rate of population growth.

Past trends tell us that with the passage of time, unit operating costs per vehicle mile also increase. Unit costs have fluctuated widely in Indian River County over the past several years as shown earlier, and total system costs have increased. For the purposes of forecasting we use observed unit costs for both the Coordinator and contractors for FY 1998 and then inflate these at the rate of 3.67 percent per year, the rate of growth in Martin County (which appears to be steady). We use an inflation factor of 3.0 percent for the cost of vehicles, that we assume averaged \$50,000 per vehicle in 1998.

In estimating revenues, whose historic growth is shown in Figure 43, we use the FY 1998 Florida Governor's Apportionment of Section 9 Funds for both capital and operations and hold those amounts constant each year into the future. These figures are comparable to those used in the TDP. We also use the 1996 Public Transit Block Grant Distribution through FY 2003 and inflate the block grants each year thereafter at the annual rate of nine percent, which is the approximate rate of growth in the distribution before FY 2003. We also assume that 80 percent of the cost of buses purchased in a given year will come from Section 5307 funds and the local match will come from state block grant funds rather than from credits for tolls. State block grants not used for vehicle purchases may be used for operating support. As to local support, we assume that most categories will inflate at three percent per year, but we hold fare revenue constant because of the Coordinator's current policy on fares.

The results, shown in Table 7 and Figure 44, indicate that existing funding sources are insufficient to meet both capital and operating needs of the existing system, expanded with population growth. Over the ten years of the forecast period, the cumulative operating deficit will exceed \$2,500,000 and the cumulative capital deficit will exceed \$800,000. New sources of revenue will need to be forthcoming, or the rate of unit cost growth rate (not excessive in our opinion) will need to be reduced, to maintain the existing system, let alone expand it into a larger, general purpose transit system. The figure shows that total transit funding has not increased in recent years. However, reduced funding from local, non-government sources has been replaced by increased funding from state block grants.

Figure 43 - Indian River County Transit Funding

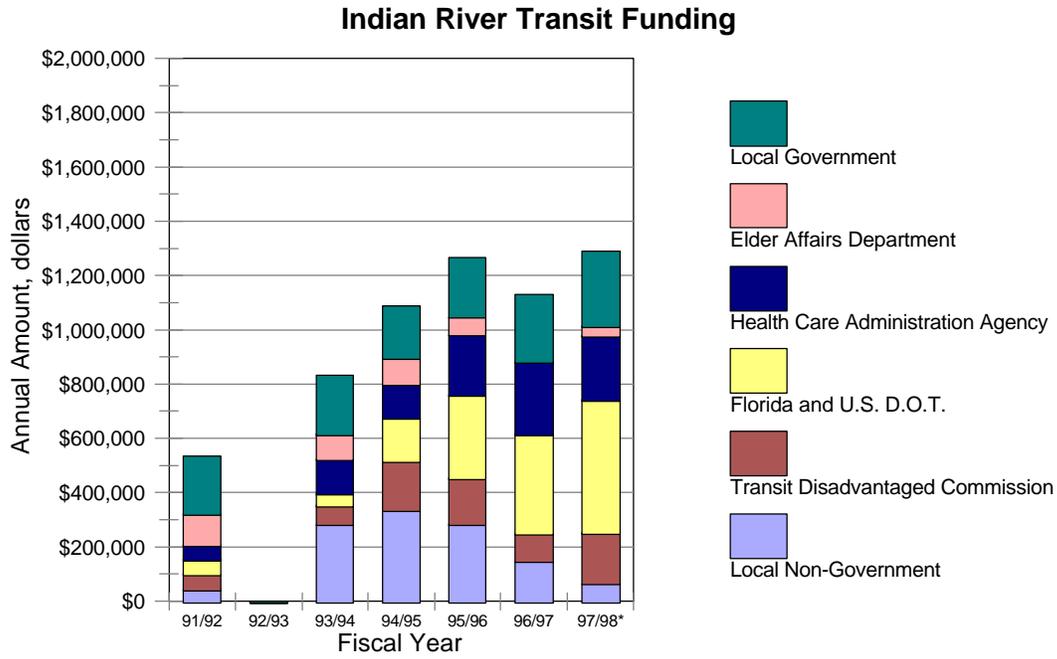
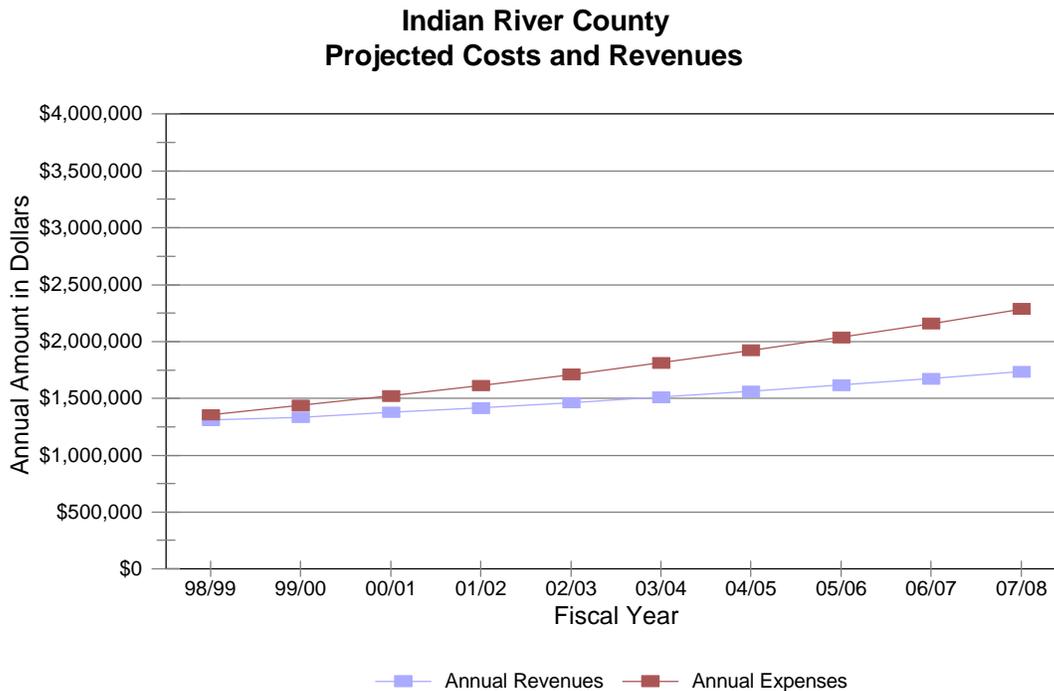


Table 7 - Indian River County Transit Financial Projections

Indian River County Coordinated Transportation Financial Analysis										
Indian River Historic Funding Trends	1	2	3	4	5	6	7	8	9	10
	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08
Local Non-Government	\$23,000	\$23,000	\$23,000	\$23,000	\$23,000	\$23,000	\$23,000	\$23,000	\$23,000	\$23,000
Farebox	\$23,000	\$23,000	\$23,000	\$23,000	\$23,000	\$23,000	\$23,000	\$23,000	\$23,000	\$23,000
Charter										
Advertising										
Donations/Contributions										
In-Kind Services										
United Way										
Other										
Commission for the Transportation Disadvantaged	\$185,400	\$190,962	\$196,691	\$202,592	\$208,669	\$214,929	\$221,377	\$228,019	\$234,859	\$241,905
Non-Sponsored Trip Program										
Department of Transportation	\$538,240	\$541,164	\$562,096	\$580,227	\$602,575	\$626,713	\$653,024	\$681,703	\$712,962	\$747,036
Section 5307	\$340,000	\$340,000	\$340,000	\$340,000	\$340,000	\$340,000	\$340,000	\$340,000	\$340,000	\$340,000
Section 18	\$41,834	\$41,834	\$41,834	\$41,834	\$41,834	\$41,834	\$41,834	\$41,834	\$41,834	\$41,834
Block Grant	\$156,406	\$159,330	\$180,262	\$198,393	\$220,741	\$244,879	\$271,190	\$299,869	\$331,128	\$365,202
Agency for Health Care Administration	\$244,692	\$252,033	\$259,594	\$267,382	\$275,403	\$283,665	\$292,175	\$300,940	\$309,968	\$319,267
Medicaid										
Department of Elder Affairs	\$32,970	\$32,970	\$32,970	\$32,970	\$32,970	\$32,970	\$32,970	\$32,970	\$32,970	\$32,970
Older Americans Act										
Community Care for the Elderly										
Local Government	\$286,298	\$294,437	\$302,820	\$311,455	\$320,348	\$329,509	\$338,944	\$348,662	\$358,672	\$368,982
County Cash	\$271,298	\$279,437	\$287,820	\$296,455	\$305,348	\$314,509	\$323,944	\$333,662	\$343,672	\$353,982
City Cash	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000
Indian River Council on Aging										
Other										
GRAND TOTAL OPERATING REVENUE	\$1,310,599	\$1,334,585	\$1,377,170	\$1,417,824	\$1,462,985	\$1,510,786	\$1,561,490	\$1,615,294	\$1,672,431	\$1,733,180
Trends in Vehicle Miles, Operating Unit Expenses, and Total Operating Expenses										
Projected Population (Univ. of Florida, BEBR 1994, mid-range projection)		112,300						124,000		
Annual Growth Rate, 1995 to 2010 is 2.03 percent										
Coordinator, n.i. school bus	505,847	517,481	529,383	541,559	554,015	566,757	579,793	593,128	606,770	620,726
Purchased Transportation Service, Not Including School Bus	274,793	281,113	287,579	294,193	300,960	307,882	314,963	322,207	329,618	337,199
School Bus Utilization Agreement										
Coordinator, n.i. school bus, Cost per Vehicle Mile	\$2.34	\$2.43	\$2.52	\$2.61	\$2.71	\$2.81	\$2.91	\$3.02	\$3.13	\$3.24
Purchased Transportation Service, Cost per Vehicle Mile	\$0.55	\$0.57	\$0.59	\$0.61	\$0.63	\$0.66	\$0.68	\$0.71	\$0.73	\$0.76
Operating, Maintenance, Admin. Cost for Coordinator	\$1,185,170	\$1,256,925	\$1,333,024	\$1,413,731	\$1,499,324	\$1,590,099	\$1,686,371	\$1,788,470	\$1,896,752	\$2,011,589
Operating, Maintenance, Admin. Cost for Purchased	\$150,985	\$160,127	\$169,821	\$180,103	\$191,007	\$202,572	\$214,836	\$227,843	\$241,638	\$256,267
School Bus Utilization Agreement	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000
GRAND TOTAL, OPERATING, MAINTENANCE, ADMINISTRATIVE COST	\$1,356,155	\$1,437,052	\$1,522,846	\$1,613,834	\$1,710,331	\$1,812,671	\$1,921,207	\$2,036,314	\$2,158,389	\$2,287,856
1996 Public Transit Block Grant Distribution through F-Y 2003	\$203,868	\$206,792	\$227,724	\$245,855	\$268,203	\$292,341	\$318,652	\$347,331	\$378,590	\$412,664
Capital Requirements										
Inflation factor (3.0 percent per year)	1.03	1.06	1.09	1.13	1.16	1.19	1.23	1.27	1.30	1.34
Total Buses	25	26	27	27	28	28	29	30	30	31
Replacement Buses	7	3	9	1	3	1	0	7	4	10
Expansion Buses	0	1	1	0	1	0	1	1	0	1
Cost of Replacement Buses	\$360,500	\$159,135	\$491,727	\$56,275	\$173,891	\$59,703	\$0	\$443,370	\$260,955	\$671,958
Cost of Expansion Buses	\$0	\$53,045	\$54,636	\$0	\$57,964	\$0	\$61,494	\$63,339	\$0	\$67,196
Total Capital	\$360,500	\$212,180	\$546,364	\$56,275	\$231,855	\$59,703	\$61,494	\$506,708	\$260,955	\$739,154
from Section 5307	\$189,850	\$189,850	\$189,850	\$189,850	\$189,850	\$189,850	\$189,850	\$189,850	\$189,850	\$189,850
20 percent match	\$47,463	\$47,463	\$47,463	\$47,463	\$47,463	\$47,463	\$47,463	\$47,463	\$47,463	\$47,463
Annual Capital Surplus (Deficit)	(\$123,188)	\$25,133	(\$309,051)	\$181,037	\$5,458	\$177,810	\$175,819	(\$268,396)	(\$23,642)	(\$501,842)
Cumulative Capital Surplus (Deficit)	(\$123,188)	(\$98,055)	(\$407,106)	(\$226,069)	(\$220,611)	(\$43,001)	\$132,817	(\$136,578)	(\$160,220)	(\$662,062)
Annual Operating Surplus (Deficit)	(\$45,556)	(\$102,487)	(\$145,676)	(\$196,210)	(\$247,367)	(\$301,886)	(\$359,717)	(\$421,020)	(\$485,958)	(\$554,696)
Cumulative Operating Surplus (Deficit)	(\$45,556)	(\$148,043)	(\$293,719)	(\$489,928)	(\$737,295)	(\$1,039,181)	(\$1,398,898)	(\$1,819,918)	(\$2,305,876)	(\$2,860,572)

Figure 44 - Indian River County Projected Expenses and Revenues



Martin County Council on Aging

The Martin County Transit Development Plan (BRW 1998, Tables 6-1 through 6-4) presents analyses of potential revenues available for public transportation in Martin County through Fiscal Year 2002/2003. The analyses show that most potential revenue could come from the federal government (Section 5307; formerly Section 9 funds) and state block grant funds but that the federal and state funding must be matched by funding from local sources. Section 5307 funds are required to be matched with local funds at the rate of 50 percent for operating and maintenance support and 20 percent for capital support. State block grant funds may be used as the required match for capital, but the state block grant funds must be matched dollar for dollar by local revenues. The TDP assumes political resistance to growth of local revenues and that such limitations will limit the potential state and federal funding that could flow into the region.

Local funding is that coming from local government, from local non-government (donations and fare revenue), and from the Department of Elder Affairs. The TDP assumes that the county and city will just maintain their support at levels of the recent past. It assumes that funding from the Department of Elder Affairs will continue to dwindle. The only significant growth in local revenue assumed in the TDP is fare revenue, which the TDP projects growing

by 295 percent (BRW 1998, Table 6-3). The TDP authors believe that the diversion of part of the system's resources into new fixed routes services within the most heavily populated part of the county will increase patronage to a maximum of 2.00 passengers per vehicle mile in fixed route service, compared to 0.25 passengers per vehicle mile currently experienced county-wide, thus increasing fare revenue.

The TDP reports that the Florida Department of Transportation programmed \$601,000 per year for Martin County of Section 5307 (formerly Section 9) through fiscal year 2002/03. Of this amount, FDOT allocates \$200,000 per year for operations and maintenance and \$401,000 per year for capital. The TDP also shows that FDOT programmed state block grant funds of \$746,000 for fiscal year 1997/98 and \$700,000 per year thereafter, but funding from local sources was only \$345,616 in fiscal year 1997/98, projected to rise to \$424,868 by fiscal year 2002/03. The requirement of a match of one dollar of local funding for every dollar of state funding limits block grant funds to the level of local support.

The TDP also projects operating, maintenance, administrative, and capital expenses for the recommended improvement alternative through the same period apparently using 1995 constant dollars. The TDP bases capital requirements on replacement of the existing fleet, apparently as each bus reaches its seventh birthday, and on buses purchased to expand service. It uses a figure of \$50,000 for each bus. The TDP estimates expansion buses based on the total vehicle miles projected in a given year, divided by the average number of miles operated by one bus. Operating, maintenance, and administrative costs appear to grow in proportion to increases in vehicle miles operated each year without taking inflation into account.

To estimate trends in operating and capital expenses in comparison to growth in funding sources, we generally follow the approach used in the TDP, but we do introduce some changes. We project most funding categories in accordance with past trends, as shown in Figure 45. We also estimate expenses and revenues for the existing bus system expanding with population, rather than a system that grows more and becomes more fixed-route in character, as that in the TDP. We also take inflation into account by inflating annual operating costs per vehicle mile based on trends over the past several years.

Our approach is first to estimate capital requirements based on replacing existing buses on their seventh birthday and purchasing additional (expansion) vehicles to operate additional miles of service as population grows. We use a cost of \$50,000 per bus, inflated at the rate of three percent per year from a base in fiscal year 1997/98. We assume that 80 percent of the cost of buses purchased in a given year will come from Section 5307 funds and the local match will come from state block grant funds. The total amount of state block grant funds available will be the same as the amount of local support, which we assume to remain constant over the period, except that we assume that fare revenue will increase modestly in proportion to increases in vehicle miles operated each year, which in turn are proportional to increases in forecasted county population.

We next estimate potential operating revenues, using 1996 Public Transit Block Grant distributions as well as the FY 1998 Florida Governor's Apportionment of Section 9 Funds. The block grant distribution indicates fewer block grant funds than indicated in the TDP. Our estimates also are based on the assumption of flat local support at the rate of somewhat over \$300,000 per year.

Finally, we estimate operating costs. We do this by growing the 1997/98 revenue miles each year in proportion to forecasted population growth of somewhat less than two percent per year, less than half the rate of growth experienced over the past 20 years. We then inflate the observed \$2.54 per vehicle mile operating, maintenance, and administrative cost for fiscal year

1997/98 at the annual rate of 3.67 percent, the rate of growth observed from fiscal years 1992/93 through 97/98.

The results, shown in Table 8 and Figure 46 indicate that existing funding sources are more than adequate to support the modest bus purchases estimated for Martin County, but that they are not sufficient to support the existing level of operations (expanded in proportion to population growth) indefinitely. New sources of revenue will need to be forthcoming, or the rate of unit cost growth rate (not excessive in our opinion) will need to be reduced, to maintain the existing system, let alone expand it into a larger, general purpose transit system.

Figure 45 - Martin County Transit Funding

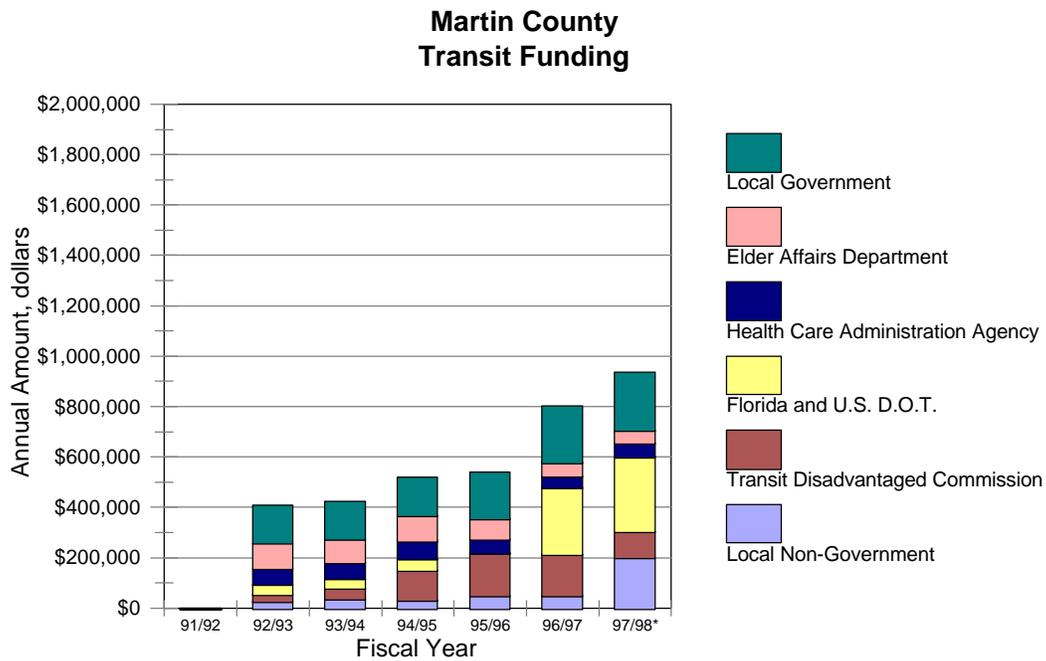
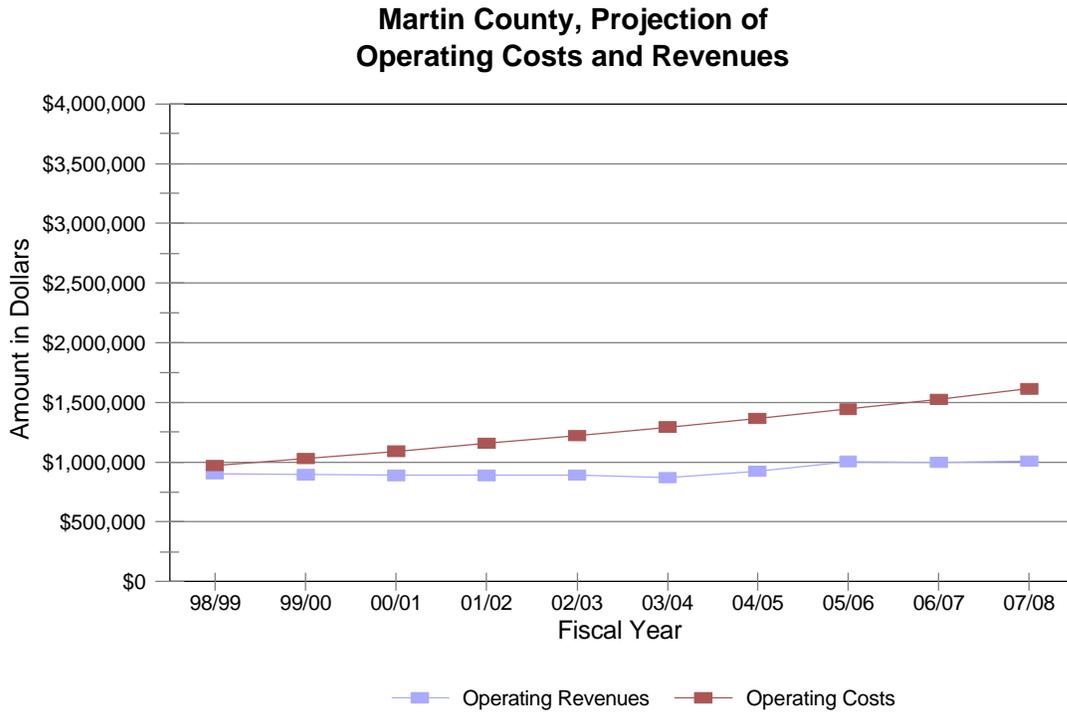


Table 8 - Martin County Transit Financial Projections

Martin County Projection of Funding and Costs Revenues for Operations, Maintenance, Administration	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08
Local Non-Government	\$50,000	\$50,980	\$51,979	\$52,998	\$54,037	\$55,096	\$56,176	\$57,277	\$58,399	\$59,544
Farebox	\$50,000	\$50,980	\$51,979	\$52,998	\$54,037	\$55,096	\$56,176	\$57,277	\$58,399	\$59,544
Charter										
Advertising										
Donations/Contributions	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
In-Kind Services										
United Way										
Other (Program Income and HCBS)										
Commission for the Transportation Disadvantaged	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
Non-Sponsored Trip Program										
Department of Transportation	\$362,772	\$354,685	\$346,275	\$346,065	\$347,794	\$326,037	\$377,240	\$457,397	\$451,589	\$459,424
Section 5307	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000
Section 18 (\$35,000 Inflated with Population Growth)	\$35,686	\$36,385	\$37,099	\$37,826	\$38,567	\$39,323	\$40,094	\$40,880	\$41,681	\$42,498
Block Grant	\$127,086	\$118,300	\$109,176	\$108,240	\$109,227	\$86,714	\$137,146	\$216,517	\$209,909	\$216,927
Agency for Health Care Administration	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000
Medicaid										
Department of Elder Affairs	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000
Older Americans Act										
Community Care for the Elderly										
Local Government	\$260,000	\$260,000	\$260,000	\$260,000	\$260,000	\$260,000	\$260,000	\$260,000	\$260,000	\$260,000
County Cash	\$230,000	\$230,000	\$230,000	\$230,000	\$230,000	\$230,000	\$230,000	\$230,000	\$230,000	\$230,000
City Cash	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000
Indian River Council on Aging										
Other										
GRAND TOTAL OPERATING REVENUE AVAILABLE	\$902,772	\$895,665	\$888,254	\$889,063	\$891,831	\$871,133	\$923,416	\$1,004,673	\$999,989	\$1,008,968
percent increase on year earlier	ERR	-0.79%	-0.83%	0.09%	0.31%	-2.32%	6.00%	8.80%	-0.47%	0.90%
Operating Cost Expansion										
Population (from TDP (Feb. 1998), p. 5-5)	122,500	125,200	128,000	130,900	133,466	136,082	138,749	141,468	144,241	147,068
Annual Vehicle Miles	367,500	375,600	384,000	392,700	400,397	408,245	416,246	424,405	432,723	441,204
Annual Vehicle Miles per Capita										
O and M Expense per Vehicle Mile (3.67% growth from 97/98)	\$2.64	\$2.74	\$2.84	\$2.95	\$3.05	\$3.17	\$3.28	\$3.40	\$3.53	\$3.66
GRAND TOTAL OPERATING COSTS	\$971,517	\$1,029,371	\$1,091,015	\$1,156,681	\$1,222,634	\$1,292,348	\$1,366,036	\$1,443,927	\$1,526,259	\$1,613,285
1996 Public Block Grant Distribution through FY 2003 and 9% thereafter	\$127,086	\$128,909	\$141,958	\$153,260	\$167,191	\$182,238	\$198,640	\$216,517	\$236,004	\$257,244
Capital Requirements										
Inflation factor	1.03	1.06	1.09	1.13	1.16	1.19	1.23	1.27	1.30	1.34
Total Buses in Fleet	24	24	25	25	26	26	27	27	28	28
Replacement Buses	0	1	2	4	4	8	4	0	1	3
Expansion Buses	0	0	1	0	1	0	1	0	1	0
Cost of Replacement Buses	\$0	\$53,045	\$109,273	\$225,102	\$231,855	\$477,621	\$245,975	\$0	\$65,239	\$201,587
Cost of Expansion Buses	\$0	\$0	\$54,636	\$0	\$57,964	\$0	\$61,494	\$0	\$65,239	\$0
Total Capital	\$0	\$53,045	\$163,909	\$225,102	\$289,819	\$477,621	\$307,468	\$0	\$130,477	\$201,587
Capital Funding from Section 5307	\$0	\$42,436	\$131,127	\$180,081	\$231,855	\$382,097	\$245,975	\$0	\$104,382	\$161,270
20 Percent Match from Block Grant	\$0	\$10,609	\$32,782	\$45,020	\$57,964	\$95,524	\$61,494	\$0	\$26,095	\$40,317

Figure 46 - Martin County Transit Projection of Operation Expenses and Revenues



St. Lucie County

The financial analyses contained in the St. Lucie Metropolitan Planning Organization Transit Development Plan (1996) forecast then-existing funding sources as well as estimated costs for a recommended improvement plan for five years into the future. The improvement plan calls for the phased implementation of a fixed route bus system in the eastern part of the county to complement the paratransit service. The analyses anticipate unfunded deficits. The Annual Update (1998) has only a cursory financial analysis based on assumptions that are unclear but that shows the existing system funded for five years into the future.

There seem to be several implicit assumptions in the funding growth forecasts. Although the magnitude of Section 5307 (Section 9) funds can vary widely from year to year, the TDP assumes that they are capped at \$672,119 per year, with only \$205,216 earmarked for operations and the rest for capital. The FY 1998 Florida Governor's Apportionment of Section 9 Funds indicates zero dollars of Section 5307 funds for operations in FY 1998 but \$1,030,660 apportioned to capital.

Section 5307 operation funds must be matched dollar for dollar with state and/or local funding. Section 5307 capital funds must be matched by state or local funds at the rate of one dollar of local funds for every four dollars of federal funds. There is no discussion of a cap for FDOT block grant funds, but the Annual Update shows them growing at about nine percent per year, reaching \$312,000 by FY 2003. The estimate is based on the 1996 Public Transit Block Grant Distribution.

To estimate trends in operating and capital expenses in comparison to growth in funding sources, we generally follow the approach used in the TDP, but we do introduce some changes primarily in estimating operating and capital expenses. We estimate that vehicles miles for the Community Transit, contract operators, and school contracts will expand from observed levels in FY 1998 in proportion to forecasted population growth (3.10% annually). We assume that unit costs will increase at three percent annually (used in the 1996 TDP) from \$2.67 in FY 1998 for Community Transit, \$1.65 for purchased transportation, and \$2.30 for school bus transportation. In the past three years Community Transit's costs actually escalated at an annual rate of over seven percent, but to the extent that the assumed three percent rate highlights a funding problem, a larger rate will only make matters worse. We assume that new buses will need to be purchased in proportion to vehicle mile growth, and we use vehicle retirement rates from the Community Transit vehicle roster current as of October 1998.

The Community Transit vehicle roster indicates the characteristics of each vehicle, and date purchased, the then-current mileage, and the anticipated date of replacement, among other information. The inventory shows 37 vans and buses in total (with three additional vehicles added in pencil), with capacities ranging from 5 to 25 seats, 12 being the average capacity. The oldest vehicles were purchased in 1992; seven were purchased in 1998, 0 in 1997, and nine in 1996. The 1995 and 1996 purchases included the only diesels in the system. These are seven Goshen buses seating 19 passengers and costing \$76,000 each. The vehicles bought in 1998 were 18 seat Ford gas/compressed natural gas vehicles costing \$59,000 each. Several vehicles are past retirement dates: six should have been retired in 1997, two in 1998, and four should be retired in 1999.

For purposes of the forecast used here, we assume that the 40-vehicle fleet will expand in proportion to population growth. We also assume that existing vehicles will be replaced in the appropriate retirement year indicated on the inventory, with all past-retirement buses replaced

in FY 1999. Finally, we assume a cost inflation rate of three percent from a base of \$60,000 for FY 1998. The 1996 TDP uses a three percent inflation rate.

In estimating revenues, whose historic growth is shown in Figure 47, we felt compelled to depart from the 1996 TDP. The TDP showed Section 5307 funds for operations capped at \$205,216 annually (p. 151), but Community Transit was not forced to operate within this constraint for the past three fiscal years. In FY 1997, for example, it used \$366,577 of Section 5307 funds for operations, while in FY 1998 it used \$447,760. At the same time, it did not retire and replace eight buses slated for replacement in those years. We thus earmarked \$448,000 of Section 5307 funds each year for operations; to earmark less would have been to seriously underfund the existing level of operations. We earmarked the balance of the \$672,119 in Section 5307 funds for capital. We used block grant forecasts from the 1998 Annual Update for the update five year period and then inflated the funds at an annual rate of nine percent thereafter. These were applied to the 20 percent match for 5307 funds applied to bus purchases, and the balance was applied to operations. We inflated other funds consistent with population growth of 3.01 percent and price growth of 3.0 percent. Local funds thus inflated were sufficiently large to provided the needed 50 percent match for the state block grant, and the state block grant with the local funds were sufficiently large to meet the 50 percent Section 5307 match requirement. These assumptions result in overall operating revenue growth of six to seven percent per year for most of the ten years..

The results, shown in Table 9 and Figure 48, indicate that existing funding sources are insufficient to meet both capital and operating needs of the existing system, expanded with population growth. The shortfall is shown to occur with optimistic assumptions about growth of operating revenues and assumptions that Community Transit operating costs will grow at a slower rate than in the recent past. Even with such optimistic assumptions, over the ten years of the forecast period, the cumulative operating deficit will exceed \$2,500,000 and the cumulative capital deficit will exceed \$600,000. New sources of revenue will need to be forthcoming, or the rate of unit cost growth rate (not excessive in our opinion) will need to be reduced, to maintain the existing system, let alone expand it into a larger, general purpose transit system.

Figure 47 - St. Lucie County Transit Funding

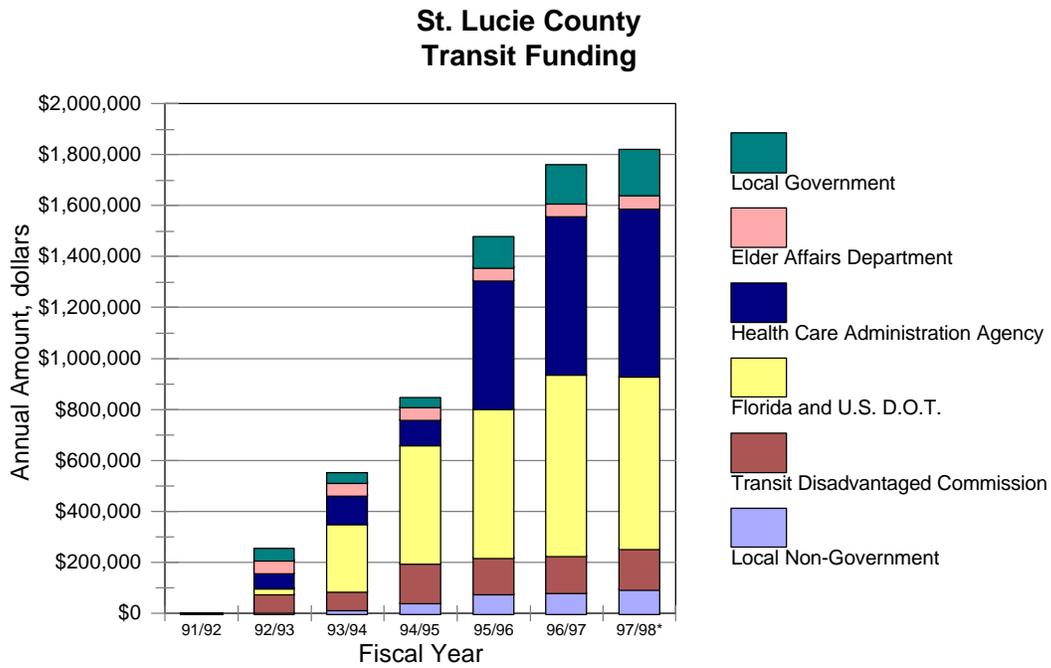
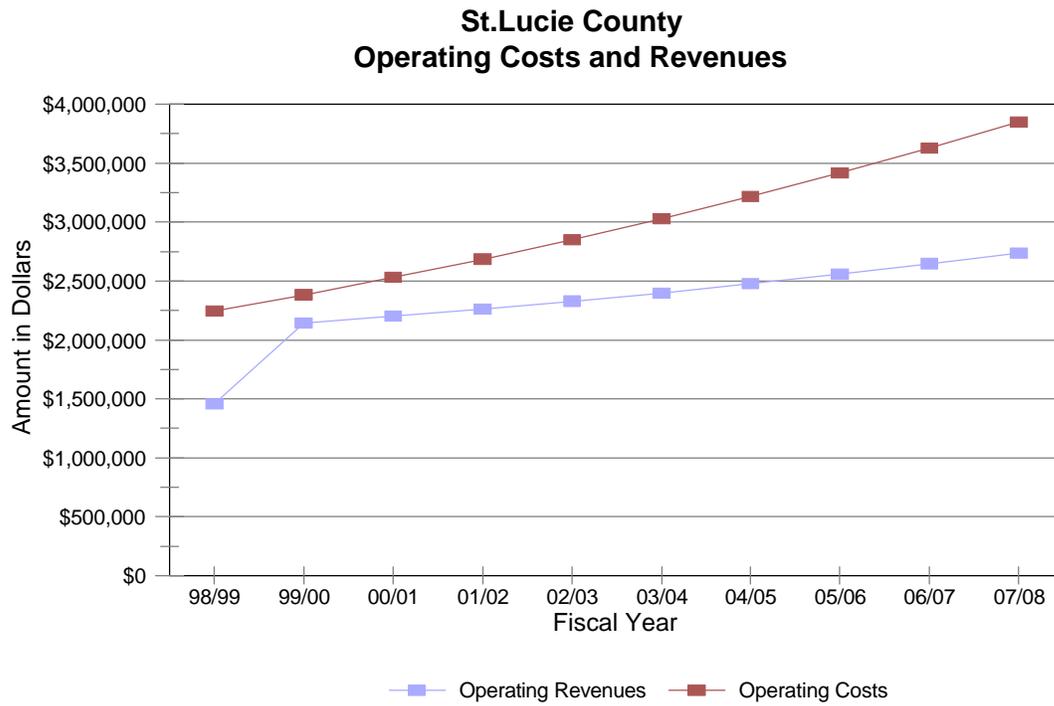


Table 9 - St. Lucie County Transit Financial Projections

St. Lucie County Financial Forecast										
Revenues for Operations, Maintenance, Administration										
	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08
	1	2	3	4	5	6	7	8	9	10
Local Non-Government	\$85,402	\$88,213	\$91,199	\$94,370	\$97,737	\$101,313	\$105,110	\$109,142	\$113,424	\$117,971
Farebox	\$45,402	\$48,213	\$51,199	\$54,370	\$57,737	\$61,313	\$65,110	\$69,142	\$73,424	\$77,971
Charter										
Advertising	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Donations/Contributions (contractors)	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000
In-Kind Services										
United Way (contractors)	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Other (service agreements)										
Commission for the Transportation Disadvantaged	\$159,032									
Non-Sponsored Trip Program										
Department of Transportation	\$1,372	\$654,437	\$678,775	\$699,855	\$725,839	\$753,905	\$784,496	\$817,841	\$854,186	\$893,803
Section 9	\$0	\$448,000	\$448,000	\$448,000	\$448,000	\$448,000	\$448,000	\$448,000	\$448,000	\$448,000
Section 18	\$22,000	\$22,000	\$22,000	\$22,000	\$22,000	\$22,000	\$22,000	\$22,000	\$22,000	\$22,000
Block Grant	(\$20,628)	\$184,437	\$208,775	\$229,855	\$255,839	\$283,905	\$314,496	\$347,841	\$384,186	\$423,803
Agency for Health Care Administration	\$660,374									
Medicaid										
Department of Elder Affairs	\$49,472									
Older Americans Act										
Community Care for the Elderly										
Local Government	\$190,222	\$202,003	\$214,513	\$227,798	\$241,905	\$256,886	\$272,795	\$289,690	\$307,630	\$326,682
County Cash/In-Kind										
City Cash										
Council on Aging										
Other										
Other (Dept. of Children and Families; Dept. of Labor; fed Health and Human Se	\$257,379	\$273,318	\$290,245	\$308,220	\$327,308	\$347,578	\$369,104	\$391,962	\$416,236	\$442,014
Other Fed. to Coordinator (also Dep. of Labor)	\$53,096	\$56,385	\$59,877	\$63,585	\$67,523	\$71,704	\$76,145	\$80,861	\$85,868	\$91,186
GRAND TOTAL OPERATING REVENUES	\$1,456,350	\$2,143,235	\$2,203,487	\$2,262,706	\$2,329,190	\$2,400,265	\$2,476,528	\$2,558,374	\$2,646,223	\$2,740,534
percent increase on year earlier		47.16%	2.81%	2.69%	2.94%	3.05%	3.18%	3.30%	3.43%	3.56%
Capital Financing (see capital requirements below)										
Section 5307	\$1,030,660	\$224,000	\$224,000	\$224,000	\$224,000	\$224,000	\$224,000	\$224,000	\$224,000	\$224,000
Block Grant (this appears to count as local match for Section 5307)	\$257,665	\$56,000	\$56,000	\$56,000	\$56,000	\$56,000	\$56,000	\$56,000	\$56,000	\$56,000
Total Capital	\$1,288,325	\$280,000	\$280,000	\$280,000	\$280,000	\$280,000	\$280,000	\$280,000	\$280,000	\$280,000
Capital Surplus (Deficit)	\$484,925	\$152,692	(\$47,818)	(\$57,653)	\$140,887	\$208,357	(\$457,924)	(\$176,037)	\$45,141	\$38,095
Cumulative Capital Surplus (Deficit)	\$484,925	\$637,617	\$589,799	\$532,146	\$673,033	\$881,390	\$423,466	\$247,429	\$292,570	\$330,665
Total Size of Block Grant, per Annual Update	\$237,037	\$240,437	\$264,775	\$285,855	\$311,839	\$339,905	\$370,496	\$403,841	\$440,186	\$479,803
annual growth rate (assumed after FY 03)		1.43%	10.12%	7.96%	9.09%	9.00%	9.00%	9.00%	9.00%	9.00%
Total Size of Block Grant, per 1996 TDP	\$190,000		\$222,000							
		2.11%	14.43%							
Operating Cost Expansion										
Population (from TDP (1996), p. 9) (1995 actual and 2000 projected)	193,391	199,407	205,589	218,510	225,284	232,267	239,468	246,891	254,545	262,436
O and M Expense per Vehicle Mile (3.00% growth from 97/98)	\$2.75	\$2.83	\$2.92	\$3.01	\$3.10	\$3.19	\$3.28	\$3.38	\$3.48	\$3.59
for Community Transit use \$2.67 inflated at 3.0%	\$1.70	\$1.75	\$1.80	\$1.86	\$1.91	\$1.97	\$2.03	\$2.09	\$2.15	\$2.22
for purchased use \$1.65 inflated at 3.0%	\$2.37	\$2.44	\$2.51	\$2.59	\$2.67	\$2.75	\$2.83	\$2.91	\$3.00	\$3.09
Vehicle Miles (note: based on above population for 1995 and 2000, annual growth rate is 3.1%)										
Vehicle Miles, Coordinator, n.i. school bus	506,489	522,190	538,378	555,068	572,275	590,015	608,306	627,163	646,605	666,650
Purchased Transportation Service, (Not Including School Bus	457,673	471,861	486,489	501,570	517,119	533,149	549,677	566,717	584,285	602,398
School Bus Utilization Agreement	30,684	31,635	32,615	33,627	34,669	35,744	36,852	37,994	39,172	40,386
O and M Expense, Coordinator	\$1,392,896	\$1,479,158	\$1,570,762	\$1,668,039	\$1,771,341	\$1,881,040	\$1,997,533	\$2,121,240	\$2,252,608	\$2,392,112
O and M Expense, Purchased	\$777,816	\$825,986	\$877,139	\$931,460	\$989,146	\$1,050,404	\$1,115,455	\$1,184,535	\$1,257,893	\$1,335,795
O and M Expense, School	\$72,689	\$77,191	\$81,972	\$87,048	\$92,439	\$98,164	\$104,243	\$110,699	\$117,554	\$124,834
TOTAL O and M Expense	\$2,243,401	\$2,382,335	\$2,529,873	\$2,686,548	\$2,852,925	\$3,029,607	\$3,217,231	\$3,416,474	\$3,628,056	\$3,852,741
Capital Requirements										
Inflation factor										
Total Buses	41	43	44	45	47	48	50	51	53	54
Replacement Buses	12	0	4	4	0	1	8	5	1	2
Expansion Buses	1	2	1	1	2	1	2	1	2	1
Cost of Replacement Buses	\$741,600	\$0	\$262,254	\$270,122	\$0	\$0	\$590,339	\$380,031	\$78,286	\$161,270
Cost of Expansion Buses	\$61,800	\$127,308	\$65,564	\$67,531	\$139,113	\$71,643	\$147,585	\$76,006	\$156,573	\$80,635
Total Capital	\$803,400	\$127,308	\$327,818	\$337,653	\$139,113	\$71,643	\$737,924	\$456,037	\$234,859	\$241,905
Annual Operations Surplus (Deficit)	(\$787,051)	(\$239,100)	(\$326,386)	(\$423,842)	(\$523,735)	(\$629,342)	(\$740,703)	(\$858,100)	(\$981,833)	(\$1,112,207)
Cumulative Operations Surplus (Deficit)	(\$787,051)	(\$1,026,151)	(\$1,352,537)	(\$1,776,378)	(\$2,300,114)	(\$2,929,456)	(\$3,670,158)	(\$4,528,258)	(\$5,510,091)	(\$6,622,298)

Figure 48 - Projection of Operating Expenses and Revenues



Bay County Coordinated System and Bay Town Trolley

Figure 49 shows the recent history of funding for operations of the Bay County Coordinated System and the Bay Town Trolley. Most Section 5307 and state block grant funds were used for the Bay Town Trolley (and capital purchases).

Table 10 shows financial forecasts for the coordinated system and the Bay Town Trolley taken together. It is assumed that the Bay Town Trolley will double its vehicle miles to provide hourly headways with timed connections, as discussed in the previous chapter. The Bay Town Trolley expansion will require the purchase of new buses, as well. The coordinated system will continue to expand in proportion to population growth. The expansion will require modest bus purchases, and existing buses will have to be replaced. Estimates of the vehicle purchases are shown in Table 10. The unit costs for both Bay Town Trolley and the coordinated system are inflated at 3.7 percent per year, the observed rate over the past decade.

There are several funding sources. Fare revenues are estimated from Bay Town Trolley. It is assumed that in FY 1999 the trolley will double in size and will carry .5 passengers per vehicle mile. In addition, the fare will double from its existing level of \$0.50. That is, each passenger will pay a \$1.00 fare in FY 1998 dollars, that will be inflated at three percent per year. After FY 1999 the Bay Town Trolley's vehicle miles will remain stable, while Bay Town Trolley passengers per vehicle mile will increase over a three-year period, reaching a stable level of 1.1 passengers per vehicle mile that will prevail for the rest of the period. Paratransit vehicle miles will expand proportionally to population growth throughout the period.

Section 5307 forecasts are based on the governor's apportionment to Bay County for FY 1998. The apportionment includes \$140,000 for operations and \$726,456 for capital. We extend the \$140,000 each year through the period and use up to the apportioned capital amount as needed. We use FDOT forecasts for state block grant funds, and make the first allocation of them to finance ten percent of the capital program each year. The remainder goes to operations. Local funding is set to equal the state block grant that is left over from capital purchases. Additional local funds finance ten percent of the capital purchases. We inflate other funding sources with population growth of 1.64 percent per year and price inflation of three percent per year.

The assumptions of trajectories for costs and revenues shows that they will roughly match over the coming decade, even for an expanded Bay Town Trolley. The difference between these forecasts and those for the three southeast counties apparently derives from the lower operation costs in the north, although we have not researched this question yet.

Figure 49 - Bay County Transit Operating Revenues, Including Bay Town Trolley

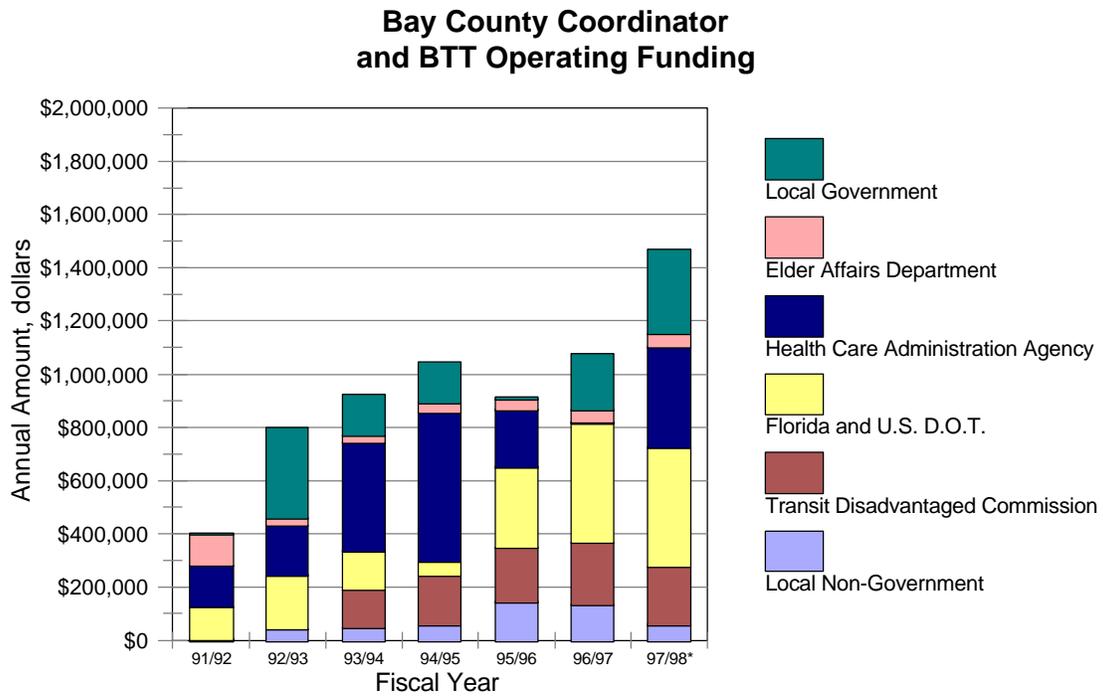
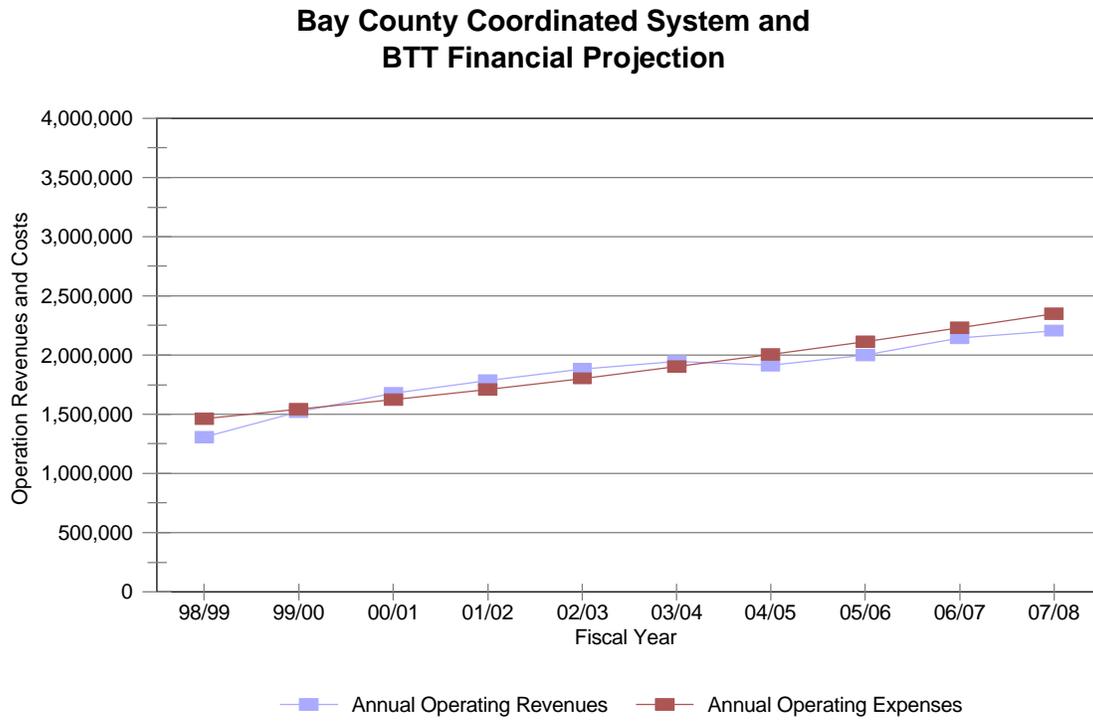


Table 10 - Bay County Transit Financial Projections, Including Improved Bay Town Trolley

Bay County Financial Projection (including expanded service for Bay Town Trolley)										
	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08
	1	2	3	4	5	6	7	8	9	10
Local Non-Government	\$161,471	\$236,659	\$353,936	\$407,588	\$426,701	\$446,710	\$467,657	\$489,586	\$512,544	\$536,578
Farebox	\$161,471	\$236,659	\$353,938	\$407,588	\$426,701	\$446,710	\$467,657	\$489,586	\$512,544	\$536,578
Charter										
Advertising										
Donations/Contributions (contractors)										
In-Kind Services										
Private Pay - Convalescent Homes										
Other										
Commission for the Transportation Disadvantaged	\$214,670									
Non-Sponsored Trip Program										
Department of Transportation	\$188,612	\$311,653	\$337,167	\$369,642	\$430,879	\$452,081	\$378,766	\$419,040	\$513,013	\$528,803
Section 5307	\$140,000	\$140,000	\$140,000	\$140,000	\$140,000	\$140,000	\$140,000	\$140,000	\$140,000	\$140,000
Section 18										
Block Grant	\$48,612	\$171,653	\$197,167	\$229,642	\$290,879	\$312,081	\$238,766	\$279,040	\$373,013	\$388,803
Agency for Health Care Administration	\$314,068	\$328,795	\$344,213	\$360,354	\$377,251	\$394,941	\$413,461	\$432,849	\$453,146	\$474,395
Medicaid										
Department of Elder Affairs	\$50,175	\$52,528	\$54,991	\$57,570	\$60,270	\$63,096	\$66,055	\$69,152	\$72,395	\$75,789
Older Americans Act										
Community Care for the Elderly										
Local Government	\$315,000									
County Cash/In-Kind										
City Cash										
Council on Aging										
Other (contributed services)										
Other (Dept. of Children and Families; Dept. of Labor, Fed Health and Human Ser. - to con.)	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000
Other Fed. to Coordinator (also Dep. of Labor)										
GRAND TOTAL OPERATING REVENUES	\$1,303,996	\$1,519,305	\$1,679,979	\$1,784,824	\$1,864,771	\$1,946,497	\$1,915,608	\$2,000,297	\$2,140,767	\$2,205,236
Operating Cost Requirement (from below)	\$1,462,237	\$1,541,207	\$1,624,443	\$1,712,174	\$1,804,643	\$1,902,106	\$2,004,833	\$2,113,107	\$2,227,230	\$2,347,515
Operating Surplus (Deficit)	(\$158,241)	(\$21,902)	\$55,536	\$72,650	\$80,128	\$44,391	(\$89,225)	(\$112,811)	(\$86,463)	(\$142,279)
Cumulative Operating Surplus (Deficit)	(\$158,241)	(\$180,143)	(\$124,608)	(\$51,958)	\$28,170	\$72,561	(\$16,664)	(\$129,475)	(\$215,937)	(\$358,217)
Capital Funding										
Section 5307	\$726,456	\$247,500	\$240,000	\$192,000	\$48,000	\$48,000	\$432,000	\$368,000	\$96,000	\$144,000
Block Grant (this appears to count as local match for Section 5307)	\$181,614	\$61,875	\$60,000	\$48,000	\$12,000	\$12,000	\$108,000	\$92,000	\$24,000	\$36,000
Local Government	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Capital Revenue	\$908,070	\$309,375	\$300,000	\$240,000	\$60,000	\$60,000	\$540,000	\$460,000	\$120,000	\$180,000
Capital Requirements	\$1,120,000	\$60,000	\$300,000	\$240,000	\$60,000	\$60,000	\$540,000	\$460,000	\$120,000	\$180,000
Capital Surplus (Deficit)	(\$211,930)	\$249,375	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Cumulative Capital Surplus (Deficit)	(\$211,930)	\$37,445	\$37,445	\$37,445	\$37,445	\$37,445	\$37,445	\$37,445	\$37,445	\$37,445
Total Size of Block Grant, per FDOT Block Grant Distribution based on 1996 stats	\$230,226	\$233,528	\$257,167	\$277,642	\$302,879	\$324,081	\$346,766	\$371,040	\$397,013	\$424,803
annual growth rate (assumed after FY 03)	7 percent									
Total Size of Block Grant, per 1996 TDP										
Operating Cost Requirement										
Population: growth rate of 1.64 percent from 1DP 1997, p. 2		150,605	0	0	0	0	0	0	0	0
Annual Vehicle Miles										
Annual Vehicle Miles per Capita										
O and M Expense per Vehicle Mile (3.67% growth from 97/98)	\$1.44	\$1.49	\$1.55	\$1.61	\$1.67	\$1.73	\$1.79	\$1.86	\$1.93	\$2.00
for Coordinator use \$1.39 inflated at 3.7%	\$1.50	\$1.56	\$1.62	\$1.68	\$1.74	\$1.80	\$1.87	\$1.94	\$2.01	\$2.09
for Bay Town Trolley use \$1.45 inflated at 3.7%										
Vehicle Miles, Coordinator, n.l. school bus	687,366	698,639	710,096	721,742	733,579	745,609	757,837	770,266	782,898	795,738
Bay Town Trolley (includes free Tuesdays)	313,535	318,677	323,903	329,215	334,614	340,102	345,680	351,349	357,111	362,968
Bay Town Trolley passengers	156,768	223,074	323,903	362,137	368,076	374,112	380,248	386,484	392,822	399,264
O and M Expense, Coordinator	\$990,790	\$1,044,299	\$1,100,698	\$1,160,144	\$1,222,799	\$1,288,839	\$1,358,445	\$1,431,810	\$1,509,138	\$1,590,641
O and M Expense, Purchased	\$471,447	\$496,908	\$523,745	\$552,030	\$581,844	\$613,267	\$646,388	\$681,297	\$718,092	\$756,874
TOTAL OPERATING REQUIREMENTS	\$1,462,237	\$1,541,207	\$1,624,443	\$1,712,174	\$1,804,643	\$1,902,106	\$2,004,833	\$2,113,107	\$2,227,230	\$2,347,515
Capital Requirements										
Inflation factor										
Total Buses	51	52	53	53	54	55	56	57	58	59
Replacement Buses (estimates until I find my inventory)	12	0	4	4	0	0	8	4	1	2
Expansion Buses	4	1	1	0	1	1	1	1	1	1
Cost of Replacement Buses	\$720,000	\$0	\$240,000	\$240,000	\$0	\$0	\$480,000	\$400,000	\$60,000	\$120,000
Cost of Expansion Buses	\$400,000	\$60,000	\$60,000	\$0	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000
Total Capital Requirement	\$1,120,000	\$60,000	\$300,000	\$240,000	\$60,000	\$60,000	\$540,000	\$460,000	\$120,000	\$180,000

Figure 50 - Bay County Transit Financial Projections



Okaloosa County

Figure 51 shows the trend in operating cost funding by source. The major drop in funding in FY 1998 is more apparent than real. The loss of FDOT funding that year, and the large amount of it in the prior year, merely reflects delays in getting grants approved in combination with the federal government's October through September fiscal year. There were real cutbacks in some agency funding, however, resulting in loss of some agency client riding, as discussed in the preceding chapter. Okaloosa County has had almost no local funding, unlike the other systems, and has used toll credits as matches for state block grant and federal funds. While the toll credits bring in the federal funds, they provide no cash to add to the capital pot.

The funding projection is based on growing the existing system with population growth of 2.7 percent per year, growing operating costs with their historic inflation rate of just under three percent per year, of buying buses to expand the fleet commensurate with operating mileage growth, and buying replacement buses per the TDSP (1997) schedule. We also program a new garage with 3-bays and costing \$1.5 million in FY 1999.

We use the FY 1998 governor's allocation of Section 5307 funding for Okaloosa County, which earmarks \$100,000 for operations and the balance for capital. We use all of the capital each year as necessary, but in later years it is not necessary to do so. We match whatever 5307 funds that are used for capital with equal amounts of state block grant funding, although Okaloosa County currently uses toll credits for matching Section 5307 capital funds.

For state block grant funding we use allocations that were made available to us for five years into the future, and then inflated future years at slightly more than five percent (the earlier observed inflation rate). We used whatever was necessary for capital and the remainder for operations. We matched state block grant funds used for operations with toll credits dollar for dollar. We kept Section 5307 funds constant at \$100,000 each year. We kept agency funding sources constant.

These assumptions reveal that despite the low operating costs of the system, there will be insufficient operating and capital funding over the next decade to maintain a service similar to that of today.

Figure 51 - Okaloosa County Transit Operating Expense Funding

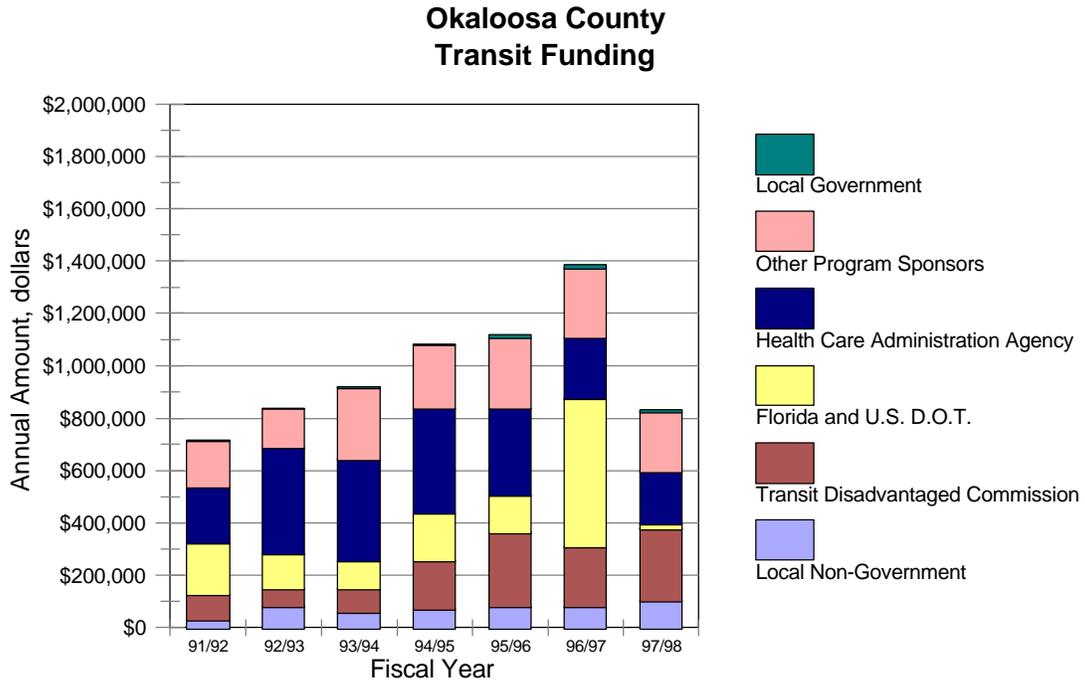
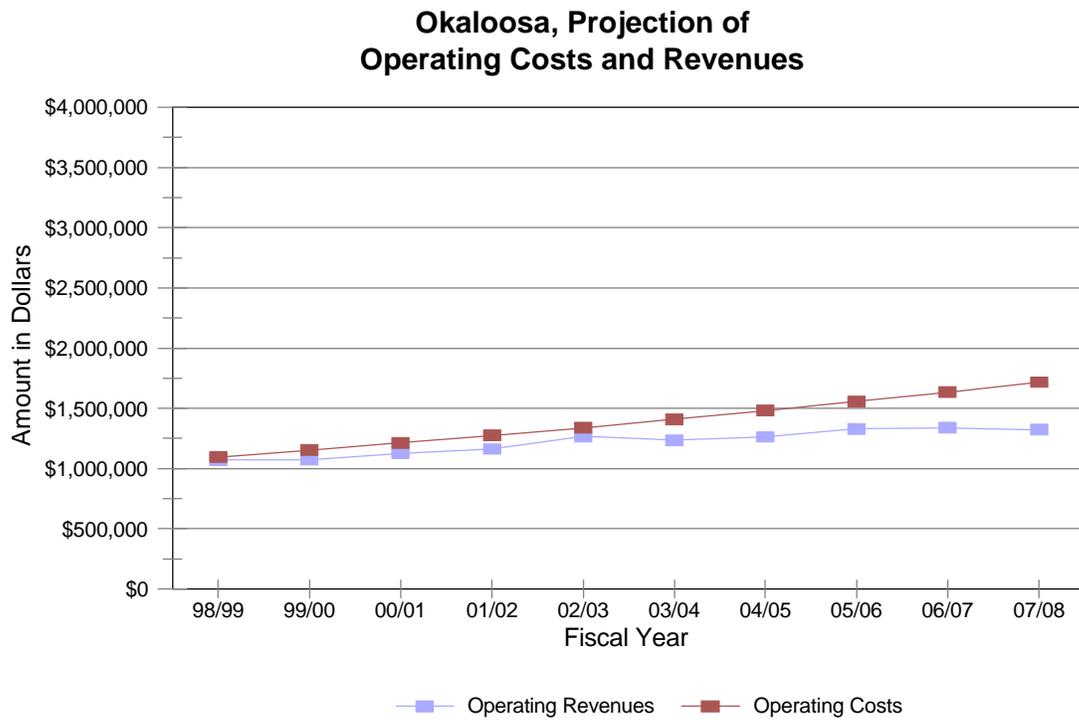


Table 11 - Okaloosa County Transit Financial Projections

Okaloosa County Projection of Funding and Costs Revenues for Operations, Maintenance, Administration	98/99 1	99/00 2	00/01 3	01/02 4	02/03 5	03/04 6	04/05 7	05/06 8	06/07 9	07/08 10
Local Non-Government	\$103,00	\$103,00								
Farebox										
Charter										
Advertising										
Donations/Contributions										
In-Kind Services										
United Way										
Other (PSA's, Interest income, Sale of asset)										
Commission for the Transportation Disadvantaged Non-Sponsored Trip Program	\$276,00	\$276,00								
Department of Transportation	\$266,77	\$270,78	\$324,29	\$357,87	\$461,46	\$431,44	\$458,11	\$523,78	\$534,63	\$519,17
Section 9	\$100,00	\$100,00	\$100,00	\$100,00	\$100,00	\$100,00	\$100,00	\$100,00	\$100,00	\$100,00
Section 18										
Block Grant	\$166,77	\$170,78	\$224,29	\$257,87	\$361,46	\$331,44	\$358,11	\$423,78	\$434,63	\$419,17
Agency for Health Care Administration	\$199,56	\$199,56								
Medicaid										
Local Government	\$0	\$0								
County Cash										
City Cash										
Other										
Sponsored Funding	\$227,00	\$227,00								
Department of Elder Affairs										
Older Americans Act										
Community Care for the Elderly										
HRS										
DOE										
DOL										
Other Fed (mostly headstart, and mostly to contract)										
GRAND TOTAL OPERATING REVENUE	\$1,072,33	\$1,076,33	\$1,129,81	\$1,163,41	\$1,267,01	\$1,237,01	\$1,263,61	\$1,329,33	\$1,340,11	\$1,324,71
Operating Requirement (from below)	\$1,098,41	\$1,154,41	\$1,213,31	\$1,275,21	\$1,340,31	\$1,408,71	\$1,480,61	\$1,556,21	\$1,635,61	\$1,719,11
Operating Surplus (Deficit)	(\$26,06)	(\$78,11)	(\$83,51)	(\$111,81)	(\$73,31)	(\$171,71)	(\$216,91)	(\$226,81)	(\$295,41)	(\$394,31)
Cumulative Surplus (Deficit)	(\$26,06)	(\$104,11)	(\$187,61)	(\$299,51)	(\$372,81)	(\$544,61)	(\$761,61)	(\$988,51)	(\$1,283,91)	(\$1,678,31)
Capital Funding										
Section 5307	\$899,09	\$899,09	\$700,26	\$630,28	\$46,37	\$429,85	\$393,56	\$50,67	\$156,57	\$483,81
Block Grant (this appears to count as local match for)	\$112,38	\$112,38	\$87,53	\$78,78	\$5,79	\$53,73	\$49,19	\$6,33	\$19,57	\$60,47
Assumed local match for state block grant	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Capital Revenue	\$1,011,47	\$1,011,47	\$787,79	\$709,07	\$52,16	\$483,59	\$442,75	\$57,00	\$176,14	\$544,28
Capital Requirements (from below)	\$2,530,00	\$265,22	\$327,81	\$787,85	\$57,96	\$537,32	\$491,95	\$63,33	\$195,71	\$604,76
Capital Surplus (Deficit)	(\$1,518,53)	\$746,25	\$459,97	(\$78,78)	(\$5,79)	(\$53,73)	(\$49,19)	(\$6,33)	(\$19,57)	(\$60,47)
Cumulative Surplus (Deficit)	(\$1,518,53)	(\$772,27)	(\$312,29)	(\$391,08)	(\$396,87)	(\$450,61)	(\$499,80)	(\$506,13)	(\$525,71)	(\$586,18)
State block grant apportionment based on 1996 population 5.6% growth	\$279,16	\$283,16	\$311,83	\$336,65	\$367,25	\$385,17	\$407,31	\$430,12	\$454,21	\$479,64
Operating Cost Requirements										
Population growth based on 2.7 percent per year	122,50	125,20	128,00	130,90	133,46	136,08	138,74	141,46	144,24	147,06
Annual Vehicle Miles, expanded with population	769,44	787,44	805,87	824,73	844,03	863,78	883,99	904,67	925,84	947,51
O and M Expense per Vehicle Mile (2.70% growth factor)	\$1.43	\$1.47	\$1.51	\$1.55	\$1.59	\$1.63	\$1.67	\$1.72	\$1.77	\$1.81
	\$1,098,40	\$1,154,40	\$1,213,30	\$1,275,20	\$1,340,30	\$1,408,70	\$1,480,60	\$1,556,20	\$1,635,60	\$1,719,10
Capital Requirements										
Inflation factor	1.00	1.00	1.00	1.10	1.10	1.10	1.20	1.20	1.30	1.34
Total Buses (inflated with vehicle miles)	53	55	56	58	59	61	63	64	66	68
Replacement Buses	19	3	5	12	0	7	4	0	1	7
Expansion Buses	1	2	1	2	1	2	2	1	2	2
Cost of Replacement Buses	\$978,50	\$159,13	\$273,18	\$675,30	\$0	\$417,91	\$245,97	\$0	\$65,23	\$470,37
Cost of Expansion Buses	\$51,50	\$106,09	\$54,63	\$112,55	\$57,96	\$119,40	\$245,97	\$63,33	\$130,47	\$134,39
Garage (3-bay)	\$1,500,00									
Total Capital	\$2,530,00	\$265,22	\$327,81	\$787,85	\$57,96	\$537,32	\$491,95	\$63,33	\$195,71	\$604,76

Figure 52 - Okaloosa County Transit Operating Expense and Revenue Projections



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